STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 1, 2006

Commander, Fifth Coast Guard District (obr)
LANTAREA
Bridge Administration
Federal Building
431 Crawford Street
Portsmouth, VA 23704-5004

Attn: Mr. Waverly Gregory
Chief, Bridge Administration

SUBJECT: Brunswick County, Construction of Bridge No. 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach. WBS Number 32575.1.2, Federal Aid Project No. BRS-1813 (1), State Project No. 8.2230101, TIP No. B-0682, Division 3.

Dear Mr. Gregory:

Application is hereby made by the North Carolina Department of Transportation (NCDOT) for approval by the Commandant, U.S. Coast Guard, of the location and plans to construct a new bridge on new location in Brunswick County, known as the Sunset Beach Bridge. Bridge No. 198 spans the Atlantic Intracoastal Waterway (AIWW) and connects the island and mainland portions of the town of Sunset Beach. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 198 over the Intracoastal Waterway at Sunset Beach and relocate a section of East Shoreline Drive to provide better alignment with the new bridge approach. The proposed structure is a high-level fixed span bridge that will be 2,563 feet in length. The project length is approximately 1.1 miles.

Pursuant to the project commitment included in the Final Environmental Impact Statement (FEIS), the vertical clearance of the new bridge over the Atlantic Intracoastal Waterway at mean high water level will be a minimum of 65 feet and the horizontal clearance will be a minimum of 90 feet. A minimum 180 feet navigation opening will be provided 90 feet from the channel centerline on each side. The proposed bridge will be designed and constructed so as to not

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
PARKER LINCOLN BUILDING
2728 CAPITAL BLVD. SUITE 240
RALEIGH NC 27604

interfere with the operation and maintenance of the navigation channel in the Atlantic Intracoastal Waterway. A fender system beneath the bridge will not be required. Channel centerline coordinates have been obtained from the USACE. The proposed bridge will be designed for vessel impact. Navigational lighting will be provided.

Legal authority for the bridges is found in the General Bridge Act of 1946. Federal funds will be utilized for this project. However, the U.S. Army Corps of Engineers must approve this project under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The N.C. Division of Water Quality must approve this project under Section 401 of the Clean Water Act. The NCDOT is preparing and will submit a Joint Permit Application for both State and Federal Permits.

The NCDOT is also required to obtain a permit from the N.C. Division of Coastal Management (NCDCM) for major development in areas of environmental concern (AECs). A formal Coastal Zone Management consistency statement is not required nor anticipated from the NCDCM since their position on consistency will be part of the NCDCM's Coastal Area Management Act (CAMA) Major Development Permit. Copies of all appropriate federal and state permits will be forwarded to your office once they are obtained.

The NCDOT analyzed the potential environmental impacts of the project in a FEIS that was signed by the Federal Highway Administration (FHWA) on October 24, 1997 and in the Record of Decision that was signed on August 27, 1999. The FHWA has determined that this project will not have a significant effect on the human environment. The environmental impacts of the project are listed on pages 4-35 through 4-85 of the FEIS. The names and addresses of the adjacent property owners are included with this application. Also, please find enclosed four originals of the U.S. Coast Guard drawings for the project.

Please initiate review of the proposed project for authorization under an U.S. Coast Guard Permit. It is requested that any correspondence from your office regarding this project include the NCDOT TIP Number (B-0682). Should you have any questions regarding this information, please contact Ms. Deanna Riffey at 919-715-1409.

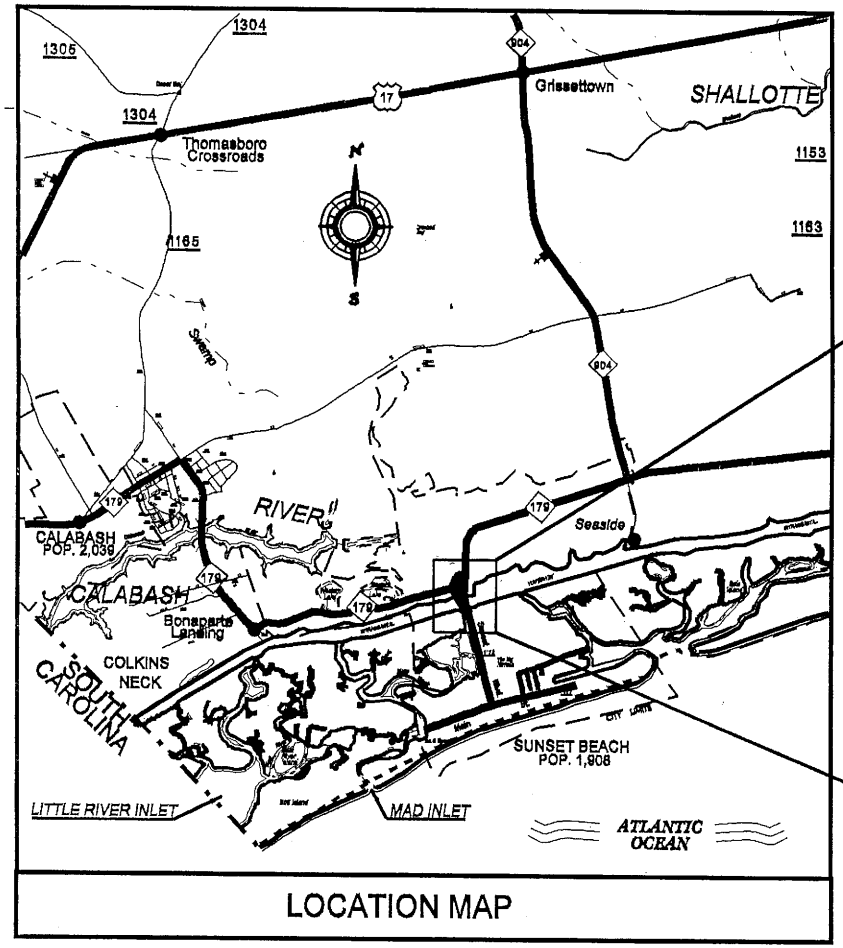
Sincerely,

Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch

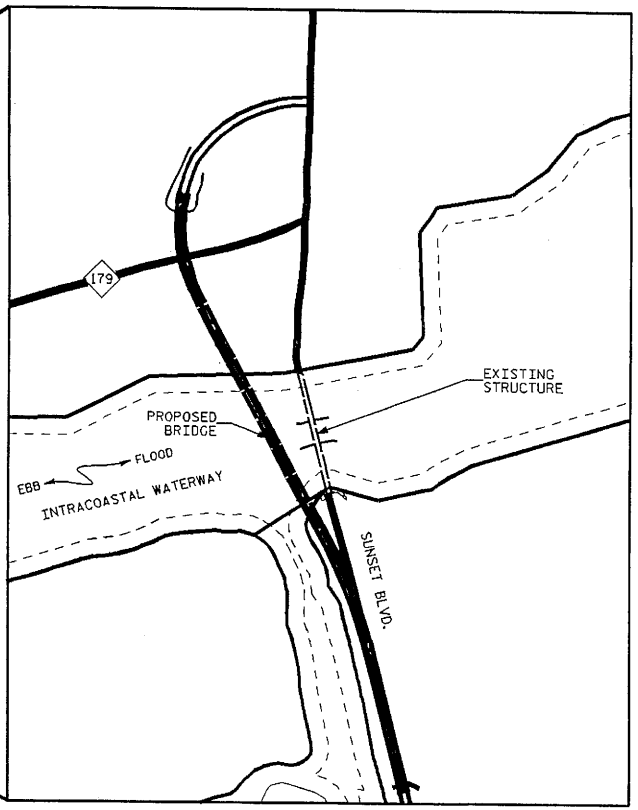
Encl.: (1) Four copies of a vicinity map and drawings of the bridge.
(2) One copy of the Final Environmental Impact Statement and Record of Decision.
(3) Addresses of the adjacent property owners.

cc list:
W/o attachment
Mr. John Hennessy, NCDWQ

Mr. Travis Wilson, NCWRC
Ms. Becky Fox, USEPA – Whittier, NC
Mr. Ronald Mikulak, USEPA – Atlanta, GA
Mr. Clarence W. Coleman, P.E., FHWA
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF
Mr. Steve Sollod, NCDCM
Mr. Bill Arrington, NCDCM
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. H. Allen Pope, P.E., Division 3 Engineer
Mr. Mason Herndon, Division 3 Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Brian Yamamoto, P.E., PDEA
Mr. Carl Goode, PE, Human Environment Unit Head



LOCATION MAP



VICINITY MAP

SHEET 1 OF 2 AIWW MILE MARKER 337.9

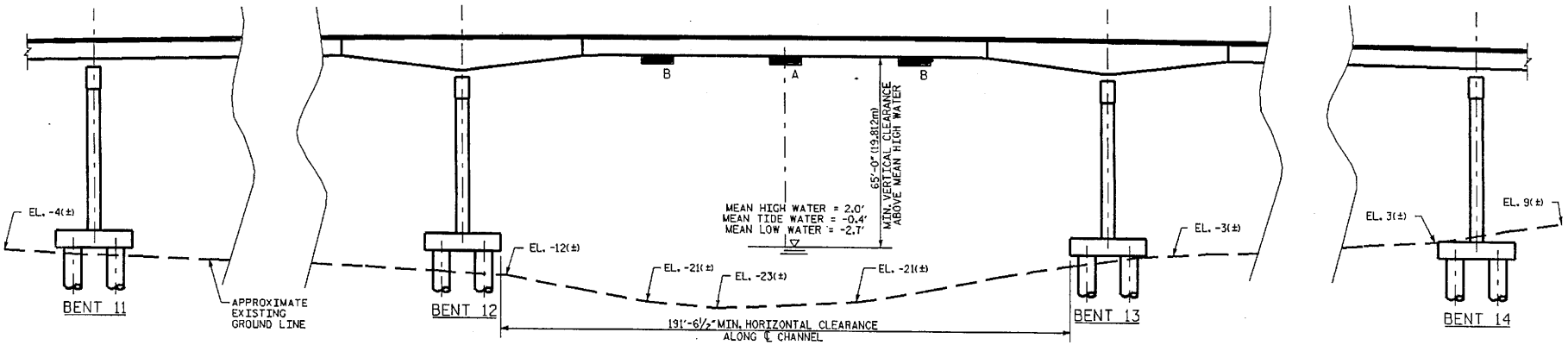
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE REPLACEMENT ON SR 1172
OVER INTRACOASTAL WATERWAY
AT SUNSET BEACH BETWEEN
SUNSET BEACH AND SHALLOTTE

BRUNSWICK COUNTY

DRAWN BY : R.D. MARTIN
CHECKED BY : P.S. ERVIN
DATE : 3-8-06

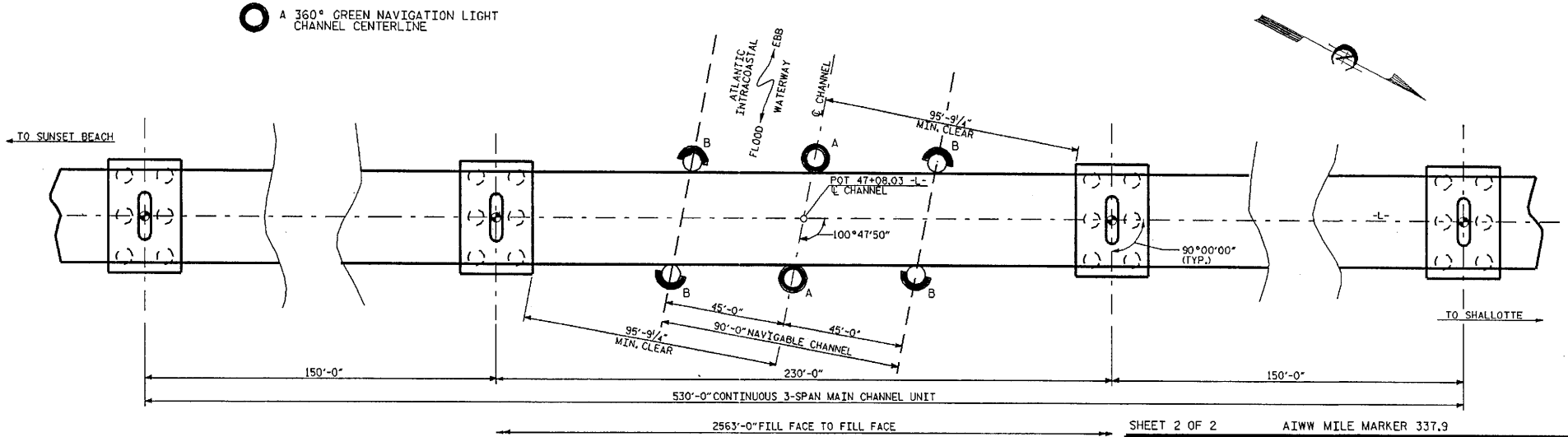
F.A. PROJECT NO.: BRS-1813(1)
STATE PROJECT NO.: B-0682 COUNTY: BRUNSWICK



SECTION ALONG ℄ SURVEY -L-

B 180° RED NAVIGATION LIGHT CHANNEL MARGIN

A 360° GREEN NAVIGATION LIGHT CHANNEL CENTERLINE



PLAN

SHEET 2 OF 2 AIWW MILE MARKER 337.9

NOTE: THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH AASHTO'S "GUIDE SPECIFICATION AND COMMENTARY FOR VESSEL COLLISION DESIGN OF HIGHWAY BRIDGES", USING CRITICAL IMPORTANCE CLASSIFICATION, METHOD II CRITERIA. BENTS 1 THROUGH 14 ARE INCLUDED FOR VESSEL IMPACT CONSIDERATION.

0' 25' 50' 100'

FEET

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STATE PROJECT NO.: B-0682 COUNTY: BRUNSWICK

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DEPARTMENT OF TRANSPORTATION
RALEIGH

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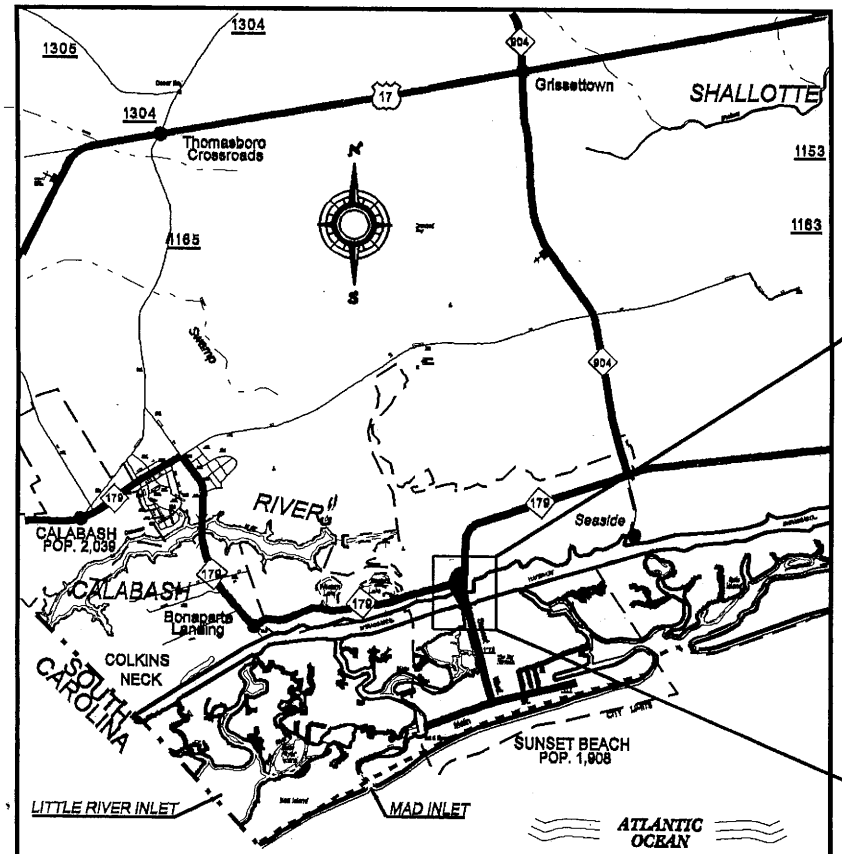
BRUNSWICK COUNTY

DRAWN BY : R.D. MARTIN

CHECKED BY : PSERWIN

DATE : 3-84



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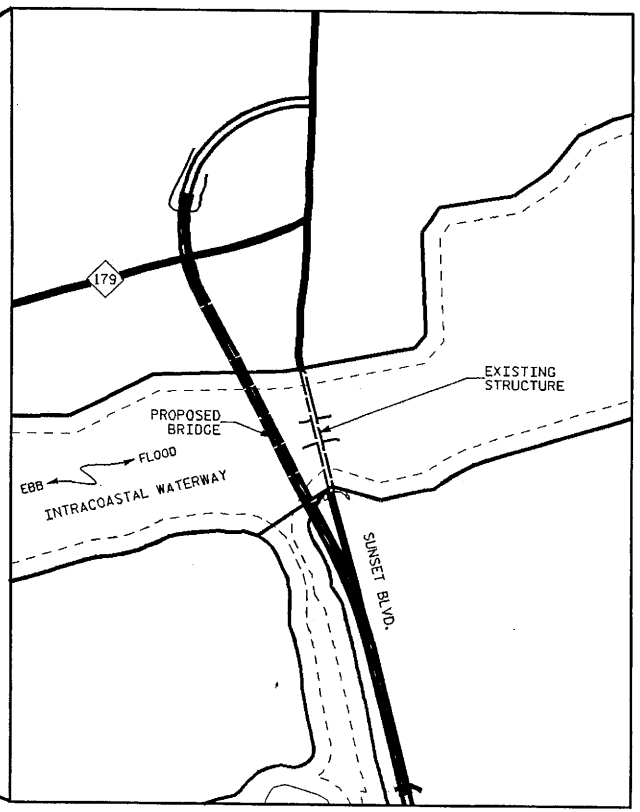

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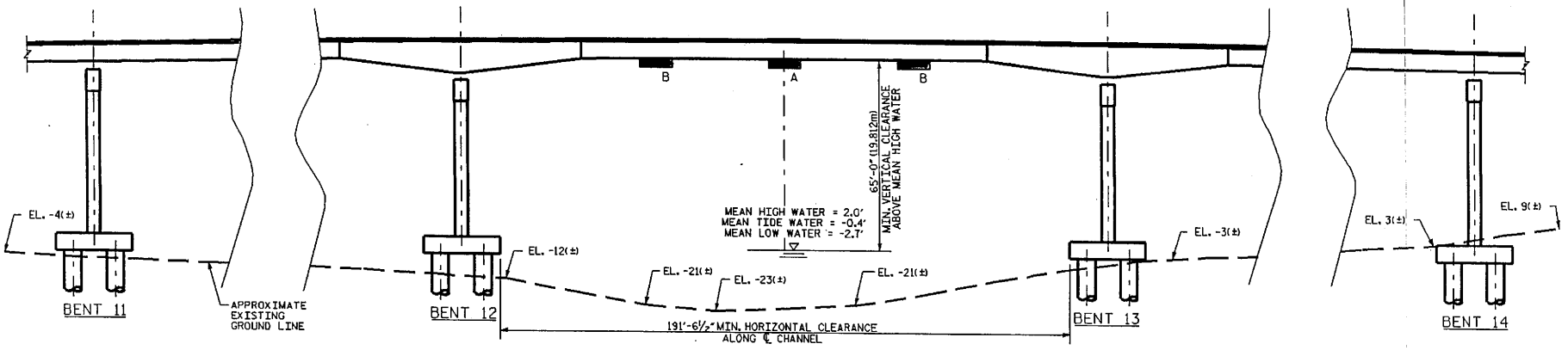

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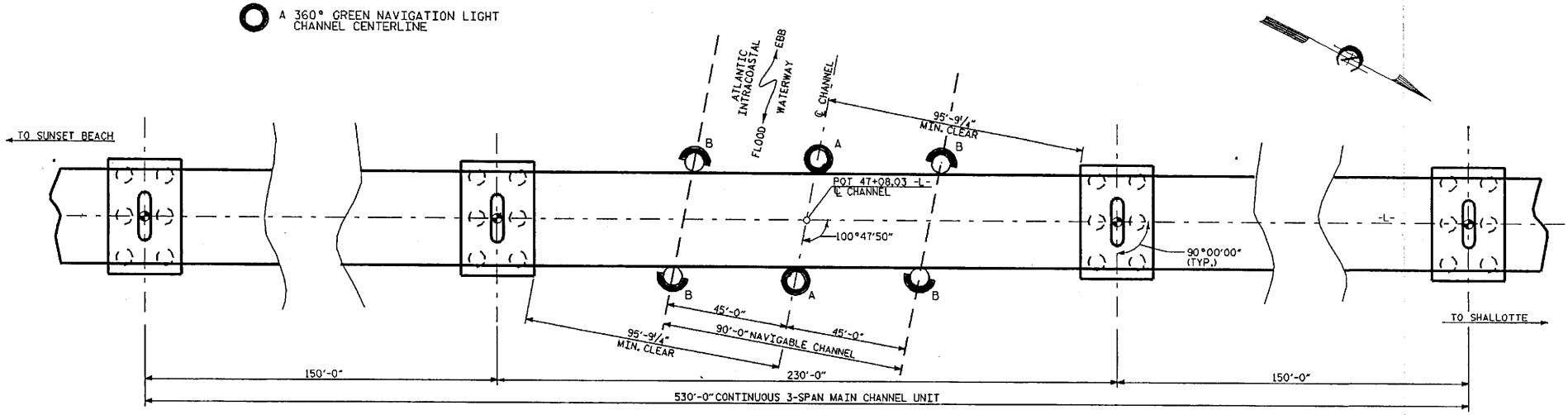

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SHEET 2 OF 2 AIWW MILE MARKER 337.9

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RALEIGH

BRIDGE REPLACEMENT ON SR 1172
OVER INTRACOASTAL WATERWAY
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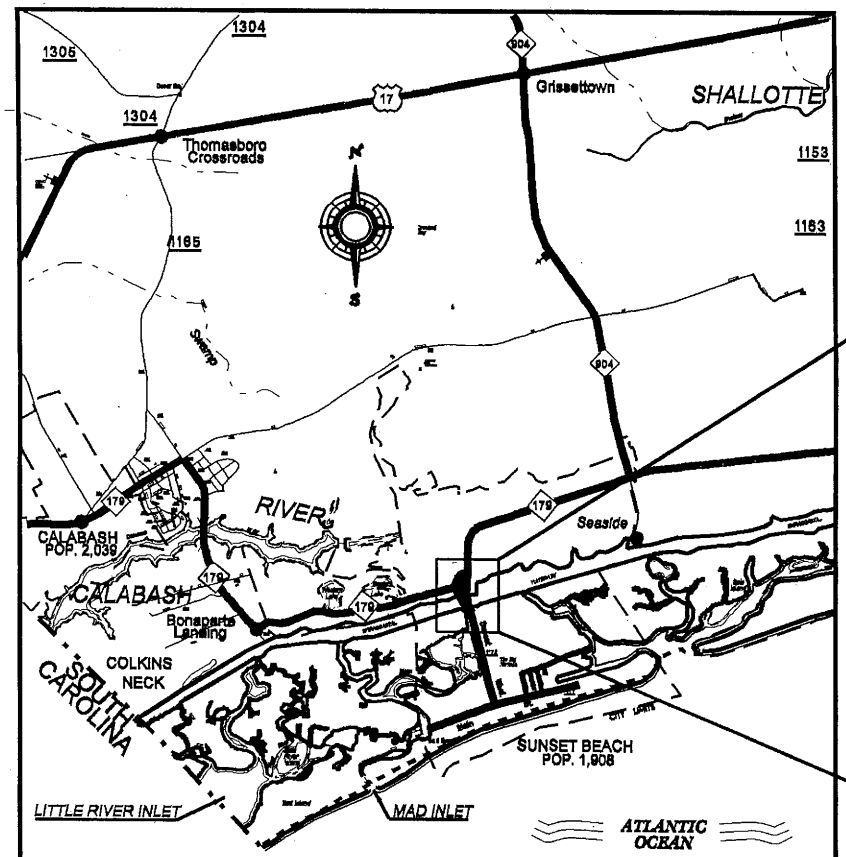
BRUNSWICK COUNTY

DRAWN BY : R.D. MARTIN

CHECKED BY : PSEarn DATE : 3-8-04



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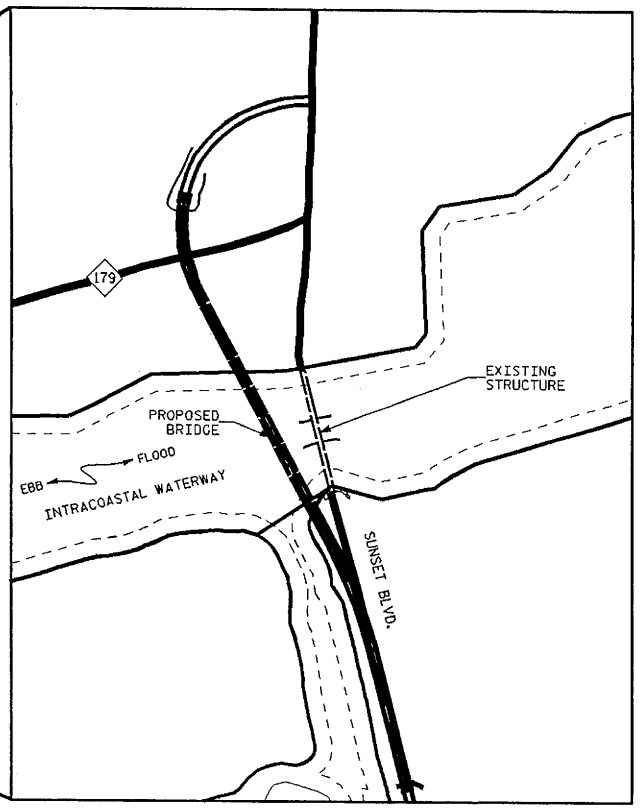

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RALEIGH

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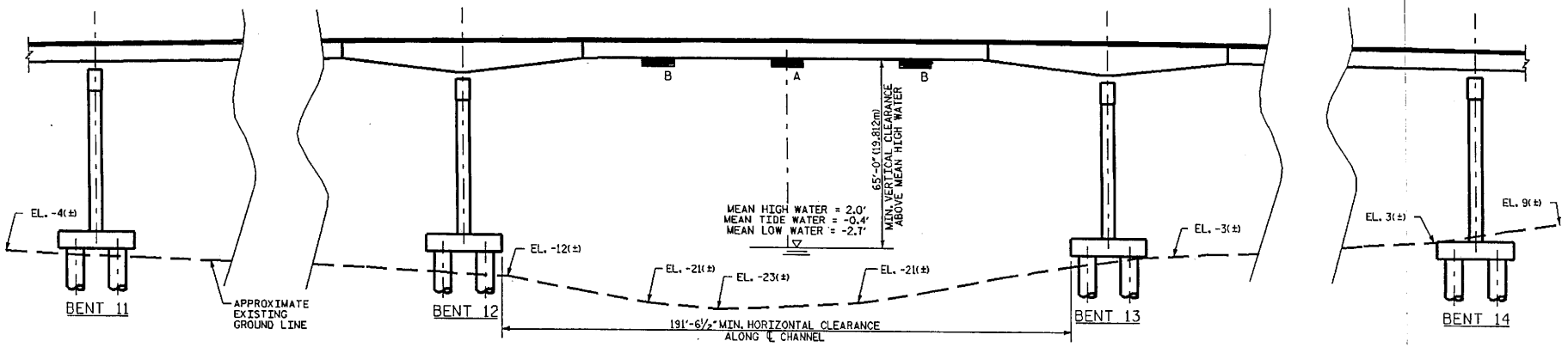

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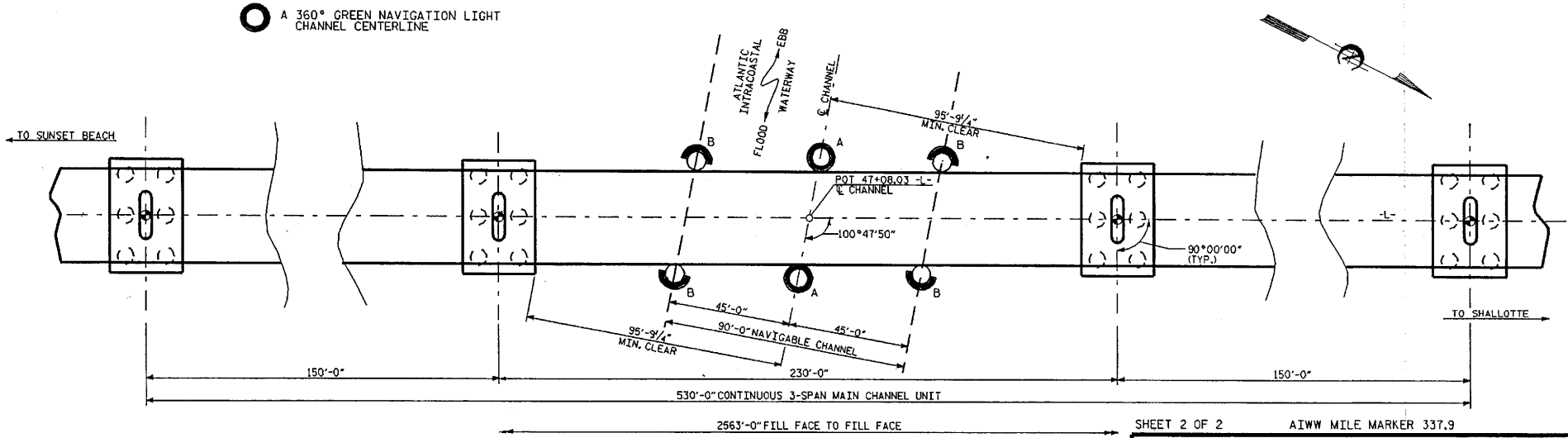

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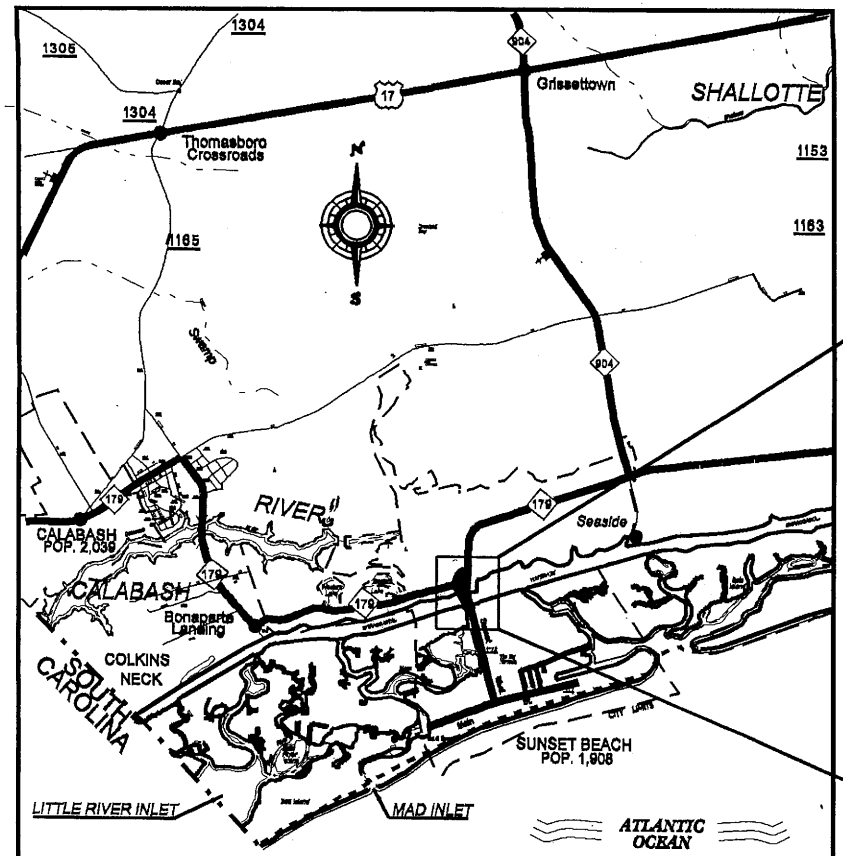
DRAWN BY : R.D. MARTIN

CHECKED BY : PSEdwards DATE : 3-8-02

F.A. PROJECT NO.: BRS-1813(1)
STATE PROJECT NO.: B-0682 COUNTY: BRUNSWICK



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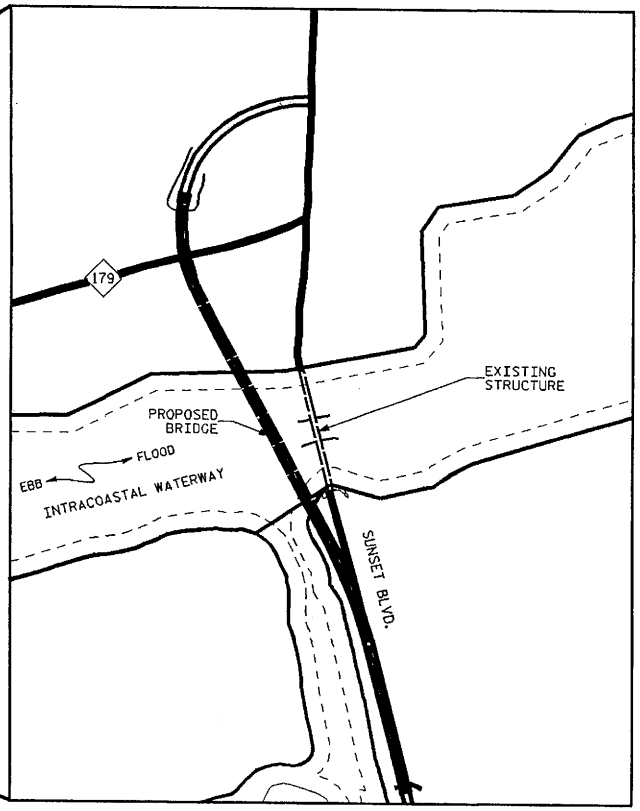

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DRAWN BY : R.D. MARTIN
CHECKED BY : P.S. ERVIN
DATE : 3-8-06

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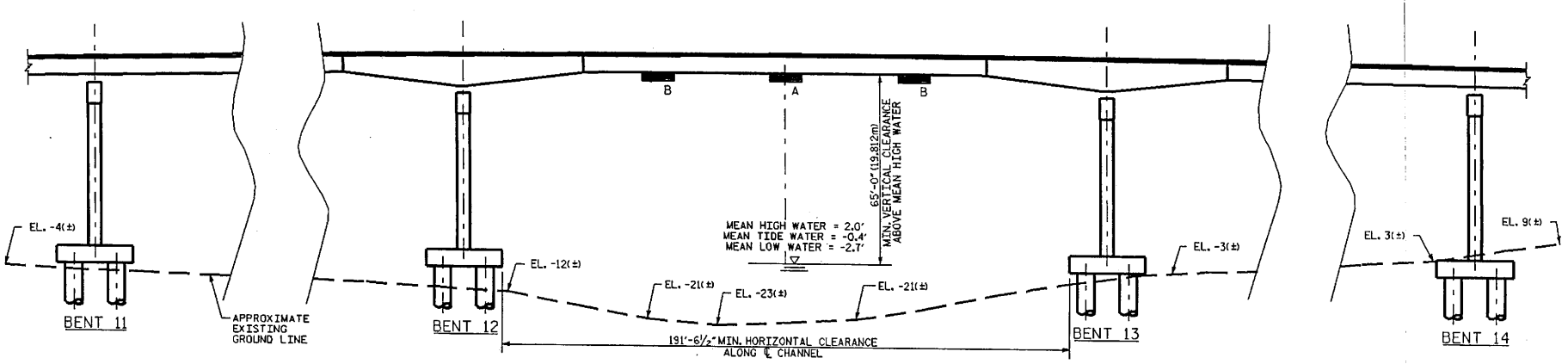
STATE PROJECT NO.: B-0682 COUNTY: BRUNSWICK



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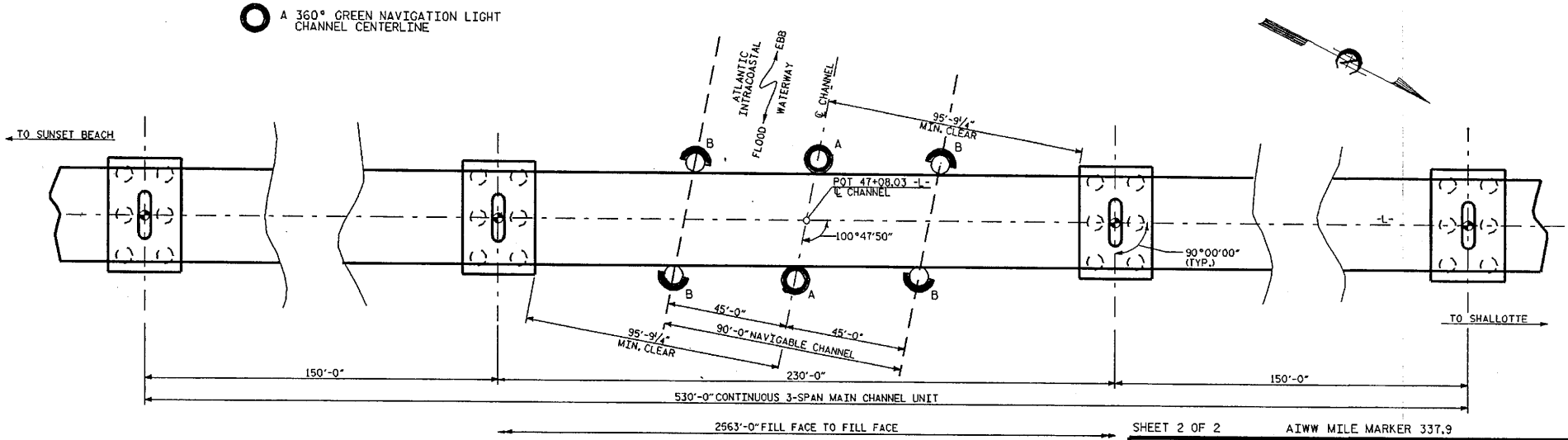

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DRAWN BY : R.D. MARTIN

CHECKED BY : PSEdwin DATE : 3-8-04

F.A. PROJECT NO.: BRS-1813(1)
STATE PROJECT NO.: B-0682 COUNTY: BRUNSWICK

FHWA-NC-EIS-95-02-F

VOLUME I
MAIN TEXT

ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT AND FINAL SECTION 4(f) EVALUATION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Brunswick County
Replacement of Bridge No. 198 on SR 1172
Over the Intracoastal Waterway at Sunset Beach, North Carolina

Federal-Aid Project No. BRS-1813(1)
State Project No. 8.2230101
TIP No. B-682

Cooperating Agencies

U.S. Coast Guard
U.S. Army Corps of Engineers

Submitted Pursuant to the National Environmental Policy Act 42 U.S.C. 4332(2)(c):

H. Franklin Vick 10/27/97

H. Franklin Vick, P.E. — Date
Manager
Planning and Environmental Branch
North Carolina Department of Transportation

Roy C Shelton 10/30/97

FOR Nicholas L. Graf, P.E. — Date
Division Administrator
Federal Highway Administration

and Section 4(f) 49 U.S.C. 303:

10/24/97

for Leon Larson, P.E. — Date
Regional Administrator
Federal Highway Administration

The following persons may be contacted for additional information concerning this document:

H. Franklin Vick, P.E.
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611
(919) 733-3141

Nicholas L. Graf, P.E.
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601
(919) 856-4346

The report presents the documented needs for the replacement of the Sunset Beach Bridge over the Intracoastal Waterway. The existing conditions of the study area are described and the alternatives are assessed in terms of environmental impacts, compatibility with local planning goals, relative cost-effectiveness and public opinion.

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT SUNSET BEACH, NORTH CAROLINA

Federal Aid-Project No. BRS-1813(1)
State Project No. 8.2230101
TIP No. B-682

ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT
AND
FINAL SECTION 4(f) EVALUATION

October 1997

VOLUME I
MAIN TEXT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT SUNSET BEACH, NORTH CAROLINA

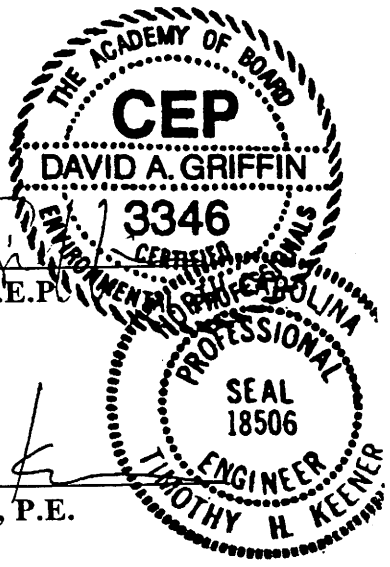
Federal Aid-Project No. BRS-1813(1)
State Project No. 8.2230101
TIP No. B-682

ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT
AND
FINAL SECTION 4(f) EVALUATION

October 1997

Documentation Prepared By:

URS GREINER, INC.



10/20/97
Date

David A. Griffin, C.E.P.
Project Manager

10/20/97
Date

Timothy H. Keener, P.E.
Project Engineer

10/20/97
Date

Scott L. Hoffeld
Project Coordinator

For the:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

10/20/97
Date

Julie A. Hunkins, P.E.
Project Manager

SUMMARY

SUMMARY

S1 FEDERAL HIGHWAY ADMINISTRATION

Administrative Action Environmental Impact Statement:

( ) Draft (X) Final

( ) Draft Section 4(f) Evaluation included
(X) Final Section 4(f) Evaluation included

S2 CONTACTS

The following individuals may be contacted for additional information concerning this Environmental Impact Statement (EIS):

Federal Highway Administration

Mr. Nicholas L. Graf, P.E.
Division Administrator
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, NC 27601

Telephone: (919) 856-4346

North Carolina Department of Transportation

Mr. H. Franklin Vick, P.E.
Manager, Planning and Environmental Branch
North Carolina Department of Transportation
Division of Highways
PO Box 25201
Raleigh, NC 27611

Telephone: (919) 733-3141

S3 DESCRIPTION OF PROPOSED ACTION

The proposed action is the replacement of Bridge No.198 on Secondary Road 1172 (SR 1172) in Sunset Beach, Brunswick County, North Carolina. Bridge No.198 spans the Atlantic Intracoastal Waterway (AIWW) and connects the island and mainland portions of the Town of Sunset Beach.

This bridge replacement is identified as Project Number B-682 in the North Carolina Department of Transportation's (NCDOT) 1997-2003 Transportation Improvement Program (TIP) (NCDOT, 1996g, [noted in the Draft EIS as NCDOT {1995a}]). Project B-682 is programmed in the TIP for planning and environmental studies. A schedule for design, right of way, and construction is not included in the TIP since Project B-682 is currently the subject of a US District Court case (see Sections S7 and 1.3.2).

In May 1996, the existing bridge was inspected and determined to be in poor condition. The bridge was given a sufficiency rating of 7.3 on a scale of 0 to 100, with 100 being perfect condition (NCDOT, 1996a). The purpose of the proposed project is to replace the structurally deficient and functionally obsolete existing bridge. In general, functionally obsolete bridges are those which are narrow, have inadequate underclearances, have insufficient load carrying capacity, or are poorly aligned with the roadway and can no longer adequately service current traffic. Structurally deficient bridges are those which are in relatively poor condition or have insufficient load carrying capacity which may be due to original design or to deterioration.

The existing Sunset Beach bridge is a single-lane, floating steel-barge, swing-span draw bridge, with fixed wooden approach spans, which is often referred to as a pontoon bridge. Since the bridge provides only a few feet of vertical clearance under the approach spans, virtually all waterway traffic (except small john boats) is blocked when the bridge is closed to allow roadway traffic to cross.

Replacement of this pontoon bridge with a new structure would provide a reliable means of transportation between the island and the mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures. Furthermore, the new facility would enhance both vehicular operations on SR 1172 and watercraft operations on the AIWW.

Three build alternatives are evaluated in this EIS. Two are high-level fixed span bridges and one is a mid-level bascule bridge (drawbridge). A No-Build Alternative and a Rehabilitation Alternative are also considered.

S4 OTHER MAJOR ACTIONS IN THE PROJECT VICINITY

The NCDOT's 1997-2003 TIP includes several projects in the study area. The closest TIP project to the Sunset Beach Bridge is TIP Number R-3106. Currently under construction, this project will improve the existing two-lane NC 179 segment which extends from just north of Calabash, past SR 1172, to the center of Shallotte. This segment of NC 179 is 14.2 kilometers (8.8 miles) long. Two portions of this segment will also be widened to three lanes in addition to being improved. These two areas are: 1) from NC 904 to SR 1184, and 2) inside the Shallotte town limits. Both of these two areas scheduled for widening to three lanes are east of the Sunset Beach bridge, the nearest beginning about three kilometers (two miles) away at the Pelican Square shopping center and extending eastward to SR 1184. TIP Number R-3106 is scheduled for completion in 1999.

Recently completed, TIP Number R-3108 improves NC 904 from just north of NC 179 to US 17. This project involved widening the segment of NC 904 between NC 179 to SR 1163 to three lanes and widening the segment of NC 904 between SR 1163 and US 17 to 7.3 meters (24 feet) with paved shoulders. The entire length of this project is 5.3 kilometers (3.3 miles).

Two other TIP projects are also in the vicinity of the project: TIP Number R-3432 and TIP Number R-3433. TIP Number R-3432 would widen SR 1163 from US 17 to NC 11, spanning 3.9 kilometers (2.4 miles) . Scheduled for completion in year 2002, this project is only in the planning stage at this time. TIP number R-3433 is currently under construction and is scheduled for completion by mid-1998. This project will upgrade the segment of SR 1184 between NC 1790 and US 17 over a distance of 5.8 kilometers (3.6 miles).

Identified as a future need in Brunswick County in the 1997-2003 TIP, R-3436 is a proposed new route for I-74 between US 17 at the South Carolina state line and Whiteville, North Carolina. Six corridors for this route (49.9 kilometers [31.0 miles]) were evaluated in a feasibility study completed in January 1996; however, no corresponding environmental studies or imminent schedules exist for this project.

No other major roadway improvements are proposed in the TIP for the project vicinity.

S5 ALTERNATIVES CONSIDERED

A set of eleven preliminary construction alternatives was developed in response to the November 19, 1990, court order requiring preparation of an EIS for the Sunset Beach Bridge replacement project (see Section S7). These eleven build alternatives included nine bridge alternatives, consisting of three bridge types (high-level fixed span, mid-level bascule, and low-level bascule) located on three general corridors (center, east, and west) near the existing pontoon bridge. In addition, a ferry alternative and a tunnel alternative were developed. A Transportation System Management (TSM) alternative was also considered.

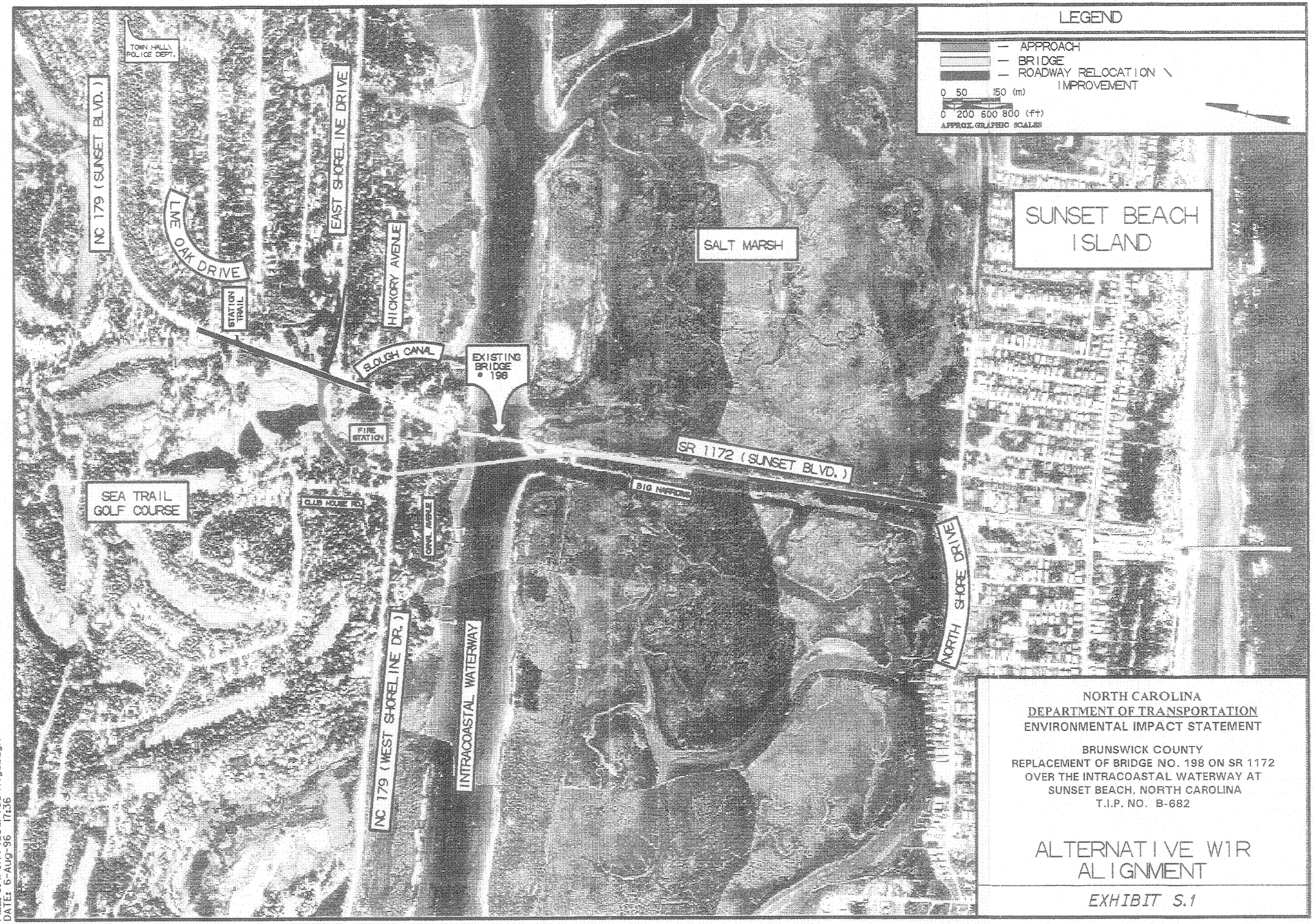
A screening evaluation was conducted on the eleven preliminary build alternatives in order to identify those build alternatives to be carried forward in the study. Based on the screening procedure, the reasonable and feasible build alternatives were determined to be Alternatives W1 (West Fixed High-Level) (later revised as discussed below [Alternative W1R]), C1 (Center Fixed High-Level) and C4 (Center Mid-Level Bascule). Exhibits S.1, S.2, and S.3 show these build alternatives. The three build alternatives, a Rehabilitation Alternative (C3R), and a No-Build Alternative (C3) are described below.

No-Build Alternative. Under the No-Build Alternative (Alternative C3), the existing structure would not be replaced or improved. Periodic maintenance and/or replacement of parts of the structure and its mechanical components would continue as in the past. No alteration to existing traffic patterns would occur as a result of this scenario.

Rehabilitation Alternative. The Rehabilitation Alternative (Alternative C3R) includes improvements to the existing structure. The pontoon, deck, and all of the mechanical components would be replaced under this alternative. It should be noted, however, that the nature of the single-lane pontoon bridge is such that it can not be rehabilitated to federally acceptable standards. An exception would be necessary in order to obtain federal funding for this alternative. No other roadway improvements would be undertaken with this alternative, and no alteration to current traffic patterns would occur.

Alternative W1R. This alternative is a new high-level, fixed-span bridge located approximately 45.7 meters (150 feet) west of the existing pontoon bridge (see Exhibit S.1). Based on comments received on the Draft EIS, the alignment of Alternative W1 was shifted eastward in order to avoid relocation of the Big Narrows channel. Exhibit S.1 (also displayed as Exhibit 2.1) shows the revised alignment of W1, which is referred to hereafter in this document as W1R.

The high-level bridge for W1R would be about 723 meters (2,372 feet) in length, which is slightly shorter than the alignment of Alternative W1 (737 meters [2,418 feet]). A minimum vertical clearance of 19.8 meters (65 feet) would be provided over the entirety of the 27.4-meter-wide



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

ALTERNATIVE W1R ALIGNMENT

EXHIBIT S.1

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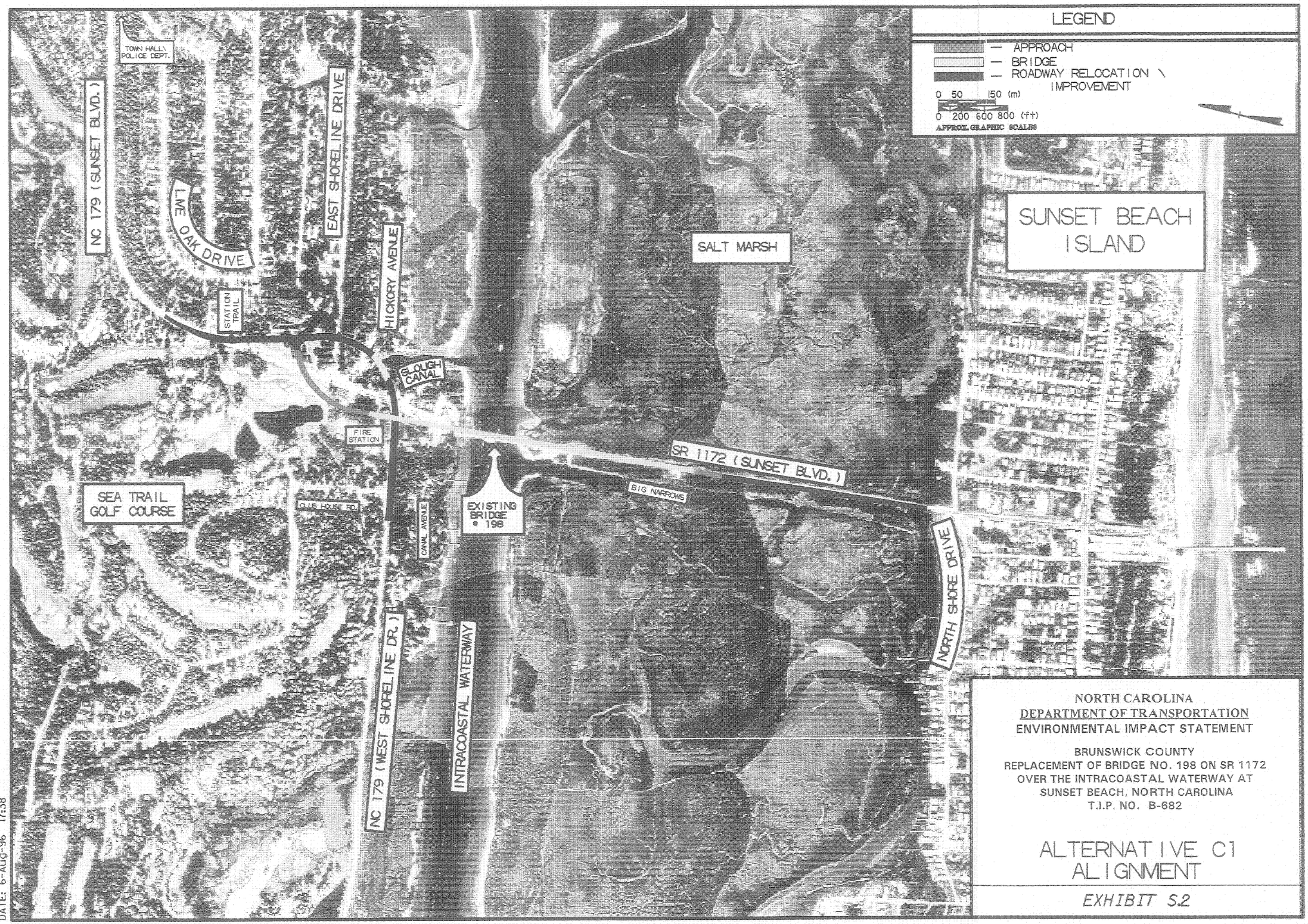

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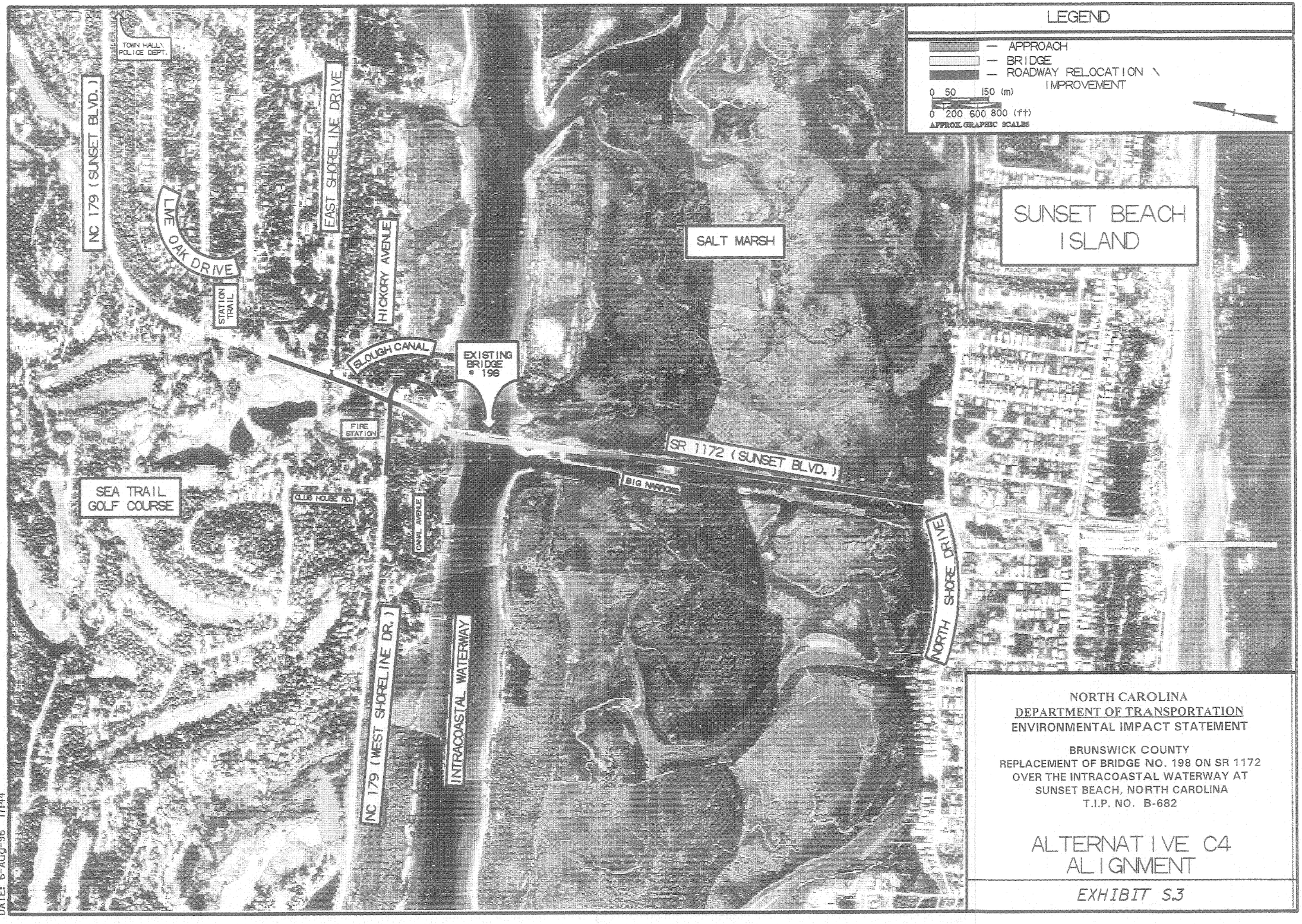
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

ALTERNATIVE C1 ALIGNMENT

EXHIBIT 5.2



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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

ALTERNATIVE C4 ALIGNMENT

EXHIBIT S.3

(90-foot-wide) channel maintained by the US Army Corps of Engineers (COE). The proposed span over the channel would be of sufficient length to provide a minimum of 54.9 meters (180 feet) of horizontal clearance between the bridge footings. It is anticipated that minimal low-voltage navigational lighting would be used to delineate the 27.4-meter-wide (90-foot-wide) AIWW channel.

East Shoreline Drive would be realigned to provide a four-leg intersection with NC 179 and relocated SR 1172. This alternative would allow for uninterrupted vessel travel along the AIWW.

Alternative C1. This alternative is a new high-level, fixed-span bridge located along the center corridor, immediately east of the existing pontoon bridge (see Exhibit S.2). This bridge would be about 826 meters (2,710 feet) in length. A minimum vertical clearance of 19.8 meters (65 feet) would be provided over the entirety of the 27.4-meter-wide (90-foot-wide) channel maintained by the US Army, Corps of Engineers. The proposed span over the channel would be of sufficient length to provide a minimum of 54.9 meters (180 feet) of horizontal clearance between the bridge footings. It is anticipated that minimal low-voltage navigational lighting would be used to delineate the 27.4-meter-wide (90-foot-wide) AIWW channel.

NC 179 would be relocated to provide a proper connection with SR 1172. Relocated NC 179 would require a new bridge over Slough Canal. The high-level fixed-span bridge over the AIWW would allow for uninterrupted vessel travel along the AIWW, but the new bridge over Slough Canal would block waterway access to the upper end of the canal.

Alternative C4. This alternative is a new mid-level bascule bridge (drawbridge) located immediately west of the existing pontoon bridge (see Exhibit S.3). This bridge would be about 347.5 meters (1,140 feet) in length. A minimum vertical clearance of 9.2 meters (30 feet)would be provided over the entirety of the 27.4-meter-wide (90-foot-wide) channel maintained by the COE. A 9.1-meter (30-foot) vertical clearance would allow about 63 percent of the waterway vessels to pass under the bridge without requiring the bridge to open. The proposed span over the channel would be of sufficient length to provide for the 27.4-meter (90-foot) channel and fender system. The approximate length of this span between footings is 32.0 meters (105 feet). It is anticipated that minimal low-voltage navigational lighting would be used to delineate the 90-foot-wide maintained AIWW channel.

Preferred Alternative. NCDOT and FHWA representatives met with representatives of interested federal and state agencies on June 19, 1996, in the effort to achieve a consensus on a preferred alternative for the project. All representatives agreed that a new structure was necessary because the rehabilitation and the two-lane pontoon bridge alternatives did not address the basic project goals of public safety and transportation efficiency. Furthermore, representatives agreed that the high-span alternatives (C1 and W1R) provide greater transportation benefits than the mid-level bascule bridge alternative (C4). The final consensus among representatives was that when the safety, traffic, cost, and overall environmental effects were compared among alternatives, the least environmentally

damaging practicable alternative to address the deficiencies of the Sunset Beach Bridge is the newly revised Alternative W1R. Based on this final analysis, Alternative W1R was adopted as the preferred alternative for the replacement of the Sunset Beach Bridge, eliminating the original alignment of Alternative W1 from further consideration.

S6 SUMMARY OF ENVIRONMENTAL IMPACTS

The following is a narrative summary of the primary environmental consequences associated with each alternative. Table S.1 provides this information in a table format.

Socio-Demographic Changes in Population

Year-Round and Seasonal Residents. One possible secondary effect of replacing the existing Sunset Beach pontoon bridge is a change in the composition of the island population. Improvements in safety and traffic flow resulting from Alternative W1R, C1, or C4 may make the island more attractive for year-round residency and may increase the demand for this type of housing on the island. An increase in permanent residents, such as working families or retirees, could create a corresponding decrease in the number of seasonal residents occupying rental properties. Since the average number of persons per unit is lower for year-round residents than for seasonal rental units, there could be a lower occupancy rate on the island and a reduced area expenditure on food and entertainment during the peak season.

It should be noted that the possible changes in the island's population composition described above are only hypotheses, based on concerns voiced by area residents and on information about Ocean Isle and Holden Beach gathered from interviews. There are no consistent historical data for Sunset Beach, Ocean Isle, and Holden Beach concerning population composition or seasonal versus permanent residency. Consequently, a comparative evaluation of the demographic impacts of replacing the existing Sunset Beach bridge can not be conducted.

Day Visitors. Based on the survey of day visitors conducted at Ocean Isle and Sunset Beach on July 30 and August 2, 1994, a new bridge at Sunset Beach (Alternatives W1R, C1, or C4) would have only a minor influence on choice of beach destination. In general, day visitors currently going to Sunset Beach would continue to do so if the existing bridge was replaced. The survey also indicated that the majority of Ocean Isle day visitors would always go to Ocean Isle no matter what type of bridge was at Sunset Beach (Hayes and Associates, 1994c:3).

Any potential bridge-related increases in day visitors to Sunset Beach would be affected by other variables, including: the presence and location of a boat ramp, number of public parking spaces on the island, provision of non-auto transportation from the mainland, and number and nature of public facilities and commercial services. There was a common perception among Ocean Isle day visitors that they would either have to pay for parking or that there is shortage of parking at Sunset Beach. This perception can function as a deterrent to visiting Sunset Beach.

TABLE S-1

SUMMARY OF IMPACTS

IMPACT	Alternative W1R (West High-Level, Revised)	Alternative W1 (West High-Level)	Alternative C1 (Center High-Level)	Alternative C4 (Center Bascule)	Alternative C3R (Rehabilitation)
Approximate Roadway Length m (ft)	1,263 (4,143)	1,318 (4,325)	1,594 (5,230)	1,567 (5,140)	0
Intracoastal Waterway Bridge Length m (ft)	723 (2,372)	737 (2,418)	826 (2,710)	347 (1,140)	168 (550)
Slough Canal Bridge Length m (ft)	--	--	27 (90)	--	--
Total Length m (ft)	1,986 (6,517)	2,055 (6,743)	2,448 (8,030)	1,914 (6,280)	168 (550)
Construction Costs	$12,200,000	$12,700,000	$13,800,000	$12,800,000	$1,359,950
Right-of-Way Costs	$1,378,000	$1,378,000	$3,700,000	$2,155,500	--
Operations/Maintenance Costs*	$1,564,700	$1,587,400	$1,781,100	$3,650,750	$2,447,630
Total Costs	$15,142,700	$15,665,400	$19,281,100	$18,606,250	$3,807,580
Navigable Waterway Crossings	1	2	2	1	1
Residential Relocations	0	0	3	0	0
Business Relocations	0	0	3	3	0
Community Facilities Impacted	0	0	0	0	0
Section 4(f) Resources Evaluated for Constructive Use	3	3	3	3	3
Section 4(f) Resources Directly Impacted	0	0	0	0	0
Visual Impact Rating (Rating < -2.0 is adverse)	-2.124	-2.124	-2.0	-1.625	--
Prehistoric Sites Impacted	0	0	0	0	0

TABLE S-1 (Continued)

SUMMARY OF IMPACTS

IMPACT	Alternative W1R (West High-Level, Revised)	Alternative W1 (West High-Level)	Alternative C1 (Center High-Level)	Alternative C4 (Center Bascule)	Alternative C3R (Rehabilitation)
Sites on National Register of Historic Places	0	0	0	0	0
Hazardous Materials Sites	0	0	2	3	0
Projected Exceedances of Carbon Monoxide Standards	0	0	0	0	0
Sensitive Receptors Impacted by Noise	2	2	3	0	0
Hectares (Acres) of Permanent Salt Marsh Impacts [dredge, fill, shading]	0.26 (0.63)	0.32 (0.78)	0.36 (0.90)	0.30 (0.75)	0.00
Hectares (Acres) of Permanent Surface Water Impacts [dredge, fill, shading]	0.85 (2.10)	1.22 (3.02)	0.07 (0.17)	0.07 (0.17)	0.10 (0.24)
Hectares (Acres) of Permanent Nonriverine Wet Hardwood Forest Impacts [fill]	0.00	0.00	0.11 (0.27)	0.00	0.00
Hectares (Acres) of Permanent Coastal Fringe Evergreen Forest Impacts [fill and clearing]	0.97 (2.40)	1.03(2.55)	0.87 (2.14)	0.19 (0.48)	0.00

* Operations and maintenance costs are amortized over a 40-year period.

It is evident that the number of day visitors to all beaches along the North Carolina coast, including Sunset Beach, will continue to increase as the population of coastal counties and mainland communities continues to grow (Hayes and Associates, 1994c:3), and as other roadway improvements in coastal areas are made.

Relocation and Direct Land Use Impacts

Direct Land Use Impacts. The No-Build and Rehabilitation Alternatives would not require additional permanent right of way. The Rehabilitation Alternative may require temporary easements for traffic detours. Alternatives W1R and C1 would require about one acre of developed residential land for right of way. Residential land would not be needed for Alternative C4's right of way. Alternative W1R would take the most institutional (public facilities and community services) land, in addition to Sea Trail Plantation land. Developed and undeveloped commercial land would be most affected by Alternative C1's right of way. In addition, the bridge over Slough Canal needed for Alternative C1 would impact businesses at the end of the canal by blocking the existing commercial use of the canal.

Relocation Impacts. A relocation study was conducted by the NCDOT in February 1995, to estimate the number of residences and businesses which would be displaced under each proposed alternative. The relocation reports are included as Appendix D of this document.

Alternatives W1R, C3R (Rehabilitation), and C3 (No-Build) would not displace any residences or businesses. Alternative C4 would displace three businesses. Alternative C1 would displace three residences and three businesses. The relocation reports indicate that business services would still be available after implementation of any of the alternatives since there are similar businesses which would remain unaffected.

Secondary Land Use Impacts

One concern regarding the proposed project that has been voiced by some citizens is that a new two-lane bridge, particularly a high-level bridge, would accelerate development and facilitate high-rise construction on the island. As discussed below, replacing the existing bridge with a more reliable two-lane structure is not expected to greatly affect the rate and type of development on the Sunset Beach island or mainland.

High level bridges at Ocean Isle and Holden Beach, near Sunset Beach, were completed in late 1985/early 1986. Examination of building trend data, current land uses, and interviews with local officials and residents reveals that the secondary development impacts of a high-level bridge have been relatively minor at both Ocean Isle and Holden Beach. The number of dwelling units constructed in both towns was greater prior to the opening of the high-level bridges. Local business leaders in Holden Beach and Ocean Isle attributed the building downswing that occurred after the

bridges were open to the national recession in the late 1980s, and 1986 changes in the federal tax treatment of second homes (Hayes and Associates, 1994c:iii). These economic events are not associated with the type of bridge access provided to the islands.

Comparison of data reveal that Sunset Beach, which includes island and mainland areas, actually had an overall greater residential growth rate than either Holden Beach or Ocean Isle during most of the period 1982-1992. Town limits for Holden Beach and Ocean Isle do not encompass any mainland areas. The higher rate of residential development at Sunset Beach continued even after 1986, when the high-level bridges at Holden Beach and Ocean Isle became operational. One partial explanation for the higher growth rate is that the planning area for Sunset Beach includes not only the island, but 1,078.5 hectares (2,665 acres) on the mainland. Since 1986, the major focus of mainland development has been Sea Trail Plantation, a residential championship golf course community. Residential golf course developments similar to Sea Trail Plantation have not been developed near Ocean Isle or Holden Beach (Hayes and Associates, 1994c:18).

Consequently, building permit data for just the island portions of the towns should be compared. The rate of island development in 1992 was similar in Sunset Beach and Holden beach and lower in Ocean Isle. Apparently, the type of bridge access did not directly influence the rate of development on the three islands in 1992 (Hayes and Associates, 1994c:17).

Other factors are important to the rate and type of development on all three islands: sewage treatment capacity, pattern of ownership of platted undeveloped land, and zoning regulations. At present, dependence on septic systems may limit the development potential and occupancy rates on Sunset Beach island. However, if a centralized sewer system is not built, developers can find other ways, such as package treatment plants, to provide sewage treatment.

Some people have hypothesized that a new high-level bridge would generate pressure for changes in zoning to permit high density development. To alter Sunset Beach's current 10.7-meter (35-foot) building height restriction, a majority of Sunset Beach registered voters would have to vote to do so in a public referendum. There continues to be very strong interest in Sunset Beach, as indicated in past and present CAMA Land Use Plans, for retaining restrictive zoning that would prohibit high density development as well as expanded commercial activity on the island. Ocean Isle has a high-level bridge and a sewer system, yet it has also retained zoning restrictions on the unit size which can be built on each platted lot (Apogee Research, Inc., 1994:23).

It is possible that the influence of Sea Trail Plantation on future development in Sunset Beach has been greater than the influence the high-level bridges have had on future development in Holden Beach and Ocean Isle. Replacement of the existing Sunset Beach pontoon bridge with a high-level bridge (Alternatives W1R and C1) or a bascule bridge (Alternative C4) may not greatly influence the rate and type of development. The community's attitude towards growth, the national economy,

and the demand for resort housing may affect resort development more than the type of bridge access provided (Hayes and Associates, 1994c:20).

Land Use Planning

Consistency with the CAMA Land Use Plan. Coastal Area Management Act (CAMA) land use plans are used by local, state, and federal officials for the issuance of major and minor CAMA development permits, and for Consistency Review of all federal and state projects within the community.

Alternatives W1R, C1, and C4 would be consistent with the Town of Sunset Beach CAMA Land Use Plan policy which states that more reliable bridge access between the mainland and island is supported by the Town. However, the low-level bridge over Slough Canal associated with Alternative C1 appears to be inconsistent with the CAMA Land Use Plan policy, which states that public access to navigable waters should not be restricted.

On February 6, 1995, the Sunset Beach Town Council officially endorsed by resolution a 19.8-meter (65-foot) high-level bridge between the island and mainland portions of the town (Town of Sunset Beach, 1995a). Town officials continue to support the efforts of the NCDOT to provide better and more reliable bridge access to the island (Town of Sunset Beach, 1992:77; and Town of Sunset Beach, 1996).

Impacts to Community Facilities and Services

None of the proposed alternatives would directly impact schools, churches, or cemeteries.

Emergency service (police, fire, medical) access to and from the island would be more reliable under Alternatives W1R and C1, and, to a lesser extent, Alternative C4. Emergency service access would be least reliable under the Rehabilitation and No-Build Alternatives.

Alternatives W1R, C1, and C4 would displace the unofficial boat launching area located on the island causeway (SR 1172) near the existing pontoon bridge. This traditional small boat launching area is important to many local boaters and its proposed displacement was protested during the public reviews regarding replacing the bridge which were held in the 1980s (Hayes and Associates, 1994b:26). It should be noted that this boat ramp has been an "allowed" trespass, and has not been officially maintained or recognized by any public agency.

Efforts are underway to relocate this boat ramp. Three potentially suitable alternate ramp sites have been identified in the vicinity of the Sunset Beach area. The NCDOT is presently evaluating these sites for feasibility in coordination with other state and federal agencies.

Pedestrian and Bicycle Considerations

Currently, neither the bridge nor the causeway on the island have shoulder areas for bicyclists and pedestrians. Both the No-Build and Rehabilitation Alternatives would maintain the existing crossing.

The proposed configurations of all three build alternatives (Alternatives W1R, C1, and C4) would provide for safer bicycle/pedestrian travel than the existing bridge and causeway since paved shoulders would be constructed in both directions. These shoulders would be 1.2 meters (4 feet) wide on the causeway and 1.5 meters (5 feet) wide across the bridge. Alternative C4 would provide more convenient access for bicyclists and pedestrians than Alternatives W1R and C1 since the lower mid-level bridge would require a shorter climb. It should be noted that the proposed bridge designs would not be pedestrian facilities as defined by the American Association of State Highway and Transportation Officials (AASHTO). These types of facilities require raised sidewalks and other special considerations. However, the proposed bridge designs would provide space outside vehicular travel lanes for bicyclists and pedestrians to cross to and from the island.

Other Community Issues

Community Opinion. The existing Sunset Beach pontoon bridge and its possible replacement are a continuing subject of community debate. Public opinion about the pontoon bridge can be divided into three general categories: 1) advocates for maintaining the existing bridge; 2) people who support improved access to the island; and 3) people who enjoy the "quaintness" of the existing bridge, but "hate" the bridge when delayed by it (Hayes and Associates, 1994b:30). As of December 1996, there had not been a scientific survey conducted to determine current public opinion concerning whether the existing bridge should be replaced.

Crime. A major concern expressed by several Sunset Beach residents was that high-level bridges in Ocean Isle and Holden Beach caused crime to increase because criminals now had a better and more reliable access to the islands. Discussions with police officials at Holden Beach and Ocean Isle revealed that in their opinion, crime was actually deterred by the high-level bridges because police departments also benefitted by the more dependable and reliable access. Moreover, criminals also gain access to the islands by boat, and the type of bridge access would not influence this criminal activity (Hayes and Associates, 1994b:21).

Mainland Economic Impacts

Mainland Commercial Activity. Replacement of the existing Sunset Beach pontoon bridge with a high-level bridge (Alternatives W1R and C1) would reduce average travel time and improve the predictability of travel times from the island to the mainland and vice versa. The same effects would occur with a mid-level bascule bridge (Alternative C4), but to a lesser extent. Reduced uncertainty

and travel delay could stimulate island-to-mainland discretionary trips and generate an increase in purchases from mainland stores, restaurants, and entertainment facilities by island residents and vacationers (Apogee Research, Inc., 1994:15).

Mainland Property Development. The primary driving forces for mainland development are essentially independent of the ease or difficulty of access to the island of Sunset Beach. Thus, the economic effects of replacing the existing bridge on mainland development are likely to be marginal (Apogee Research, Inc., 1994:18).

Island Economic Impacts

Day Visitors. Whether or not replacing the existing pontoon bridge stimulates an increase in day visitors to the beach, any projected increases are likely to have a minimal direct economic impact since day visitors spend very little in Sunset Beach, Holden Beach, and Ocean Isle.

Property Values. The proposed bridge replacement is unlikely to affect the rate and type of residential or commercial development on the island. Although some people believe a new bridge could accelerate the rate of build-out of platted lots, there is no evidence from Holden Beach or Ocean Isle to support such a hypothesis. Thus, there are not likely to be substantial economic effects attributable to bridge-induced development on Sunset Beach island. Property value data do not indicate that new bridges at Holden Beach and Ocean Isle spurred a substantial change in the value of island property.

Other Economic Impacts

Town Finances. One economic gain from replacing the existing bridge with a high-level alternative (Alternatives W1R or C1) would be budgetary savings for the Town. In 1993, the Town spent $25,000 for two auxiliary police officers to direct traffic at the pontoon bridge during peak season weekends. This expenditure would be unnecessary under Alternatives W1R and C1. If a mid-level bascule bridge is constructed (Alternative C4), police may still be needed to direct summer peak traffic since queues would form when the bascule is opened to watercraft.

The Town also incurred costs in 1985 and 1995 when the existing pontoon bridge was out of service due to barge collisions. These costs are hard to quantify, but include costs associated with emergency management, redirecting traffic, and assisting with repairs. Alternatives W1R, C1, and C4 would be less prone to collisions than the existing pontoon bridge since they would be easier to navigate due to wider horizontal clearances and larger visual profiles.

House Salvaging. Replacing the existing bridge with one of the build alternatives would allow movement, resale, and reuse of beach houses that are economically obsolete or are at-risk because of environmental conditions. Houses can become economically obsolete due to increased land

values on the island. It should be noted that replacing the existing pontoon bridge is not expected to substantially influence property values (see Section 4.1.2.2).

Cost of Doing Business on the Island. By reducing travel time, the build Alternatives W1R, C1, and C4 would reduce the cost to mainland companies of delivering supplies and making service calls to the island (Apogee Research, Inc., 1994:30). At this time, it appears that the sellers and transporters of goods and services are absorbing the costs of existing bridge-related delays.

Utilities

None of the proposed alternatives would impact the submerged power distribution lines under the AIWW. Alternatives W1R, C1, and C4 would cross some distribution lines on the mainland. The No-Build Alternative (C3) and the Rehabilitation Alternative (C3R) would not affect any existing power distribution lines.

None of the proposed alternative are anticipated to impact water distribution facilities.

Development of a centralized sewer system for the Sunset Beach-Calabash area is currently being planned. On March 25, 1990, the NCDOT determined that it would not be feasible to attach water and sewer lines to a new structure. Therefore, the construction of any of the proposed alternatives (W1R, C1, C4, C3, and C3R) would not be related to the decision to provide centralized sewer service in the Town of Sunset Beach. In 1994, State officials determined that the 201 Study and Environmental Assessment (EA) evaluating provision of centralized sewer service was sufficient and therefore approved funding for the project. The resulting Finding of No Significant Impact (FONSI) from the EA was contested by local citizens by petition submitted in the summer of 1995. In November 1995, the courts rendered that an EIS must be prepared in order to identify and assess the impacts of this proposed action. As of May 1997, this EIS was in preparation.

Visual Impacts

The impacts of the project alternatives were evaluated using the Visual Resource Assessment Procedure for US Army Corps of Engineers (Smardon *et al*, 1988). The purpose of the methodology is to determine the difference between the No-Build and Build Alternatives using a *Visual Impact Assessment Value (VIA)*. The Rehabilitation Alternative was considered visually similar to the No-Build Alternative.

The *VIA* value for an alternative is a numerical measure of visual impact. Since the No-Build and Rehabilitation Alternatives are used as the baseline for comparison of visual impacts, they are assigned a *VIA* value of 0.0. For this project, a *VIA* value of less than -2.0 indicates an adverse visual impact, according to the methodology. The analysis resulted in *VIA* values of -2.124 for Alternative -W1, -2.0 for Alternative C1, and -1.625 for Alternative C4. Although views would differ slightly

between Alternative W1R and the alignment of Alternative W1, these differences did not affect the *VIA* value. Therefore, the *VIA* values of Alternative W1R and its former alignment, Alternative W1, were scored identically.

Alternatives C1 and C4 would have *Acceptable* visual impacts and Alternative W1R would have an *Adverse* impact, as defined by the methodology. The *VIA* value is lower for Alternative W1R because the bridge would be at an angle to the AIWW, which would create a more obvious viewing profile.

None of the proposed new bridge structures would be prominent from island viewpoints due to distance. However, any of the build alternatives would be a noticeable feature from mainland viewpoints.

Cultural Resources

There is one archaeological site in the project area. During the initial archaeological investigations for this highway project conducted in 1980, prehistoric archaeological site 31BW391 was located and found to extend into the Area of Potential Effect (APE) for the bridge replacement project as it was defined at that time. It should be noted that site 31BW391 was previously misidentified in NCDOT (1980), the Draft EIS, and its incorporated memoranda as Site 31BW65. This typographical error has been corrected and incorporated into the project files and reports dated after December 1, 1996. In 1985, the site was determined not to be significant or eligible for the National Register of Historic Places. In 1992, the State Historic Preservation Office (SHPO) concurred with this finding.

In 1995, the Archaeology Unit of the NCDOT reviewed the findings and conclusions of the 1980 and 1985 reports prepared for Site 31BW391 (NCDOT, 1995b). Based on this review, the NCDOT Archaeology Unit concluded that, given the length of time since the previous studies were completed and the fact that Alternative W1R has been selected as the preferred alternative for construction , it would be advisable to conduct additional tests at Site 31BW391. Accordingly, a second phase of investigations was completed in September 1996. The Phase II archeological investigations undertaken by NCDOT within the portion of prehistoric site 31BW391 as it relates to Alternative W1R failed to discover any intact cultural features or locally and/or regionally significant archaeological deposits within the APE. The NCDOT and FHWA determined, and the State Office of Historic Preservation (SHPO) concurred, that Site 31BW391 is not eligible for listing on the National Register of Historic Places per Section 106 of the National Historic Preservation Act of 1966, as amended (Appendix F-III:55). Furthermore, it was determined by NCDOT and FHWA that Site 31BW391 does not possess the quality of significance to warrant preservation in place as defined by Section 4(f) of the USDOT Act of 1966. Therefore, no adverse impacts to any significant archaeological site are anticipated from the implementation of Alternative W1R. Likewise, Site 31BW391 would not be affected by Alternative C1, Alternative C4, the No-Build Alternative (C3),

or the Rehabilitation Alternative (C3R). The North Carolina SHPO concurs with NCDOT's finding that no further archaeological investigations need be conducted in conjunction with the project (Appendix F-III:55).

The NCDOT and FHWA determined, and the SHPO concurred, that the existing Sunset Beach pontoon bridge is not eligible for listing in the National Register of Historic Places (North Carolina Department of Cultural Resources, 1993).

Hydrology and Drainage

Navigable Waterways. The AIWW, Big Narrows, and Slough Canal are the navigable waterways in the project area. All proposed alternatives involve crossing the AIWW. Alternative C1 would also require a bridge over Slough Canal for relocated NC 179. Although the original alignment of Alternative W1 would encroach on the Big Narrows channel, the revised alignment that has been adopted as the preferred alternative (Alternative W1R) would not encroach this waterway. Therefore, associated dredging in the Big Narrows channel would not be necessary as part of this alternative.

Floodways and Floodplains. All five project alternatives would involve activities within the 100-year floodplain and a High Hazard Flood Area, as defined by the Federal Emergency Management Agency (FEMA). Pursuant to Executive Order 11988, construction of portions of the Alternative W1R were determined to be within the base floodplain. Encroachments include areas of the 100-year floodplain and High-Hazard Flood Areas. Despite these encroachments, no substantial changes to existing flood heights, floodplain limits, or flood risks are anticipated to occur under implementation of the preferred alternative (Alternative W1R). Therefore, the floodplain finding is that the proposed action would not constitute a significant encroachment.

Water Quality

The proposed build alternatives (W1R, C1, and C4) and the Rehabilitation Alternative (C3R) have the potential to temporarily degrade water quality in the AIWW, Slough Canal, Big Narrows channel, and surrounding salt marsh as a result of sedimentation and erosion during construction.

Disturbance of waterway bottom sediment would be greatest for Alternative C4, which would require the placement of four piers in the waterway. Two of these piers would be large main span piers constructed using the coffer dam construction technique, and two piers would be constructed using the driven pile construction technique. (Please see Section 2.2.3.7 for details of these construction techniques.) The preferred alternative (Alternative W1R) and Alternative C1 would each require three piers in waterways. Dredging in the AIWW would also be necessary under the Rehabilitation Alternative to replace the old support piles. NCDOT commits that any dredging

required to create and/or maintain a channel for floating construction barges would be accomplished with the use of the bucket/clam shell dredge method.

The estimated acres of on-land ground disturbance would be greatest for Alternative W1R (4.7 hectares [11.5 acres]). Alternative C1 would disturb about 4.2 hectares (10.4 acres) and Alternative C4 would disturb about 1.9 hectares (4.6 acres). The more area that is disturbed, the greater the chance for erosion and sedimentation. However, implementation of Best Management Practices (BMPs), as discussed in Section S9, would minimize these impacts. A list of relevant NCDOT BMPs is displayed in Section 4.4.

Stormwater runoff would increase under any of the build alternatives (W1R, C1, and C4) due to an increase in impervious roadway surface area over existing conditions. This is an unavoidable, long-term impact. The routing of stormwater from the bridge to dispersion areas on the mainland or island instead of the use of scupper holes will be evaluated for feasibility and practicability. This mitigation measure is discussed more fully in Sections S9 and 4.2.2.1.

Geology and Soils

A geotechnical investigation was conducted on Alternative W1 (West High-Level Fixed Span) by Westinghouse Environmental and Geotechnical Services (1990) when Alternative W1 was chosen for construction under the EA/FONSI process (see Section 1.3.2). The primary design considerations for the bridge were ship impact loads and storm-induced scour. The primary design concern for the bridge approach on the causeway was soil settlement due to the presence of non-cohesive sandy soils. These same primary considerations would apply to the design of any of the bridge replacement alternatives evaluated in this EIS.

Prime and Important Farmlands

Because the proposed project is located within a municipality (Town of Sunset Beach), the proposed project is exempt from regulation under the Farmland Protection Policy Act. Furthermore, according to the DEHNR Division of Soil and Water Conservation, commercial development has eliminated any unique, prime, or important farmland in the project study area (DEHNR, 1992).

Coastal Barrier Resources

The project does not occur within the Waties Island Complex parcel (MO1) of the North Carolina Coastal Barrier Resources System, nor do any of the alternatives considered for this project lead directly in or extend into the unit. Therefore, all of the build alternatives considered, including the recommended alternative (Alternative W1R), are in compliance with COBRA.

Hazardous Materials

Three sites containing underground or above-ground storage tanks within the study area were identified by the NCDOT Geotechnical Unit. The sites are located along SR 1172, between the bridge and the SR 1172/NC 179 intersection.

The No-Build and Rehabilitation Alternatives do not include any roadway or bridge improvements on the mainland. Therefore, these alternatives would not directly impact any of the three sites.

Alternative W1R (West High-Level Fixed-Span) would avoid construction on the lots containing the USTs. Construction of Alternative C1 (Center High-Level Fixed-Span) could directly impact the USTs on two sites and construction of Alternative C4 (Center Mid-Level Bascule) could directly impact USTs on all three sites.

Air Quality

National and State ambient air quality standards (AAQS) would not be exceeded under any of the proposed alternatives.

Noise

Noise levels would not approach or exceed Federal Highway Administration (FHWA) Noise Abatement Criteria under the No-Build Alternative, Rehabilitation Alternative, or Alternative C4.

There are an estimated two receivers under Alternative W1R (West High Level) and three receivers under Alternative C1 (Center High Level) that are projected to experience noise levels which approach or exceed FHWA criteria.

Upland Biotic Communities

Upland natural systems within the project area are comprised of coastal fringe evergreen forest. A reduction of the coastal fringe evergreen forest due to construction of a replacement bridge and related new alignment could reduce the remaining habitat value of this natural community. The habitat may be further impacted by removal of forested species and by additional habitat fragmentation. However, due to past and continued clearing by local development, it is anticipated that the proposed project's direct impacts to the coastal fringe evergreen forest would be minimal (Greiner, Inc., 1994g:32).

Based on revised estimates that account for clearing under the bridge and along a 50-foot construction access adjacent to the bridge, Alternative W1R would directly impact 0.97 hectare (2.40

acres) of coastal fringe evergreen forest. Associated impact estimates for Alternatives C1 and C4 are 0.87 hectare (2.14 acres), and 0.19 hectare (0.48 acre), respectively.

Wetland Biotic Communities

There are three wetland communities within the project area: surface water, salt marsh, and nonriverine wet hardwood forest. Construction of any of the build alternatives would result in unavoidable impacts to portions of these estuarine communities through filling, dredging, and/or shading.

The Rehabilitation Alternative would impact surface water and a small area of benthic habitat with the driving of new piles. The No-Build Alternative would avoid impacts to natural communities.

Overall, Alternative W1R would impact (both permanent and temporary) the largest wetland area (2.86 hectares [7.07 acres]), primarily comprised of temporary fill in salt marsh (1.73 hectares [4.28 acres]) and of impacts to surface waters (0.87 hectare [2.16 acres]). Although the area under the temporary work bridge for Alternative W1R would be impacted only by temporary, driven piles and shading from the structure, this area was assumed to be affected by fill for conservative impact predictions. Alternative C1 would impact 0.62 hectare (1.54 acres), and Alternative C4 would impact 0.37 hectare (0.92 acre) of wetlands (salt marsh and surface water).

Salt Marsh. Total impacts to salt marsh (both permanent and temporary) would be greatest under the Alternative W1R (1.99 hectares [4.91 acres]); however, most (1.73 hectares [4.28 acres]) of the impacts are associated with temporary fill for the construction duration. Alternative C1 would impact the second greatest amount of salt marsh (0.45 hectare [1.10 acres]), and Alternative C4 would impact the least amount of salt marsh (0.30 hectare [0.76 acre]). The salt marsh impact areas for Alternative C1 assumed that a top-down or similar construction method would be used for the segments of the bridge in the island salt marsh habitat.

Surface Water. Impacts to surface waters (both permanent and temporary) would be greatest under Alternative W1R (0.87 hectare [2.16 acres]). Both Alternatives C1 and C4 would each impact 0.07 hectare (0.17 acre) of surface water, and the Rehabilitation Alternative would impact about 0.10 hectare (0.24 acre)

Nonriverine Wet Hardwood Forest. Alternative C1 is the only build alternative which would directly impact nonriverine wet hardwood forest (0.11 hectares [0.27 acre]).

There is no submerged aquatic vegetation (SAV) within the study corridors.

A Mitigation Plan (Appendix H) has been developed to include all practicable measures to minimize harm to these wetlands. Impacts on wetlands will be further minimized by the implementation of

BMPs during the design and construction phase of the project. The mitigation plan and other environmental commitments regarding wetland impacts are discussed more fully in Sections S9 and 4.3.1.4. A list of relevant NCDOT BMPs is displayed in Section 4.4.

The wetland finding is that there is no practicable alternative to the proposed new construction in wetlands, and the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Fisheries

The build alternatives (Alternatives W1R, C1 and C4) and the Rehabilitation Alternative (C3R) would have some impact to fisheries due to increased turbidity and siltation during bridge construction/rehabilitation. Potential impacts associated with the construction of a replacement bridge in Sunset Beach, North Carolina, include the permanent loss of wetlands and aquatic areas due to dredge and fill operations, temporary impacts due to increases in turbidity as a result of construction operations, and impacts associated with using barges and/or temporary work bridges during construction. Additionally, the restoration of the existing causeway to salt marsh as discussed in Sections S-9, 4.3.1.4, and in the Mitigation Plan (Appendix H) will help ameliorate potential impacts from necessary benthic disturbance by allowing the former causeway to regain its wetland functions, which will be beneficial to the PNAs of the AIWW.

Permanent Wetland Losses. The preferred alternative, Alternate W1R, would impact (dredge, fill, and shading) the largest area of saltwater. These activities and the subsequent loss of habitat may ultimately result in adverse impacts to the commercial fisheries that may utilize these areas for feeding, spawning, or nursery grounds. Impacting salt marsh areas would be more severe in the long term, due to the complete loss of habitat. Excluding shading impacts, the permanent saltmarsh impacts by alternative are: 0.17 hectare (0.41 acre) for Alternative W1R; 0.16 hectare (0.39 acre) for Alternative C1; and 0.27 hectare (0.67 acre) for Alternative C4. There is less habitat loss in open water areas, and there is potential for establishment of fouling communities along bridge pilings. Establishment of fouling communities would increase the diversity, abundance and distribution of organisms in the marine environment.

Secondary Turbidity. Disturbance of waterway bottom sediment would be greatest for Alternative C4, which would require the placement of four piers in the waterway. (Please see Section 4.2.2.1 for details of water quality impacts.) The preferred alternative (Alternative W1R) and Alternative C1 would each require three piers in waterways. Dredging in the AIWW would also be necessary under the Rehabilitation Alternative to replace the old support piles.

Barges and/or Temporary Work Bridges. The use of barges or temporary work bridges during construction would result in 1) a temporary loss of bottom habitat at each pier piling (for the temporary work bridge technique) or within the footprint of the sunken barge location (if sunken

barges are employed), 2) an increase in turbidity, and 3) possible dredge impacts. The use of floating work barges would create turbidity temporarily and may ultimately result in impacts to the commercial fishery species as discussed above in *secondary turbidity*. Also, if sunken, the platform barge would cause a temporary loss of bottom habitat from its sitting on the bottom of the channel. This temporary loss of habitat may result in a short-term adverse effect on populations of finfish and shellfish that utilize these areas.

Sunken construction barges used outside of the navigable portion of the AIWW in shallow waters could result in the temporary loss of bottom habitat. Populations of finfish and shellfish that utilize these areas may be adversely affected by the short term loss of the habitat.

A temporary work bridge used outside of the navigable portion of the AIWW in shallow waters would also result in the loss of bottom habitat due to the addition of temporary foundations. The loss of habitat would adversely affect populations of finfish and shellfish that utilize these areas during feeding, spawning, or as nursery grounds for juveniles.

In accordance with the "Memorandum of Agreement (MOA) Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines" (February, 1990), impacts to salt marsh will be avoided where possible. Impacts that cannot be avoided would then be minimized. Unavoidable wetland impacts would then be mitigated. Mitigation measures and other environmental commitments are discussed more fully in Sections S9 and 4.3.2. A list of relevant NCDOT BMPs is displayed in Section 4.4.

Federally Protected Species

Eleven federally-protected plant and animal species (from a North Carolina Natural Heritage listing as of July 9, 1996) have the potential to occur within the study area or on the Sunset Beach barrier island. There are no federally-protected amphibians or invertebrates likely to occur in the study area.

Consultations with the USFWS and the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act have been completed as part of the preparation of this Final EIS (please see letters from the NMFS and USFWS in Appendix F-III: 43-47; Appendix F-IV: 6-11). However, the USFWS and the NMFS will continue their monitoring of the Alternative W1R studies through the Section 404 permitting process.

Plants. The threatened sea beach amaranth (*Amaranthus pumilis*) has been observed in the eastern portion of the Sunset Beach barrier island. Since this plant is found on the barrier island, outside the project's construction limits, building the project would not directly impact the seabeach amaranth. Any secondary impacts which may occur to the sea beach amaranth would be due to build out of the island and would not be directly attributable to the proposed project (see Section 4.1.1.1 and 4.5).

The biological conclusion for this action is that the proposed project will have **no effect** on the seabeach amaranth.

Fish. Preferred habitat for the endangered shortnose sturgeon (*Acipenser brevirostrum*) occurs within the project area. Dredge and fill activities in the AIWW may temporarily impact foraging habitat available for sub-adult and adult shortnose sturgeon. However, NCDOT commits to following the provisions discussed in Sections S9 and 4.3.2. Accordingly, it can be concluded that the project construction will have **no effect** on the shortnose sturgeon (NCDOT, 1996d).

Reptiles. Four species of threatened and/or endangered sea turtles could occur in the project area: leatherback sea turtle (*Dermochelys coriacea*), Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), and green sea turtle (*Chelonia mydas*). The leatherback and Kemp's ridley sea turtles are listed as endangered, and the loggerhead and green sea turtles are listed as threatened.

Dredge and fill activities in the AIWW and other surface water areas may directly and indirectly impact suitable foraging and nesting habitat for these four turtles. The leatherback, Kemp's ridley, and green sea turtles may also be temporarily affected during construction.

Secondary impacts which could adversely affect the leatherback, loggerhead, and green sea turtle are increases in human use of the upper beach area on the barrier island. Furthermore, an increase in lighting that may accompany island development could result in disorientation of sea turtle hatchlings, thereby reducing nesting success. However, these secondary impacts to barrier island upper beach habitat are associated with build out of the island and changes in land use types, and are not related to the project alternatives being considered. The biological conclusion for this action is that the proposed project is **not likely to adversely affect** the four sea turtle species listed above.

Birds. Four species of threatened and/or endangered bird species occur within natural community types in the study area and barrier island. These birds are: threatened piping plover (*Charadrius melodus*), endangered peregrine falcon (*Falco peregrinus*), threatened bald eagle (*Haliaectus leucocephalus*), and endangered wood stork (*Mycteria americana*). The piping plover is found in habitats on barrier islands. The peregrine falcon, bald eagle, and wood stork may be found in habitats within the project area.

Dredge and fill activities within the coastal fringe evergreen forest, salt shrub, salt marsh, and surface water areas may result in direct loss of suitable habitat for the peregrine falcon (salt marsh, surface water), bald eagle (coastal fringe evergreen forest, salt shrub, salt marsh, surface water), and wood stork (salt marsh, surface water). However, construction is not likely to adversely affect individuals of these species since these species are mobile and large amounts of similar habitat are available in the project vicinity (Greiner, Inc., 1994g:36). Potential secondary impacts to these bird species associated with increased development and pedestrian traffic on the island would not be directly

attributable to the proposed project (see Section 4.1.1.1). The biological conclusion for this proposed project is that the project is **not likely to adversely affect** the protected bird species listed above.

Mammals. One endangered mammal, the West Indian manatee (*Trichechus manatus*), could occur within the surface waters in the project area. Dredge and fill activities in the AIWW may temporarily impact the habitat available to the manatee. NCDOT commits to the implementation of the USFWS precautionary measures as discussed in Sections S9 and 4.3.3.1; therefore, in-water construction activities of the preferred alternative (Alternative W1R) will have **no effect** to the manatee (USFWS, 1996b). However, if in the event that a manatee is observed during construction, a **may affect** scenario would apply and Section 7 Consultation with the USFWS would be initiated to resolve concerns over the species (NCDOT, 1996d).

Section 4(f) Properties

Section 4(f) of the US Department of Transportation Act provides protection for special properties. Section 4(f) properties include significant publicly owned parks and recreation areas, wildlife and waterfowl refuges, or any significant historic sites.

There are three publicly owned recreation areas in the project vicinity which are protected under Section 4(f). These properties are: 1) the beach below mean high water, 2) the Town of Sunset Beach public parking lot, gazebo, and beach area, and 3) the Town of Sunset Beach public beach access areas and easements.

The proposed action will not permanently or temporarily incorporate any publicly held land or properties identified as resources protected by Section 4(f).

The final Section 4(f) Evaluation is included in this EIS in Section 4.7. This evaluation was prepared in response to the US District Court's Memorandum Opinion regarding this project (F. Supp. 904 (E.D.N.C. 1990)) (see Sections S7 and 4.6.1).

S7 UNRESOLVED ISSUES OR AREAS OF CONTROVERSY

This project was first included in the NCDOT TIP in December 1978 (TIP No. B-682). Planning and environmental studies were undertaken in 1979 by the NCDOT. The first public meeting on the project was held at the Sunset Beach Town Hall on October 2, 1979.

During the original initial study period in the early 1980's, five alternatives were developed for further study and presented at a second public meeting (September 18, 1980). An EA was prepared addressing the five alternatives and was circulated on November 6, 1981. The EA recommended Alternative 1, a high-level fixed span west of the existing bridge. A Public Hearing was held on May 27, 1982.

Following the Public Hearing, Sea Trail Plantation was developed on the north side of NC 179. The project alternative recommended in the EA (Alternative 1) was revised to minimize effects to this property. A Public Hearing was held on June 25, 1985 to present the revised alternative. A Finding of No Significant Impact (FONSI) was circulated on December 9, 1985, in accordance with the National Environmental Policy Act (NEPA) procedures.

Following completion of the planning phase, design plans were prepared and right of way acquired for construction of the revised Alternative 1. After project bids were received and the construction contract was awarded by the State, the Sunset Beach Taxpayers Association (SBTA) brought legal action challenging the proposed project. On November 19, 1990, the United States District Court, Eastern District, Raleigh Division, ordered that an Environmental Impact Statement (EIS) be prepared prior to proceeding with the financing or construction of the project. The court has retained jurisdiction in this case and this document is the EIS required by the court.

The existing Sunset Beach pontoon bridge and its possible replacement are a continuing subject of community debate. Public opinion about the pontoon bridge can be divided into three general categories: 1) advocates for maintaining the existing bridge; 2) people who support improved access to the island; and 3) people who enjoy the "quaintness" of the existing bridge, but "hate" the bridge when delayed by it (Hayes and Associates, 1994b:30).

Public opinion about the Sunset Beach bridge was mixed in non-scientific surveys conducted during the 1986 and 1992 CAMA Land Use Plan update processes. As of December 1996, there had not been a scientific survey conducted to determine current public opinion concerning whether the existing bridge should be replaced. Whether to replace the current pontoon bridge has always been a subject of community debate and will probably always be a divisive community issue (Hayes and Associates, 1994b:31). Section 4.1.1.7 includes further detail on this topic.

During the studies conducted for this EIS, some issues related to the existing boat ramp off of the SR 1172 island causeway have remained unresolved. Portions of this boat ramp are within NCDOT-owned right of way and portions are within private property. Use of this boat ramp has been an "allowed trespass" for decades, but the ramp has not been officially maintained or recognized by any agency. Efforts are underway to relocate this boat ramp. Three potentially suitable alternate ramp sites have been identified in the vicinity of the Sunset Beach area. The NCDOT is presently evaluating these sites for feasibility in coordination with other state and federal agencies.

Direct outfall of stormwater runoff from the proposed bridge into the Tidal Salt (SA) waters of the AIWW has been noted by several agencies as an impact of concern because of the waters' designation as Primary Nursery Areas (PNA). Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practicable and feasible. The practicability of routing stormwater from the bridge's crest northward to the mainland is still under investigation. These mitigation measures will be evaluated fully during final design.

The impacts to wetlands from the construction of any of the build alternatives has also been an important issue for interested agencies. NCDOT recently completed a Wetlands Delineation Report that provides a more accurate estimate of the hectares (acres) that will be impacted from bridge construction activities of Alternative W1R. Mitigation for these impacts is discussed in Section 4.3.1.4 and in the Mitigation Plan for this project (Appendix H).

Contract specifications for construction techniques has also not been finalized and will not be resolved until the final design phase of the project. Because impacts differ among construction techniques, interested agencies have requested clarification on the anticipated construction techniques and their impacts that will be used, as well as clarification on the BMPs that will be implemented to minimize impacts to wetlands, water quality and other resources. Construction techniques are discussed in greater detail in Section 2.2.3.7. A list of relevant NCDOT BMPs is displayed in Section 4.4.

S8 REQUIRED PERMITS AND ACTIONS

Replacement or rehabilitation of the existing Sunset Beach pontoon bridge will result in several actions requiring environmental regulatory permits from state and federal agencies. A list of these permits, organized by issuing agency, is provided below. Section 4.11 provides a more detailed discussion of the permits.

Many of the environmental issues and mitigation measures discussed in this Final EIS will be further quantified and evaluated as preliminary and final engineering designs are completed. The actions which will occur after completion of the Final EIS are also described below.

Permits

North Carolina Division of Coastal Management
- Coastal Area Management Act (CAMA) Major Development Permit
- Federal Consistency Determination
- State Dredge and Fill Permit

North Carolina Division of Water Quality (DWQ)
- Section 401 Certification
- Stormwater Certification

North Carolina Division of Forest Resources
- Burning Permit

United State Army Corps of Engineers
- Section 404 Permit
- Section 10 Permit

United States Coast Guard
- Section 9 Permit

Subsequent Actions

The project development process will continue after the Final EIS is completed. The following is a description of the actions underway, events which will occur, and studies which will be completed prior to project construction. Coordination with resource agencies will continue throughout the entire process.

This Final EIS will be circulated for public and agency review. Prior to the Design Public Hearing and final engineering design, the Final EIS and Record of Decision (ROD) will be submitted to the US District Court for resolution of the case associated with Project B-682. After resolution by the US District Court, a Design Public Hearing will be held to receive public comments on the preliminary plans.

After circulation of this Final EIS for public review and consideration of all comments received, the Board of Transportation will initiate the preliminary design of the preferred alternative for construction, Alternative W1R. As part of the preliminary engineering design phase, the following studies will also be conducted:

- **Drainage and hydrological studies** for preliminary design of major drainage structures. Additional hydraulic modeling will be completed. Among other things, results of these studies will provide information on whether or not the Big Narrows channel will maintain its current self-flushing capabilities. Results of these studies will be incorporated into the mitigation plan as appropriate.

- **Boat launch relocation study** for the identification and evaluation of suitable sites for the relocation of the informal boat launch that would be displaced under the preferred alternative.

As stated previously, the NCDOT will maintain close coordination with all resource and permitting agencies throughout this process.

The final engineering design plans will be developed, taking into consideration all public comments received on the preliminary design plans and the Final EIS. The following studies will be prepared as part of the final design:

- **Drainage and hydrological studies** to identify and design minor drainage structures, including the evaluation of controlling bridge stormwater runoff.

- **Scour analysis** for main span of bridge across the AIWW.

- Design of a **traffic control plan** to provide access during the construction phase.

- **Geotechnical investigation** to recommend techniques and materials to overcome any soil limitations along Alternative W1R that are identified during the investigation.

- Finalization of **right-of-way limits**.

Other actions which must be completed prior to the start of project construction include, but are not limited to, the following:

- Preparation of an erosion control plan which incorporates BMPs
- Coordination with utilities for relocation/reconfiguration of systems
- Implementation of the Relocation Assistance Program
- Approval of all required permits and certifications

During project construction, the NCDOT will implement BMPs and will comply with all permit conditions. A listing of relevant BMPs is displayed in Section 4.4. Any additional measures to minimize environmental impacts that have been agreed upon during the ongoing consultations with resource agencies will also be implemented.

S9 ENVIRONMENTAL COMMITMENTS AND RECOMMENDATIONS

Commitments and recommendations to conduct additional studies during preliminary and final engineering design are made throughout this Environmental Impact Statement. Commitments to implement measures to minimize environmental impacts are also made. These studies and measures are summarized below. The process which will occur after completion of the Final EIS is described in Sections S8 and 4.11.

Socioeconomic Impacts

Mitigation for Direct Land Use Impacts. It is the policy of NCDOT to pay fair market value for all lands required for right of way. All necessary right of way will be acquired by the NCDOT prior to the start of construction activities.

Relocation Assistance. It is the policy of the NCDOT to ensure that comparable replacement housing and business sites be available prior to construction of federally-assisted projects. The NCDOT has three programs available to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments and Rent Supplement.

Community Facilities and Services. Efforts are underway to relocate the boat ramp that would be displaced under the preferred alternative. Three potentially suitable alternate ramp sites have been identified in the vicinity of the Sunset Beach area. The NCDOT will continue to evaluate these sites for feasibility in coordination with other state and federal agencies.

Utilities

NCDOT will coordinate with the Brunswick Electric Membership Cooperative (EMC) for any required relocation or reconfiguration of electrical distribution lines.

Hydrology and Drainage

Because the existing self-flushing capabilities of the Big Narrows channel would be unaffected by the preferred alternative, no mitigation would be necessary to maintain the flow of the channel; however, NCDOT will conduct additional modeling prior to construction, in order to ensure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained. (Greiner, Inc., 1996a).

Navigable Waterways. The NCDOT will coordinate with the US Coast Guard (USCG), the US Army Corps of Engineers (COE), and other resource agencies to ensure that the preferred alternative meets these agencies' standards for bridges over navigable waterways. In accordance with Section 9 of the Rivers and Harbors Act of 1899, the NCDOT will obtain a permit from the USCG for the Alternative W1R bridge over the AIWW. NCDOT will make every effort to maintain navigability of Big Narrows during the construction period for boats utilizing this waterway.

Under Alternatives W1R, C1, C4, and C3R, the NCDOT will work with the COE to develop measures to minimize construction impacts to waters of the US, including wetlands. In accordance with Section 404 of the federal Clean Water Act of 1977, a permit will be obtained for this work from the COE.

Further consultation with the COE will be conducted under Section 10 of the Rivers and Harbors Act of 1899 for any work affecting navigable waterways. The USFWS and the NMFS also review Section 10 and Section 404 permits. In addition, a State Dredge and Fill Permit will be obtained from the North Carolina Division of Coastal Management since the project will involve excavation and/or filling activities in estuarine waters, tidelands, and marshlands. For all construction activities associated with the project, BMPs will be implemented, where practicable. A list of relevant NCDOT BMPs is displayed in Section 4.4.

Floodplains. A systematic hydrological and flood study will be incorporated into the final design of Alternative W1R to ensure vertical clearances are adequate.

All new bridges will be designed to meet federal, state, and local regulations related to flooding, floodplains, and scour protection. A scour analysis will be conducted during final design of the Alternative W1R.

Water Quality

The NCDOT will incorporate measures into the design of Alternative W1R to control non-point source water quality impacts as described in the NCDOT's "BMPs for Protection of Surface Waters" (NCDOT, 1991). These measures will be incorporated into the final engineering design of Alternative W1R and will be detailed in an erosion and sedimentation control plan. This plan will be prepared in accordance with the guidelines and requirements of the North Carolina Sedimentation Pollution Control Act (15A NCAC 4B.0001-0027). Selection and implementation of the BMPs will be consistent with the NCDOT's statewide National Pollutant Discharge Elimination System permit and will reflect coordination with the DWQ.

Since the preferred alternative (W1R) would cross over SA waters designated as PNAs (see Section 3.2.2.1), the practicability of providing hazardous spill catch basins will be further investigated in accordance with NCDOT's BMPs. (A list of relevant NCDOT BMPs is displayed in Section 4.4.)

For the same reasons and because the length and the percent grade of the proposed structure allow consideration for such measures, the routing of stormwater from the bridge to dispersion areas on the mainland or island instead of the use of scupper holes will be evaluated for feasibility and practicability. Suitable areas for stormwater detention or flow dispersal are located in the vicinity of the proposed structure on the island side of the project and, therefore, enable this measure to be considered for effectiveness and practicality. Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practicable and feasible. The practicability of routing stormwater from the bridge's crest northward to the mainland is still under investigation. These mitigation measures will be evaluated fully during final design.

Alternative W1R will be designed to comply with State water quality standards. Water quality certification from the DWQ, formerly a part of the North Carolina Division of Environmental Management (DEM), will be obtained prior to construction, in accordance with the 1982 amendments of the Clean Water Act. This certification will be coordinated through the federal Clean Water Act Section 404 dredge and fill permitting process for wetlands and through the CAMA permitting process for major developments (CAMA Major Development Permit).

Geology and Soils

Since Alternative W1R is located very near the alignment of Alternative W1, the results of the 1990 geotechnical survey conducted by Westinghouse Environmental and Geotechnical Services will be used as much as possible in the design of Alternative W1R. The NCDOT will conduct additional geotechnical investigations, if necessary, to further define the soils and geologic conditions in Alternative W1R's corridor.

Soil and geologic limitations will be overcome through proper engineering design, incorporating techniques such as soil modification and the use embankment material meeting NCDOT standard specifications.

Hazardous Materials

During preliminary engineering design, additional investigations will be considered for those sites potentially impacted by Alternative W1R's right of way. The scope of these investigations, if necessary, will also be determined by the NCDOT during the engineering design phase.

Wetland Biotic Communities and Areas of Environmental Concern

The NCDOT, in consultation with the COE and the North Carolina Division of Coastal Management, will incorporate measures into the Alternative W1R's design which will minimize impacts to wetlands and other areas of environmental concern. For all construction activities associated with the project, BMPs will be implemented, where practicable. A list of relevant

NCDOT BMPs is displayed in Section 4.4. Through a joint application process, permits will be obtained from the COE pursuant to Section 404 of the Clean Water Act (33 CFR Part 323) and Section 10 of the Rivers and Harbors Act, and from the North Carolina Division of Coastal Management pursuant to CAMA.

A mitigation plan detailing the measures which will be implemented to compensate for unavoidable wetlands impacts has been prepared for review by the COE and is included as Appendix H of this document. Mitigation requirements are determined on a site-by-site basis. Mitigation measures may include wetland restoration, enhancement of existing wetlands, creation of new wetlands, erosion control, and/or acquisition of land for preservation purposes.

Present mitigation policies call for in-kind replacement within the project area (Greiner, Inc., 1994g:42). Potential mitigation sites within the project area for the preferred alternative include the segment of the island causeway between the beginning of the new bridge approach and the AIWW. The portion of this segment of the causeway within NCDOT right of way will be restored to salt marsh. NCDOT will attempt to acquire and restore the portion of the causeway that is privately owned. Details of the Mitigation Plan are contained in Appendix H.

Compensation efforts necessary to minimize net impacts to wetland values will be defined based on the importance of the wetlands affected. Specific mitigation requirements will be determined by the COE during the Section 404 permitting process and will be included as conditions of permit approval.

Fisheries Resources

In order to minimize adverse turbidity impacts to fisheries resources (including the federally endangered shortnose sturgeon), turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method. For all construction activities associated with the project, BMPs will be implemented, where practicable. A list of relevant NCDOT BMPs is displayed in Section 4.4. As noted in the Wetland Biotic Communities and Areas of Environmental Concern committments section above, NCDOT commits to restoring the portion of the causeway within NCDOT right of way to salt marsh. NCDOT will also attempt to acquire and restore the portion of the causeway that is privately owned. Restoration of this area will help ameliorate potential impacts from necessary benthic disturbance by allowing the former causeway to regain its wetland functions, which will be beneficial to the PNAs of the AIWW.

Protected Species

Consultations with the USFWS and the NMFS under Section 7 of the Endangered Species Act have been completed as part of the preparation of this Final EIS (see letters from the NMFS and USFWS in Appendix F-III: 43-47; Appendix F-IV: 6-11). However, the USFWS and the NMFS will continue their oversight of the construction of Alternative W1R through the Section 404 permitting process.

NCDOT commits to the implementation of High Quality Water erosion control standards for all construction related activities for the project. As noted for the protection of fisheries resources, turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method. As committed for fisheries resources, BMPs will be implemented, where practicable, for all construction activities associated with the project. A list of relevant NCDOT BMPs is displayed in Section 4.4. With the implementation of these provisions, it can be concluded that the project construction will have no effect on the shortnose sturgeon (NCDOT, 1996d).

NCDOT will also commit to the strict implementation of the precautionary measures noted in the USFWS paper titled, "Precautions for General Construction in Areas which may be used by the West Indian Manatee in North Carolina." Therefore, in-water construction activities of the preferred alternative (Alternative W1R) will have no effect on the manatee (USFWS, 1996b). However, if in the event that a manatee is observed during construction, a may affect scenario would apply and Section 7 Consultation with the USFWS would be initiated to resolve concerns over the species (NCDOT, 1996d).

The NCDOT will keep the North Carolina Natural Heritage Program (NHP), the North Carolina Botanical Gardens, and the North Carolina Wildlife Resources Commission (WRC), and other interested agencies informed regarding the status of the proposed project. NCDOT will encourage these agencies to conduct field surveys during project design to determine whether state-listed species are present. If any of these species are found within the project area, the NCDOT will coordinate with these agencies to facilitate the transplantation of affected state-listed communities to suitable relocation sites.

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CHAPTER 1

1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

This Environmental Impact Statement (EIS) has been prepared in accordance with the requirements set forth in the National Environmental Policy Act (NEPA) of 1969, as amended, and the North Carolina (State) Environmental Policy Act (SEPA). This EIS is an informational document intended for use by both the decision makers and the public. As such, it represents a disclosure of relevant environmental information concerning the proposed action.

The content of this EIS conforms with the requirements of the Council on Environmental Quality (CEQ) guidelines, which provide direction regarding implementation of the procedural provisions of NEPA (23 CFR 771), and the Federal Highway Administration's (FHWA) *Guidance for Preparing and Processing Environmental and Section 4(F) Documents* (Technical Advisory T6640.8A, October 1987).

The FHWA and the North Carolina Department of Transportation (NCDOT) are the lead agencies for this project. The US Army Corps of Engineers (COE) and the US Coast Guard (USCG) are cooperating agencies.

1.2 DESCRIPTION OF PROPOSED ACTION

The proposed action is the replacement of Bridge No. 198 on Secondary Road 1172 (SR 1172) in Brunswick County, North Carolina. Bridge No. 198 spans the Atlantic Intracoastal Waterway (AIWW) and connects the island portion of the Town of Sunset Beach with the mainland portion of the town.

This bridge replacement is identified as Project Number B-682 in the NCDOT's 1997-2003 Transportation Improvement Program (TIP) (NCDOT, 1996g, [noted in the Draft EIS as NCDOT (1995a)]). Project B-682 is programmed in the TIP for planning and environmental studies. A schedule for design, right of way, and construction is not included in the TIP since Project B-682 is currently the subject of a US District Court case (see Sections S7 and 1.3.2).

In May 1996, the existing bridge was inspected and determined to be in poor condition. The bridge was given a sufficiency rating of 7.3 on a scale of 0 to 100, with 100 being perfect condition (NCDOT, 1996a). This rating reflects improvement from repairs since its previous rating of 4.0 in February 1994 (NCDOT, 1994a). These ratings are used as a standard method for evaluating the relative sufficiency or deficiency of a bridge. They comprise the sum of values calculated for structural adequacy and safety, serviceability and functional obsolescence, and essentialness for public use, minus the value calculated for special reductions. Special reductions to sufficiency ratings include penalties for bridges with limited access and long detours.

The purpose of the project is to replace the structurally deficient and functionally obsolete existing bridge. In general, structurally deficient bridges are those which are in relatively poor condition or have insufficient load-carrying capacity which may be due to original design or to deterioration. Functionally obsolete bridges are those which are narrow, have inadequate underclearances, have insufficient load-carrying capacity, or are poorly aligned with the roadway and can no longer adequately service current traffic.

The existing Sunset Beach bridge is a single-lane, floating steel-barge, swing-span draw bridge, with fixed wooden approach spans, which is often referred to as a pontoon bridge. Since the bridge provides only a few feet of vertical clearance under the approach spans, virtually all waterway traffic (except small john boats) is blocked when the bridge is closed to allow roadway traffic to cross.

Replacement of the existing pontoon bridge with a new structure would provide a more reliable means of transportation between the island and the mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures. Furthermore, a new facility would enhance vehicular operations on SR 1172 and watercraft operations on the AIWW.

Three build alternatives are evaluated in this EIS. Two are high-level fixed span bridges having 19.8 meters (65 feet) of vertical clearance over the 27.4-meter-wide (90-foot-wide) maintained AIWW channel, and one is a mid-level bascule bridge (drawbridge) having 9.1 meters (30 feet) of vertical clearance. A No-Build Alternative and a Rehabilitation Alternative are also discussed. Chapter 2 describes these alternatives in more detail.

1.3 BACKGROUND

1.3.1 Project Setting

The location of the project in relation to the state of North Carolina is presented in Exhibit 1.1. Exhibit 1.2 shows the project study area, which is located in the Town of Sunset Beach, Brunswick County, in the extreme southeastern part of North Carolina. The general study area includes the area around the existing bridge and SR 1172 that is bounded by North Shore Drive on the island portion of Sunset Beach and Station Trail on the mainland.

Ocean Isle Beach is the next developed beach up the coast from Sunset Beach. Down the coast, the next developed beach is Cherry Grove Beach, South Carolina. The mainland towns of Seaside (up the coast) and Calabash (down the coast) are the towns adjacent to Sunset Beach. The largest municipality in the area is Shallotte, located on US 17, northeast of Sunset Beach.

The project area is on the coastal plain and the topography is relatively flat, at an elevation close to sea level. The prominent natural features in the immediate project area are the AIWW and adjacent undeveloped salt marsh. Details of the natural habitats and wildlife in the area are described in Section 3.3 - Existing Natural Environment.

Sunset Beach is a resort community and its economy is based upon real estate development, resort rentals, tourism, golf, and travel. The island portion of the Town has sandy beaches, and pier- and surf-fishing. The mainland has four championship golf courses. These facilities attract thousands of vacationers each year (Hayes and Associates, 1994a:10).

The seasonal influx of tourists has created an economy in which most businesses operate only during the peak season. However, the year-round population of Sunset Beach more than doubled between 1980 and 1990, and nearly doubled again between 1990 and 1993. Consequently, the number of commercial facilities remaining open year-round is increasing in order to serve the expanding year-round population (Hayes and Associates, 1994a:10). Population and economic characteristics of Sunset Beach are described in more detail in Sections 1.3.4 and 3.1.1.

1.3.2 Project History

The project was first included in the NCDOT TIP in December 1978 (TIP No. B-682). Planning and environmental studies were undertaken in 1979 by the NCDOT Planning and Environmental Branch. The first public meeting was held in the Sunset Beach Town Hall on October 2, 1979.

During the initial study period in the early 1980's, a total of ten preliminary replacement alternatives were developed, which were then reduced to five for further study. These five alternatives included:

a high-level fixed span located either to the west side or east side of the existing bridge (Alternatives 1 and 2), a mid-level bascule bridge (drawbridge) located either to the west side or east side of the existing bridge (Alternatives 3 and 4), or a low-level bascule bridge located to the west side of the existing bridge (Alternative 5). An exhibit showing these five alternatives is contained in Appendix A.

A second public meeting was held on September 18, 1980, to receive comments on these five alternatives. An Environmental Assessment (EA) was prepared and circulated on November 6, 1981. The EA recommended Alternative 1 (high-level fixed span west of the existing bridge). A Public Hearing was held on this proposed replacement on May 27, 1982.

Following this Public Hearing, Sea Trail Plantation was developed on the north side of NC 179. Alternative 1 would have a substantial effect on this property. As a result, Alternative 1 was revised and a second Public Hearing was held on June 25, 1985. The revised Alternative 1 was the recommended replacement at that time. A Finding of No Significant Impact (FONSI) was completed on December 9, 1985, in accordance with the NEPA procedures.

Following completion of the planning phase, design plans were prepared and right of way acquired for construction of revised Alternative 1. After project bids were received and the construction contract was awarded by the NCDOT, the Sunset Beach Taxpayers Association (SBTA) brought legal action challenging the proposed construction of the high-level fixed span bridge. On November 19, 1990, the United States District Court, Eastern District, Raleigh Division, ordered that an EIS be prepared prior to proceeding with the financing or construction of the project.

The court retains jurisdiction in this case, and this document is the EIS required by the court. Alternatives evaluated in this EIS and the history of their development are described in Chapter 2.

1.3.3 Existing Bridge Operations and Condition

The existing bridge is a single-lane, floating steel-barge, swing-span draw bridge, with fixed wooden approach spans, which is often referred to as a pontoon bridge. Exhibit 1.3 is a photograph of the existing bridge. It crosses the AIWW near waterway mile marker 337.9.

The original bridge was constructed around 1953 by a private developer of the Sunset Beach area. The island causeway was added to the State System in 1960 as SR 1172, at which time the bridge underwent substantial reconstruction. The bridge has been maintained by the NCDOT since it re-opened in 1961. Since then, repairs and maintenance to the existing pontoon bridge have been extensive. The floating barge and creosote pile clusters have been replaced twice; joists, deck boards, and bridge rails have been replaced with treated timber when needed; the fender system has been reconstructed and replaced; the types of cable operating the bridge and counterweights have been upgraded; and in 1991, the cable system was changed from friction winches to hydraulic

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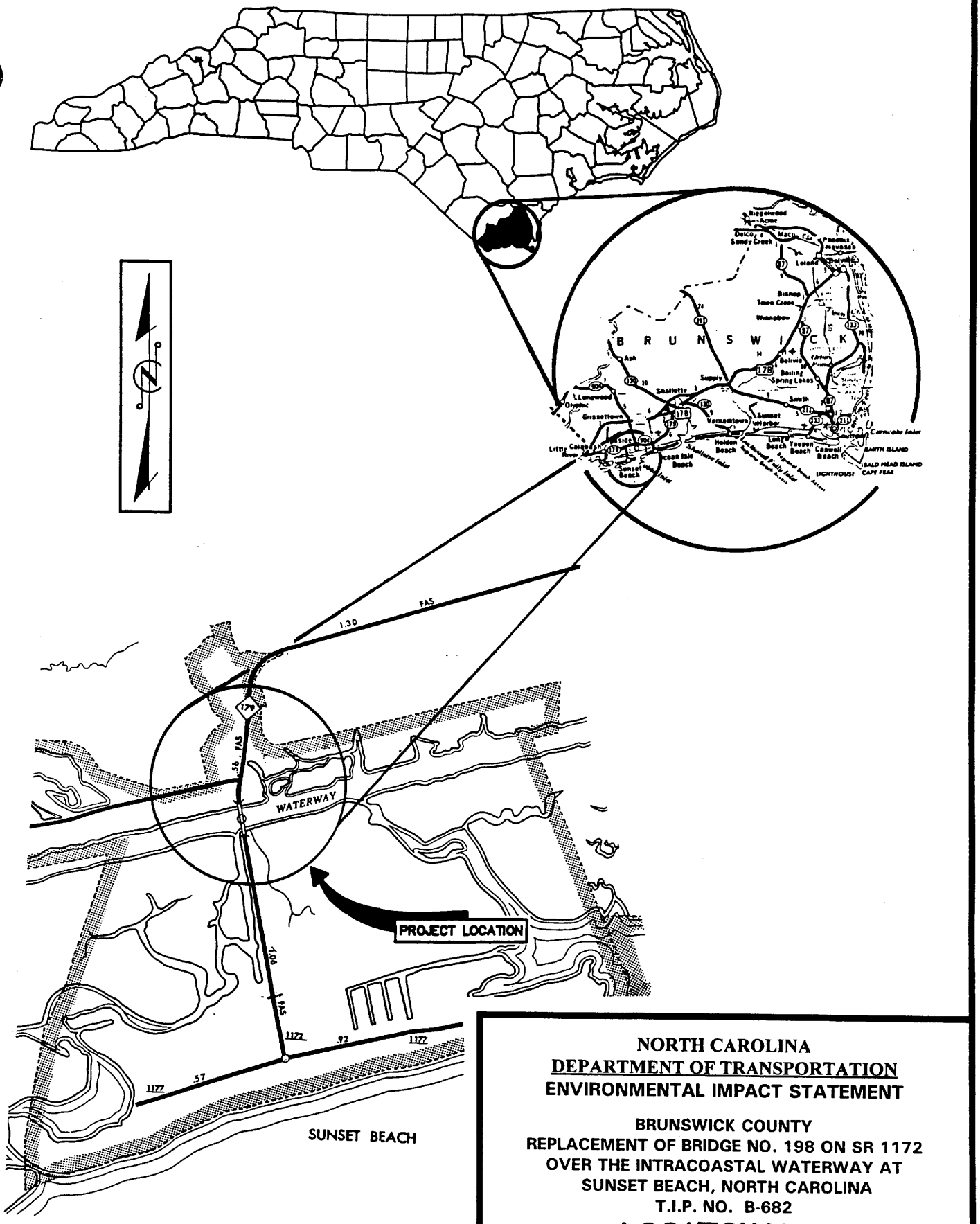
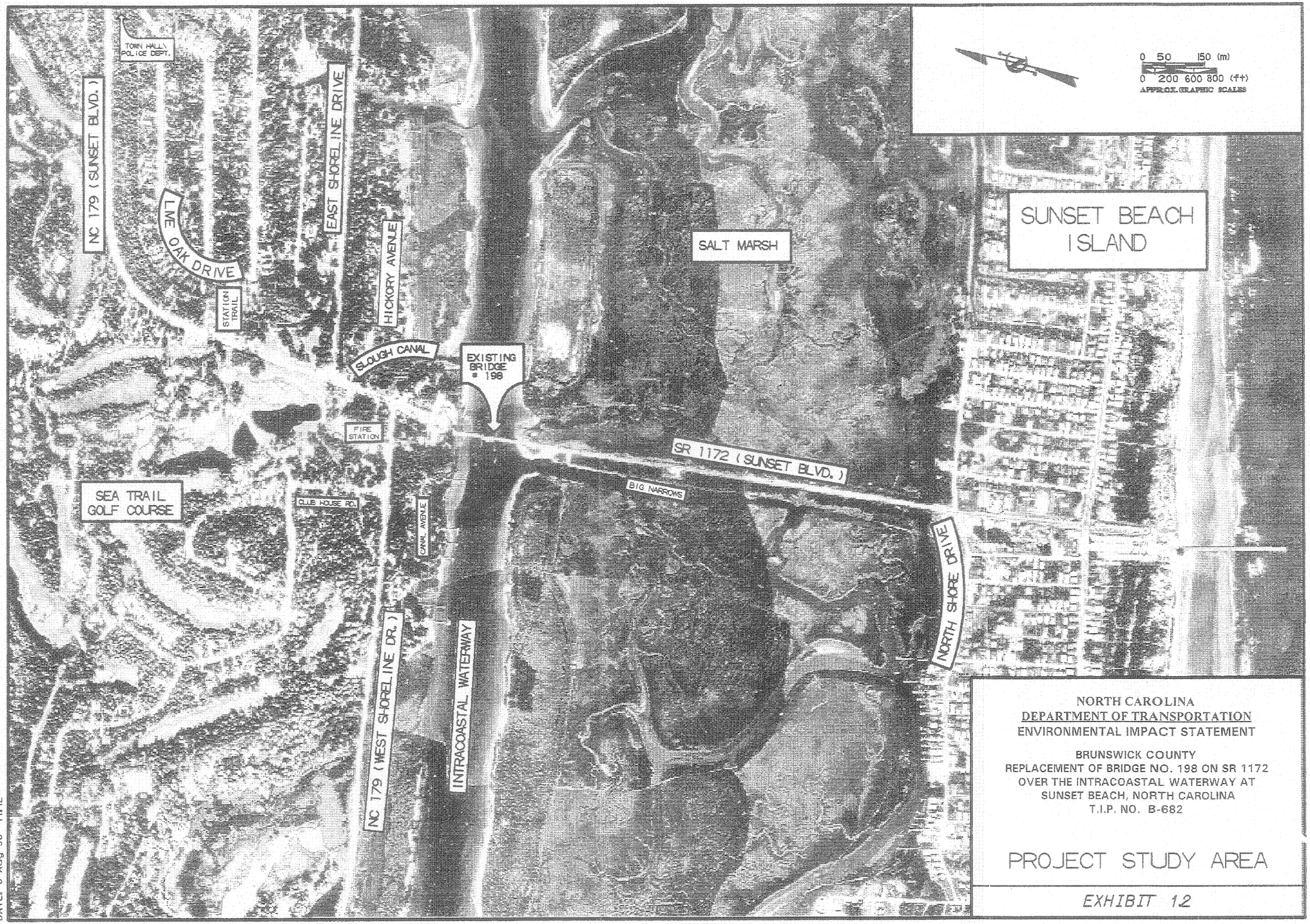


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

LOCATION MAP

EXHIBIT 1.1



NORTH CAROLINA
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ENVIRONMENTAL IMPACT STATEMENT

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REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
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PROJECT STUDY AREA

EXHIBIT 1.2

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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
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EXISTING BRIDGE
(LOOKING TOWARD ISLAND)

EXHIBIT 1.3

winches (NCDOT, 1993a:4). The costs of operating and maintaining the existing pontoon bridge from 1979 through 1993 are detailed in the Preliminary Alternatives Report (Greiner, Inc., 1994d).

The bridge was last inspected in May 1996 (NCDOT, 1996a). Its present condition is rated as poor, with a sufficiency rating of 7.3 on a scale of 0 to 100, with 100 being perfect condition. The bridge is designated as being structurally deficient and functionally obsolete. Due to its poor condition, maximum load limits have been imposed and are marked with signs along the roadway. Single vehicles are limited to 14.5 metric tons (16 tons), and trucks and trailers are limited to 19 metric tons (21 tons).

The floating barge part of the bridge is connected to the fixed wooden approach spans by metal ramps, which provide a continuous surface between the barge and fixed spans. To open the bridge to waterway traffic, the metal ramps are lifted up off the wooden spans and steel cables pull the floating barge to the side, creating an opening for watercraft. A bridge operator is present 24 hours a day in the small control building located on the floating barge (see Exhibit 1.3).

The existing bridge provides single-lane traffic movements controlled by signals at each end of the bridge. The traffic signals on each approach alternate between red (stop) and green (go) phases to allow about 7-10 vehicles to cross the bridge from one direction at a time. Additional impediments to vehicular traffic movement occur during periods of high and low tide, when traffic must cross steep ramps connecting the floating barge with the fixed approach spans. Steep ramps are a concern for long, low-built vehicles, such as fire engines and ambulances, and for vehicles pulling trailers since underside drag may occur.

Waterway traffic is blocked with the bridge in the closed position, although small john boats can pass under the approach spans if the tide level provides adequate clearance. The bridge generally remains in the closed position to allow vehicular traffic to cross. The opening and closing procedure requires approximately ten minutes to allow passage of a single boat. During peak periods, considerable delays are experienced by both motorists and boaters.

During the peak boating season (April 1 to November 30), the bridge opens on demand for commercial vessels and once an hour, on the hour, to allow passage of pleasure craft. During the off-peak season (December 1 to March 31), the bridge is opened on demand for all vessels. Prior to 1994, scheduled bridge openings for pleasure craft were in effect from April 1 to September 30. In 1994, at the request of the NCDOT, the USCG extended the bridge opening restrictions by two months, and scheduled openings now last from April 1 to November 30. The purpose of the change is to help reduce highway traffic congestion and to address public safety and welfare concerns associated with frequent on-demand bridge openings caused by recreational boat traffic (USCG, Public Notice 5-836).

1.3.4 Social and Economic Development

In 1993, the year-round population of Sunset Beach was estimated to be 269 on the mainland and 246 on the island. The 1993 peak seasonal population rose to 7,056 people on the island and 1,772 people on the mainland (Hayes and Associates, 1994a:8). Day visitors using the beach, fishing, or playing golf are not included in these estimates.

Sunset Beach's economic base mainly consists of service industries, including: two motels, beach house rentals, restaurants, gift shops, and privately-owned recreational facilities. There are no agricultural, farming, forestry, manufacturing, or industrial uses within Sunset Beach's jurisdiction (Hayes and Associates, 1994a:10). Continuing real estate development and sales in the Town will most likely foster increases in year-round population. As the numbers of permanent residents increase, the demand for local services will also rise, which will expand the Town's economic base. However, as stated in the Town's 1992 Coastal Area Management Act (CAMA) Land Use Plan, "Intense commercial development, beyond that necessary to serve year-round residents and tourists, will not be encouraged" (Town of Sunset Beach, 1992:70).

The current extraterritorial area (ETA) of Sunset Beach, which is on the mainland, contains large vacant land tracts which are expected to be the major focus of development over the next 20 years. The Rees Jones golf course and the proposed Angel Trace or Pearl II golf course are located in this area. Applications for residential subdivisions surrounding these golf courses are beginning to be submitted. There is also the potential, based on existing zoning, for 649 new residential units on the island (Hayes and Associates, 1994a:24).

As the population of Sunset Beach increases, traffic traveling across the Sunset Beach bridge will also increase. Many of the Town's recreational facilities, which are the base of the Town's tourism industry, are located on the island. The existing safety and traffic delay problems associated with the current pontoon bridge are likely to worsen as the bridge ages and traffic volumes increase.

Sections 3.1.1 and 4.1.1 discuss socioeconomic conditions, impacts, and benefits in more detail. Section 1.6 discusses safety issues associated with the existing bridge.

1.4 PLANNED AND PROGRAMMED ROAD IMPROVEMENTS

The NCDOT's 1997-2003 TIP includes several projects in the study area. The closest TIP project to the Sunset Beach Bridge is TIP Number R-3106. Currently under construction, this project will improve the existing two-lane NC 179 segment which extends from just north of Calabash, past SR 1172, to the center of Shallotte. This segment of NC 179 is 14.2 kilometers (8.8 miles) long. Two portions of this segment will also be widened to three lanes in addition to being improved. These two areas are: 1) from NC 904 to SR 1184, and 2) inside the Shallotte town limits. Both of these two areas scheduled for widening to three lanes are east of the Sunset Beach bridge, the nearest beginning about three kilometers (two miles) away at the Pelican Square shopping center and extending eastward to SR 1184. TIP Number R-3106 is scheduled for completion in 1999.

Recently completed, TIP Number R-3108 improves NC 904 from just north of NC 179 to US 17. This project involved widening the segment of NC 904 between NC 179 to SR 1163 to three lanes and widening the segment of NC 904 between SR 1163 and US 17 to 7.3 meters (24 feet) with paved shoulders. The entire length of this project is 5.3 kilometers (3.3 miles).

Two other TIP projects are also in the vicinity of the project: TIP Number R-3432 and TIP Number R-3433. TIP Number R-3432 would widen SR 1163 from US 17 to NC 11, spanning 3.9 kilometers (2.4 miles) . Scheduled for completion in year 2002, this project is only in the planning stage at this time. TIP number R-3433 is currently under construction and is scheduled for completion by mid-1998. This project will upgrade the segment of SR 1184 between NC 1790 and US 17 over a distance of 5.8 kilometers (3.6 miles).

Identified as a future need in Brunswick County in the 1997-2003 TIP, R-3436 is a proposed new route for I-74 between US 17 at the South Carolina state line and Whiteville, North Carolina. Six corridors for this route (49.9 kilometers [31.0 miles]) were evaluated in a feasibility study completed in January 1996; however, no corresponding environmental studies or imminent schedules exist for this project.

No other major roadway improvements are proposed in the TIP for the project vicinity.

1.5 TRAVEL DEMAND

1.5.1 Roadway System

The traffic volumes and levels of service (LOS) discussed in this section were taken from the Traffic Capacity Analysis (Greiner, Inc., 1994a) prepared for this project and appended by reference.

1.5.1.1 Existing Road Network and Traffic Volumes

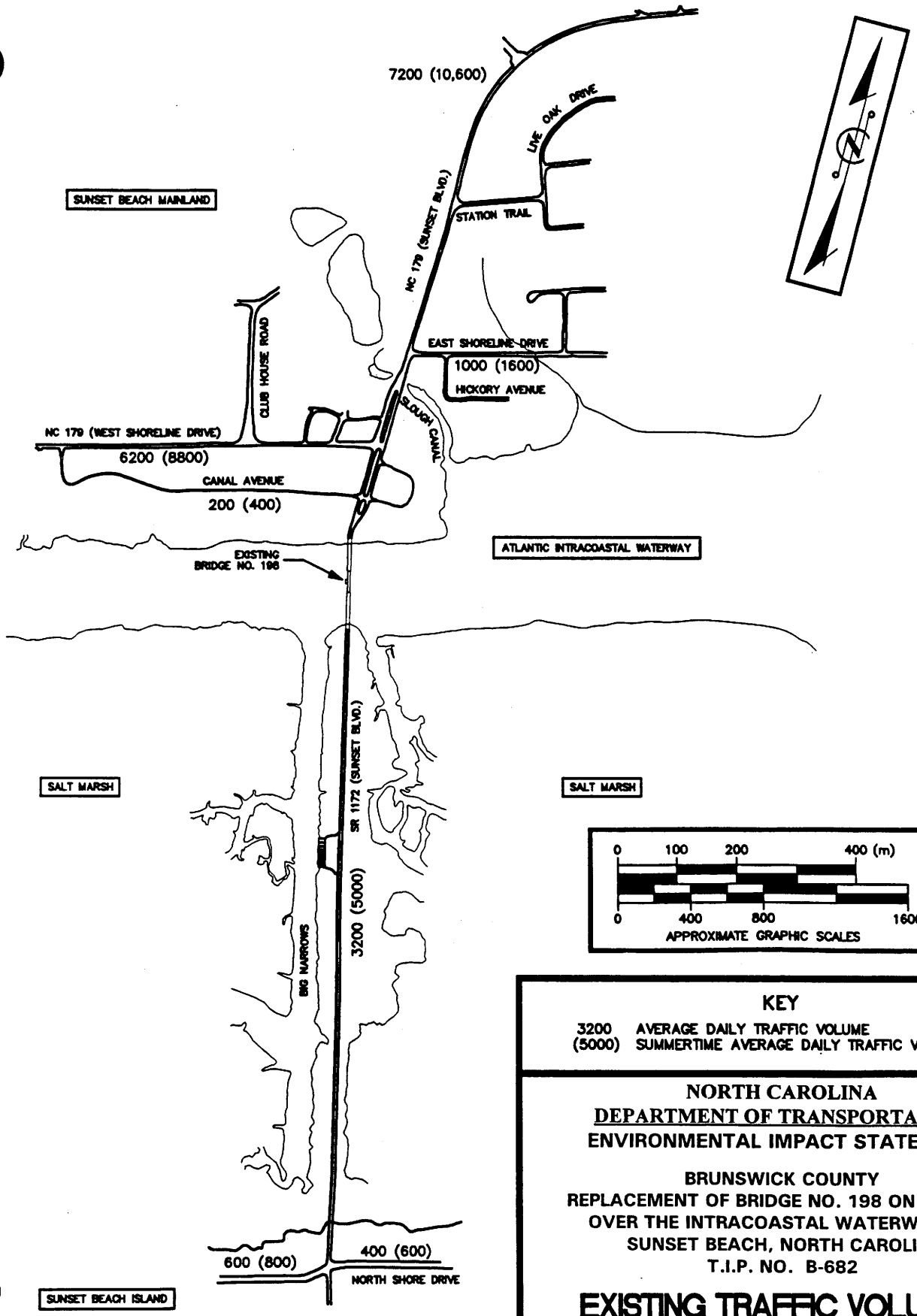
Existing Road Network. Exhibit 1.2 shows the existing roads and bridges in the study area. SR 1172 (Sunset Boulevard) and the existing pontoon bridge provide the only vehicular access to and from the island portion of Sunset Beach.

On the developed part of the island, SR 1172 connects with North Shore Drive and Main Street, which run the length of the island. SR 1172 then runs north along a causeway through a saltmarsh area between the developed part of the island and the AIWW. On the mainland, SR 1172 connects with NC 179, about 304.8 meters (1,000 feet) north of the bridge. NC 179 makes a 90-degree turn at this intersection and the segment of NC 179 west of the intersection is called West Shoreline Drive. The segment of NC 179 northeast of the intersection is called Sunset Boulevard (see Exhibit 1.4). Eastbound traffic on NC 179 has a stop sign at the NC 179/SR 1172 intersection.

SR 1172 is a two-lane, undivided roadway, except over the existing one-lane bridge. NC 179 (both the West Shoreline Drive and Sunset Boulevard portions) is also a two-lane, undivided roadway. North Shore Drive, on the island, is a two-lane local street.

Existing Traffic Volumes. Exhibit 1.4 shows the existing (1994) average daily traffic (ADT) volumes (ADTs) and peak summer ADTs on study area roads. As shown in the exhibit, traffic volumes are much higher during peak summer days. In 1994, the traffic volumes across the existing bridge (SR 1172) averaged 3,200 ADT, with volumes increasing to 5,000 ADT during the summer. During non-summer days, traffic volumes on NC 179 averaged 6,200-7,200 ADT. During peak summer days, these volumes increased to 8,800-10,600 ADT.

Existing Levels of Service. The level of service (LOS) is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists" (Transportation Research Board, 1985:1-3). The LOS is given as a letter designation from A through F, which can be applied to both roadway segments and intersections. LOS A represents the best operating conditions, and LOS F the worst. Table 1.1 describes the traffic conditions generally associated with each LOS designation. These levels of service are for periods when the bridge is open to allow vehicular traffic to cross.



KEY

3200 AVERAGE DAILY TRAFFIC VOLUME
(5000) SUMMERTIME AVERAGE DAILY TRAFFIC VOLUME

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
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SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

EXISTING TRAFFIC VOLUMES

EXHIBIT 1.4

TABLE 1.1

LEVELS OF SERVICE DEFINITIONS

LEVEL OF SERVICE	SIGNALIZED INTERSECTION	ROAD SEGMENT
A	Very low delay (<5.0 seconds per vehicle). Most vehicles do not have to stop at all.	Free flow. Individuals are unaffected by others in traffic stream. Freedom to select speed and to maneuver is extremely high. Comfort level and convenience are excellent.
B	5.1-15.0 sec delay. Good progression and short cycle length.	Stable flow, but the presence of other vehicles begins to be noticeable. Slight decline in freedom to maneuver and level of comfort.
C	15.1 to 25.0 second delay. Fair progression and/or longer cycles. The number of vehicles stopping is significant.	Stable flow, but the beginning of the range of flow in which individual users become significantly affected by interactions with others. Speed selection is affected and maneuvering requires substantial vigilance. General level of comfort and convenience declines noticeably.
D	25.1 to 40.0 second delay. Many vehicles stop. Individual cycle failures are noticeable.	High-density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a poor level of comfort and convenience.
E	40.1 to 60.0 second delay. The limit of acceptable delay.	Operating conditions at or near the capacity level, usually unstable. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver is extremely difficult. Comfort and convenience are extremely poor, and driver or pedestrian frustration is generally high.
F	Delay in excess of 60.0 seconds. Considered unacceptable to most drivers.	Breakdown flow. Traffic is over capacity at points. Queues form behind such locations, which are characterized by extremely unstable stop-and-go waves.

Source: Transportation Research Board, 1985.

Table 1.2 lists the existing peak-hour levels of service for project area roadways and intersections. The segment of NC 179 in the project area is currently operating at LOS D during the peak hours and SR 1172 is currently operating at LOS B.

As shown in the table, most intersection turning movements are currently operating at LOS A during the peak hours. However, the left turn from Clubhouse Road onto NC 179 (West Shoreline Drive) is currently operating at LOS C during both evening and morning peak hours. The left turn movement from Station Trail onto NC 179 (Sunset Boulevard) is currently operating at LOS C in the morning and LOS D in the evening. The left turn from East Shoreline Drive onto NC 179 (Sunset Boulevard) is currently operating at LOS D during both peak hour periods.

1.5.1.2 Traffic Congestion Due to Bridge Openings

Each time the pontoon bridge opens to allow passage of watercraft, vehicular traffic is delayed along the roadways leading up to the bridge. Vehicles waiting to cross the bridge back up along NC 179 on the mainland and SR 1172 (Sunset Boulevard) on the island. After boats have passed and the bridge closes to allow for vehicular traffic to cross, many vehicles must continue to wait since only one direction of traffic can cross at a time. The signal light cycle typically allows groups of 7-10 cars to pass through. Vehicles may have to wait 10 minutes or more for the bridge to open and close, then wait an additional 10-20 minutes before being able to cross (Hayes and Associates, 1994b:3).

Occasionally, vehicles may be caught by two bridge openings if a commercial vessel approaches the bridge shortly after a scheduled routine opening and requests an on-demand opening (Hayes and Associates, 1994b:3).

Traffic congestion is so severe during the peak summer months that the Town of Sunset Beach stations two auxiliary police officers to control traffic near the bridge Friday afternoons through Sunday, from Memorial Day to Labor Day.

Based on a letter received from the United States Coast Guard commenting on the preliminary Final EIS, the Sunset Beach Bridge does not balance the needs of highway and waterway traffic. In this letter, the Coast Guard stated,

> The Coast Guard is the regulatory agency responsible for ensuring that the regulations that govern drawbridges across navigable waters of the United States create an evan balance between vessel and highway traffic. An example of an unbalanced situation would be when a drawbridge opening for a recreational vessels, then closes only to open again for a commercial boater which compounds traffic congestion (Letter from the United States Coast Guard, F-IV: 12).

TABLE 1.2

EXISTING LEVELS OF SERVICE

Analysis Type	Segment or Intersection	Level of Service (LOS)[1]	
		Morning Peak Hours	Evening Peak Hours
Highway	NC 179 (two-lane road)	D	D
	SR 1172 (two-lane road)[2]	B	B
Unsignalized Intersection[3]	NC 179 (W. Shoreline Drive)/ NC 179 (Sunset Boulevard)	E A A	E A A
	Clubhouse Road/ NC 179 (W. Shoreline Drive)	C A A	C A A
	Canal Ave/ SR 1172 (Sunset Boulevard)	A A A	A A A
	Station Trail/ NC 179 (Sunset Boulevard)	C A A	D A A
	East Shoreline Drive/ NC 179 (Sunset Boulevard)	D A A	D A A

1. LOS rated from A-F, with A being best traffic conditions and F being worst traffic conditions
2. The levels of service listed for SR 1172 do not apply to the pontoon bridge since capacity analyses can not be applied to one-lane signalized facilities having periods when no vehicular movements are allowed to occur.
3. For Unsignalized Intersections: X = level of service for minor left turn
   X = level of service for minor right turn
   X = level of service major left turn

1.5.1.3 Year 2019 Roadway Traffic Projections

Traffic Volumes. Exhibit 1.5 shows the projected year 2019 traffic volumes for the study area roadways. A comparison of Exhibits 1.4 and 1.5 shows that traffic volumes are expected to double across the existing pontoon bridge (SR 1172) and increase by a factor of 2.7 on NC 179.

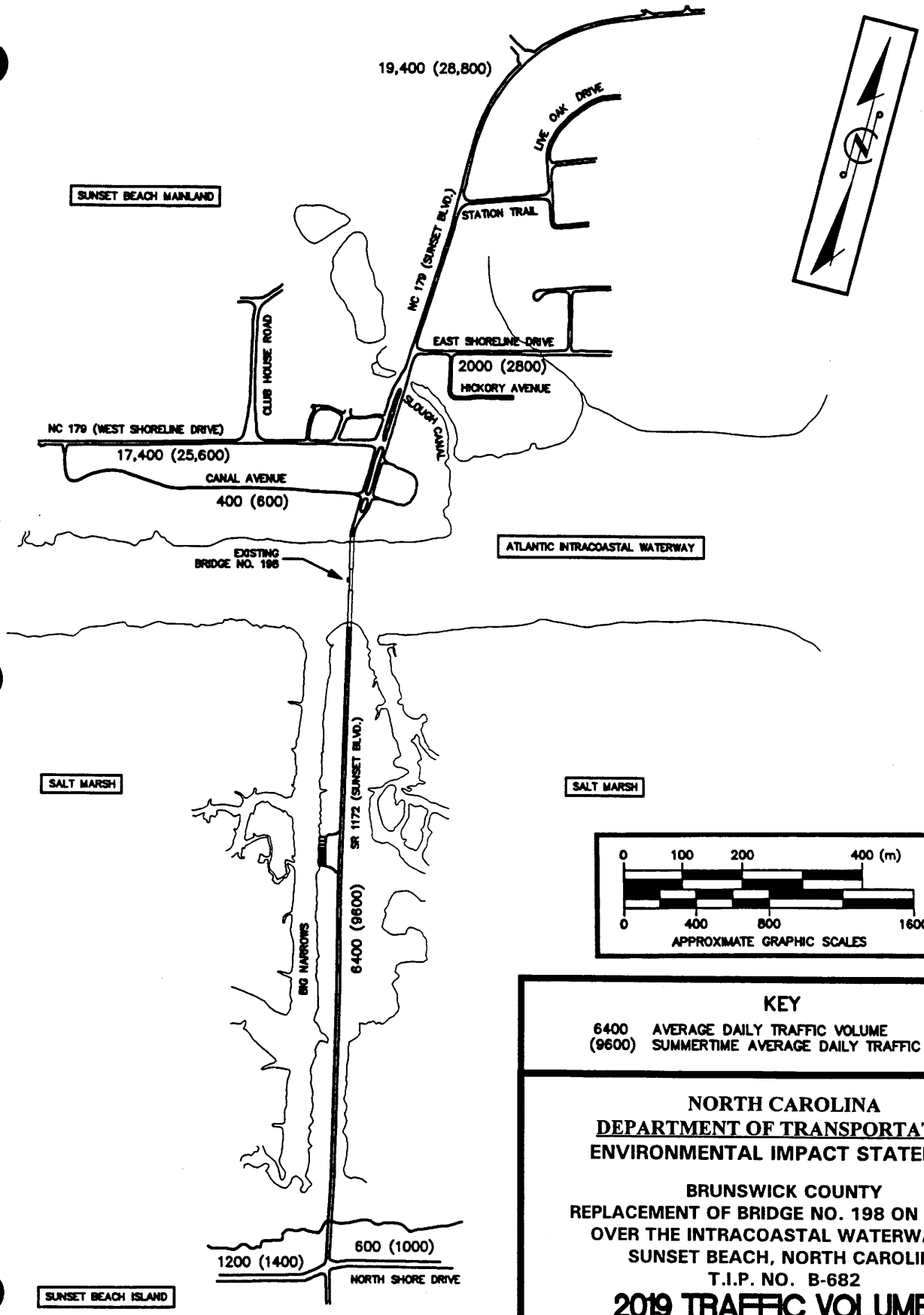
Future traffic volumes were estimated based on projected 2019 land uses consistent with the CAMA Land Use Plan. As discussed in Section 4.1.1.3, the rate and type of development on Sunset Beach island is not expected to be greatly affected by the type of bridge in place. Since the traffic projections are based on future land uses, the traffic projections are the same for each project alternative under consideration.

Under the No-Build Alternative and Rehabilitation Alternative (see Section 2.2.2), future traffic volumes may actually be slightly lower since discretionary trips to/from the mainland may not occur as often if frequent pontoon bridge openings create delays getting on and off the island. During summer peak hours, when delays would be greatest, future traffic volumes 10-15 percent lower than those presented in Exhibit 1.5, could occur based on studies conducted for bridges at Oak Island and Currituck Sound, North Carolina (NCDOT, 1995c). However, it should be noted that the future traffic volumes presented in Exhibit 1.5 were used to evaluate the No-Build Alternative since it is not known whether, or by how much, these projected traffic volumes would be reduced due to people forgoing some discretionary trips because of delays at the bridge.

Levels of Service. Roadway segments, signalized intersections, and unsignalized intersections were analyzed to estimate the levels of service which would exist during year 2019 peak travel hours under the No-Build Alternative. Table 1.3 shows the results of the analysis. NC 179 would operate at LOS E during non-summer morning and evening peak travel hours and LOS F during summertime morning and evening peak travel hours. SR 1172 (Sunset Boulevard) would operate at LOS C during peak hours on non-summertime days and LOS D during peak hours in the summer. The intersection of NC 179 and SR 1172 would operate at LOS C during the non-summertime peak hours and LOS F during the summertime peak hours. Vehicles are delayed at this intersection because traffic backs up waiting to cross the pontoon bridge.

Queuing Analysis. A queuing analysis was conducted to estimate queue lengths, the duration of traffic flow interruption, and the frequency of interruption due to bridge openings (Greiner, Inc., 1994b). This report is incorporated by reference into this EIS.

The queuing analysis assumed that the average opening time for the existing pontoon bridge is 10 minutes: four minutes to open the bridge, two minutes for watercraft to pass through, and four minutes to close the bridge. This average is based on 178 bridge openings observed during a week



KEY

6400 AVERAGE DAILY TRAFFIC VOLUME
(9600) SUMMERTIME AVERAGE DAILY TRAFFIC VOLUME

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

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2019 TRAFFIC VOLUMES

EXHIBIT 1.5

TABLE 1.3

YEAR 2019 LEVELS OF SERVICE
NO BUILD ALTERNATIVE

Analysis Type	Segment or Intersection	Level of Service (LOS)[1]			
		Morning Peak Hours	Evening Peak Hours	Summer Morning Peak Hours	Summer Evening Peak Hours
Highway	NC 179 (two-lane road)	E	E	F	F
	SR 1172 (two-lane road)[2]	C	C	D	D
Signalized Intersection	NC 179 (W. Shoreline Dr)/ SR 1172	C	C	F[3]	F[3]
Unsignalized Intersection[4]	Clubhouse Rd/ NC 179 (W. Shoreline Dr)	E B A	E D D	E D C	F E D
	Canal Ave/ SR 1172	C A A	C A A	D A A	D A A
	Station Trail/ NC 179 (Sunset Blvd)	E D D	E B B	E E D	E D D
	E. Shoreline Dr/ NC 179 (Sunset Blvd)	F E D	F C B	F E E	F E D

1. LOS rated from A-F, with A being best traffic conditions and F being worst traffic conditions
2. Volume at intersection exceeds maximum saturation flow rate.
3. The levels of service listed for SR 1172 do not apply to the pontoon bridge since capacity analyses can not be applied to one-lane signalized facilities having periods when no vehicular movements are allowed to occur.
4. For Unsignalized Intersections: X = level of service for minor left turn
   X = level of service for minor right turn
   X = level of service for major left turn

in August, 1993, and a week in October, 1993 (Greiner, Inc., 1994c). The length of time the bridge remained open ranged from 6-17 minutes, with 76 percent of the openings lasting 8-12 minutes.

Based on the 2019 summertime evening peak hour traffic projections, a maximum of 214 vehicles was assumed to cross the existing bridge. If the existing bridge opened at the beginning of the peak 15-minute period, about 147 passenger cars (86 southbound on the mainland and 61 northbound on SR 1172 on the island) would queue up during the 10 minutes the bridge is open. The southbound queue on the mainland "fills" the 152.4-meter (500-foot) length between the NC 179/SR 1172 intersection and the bridge entrance, and queues an additional 396.2 meters (1,300 feet) onto NC 179 (Sunset Boulevard portion) and 106.7 meters (350 feet) onto NC 179 (West Shoreline Drive portion). The northbound traffic on the island would queue up 464.8 meters (1,525 feet) along the causeway (Greiner, Inc., 1994b:2).

When the existing bridge completes its cycle allowing waterway vessels to pass and reopens to allow vehicular traffic to cross, vehicles in front of the queue begin discharging while others arrive at the back of the queue. The one-lane existing bridge requires mainland and island queues to alternate crossing. The queue is estimated to require about 27 minutes to dissipate during summer peak periods (Greiner, Inc., 1994b:2). The estimated queue lengths and durations were based upon the assumption that the bridge opens during the summer peak evening hour, which represents a worst-case scenario. The existing bridge is opened every hour on the hour for pleasure craft and on demand for commercial vessels, resulting in an average opening rate of 10.6 openings per day (Greiner, Inc., 1994c:7). The frequency, timing, and duration of these openings would make it very likely that the bridge would open during the evening peak 15 minute period (Greiner, Inc., 1994b:2).

1.5.2 Intracoastal Waterway Traffic

1.5.2.1 Waterway Traffic Volumes

The AIWW is a federally maintained channel system for shallow draft merchant vessels that extends 2,494 kilometers (1,550 miles) from Boston to Florida. Another section of the Intracoastal Waterway system extends 1,796 kilometers (1,116 miles) along the Gulf coast from Carabelle, Florida, to Brownsville, Texas. In 1989, about 3.1 million metric tons (3.4 million tons) of cargo moved through the Intracoastal Waterway system (Greiner, Inc., 1994k:5). In addition to merchant vessels, pleasure craft and fishing boats also use the waterway.

Exhibit 1.6 is a graph showing monthly vessel traffic volumes on the AIWW near Sunset Beach for 1986-1994. As shown in the graph, vessel traffic is greatest during the autumn and spring months. During these seasons, yachts and sail boats use the AIWW to migrate between their summer and winter berths, adding to the local commercial- and pleasure-craft traffic. The lowest vessel volumes occur during the winter months. There has been a small decrease in vessel traffic volumes from 1986 to 1994, but the general seasonal fluctuation patterns have remained constant. Future vessel

traffic volumes are not expected to vary substantially from the historical ranges of data shown in Exhibit 1.6.

1.5.2.2 Vessel Heights

A vessel height survey was conducted in August and October 1993, to determine the heights and frequency of watercraft passing through the existing bridge. This survey, the Vessel Height and Traffic Report (Greiner, Inc., 1994c), is appended by reference to this EIS.

The survey covered six days in August, and ten days in October, and included three weekends. Table 1.4 presents the results of the survey. When both August and October data are combined, the results show that about 34 percent of the vessels were under 4.6 meters (15 feet) in height, 63 percent were under 9.1 meters (30 feet) in height, and 72 percent were under 13.7 meters (45 feet) in height. While the percentage of tall vessels (13.7 meters [45 feet] or higher) was low (28 percent), they were relatively evenly dispersed throughout the course of the day, which means that any bridge, other than a high rise, would have to open throughout the day to allow passage for these tall boats.

1.5.2.3 Bridge Openings to Allow Watercraft Passage

Exhibit 1.7 is a graph showing the number of bridge openings for each year between 1985 and 1993. As shown in the graph, a significant decrease in bridge openings occurred after 1987, which was the year the bridge started a peak-season fixed opening schedule. The current (1994) fixed schedule for the bridge is to open for pleasure craft once an hour, on the hour, from April 1 to November 30. This is a change from previous years, when the fixed opening schedule ran from April 1 to September 30. The bridge is opened on demand for pleasure craft during the rest of the year (December 1-March 31) and at all times throughout the year for commercial vessels.

Based on the vessel height survey described in Section 1.5.2.2, the existing pontoon bridge opens an average of 10.0 times per day during the summer and 11.1 times per day during the fall to allow passage of watercraft (Greiner, Inc., 1994c:7).

A number of factors influence the regular openings of the existing bridge, including: bridge opening schedule, vessel type (commercial or pleasure), vessel traffic volume, distribution of occurrence, and vessel height. When the existing bridge is on a fixed opening schedule, only commercial vessels can request a bridge opening at an unscheduled time.

Pleasure craft must wait for the scheduled opening or for a commercial vessel to arrive. If vessel traffic is distributed evenly through the day, more openings may occur. Vessel height can also influence frequency of bridge openings, particularly for mid-level bridges. For the existing bridge, almost all vessels, except small john boats, require the bridge to open to allow passage.

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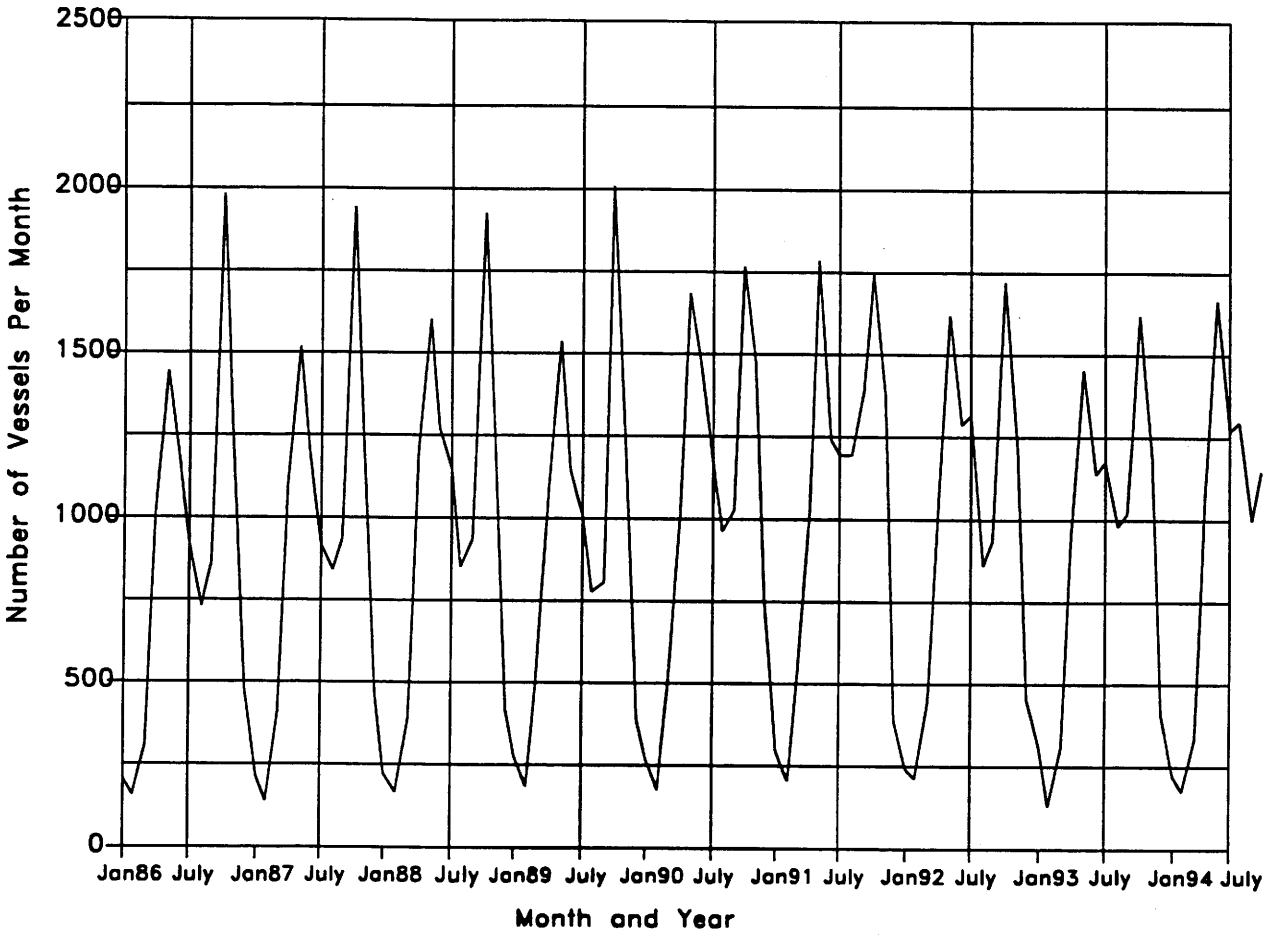
MONTHLY VESSEL COUNTS 1986-94 (present)
NEAR SUNSET BEACH PONTOON BRIDGE



Source: Greiner, Inc., 1994k

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

INTRACOASTAL WATERWAY
VESSEL COUNTS 1986-1994

EXHIBIT 1.6

TABLE 1.4

VESSEL HEIGHT SURVEY RESULTS

HEIGHT CATEGORY M (FT)	SURVEY COUNT*	PERCENT OF TOTAL	CUMULATIVE PERCENT
< 3 (10)	12	1.4	1.4
3.0-4.6 (10-15)	269	32.3	33.7
4.6-6.1 (15-20)	73	8.8	42.5
6.1-7.6 (20-25)	127	15.2	57.7
7.6-9.1 (25-30)	40	4.8	62.5
9.1-10.7 (30-35)	28	3.4	65.9
10.7-12.2 (35-40)	19	2.3	68.2
12.2-13.7 (40-45)	31	3.7	71.9
13.7-15.2 (45-50)	53	6.4	78.3
15.2-16.8 (50-55)	71	8.5	86.8
16.8-18.3 (55-60)	52	6.2	93.0
18.3-19.8 (60-65)	58	7.0	100.0
ALL VESSELS	833	100%	100%

Source: Greiner, Inc., 1994b.

* A cumulative count summed from August and October, 1993, survey periods.

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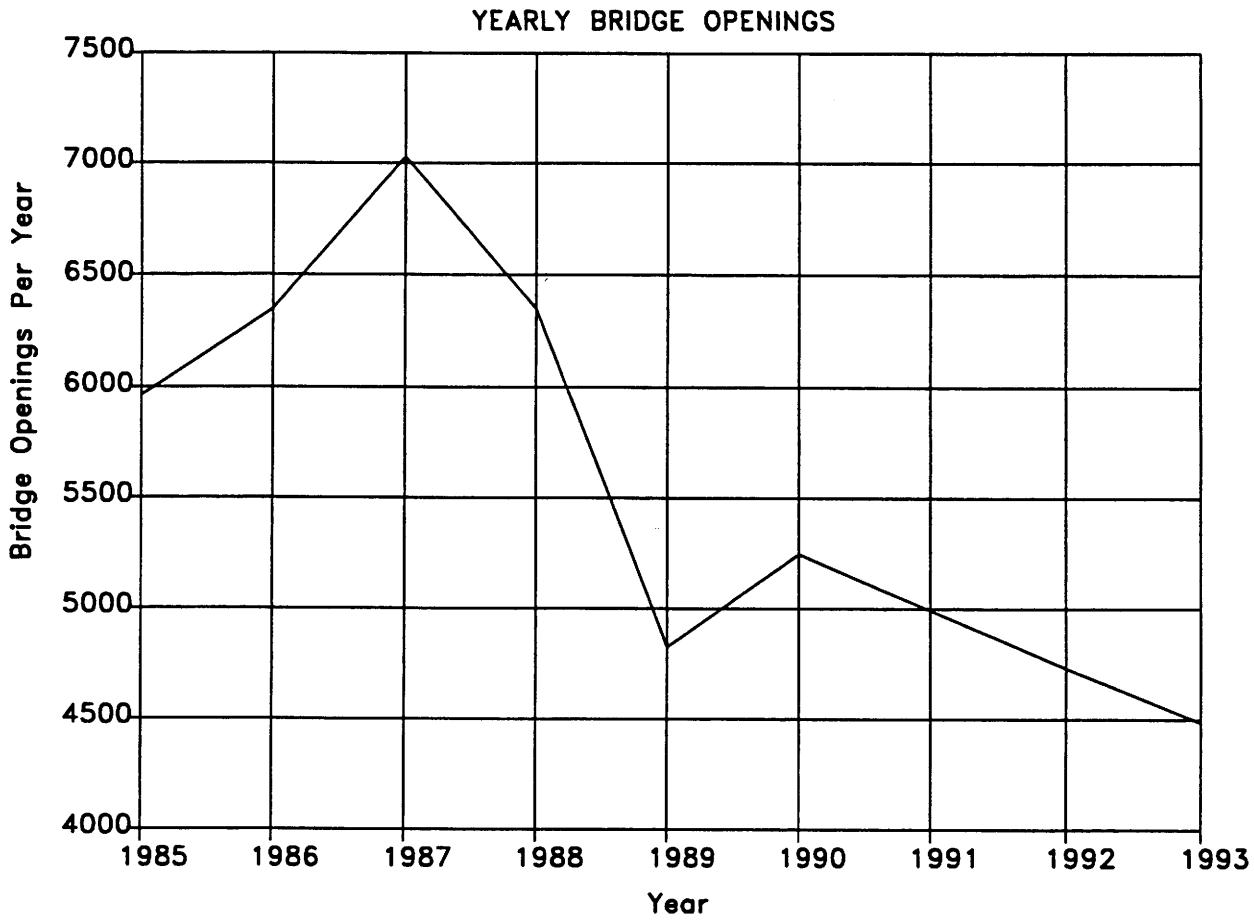

Source: Greiner, Inc., 1994c

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

NUMBER OF
BRIDGE OPENINGS 1985-1993

EXHIBIT 1.7

1.6 SAFETY AND EMERGENCY SERVICES

The following discussions of non-routine bridge closings/openings and public safety and emergency services issues are summarized from the Sunset Beach Bridge Replacement Social Impact Report prepared for the project by Hayes and Associates (1994b). The report is appended by reference to this EIS.

1.6.1 Non-Routine Bridge Closings and Openings

Between January 1992, and June 1994, the Sunset Beach bridge was opened 11,103 times. The average bridge opening took 10 minutes. At least 102 bridge openings took 20 minutes or longer because of tide conditions (20 incidents), slow moving and/or considerable boat traffic (53 incidents), and bridge repair or maintenance (29 incidents) (Hayes and Associates, 1994b:1).

The Sunset Beach bridge is vulnerable to tide conditions, high winds associated with storms, and lengthy bridge repair due to its age and customized design. During extreme high tides, the bridge must be tied back to prevent it from floating off its moorings. The causeway portion of SR 1172 is also subject to flooding during extreme high tides. Table 1.5 lists the times between January 1992, and June 1994, when vehicular traffic could not cross the bridge due to high waters or repair activities. The bridge was closed to vehicular traffic for an hour or longer during 24 out of the 36 incidents listed in the table.

Non-routine bridge openings and closings can also create delays for boaters as well as vehicles. Regularly scheduled hourly bridge openings are sometimes delayed because of emergencies on the island. During extreme low tides, the bridge is unable to swing open and boaters can not pass through until the tide rises.

Table 1.6 lists the instances between January 1992, and June 1994, when boat traffic was delayed due to tide conditions or repair and maintenance activities. As shown in the table, there were 40 times when the bridge could not open to allow passage of boat traffic.

Four notable past incidents have stopped bridge operations for prolonged periods of time. Two of the incidents involved barge collisions with the pontoon bridge: January 12, 1985 and January 20, 1995. The third extended closure was associated with a severe storm on March 13, 1993. The fourth and most recent closure was associated with Hurricane Fran in September 1996. On September 5, 1996, the Sunset Beach Bridge was closed in preparation for this storm, suspending access to the mainland for approximately 19 hours.

TABLE 1.5

SUNSET BEACH BRIDGE
NON-ROUTINE CLOSINGS TO VEHICULAR TRAFFIC, JANUARY 1992-JUNE 1994

DATE	LENGTH OF TIME BRIDGE CLOSED	REASON FOR CLOSURE PREVENTING VEHICULAR TRAFFIC PASSAGE	DATE	LENGTH OF TIME BRIDGE CLOSED	REASON FOR CLOSURE PREVENTING VEHICULAR TRAFFIC PASSAGE
9-24-92	1 Hr 15 Min	High water	4-7-93	1 Hr 10 Min	High water
9-25-92 AM	2 Hrs	High water	4-12-93	1 Hr 30 Min	Bridge repair
9-25-92 PM	1 Hr 30 Min	High water	6-28-93	35 Min	Bridge repair
9-26-92	1 Hr 15 Min	High water	7-11-93	3 Hrs 30 Min	Bridge repair
9-27-92	1 Hr	High water	7-12-93	50 Min	Bridge maintenance
9-28-92	1 Hr 15 Min	High water	7-13-93	Sporadic	Bridge repair
10-7-92	37 Min	Bridge repair	10-16-93	40 Min	High water
10-30-92	Not recorded	Bridge repair	10-30-93	30 Min	High water
11-8-92	1 Hr 40 Min	Bridge repair, 911 called	11-8-93	1 Hr 5 Min	Bridge repair
11-9-92	Not recorded	Highway paving, bridge closed	12-31-93	40 Min	Slow boat traffic
11-15-92	1 Hr 25 Min	Bridge repair	1-10-94	2 Hr 20 Min	Bridge maintenance
11-22-92	1 Hr 40 Min	High water	4-18-94	1 Hr 30 Min	Bridge repair
11-27-92	1 Hr	Bridge repair	4-23-94	30 Min	High water
12-7-92	1 Hr 15 Min	Bridge repair	4-24-94	3 Hrs	Bridge repair
12-10-92	30 Min	Bridge repair	5-21-94	1 Hr 55 Min	High water
3-13-93	10 Hrs	March 13 storm, high water and wind	5-22-94	3 Hrs	High water
4-5-93	1 Hr 10 Min	High water	6-5-94	8 Hrs 30 Min	Bridge repair
4-6-93	1 Hr	High water	6-7-94	30 Min	Bridge maintenance

Source: Hayes and Associates, 1994b.

TABLE 1.6

SUNSET BEACH BRIDGE
NON-ROUTINE CLOSINGS TO WATERWAY TRAFFIC, JANUARY 1992-JUNE 1994

DATE	LENGTH OF TIME BRIDGE CLOSED	REASON FOR CLOSURE PREVENTING BOAT TRAFFIC PASSAGE	DATE	LENGTH OF TIME BRIDGE CLOSED	REASON FOR CLOSURE PREVENTING BOAT TRAFFIC PASSAGE
1-22-92	54 Min	Extreme low tide	5-22-93	25 Min	Extreme low tide
3-18-92	1 Hr 35 Min	Extreme low tide	5-28-93	55 Min	Bridge repair
4-4-92	3 Hrs 10 Min	Bridge repair	6-23-93	2 Hrs 49 Min	Bridge repair
4-25-92	2 Hrs 10 Min	US Coast Guard ordered bridge closed	7-1-93	1 Hr 8 Min	Bridge maintenance
6-20-92	4 Hrs 45 Min	Bridge repair	8-13-93	3 Hrs 25 Min	Bridge repair, broken cable
10-16-92	2 Hrs 30 Min	US Coast Guard ordered bridge closed	9-1-93	1 Hr 50 Min	Bridge repair, broken cable
11-13-92	4 Hrs 40 Min	Bridge repair	12-3-93	1 Hr 20 Min	Bridge repair, gates broken
11-15-92	1 Hr 15 Min	Bridge repair	12-4-93	6 Hrs	Bridge repair
11-19-92	2 Hrs 17 Min	Bridge repair	12-31-93	45 Min	Extreme low tide
11-20-92	1 Hr 35 Min	Bridge repair	1-12-94	50 Min	Extreme low tide
11-27-92	2 Hrs	Bridge repair	1-15-94	2 Hrs 10 Min	Loss of electrical power
12-5-92	4 Hrs	Bridge repair	2-10-94	2 Hrs 30 Min	Bridge repair, jammed cable
12-10-92	8 Hrs 8 Min	Bridge repair	2-12-94	2 Hrs 30 Min	Bridge repair
12-28-92	2 Hrs 45 Min	Bridge repair	2-13-94	3 Hrs 35 Min	Bridge repair
12-29-92	3 Hrs 20 Min	Bridge repair	3-29-94	1 Hr 50 Min	Bridge repair
3-6-93	40 Min	Extreme low tide	4-10-94	3 Hrs 15 Min	Bridge repair
3-9-93	30 Min	Extreme low tide	4-27-94	1 Hr 40 Min	Bridge maintenance
3-13-93	5 Hrs	Bridge repair	4-27-94	1 Hr 7 Min	Bridge maintenance
4-4-93	1 Hr	Grass fire on causeway	6-6-94	1 Hr 45 Min	Bridge repair
4-6-93	30 Min	Extreme low tide	6-6-94	1 Hr 30 Min	Bridge repair

Source: Hayes and Associates, 1994b.

In 1985, the Sunset Beach bridge was struck by a barge being towed by the tugboat *Angela M.* The bridge was impassable to vehicles and pedestrians for four days. Boat traffic was also blocked for 24 hours until underwater inspections determined that the waterway was safe for vessels.

Governor Martin declared a "state of emergency" on January 12, 1985, because the bridge closure would have "severe adverse effects on existing businesses, medical services, schools, disposal of medical waste, law enforcement, and other necessary activities and emergency services." About 150 day visitors were stranded on the island. Between 60 and 75 island residents, including 27 schoolchildren, had to depend on temporary ferry service to and from the island until the bridge was repaired. The impact of this collision would have been even greater if it had occurred during the summer months (Hayes and Associates, 1994b:14).

The severity of the March 13, 1993, storm was not forecasted. Consequently, North Carolina beach towns did not initiate disaster preparation activities. Due to this storm, the Sunset Beach Bridge was closed for 12 hours, with only a five-minute warning of closure. This was just sufficient time to dispatch a fire engine and emergency medical technician to the island. About 100 day visitors were stranded on the island. A diabetic person who owns property, but does not live, on the island was stranded without insulin. Public safety officials considered several options to transport insulin to the person, but could not find an option which would not endanger the lives of rescue personnel. Fortunately, the diabetic person did not have a medical emergency (Hayes and Associates, 1994b:15).

On Friday, January 20, 1995, at 11:06 a.m., the 59.7-meter (196-foot) containment barge *Bulk Spirit* and the assist tug *Pegasus* struck the base of the pivot arm that swings the pontoon bridge open to allow boat traffic to pass. The barge "tore away the center pivot pilings, related deck rigging, and two pilings supporting the apron of the bridge, and punched a hole just above the water line of the pontoon" (The Brunswick Beacon, January 26, 1995). The pontoon part of the bridge broke free and floated about one-half mile up the AIWW. It was towed back by the tugboat, with the bridgetender and five NCDOT maintenance workers still on the pontoon. Permanent residents of the island, workers, and six day visitors were stranded (Hayes and Associates, 1994b:Addendum).

Volunteers from the Sunset Beach and Ocean Isle fire departments and the Shallotte rescue department established boat access to and from the island shortly after the accident occurred. Within an hour after the accident, a Sunset Beach police officer and three Sunset Beach volunteer firefighters were stationed on the island from Friday noon through Sunday morning. The firefighters had a limited amount of hand-held equipment until 3:00 p.m. Saturday, when a small fire engine was the first vehicle to cross the repaired bridge. The Brunswick County Emergency Management Team and the Sunset Beach Volunteer Fire Department estimate that about 606 manhours were spent by volunteers during the emergency (Hayes and Associates, 1994b:Addendum).

The USCG authorized closing the bridge to waterway traffic to speed repair time. Boat traffic was routed to outside waters through the Lockwood Folly and Little River inlets. The NCDOT was able to open the bridge to light vehicular traffic by 3:00 p.m. Saturday. However, the AIWW was completely closed to boat traffic for 4 ½ days, from Friday to 8:00 a.m. Tuesday. Delivery trucks and buses were not allowed to cross the bridge until Wednesday morning. The NCDOT estimates that the total cost to repair the pontoon bridge was $154,507. This amount includes labor, materials and equipment costs (Hayes and Associates, 1994b:Addendum).

Again on September 5, 1996, the Sunset Beach Bridge was closed in preparation for a storm. Although the September 5th storm, Hurricane Fran, did not damage the bridge, access to the mainland was suspended from 12:00 p.m. until 7:00 a.m. the following day.

1.6.2 Effects of Existing Bridge Operations on Public Safety and Emergency Services

The existing pontoon bridge is the only vehicular access between the island and mainland portions of Sunset Beach. Anytime the bridge is opened to allow watercraft passage, whether scheduled or not, it temporarily isolates the island from emergency police, fire, and medical services, which are stationed on the mainland; and puts residents and visitors at risk. In addition, the island portion of Sunset Beach needs a longer lead time to conduct evacuations because the floating bridge must be closed when storm-related high tides and winds occur.

As shown in Table 1.5, there were many unscheduled bridge closings which prevented vehicular access to the island. Since these closings were unscheduled, plans could not be made to provide emergency service to the island. It should be noted that the general public is not made aware of these unscheduled bridge closings and the potential risks associated with the resulting temporary isolation of the island. In other situations, arrangements have been made to reduce the vulnerability of the island. Rescue, police, and fire officials are supposed to contact the bridge operator as soon as an emergency call from the island is received. The bridge operators will then postpone any bridge openings, even for commercial traffic, until the emergency is over. The NCDOT also contacts town and emergency officials prior to scheduled closings so that contingency arrangements can be made, including temporarily moving fire engine and emergency equipment to the island (Hayes and Associates, 1994b:6).

Traffic congestion caused by vehicles queuing up to cross the bridge also impairs public safety. The intersection of NC 179 and SR 1172 sometimes becomes impassable due to traffic congestion. This interferes with access to and from the Sunset Beach Volunteer Fire Department, Town Hall, and the Police Station, which are located nearby on NC 179 (see Exhibit 1.2). Consequently, traffic congestion reduces the ability of police, fire, and rescue services to respond to emergencies both on the island and mainland, particularly on summer weekends when traffic congestion is greatest and

the probability of emergencies is highest. Sunset Beach Police Chief Buell states that between Memorial Day and Labor Day, police cars take at least an additional two minutes to respond to island calls because of bridge traffic congestion, and sometimes responses are delayed as much as 10-20 minutes due to bridge closings and congestion (Hayes and Associates, 1994b:20). Congestion at the NC 179/SR 1172 intersection may still impair the Police Department's ability to respond to incidents near the project area and on the island.

Fire department response times are also affected by the existing bridge. Between January 1992, and July 1993, the response time to island fires ranged from 3-12 minutes, with an average of six minutes. The response time to mainland fires ranged from 3-8 minutes, with an average of 4.9 minutes. The existing bridge also affects the Sunset Beach Volunteer Fire Department in other ways. The existing pontoon bridge limits the size of fire fighting equipment which can be purchased and extremely limits the type of fire fighting equipment which can respond to an island fire. The tallest fire ladder which can be transported to the island is a 10.7-meter (35-foot) ladder. However, it is estimated that the 3-story beach houses on the island would need a 10.7- to 12.2-meter (35-40 foot) high ladder truck, but it is impossible for these larger trucks to cross the pontoon bridge. The 27.4-meter (90-foot) platform truck stationed in Ocean Isle can only cross the pontoon bridge at mid-tide when the angle of the ramps is most level. These tide conditions exist only about 6-8 hours per day (Hayes and Associates, 1994b:21).

The closing of the Sunset Beach Bridge to waterway traffic also has public safety implications. Between January 1992, and June 1994, there were five incidents when emergencies existed and it was imperative that the bridge open on demand for boat traffic (Hayes and Associates, 1994b:11). Fortunately, the bridge was able to open during these incidents and was not closed for repairs or because of extreme low tides.

The floating nature of the barge part of the bridge poses an obstacle to boaters trying to maneuver through the opening. The relatively narrow opening (27.4 meters [90 feet]) created for water traffic, which is the minimum specified by the USCG (USCG, personal communication, 1992), and the pontoon bridge's low vertical profile make it difficult to maintain visual contact with the bridge while navigating through it. Therefore, the pontoon bridge is more vulnerable to boat collisions, as illustrated by the two barge accidents in 1985 and 1995. In addition, some pleasure boats, trying to "beat the bridge," strike the cables and cause damage to the bridge and boat, and potentially harm the boaters.

1.6.3 Roadway Accident Rates

Average state annual accident rates for 1990-1992 for different roadway classifications were obtained and analyzed (NCDOT, 1993b). For 1990-1992, the average annual accident rate for a 2-lane, undivided, rural North Carolina Route was 194 accidents per 100 million vehicle miles (MVM) traveled (MVM).

Accident rate data for SR 1172 and NC 179 were also obtained and analyzed (NCDOT, 1993c). The total accident rate for SR 1172, from 1.2 kilometer (0.75 mile) south of the Sunset Beach Bridge to NC 179, averaged 48 accidents per 100 MVM for the period July 1990 through June 1993. The total accident rate for NC 179, from 0.2 kilometer (0.13 mile) west of SR 1172 to NC 904, averaged 77 accidents per 100 MVM for the period July, 1990 through June, 1993.

Accident rates for SR 1172 and NC 179 near the project site were well below the average accident rates of 194 accidents per 100 MVM for similar roadways. Speeds on NC 179, which were probably less than those on other rural roadways due to surrounding development and the presence of the bridge, could have been a factor contributing to the lower accident rates.

1.7 SUMMARY OF PROJECT NEED

The proposed action, replacement of Bridge No. 198 over the AIWW in Sunset Beach, is consistent with, and included in, the State TIP.

The existing one-lane bridge is structurally deficient and functionally obsolete. In May 1996, the existing bridge was inspected and given a sufficiency rating of 7.3 on a scale of 0 to 100, with 100 being perfect condition (NCDOT, 1996a).

The existing bridge is the only vehicular access between the island and mainland portions of Sunset Beach. Any time the bridge is opened to allow watercraft passage, whether scheduled or not, it temporarily isolates the island from emergency services which are stationed on the mainland; and puts residents and visitors at risk. There are no emergency facilities or response teams permanently located on the island. Traffic congestion created by vehicles waiting in line to cross the bridge also impairs the ability of fire, police, and emergency medical personnel to respond to emergencies. In addition, the island portion of Sunset Beach needs a longer lead time to conduct evacuations because the floating bridge must be closed when storm-related high tides and winds occur. The existing bridge's relatively narrow waterway opening and low visual profile make the structure more vulnerable to boat collisions.

Replacing the existing bridge with a new structure would provide a reliable means of transportation between the island and mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures. A new structure would also enhance watercraft operations on the AIWW.

The Town of Sunset Beach supports improved bridge access to the island in order to improve public safety and evacuation of the island (Hayes and Associates, 1994a:16). On February 6, 1995, the Sunset Beach Town Council officially endorsed by resolution a 19.8-meter (65-foot) high-level bridge. The following two statements are from the Sunset Beach 1992 CAMA Land Use Plan:

> To promote public safety, the Town of Sunset Beach supports improved bridge access to the island. As stated in a resolution passed on October, 11, 1982, the Town Council of Sunset Beach supports the planning efforts of the NCDOT to provide better access to the island and requests that the renovation of the bridge or other measures to facilitate improved safety conditions be accomplished as expeditiously as possible (Town of Sunset Beach, 1992:70).
>
> Town officials continue to support the efforts of the NCDOT to provide better and more reliable bridge access to the island (Town of Sunset Beach, 1992:77; and Town of Sunset Beach, 1996).

CHAPTER 2

2.0 ALTERNATIVES

2.1 ALTERNATIVES CONSIDERED BUT REJECTED

2.1.1 Transportation System Management Alternatives

Transportation system management (TSM) alternatives involve increasing the available capacity of an existing facility within its right of way, with minimum capital expenditures. TSM-related activities may include improving signals and signal progression, installing a computerized signal system, adding high occupancy vehicle lanes, or adding turn lanes.

TSM alternatives are generally found to be relevant only for major projects proposed in urban areas with populations over 200,000 (FHWA, 1987:15). Since Sunset Beach's population is only about 12,000 at its summertime peak (Hayes and Associates, 1994a:6), and the area is primarily resort-oriented, TSM alternatives are not appropriate for this project.

However, for major projects in rural areas, the FHWA does state that before selecting an alternative on new location, "it is important to demonstrate that reconstruction and rehabilitation of the existing system will not adequately correct the identified deficiencies and meet the project need" (FHWA, 1987:15). One of the alternatives evaluated in this EIS is a Rehabilitation Alternative.

2.1.2 Preliminary Construction Alternatives

A set of eleven preliminary construction alternatives was developed in response to the November 19, 1990, court order requiring preparation of an EIS for the Sunset Beach bridge replacement project. An Interagency Scoping Meeting was held in Sunset Beach on October 28, 1992, followed by a Citizens' Informational Workshop on October 29, 1992. A project "Scoping Report, Comments Summary, and Working Paper" was developed and completed in December, 1992 (Greiner, Inc., 1992). This report is appended by reference to this EIS.

The preliminary alternatives developed for this EIS consist of combinations of bridge types (fixed span and drawbridge) located within three general corridors. One corridor is located near the existing bridge's alignment. The other corridors are east and west of the existing bridge. In addition, a ferry alternative and a tunnel alternative were developed. All eleven preliminary alternatives are listed in Table 2.1 and shown on exhibits in Appendix B.

The center corridor alternatives (C1, C2, and C4) use the SR 1172 and NC 179 rights of way as much as possible. Alternatives to the west of the existing bridge (W1, W2, and W3) generally occupy the corridor from the previous fixed-span replacement design (see Appendix A).

TABLE 2.1

PRELIMINARY BUILD ALTERNATIVES

Alternative Name	Type of Structure	Corridor Location	Number of Lanes	Approximate Vertical Clearance Over Intracoastal Waterway
C1	Fixed High Level	Center	2	19.8 m (65 ft)
C2	Low-Level Bascule	Center	2	4.6 m (15 ft)
C4	Mid-Level Bascule	Center	2	9.1 m (30 ft)
W1	Fixed High Level	West	2	19.8 m (65 ft)
W2	Mid-Level Bascule	West	2	9.1 m (30 ft)
W3	Low-Level Bascule	West	2	4.6 m (15 ft)
E1	Fixed High Level	East	2	19.8 m (65 ft)
E2	Mid-Level Bascule	East	2	9.1 m (30 ft)
E3	Low-Level Bascule	East	2	4.6 m (15 ft)
F1	Ferry	East	n/a	n/a
T1	Tunnel	East	2	Submerged

Alternatives to the east of the existing bridge (E1, E2, E3, F1, and T1) would require new right of way east of the existing SR 1172 and behind the commercial development fronting SR 1172 and NC 179.

A comparative evaluation of the eleven preliminary alternatives was conducted to determine which alternatives should be eliminated from further study. The following evaluation procedure was used:

1. Define criteria to be used in the evaluation.
2. Review alternatives according to the criteria and perform a "qualitative" evaluation by comparing the quantitative data collected for each alternative.
3. Present the preliminary build alternatives and available data to the Steering Committee for their input.
4. Receive comments from the agencies at the Interagency Coordination Meeting.
5. Conduct a Citizens' Informational Workshop in order to receive public input regarding the preliminary build alternatives.
6. Review all data and comments. Eliminate those alternatives which have the greatest overall impacts and/or provide the lowest level of service to transportation needs.
7. Identify the reasonable and feasible alternatives.

Steering Committee meetings were held on December 8, 1993, and March 14, 1994. The Steering Committee members included representatives from the FHWA, NCDOT, and the Town of Sunset Beach. An Interagency Coordination Meeting was held on January 20, 1994.

Newsletters were mailed to approximately 450 citizens on January 14, 1994, and a Citizens' Informational Workshop was held on February 1, 1994. Further information about the project was also published in the Sunset Beach Town Newsletter (Volume 1, Number 4), distributed to property owners in February, and in the Sunset Beach Taxpayers Association Newsletter, distributed to Association members in March. In response to the public involvement efforts, 163 replies were received by March 24, 1994. The public involvement program is discussed in more detail in Chapter 7 of this EIS, the Preliminary Alternatives Report (Greiner, Inc., 1994d), and the Public Involvement Workplan (Greiner, Inc., 1993).

Table 2.2 lists the rating criteria used to evaluate the eleven preliminary alternatives. Several general considerations were used during the process of eliminating alternatives from further study. These considerations are listed below:

1. With regard to waterway traffic, the high-level structures are safer and do not restrict traffic along the AIWW.

TABLE 2.2

FACTORS CONSIDERED IN ALTERNATIVE SCREENING EVALUATION

GENERAL PARAMETER	RATING CRITERIA	INDICATORS
Construction	Height of Structure	Clearance above mean high tide
	Project Length - Mainline Roadway	Construction length along mainline
	Project Length - Relocated Roadway	Construction length along other roads
	Structure (bridge/tunnel) Length	Length of bridge/tunnel
	Temporary Detour Length	Length of temporary detours
	Right-of-Way Acquistion	Acres of right of way required
Traffic and Operations	Service to Through-Traffic (NC 179)	Traffic projections
	Traffic Movement Efficiency of Structure/Facility	Continuity of traffic movements
	Vessel Safety	Impact potential
	Pedestrian and Bicycle Access	Steepness and accessibility of structure
Community Plans and Characteristics	Compatibility with Current Plans	Current thoroughfare and land use plans
	Compatibility with Electric Utilities	Potential to minimize effect to electric utility
	Use of Existing Public Corridors	Length along existing right of way
	Visual Effects/Aesthetic Impacts	Height and "thickness" of structure
	Neighborhood Effects/Impacts	Length through/adjacent to neighborhoods
Natural Resources	Effect on Protected Species	Potential to minimize impacts to protected species
	Impact to Man-Dominated Communities	Linear feet of roadway and structure
	Impact to Salt Shrub Habitat	Linear feet of roadway and structure
	Impact to Coastal Fringe Evergreen Forest Habitat	Linear feet of roadway and structure
	Impact to Salt Marsh Habitat	Linear feet of roadway and structure
	Impact to Nonriverine Wet Hardwood Forest Habitat	Linear feet of roadway and structure
	Impact to Open Water Habitat	Linear feet of roadway and structure
	Effect on Hazardous Materials Sites	Number of sites
	Water Quality Impacts	Potential to minimize short- and long-term impacts

TABLE 2.2 (continued)

FACTORS CONSIDERED IN ALTERNATIVE SCREENING EVALUATION

GENERAL PARAMETER	RATING CRITERIA	INDICATORS
Relocations	Business relocations	Number within project limits
	Residential relocations	Number within project limits
Engineering/ Design	Complexity of engineering and design	Simple (standard) vs. complex (unique) design and engineering considerations
Estimated Cost	Cost	Total project cost, including construction, right of way, utilities, operations, and maintenance

2. The ferry alternative will require maintenance dredging for navigability, which will result in long-term water quality and benthic impacts.

3. Alternatives which require a left turn from westbound NC 179 to the bridge approach instead of a right turn would be less efficient at carrying traffic flow. All eastern corridor alternatives (E1, E2, and E3) and western corridor mid- and low-level alternatives (W2 and W3) would require left turns from westbound NC 179 to the bridge approach segment.

Based on the procedure described above, Alternatives W1 (West Fixed High-Level), C1 (Center Fixed High-Level), and C4 (Center Mid-Level Bascule) were identified as the reasonable and feasible build alternatives to be studied further. These alternatives are discussed in Section 2.2.3. The other eight construction alternatives considered but rejected are listed below, with the reasons for their elimination (Greiner, Inc., 1994d).

Alternative F1. The costs for the ferry alternative ($124.93 million) would be substantially higher than the other build alternatives, which range in costs from $13.78 million to $44.58 million. The ferry alternative would require continual maintenance dredging, resulting in substantial impacts to benthic habitat in the AIWW channel. The ferry docking/parking areas, particularly on the island side, would also require extensive fills within salt marsh and shoreline habitat.

Four ferries would be required to serve average daily traffic. However, even with four ferries operating, extreme vehicular traffic delays would occur during peak hours. Operation of four ferries simultaneously would likely be infeasible. Ferries would not be able to operate during adverse weather conditions, they would impede emergency evacuation procedures, and would interfere with each other and with other vessel traffic on the waterway.

Alternative T1. The costs for the tunnel alternative ($44.58 million) would be double the costs of the bridge alternatives ($13.78 million to $22.08 million). A tunnel would require substantial dredging across the AIWW during construction and would cause more biotic impacts to salt marsh and benthic habitat than other alternatives. The tunnel would not provide adequate ventilation to allow pedestrians and bicyclists to cross the AIWW. In addition, the tunnel greatly inhibits through travel along NC 179 by creating two "dog leg" turns (see Appendix B).

Alternative E1. The eastern corridor high-level, fixed-span bridge would require a left turn movement from westbound NC 179, which would directly conflict with eastbound traffic on NC 179 and would create a less desirable traffic situation than the other high-level alternatives. This alternative would disrupt the Hickory Avenue community and would require rerouting of East Shoreline Drive traffic to Live Oak Drive.

Alternative E2. This mid-level bascule alternative along the eastern corridor would require a left turn movement from westbound NC 179. This movement would conflict with eastbound NC 179 traffic and would create a less desirable traffic situation than the center mid-level bascule (Alternative C4). During bridge openings, traffic would have to be stored in additional lanes along west and east NC 179. Undesirable sharp turns would also be required on either side of the AIWW. This alignment would result in impacts to the salt marsh east of the SR 1172 causeway.

Alternatives W2, W3, C2 and E3. The mid-level and low-level bascule alternatives along the western corridor (W2 and W3) would not facilitate travel from westbound NC 179 on to SR 1172 as well as other alternatives. Traffic using NC 179 and SR 1172 would have to be routed through two major intersections. A required left turn lane and adequate vehicle storage for island-destined traffic coming from westbound NC 179 would interfere with the mobility of fire, rescue, and police units.

All of the low-level bascule alternatives (W3, C2, and E3) would require frequent bridge openings to accommodate vessel traffic. A low-level structure would allow only about 34 percent of the waterway traffic to pass without opening the bridge, whereas a mid-level bascule would allow passage of about 63 percent of the waterway traffic. The frequency of daily bridge openings would be greater for the low-level bascule than for the mid-level bascule. During the summer, the low-level bascule would need to open 6-7 times per day, while the mid-level bascule would open 3-4 times per day. During the fall, the low-level bascule would open 10-11 times per day, while the mid-level bascule would open 8-9 times per day (Greiner, Inc., 1994c:7).

The benefits of the mid-level bascule over the low-level bascule outweigh the cost differences between the two bridge types. Therefore, all low-level bascules were eliminated from further study.

2.2 ALTERNATIVES CONSIDERED FOR FURTHER ANALYSIS

2.2.1 No-Build Alternative

In accordance with NEPA and FHWA guidelines, the environmental consequences of taking no action is given full consideration. The No-Build Alternative also provides a baseline condition with which to compare the improvements and consequences associated with each construction alternative. Under the No-Build Alternative (Alternative C3), the existing structure would not be replaced or improved. Periodic maintenance and/or replacement of parts of the structure and its mechanical components would continue as in the past. Major repairs and maintenance may require temporary closure of the bridge. No alteration to the existing roadway system would occur as a result of this scenario.

2.2.2 Rehabilitation Alternative

The Rehabilitation Alternative (Alternative C3R) includes improvements to the existing structure. The pontoon, deck, and all of the mechanical components would be replaced under this alternative. It should be noted, however, that the nature of the single-lane pontoon bridge is such that it can not be rehabilitated to federally acceptable standards. An exception would be necessary in order to obtain federal funding for this alternative.

No other roadway improvements would be undertaken with this alternative, and no alteration to current traffic patterns would occur.

Rehabilitation of the pontoon bridge is estimated to require at least nine months to complete, mainly for rehabilitation of the approach spans (NCDOT, 1994b). A new pontoon could be installed in about a day. Assumptions include a 10- to 12-hour workday and that a barge would be used as a working platform during the rehabilitation.

The approach spans would be rehabilitated section by section. Holes would be drilled in the existing decking and new piles would be driven into the waterway bottom. Installation of new piles for each 16- to 17-foot span section could be completed in one work day. During the drilling activities, the bridge would be closed to vehicular traffic, but could probably continue allowing passage of waterway traffic. When work is done for the day (or night), a cap would be placed on the holes so that traffic could cross the bridge. The next day (or night), the existing span section would be removed and a new approach span, to be supported by the new piles, would be installed in its place. This procedure would continue until all approach span segments are replaced.

2.2.3 Construction Alternatives

2.2.3.1 Design Criteria

Table 2.3 presents the design criteria used to develop the proposed build alternatives. These criteria, established October 29, 1993, conform with the standards of the American Association of State Highway and Transportation Officials (AASHTO) and the North Carolina Department of Transportation Roadway and Structure Design Manuals that were current at the time. All alternatives are in compliance with the Americans with Disabilities Act.

The roadway criteria are based on roadway functional classification and projected average daily traffic volumes. NC 179 is classified as a Major Collector and SR 1172 is classified as a Rural Local Route. Although SR 1172 is classified as a Rural Local Route by NCDOT Statewide Planning, the proposed Sunset Beach Bridge would be designed as a Collector and, therefore, meets or exceeds the design criteria for both classifications. Other streets in the area, including East Shoreline Drive and Canal Avenue, are classified as Local Streets (Greiner, Inc., 1994d:4).

Some exceptions to the design criteria listed in Table 2.3 are proposed. Bridge structures would have (3.3-meter)11-foot wide travel lanes and 1.5 meters (five feet) of additional lateral clearance on both sides. The additional lateral clearance on the proposed bridge typical sections would not create hazards to bicyclists or pedestrians crossing the bridge and would provide an improvement over the existing bridge conditions. To complement this configuration, typical roadway sections would have 3.3-meter (11-foot) wide travel lanes and 2.4-meter (eight-foot) shoulders with 1.2 meters (four feet) of each shoulder paved. These lane configurations would apply to Alternatives W1R (revised alignment of Alternative W1 discussed below), C1, and C4.

All build alternatives would also include raising the grade of the island causeway to an elevation of 2.0 meters (6.5 feet) above mean sea level (MSL), which is an increase of about 0.1 meter (0.4 foot) from existing elevations.[1] Raising the causeway by this amount would considerably decrease the frequency of overtopping from spring high tides (NCDOT, 1987).

The alternative bridge designs incorporate pier spacing and preliminary sizes which take into account ship impact considerations. Vessel impact design loads were developed using the AASHTO "Guide Specification for Vessel Collision Design of Highway Bridges" (1991). The calculations of design loads are detailed in a report prepared by Greiner, Inc. (1994k). After an alternative is selected, detailed pier designs will be developed which incorporate the ship impact loads and other factors.

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[1] It should be noted that the proposed elevation of 2 meters (6.5 feet) is accurate and differs from the proposed plans noted in response to comment number 45 (Appendix G, Part V) of the Sunset Beach Taxpayers Association Comments on the Draft EIS (Appendix G, Part IV), which states that the causeway would be raised six inches. This response should have stated that the causeway would be raised five inches.

TABLE 2.3

DESIGN CRITERIA

DESIGN CONTROL	STREET OR BRIDGE TYPE	VALUE
Design Speed	Collector	65 kmh (40 mph)
	Local	50 kmh (30 mph)
Maximum Degree of Curvature[1]	Collector	D_{max} = 11 degrees, 15 min. R_{min} = 166 m (509 ft)
	Local	D_{max} = 21 degrees R_{min} = 90 m (273 ft)
Superelevation[2]	Collector	e(max) = 6.0 % Runoff Length = 39 m (130 ft) Typical Cross Slope = 2.0 %
	Local	e(max) = 6.0 % Runoff Length = 32 m (110 ft) Typical Cross Slope = 2.0 %
Lane Width	Collector	3.6 m (12 ft)
	East Shoreline Drive	3.6 m (12 ft)
	Canal Avenue West	3.3 m (11 ft)
	Canal Avenue East	3.0 m (10 ft)
Grades	Collector	9% maximum, 0.2% minimum
	Local	7% maximum, 0.2% minimum
Vertical Clearance	Road	5.0 m (16.5 ft) over state roads
		4.5 m (15.0 ft) over local roads
	Low-Level Bascule	4.6 m (15.0 ft) min over waterway
	Mid-Level Bascule	9.2 m (30.0 ft) min over waterway
	High-Level Fixed Span	19.8 m (65.0 ft) min over waterway

TABLE 2.3 (continued)

DESIGN CRITERIA

DESIGN CONTROL	STREET OR BRIDGE TYPE	VALUE
Rate of Vertical Curvature[3]	Collector	Crest K = 60-80 Sag K = 60-70
	Local	Crest K = 30-30 Sag K = 40-40
Ship Impact Design Load	Piers in Intracoastal Waterway	Maximum Impact Force = 10,146.4 kN (10,146,390 N) 2,281 kips (2,281,000 pounds)
	Approach piers in Big Narrows Channel	Minimum Impact Force = 355.9 kN (355,858 N) 80 kips (80,000 pounds)

1. D = maximum degree of curvature applies to English design criteria only. English design criteria based on 1990 American Association of Highway Transportation Officials (AASHTO) guidelines. Metric design criteria based on 1994 AASHTO guidelines. R = minimum radius

2. e(max) = Maximum slope from one side of a roadway to the other on a curve; helps with banking.
   Runoff Length = Length of roadway needed to achieve a constant slope across width of road.
   Typical cross-slope = Slope of road from middle or side to side on straight sections; helps with drainage.

3. Sag or Crest K = Rate of change of a vertical curve at the crest of a hill or at the lowest point of a valley. Rate of allowed change dependent on design speed. Faster speeds require gentler rates of change. Rate of change for collector based on 70 kmh (43.5 mph) design speed

2.2.3.2 Alternative W1R (High-Level Fixed Span)

This alternative is a new high-level, fixed-span bridge located approximately 45.7 meters (150 feet) west of the existing pontoon bridge. Based on comments received on the Draft EIS, the alignment of Alternative W1 was moved eastward in order to avoid relocation of the Big Narrows channel. Exhibit 2.1 shows the revised alignment of W1, which is referred to hereafter in this document as W1R. Impacts associated with the revised alignment (W1R) are discussed in their corresponding chapters in the Environmental Consequences section of this document.

The proposed alignment would connect to NC 179 approximately 30.5 meters (100 feet) north of the existing intersection of NC 179 and East Shoreline Drive, would travel west to south in a semi-circular route through Sea Trail Plantation, cross over NC 179 (West Shoreline Drive), continue south over the AIWW, to join the existing causeway alignment at a point about 213 meters (700 feet) from the AIWW. From this point to about 777 meters (2,548 feet) south of this point, the existing causewaybed would be raised about 0.1 meter (0.4 foot) to an elevation of 2.0 meters (6.5 feet) above MSL.[2] This section of causeway would also be improved to two 3.3-meter (11-foot) lanes with 1.2-meter (4-foot) wide paved shoulders on both sides.

Exhibit 2.2(A) shows typical profiles of the high-level bridges designed for Alternatives W1R and its former alignment, Alternative W1. Exhibits 2.3 and 2.4 show typical road and bridge cross-sections, respectively, for these alternatives. The high-level bridge for W1R would be about 723 meters (2,372 feet) in length, which is slightly shorter than the alignment of Alternative W1 (737 meters [2,418 feet]).

A 27.4-meter-wide (90-foot-wide) channel is maintained by the US Army Corps of Engineers for the AIWW. A minimum vertical clearance of 19.8 meters (65 feet) will be provided over the entirety of the 27.4-meter (90-foot) channel. The proposed span over the channel would be of sufficient length to provide a minimum of 54.9 meters (180 feet) of horizontal clearance between the bridge footings. A fender system will be constructed only if one is required by the US Coast Guard. If a fender system is required, a minimum of 27.4 meters (90 feet) of horizontal clearance will be provided between the faces of the fenders. It is anticipated that minimal low-voltage navigational lighting will be used to designate the 27.4-meter-wide (90-foot-wide) maintained AIWW channel. East Shoreline Drive would be realigned to provide a four-way intersection with NC 179 and relocated SR 1172. The proposed alignment would be grade separated at West Shoreline Drive (NC 179) and Canal Avenue. A traffic signal would be installed at the NC 179/relocated SR 1172/East Shoreline Drive intersection. Unlike Alternative W1, the alignment of Alternative W1R would not encroach on the Big Narrows channel, located west of the alignment on the island side of the AIWW [see Exhibit 2.1]. Accordingly, relocation of the Big Narrows channel would not be necessary with the implementation of Alternative W1R.

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[2] Please see footnote number one.

The right turn onto relocated SR 1172 from westbound NC 179 facilitates traffic movements and, coupled with the uninterrupted service of this high-level facility, provides an efficient transportation design for access to and from the island. This alternative would also allow for uninterrupted vessel travel along the AIWW.

2.2.3.3 Alternative C1 (High-Level Fixed Span)

This alternative is a new high-level, fixed-span bridge located along the center corridor, immediately east of the existing pontoon bridge. Exhibit 2.5 shows this alternative's alignment. The alignment would begin on the mainland near the intersection of East Shoreline Drive and NC 179, follow the existing SR 1172 corridor southward, and would cross the AIWW about 38.1 meters (125 feet) east of the existing bridge. The alignment would continue south to join the existing island causeway about 457.2 meters (1,500 feet) from the AIWW. From this point to about 524.3 meters (1,720 feet) south of this point, the existing causewaybed would be raised about 0.1 meter (0.4 foot) to an elevation of 2.0 meters (6.5 feet) above MSL.[3] This section of causeway would also be improved to two 3.3-meter (11-foot) lanes with 1.2-meter (4-foot) wide paved shoulders on both sides.

Exhibit 2.2(B) shows a typical profile of this high-level bridge. Exhibits 2.6 and 2.7 show typical road and bridge cross-sections, respectively. This high-level bridge would be about 826 meters (2,710 feet) in length.

A 27.4-meter-wide (90-foot-wide) channel is maintained by the US Army Corps of Engineers for the AIWW. A minimum vertical clearance of 19.8 meters (65 feet) will be provided over the entirety of the 27.4-meter (90-foot) channel. The proposed span over the channel would be of sufficient length to provide a minimum of 54.9 meters (180 feet) of horizontal clearance between the bridge footings. A fender system will be constructed only if one is required by the US Coast Guard. If a fender system is required, a minimum of 27.4 meters (90 feet) of horizontal clearance will be provided between the faces of the fenders. It is anticipated that minimal low-voltage navigational lighting will be used to delineate the 27.4-meter-wide (90-foot-wide) maintained AIWW channel.

A 487.7-meter (1,600-foot) eastward relocation of NC 179 would be necessary to provide a proper connection with relocated SR 1172, and to provide for through traffic on NC 179. As shown in Exhibit 2.5, NC 179 would be extended east as a two-lane roadway, crossing over Slough Canal on a new 29-meter (95-foot) long bridge. Exhibit 2.7 shows a typical cross-section of the Slough Canal bridge. The proposed bridge over Slough Canal would block waterway traffic from the upper end of the canal. The relocated roadway would then turn north and connect with the existing NC 179 near Station Trail. At-grade intersections would be constructed at three locations: (1) relocated NC 179/relocated SR 1172, (2) relocated NC 179/East Shoreline Drive, and (3) relocated NC

[3] Please see footnote number one.

179/Hickory Avenue. Relocated SR 1172 would be grade separated above Canal Avenue and NC 179. A traffic signal would be installed at the relocated NC 179/SR 1172 intersection.

Alternative C1 would provide the most efficient transportation design of all proposed alternatives. The right turn onto relocated SR 1172 from westbound NC 179 and the uninterrupted service of this high-level bridge would facilitate vehicular access to and from the island. This alternative is the only one which would eliminate the existing "dog leg" intersection where NC 179 makes a sharp turn at the northern terminus of SR 1172. In addition, this alternative would also allow for uninterrupted vessel travel along the AIWW.

2.2.3.4 Alternative C4 (Mid-Level Bascule)

This alternative is a new mid-level bascule bridge (drawbridge) located immediately west of the existing pontoon bridge. Exhibit 2.8 shows this alternative's alignment. The alignment would begin on the mainland near the intersection of SR 1172 and NC 179, and would extend south, parallel and just west of the existing SR 1172 corridor southward. The alignment would then cross the AIWW about 15.2 meters (50 feet) west of the existing bridge. The alignment would continue south to join the existing island causeway (SR 1172) about 457.2 meters (1,500 feet) from the AIWW. From this point to about 524.3 meters (1,720 feet) south of this point, the existing causewaybed would be raised about 0.1 meter (0.4 foot) to an elevation of 2.0 meters (6.5 feet) above MSL.[4] This section of causeway would also be improved to two 3.3- meter (11-foot) lanes with 1.2- meter (4-foot) wide paved shoulders on both sides. It should be noted that although the Alternative C4 alignment joins up with the causeway at about the same location as Alternative C1, the bridge structure ends about 132.6 meters (435 feet) from the AIWW, and the remaining length is a realigned approach section on fill (see Exhibit 2.2[B]).

Exhibit 2.2(B) shows a typical profile of this bascule bridge. Exhibits 2.9 and 2.10 show typical road and bridge cross-sections, respectively. The bascule bridge would be about 347.5 meters (1,140 feet) in length. It would be easier for bicyclists and pedestrians to cross the bascule bridge than the high-level alternatives since the climb and descent over the bascule would be shorter, even though the grades would be the same.

A 27.4-meter-wide (90-foot-wide) channel is maintained by the US Army Corps of Engineers for the AIWW. A minimum vertical clearance of 9.1 meters (30 feet) will be provided over the entirety of the 27.4-meter (90-foot) channel. A fender system will be constructed for guidance through the bridge. A minimum horizontal clearance of 27.4 meters (90 feet) will be provided between the faces of the fender system. The proposed span over the channel will be of sufficient length to provide for the 27.4-meter (90-foot) channel and the fender system. From centerline to centerline, the approximate length of this span between footings is 45.7 meters (150 feet), with an approximate 32-

[4] Please see footnote number one.

meter (105-foot) horizontal clearance between the interior face-walls of the pier footings. It is anticipated that mimimal low-voltage navigational lighting will be used to delineate the 27.4-meter-wide (90-foot-wide) maintained AIWW channel.

Due to the vertical clearance required for the mid-level structure, the height of the resulting proposed fill would eliminate the existing SR 1172/Canal Avenue intersection. A cul-de-sac would be provided on Canal Avenue.

Alternative C4 would provide less efficient traffic movements than Alternatives W1R and C1. However, traffic movements would be more efficient than under the existing configuration since a traffic signal would be provided at the intersection of NC 179 and SR 1172. In addition, a storage lane would be constructed for beach traffic making a right turn from eastbound NC 179 onto the bridge. The bascule bridge would also have to open less frequently than the existing pontoon bridge. The bridge would provide at least a 9.1-meter (30-foot) clearance for waterway traffic, allowing about 63 percent of the vessels to pass under the bridge without requiring the bridge to open.

2.2.3.5 Alternative C3I (Two-Lane Pontoon)

The two-lane pontoon bridge alternative would include new construction of a two-lane pontoon bridge, west of the existing Sunset Beach Bridge alignment on SR 1172, along the general alignment of Alternative C4. This structure would operate in a similar fashion as the existing bridge but would have an increase in capacity from the addition of a second lane. Although queuing delays associated with one-lane traffic would be avoided with the addition of the second lane under this alternative, openings for vessels would not decrease as under the other build options having vertical clearance (W1R, C1, and C4). A two-lane pontoon bridge alternative would also be vulnerable to closing during extreme high and low-tide conditions, as is the case with the existing bridge. In addition, public safety issues (emergency vehicle access and bridge/vessel impacts) with the existing Sunset Beach Bridge would not be addressed by this alternative.

Several state departments of transportation were contacted to determine how effective pontoon bridges have been in their states. Of the six coastal states contacted, only Louisiana and Texas had operating pontoon bridges, with several other states abandoning them because of their inefficiency and higher maintenance costs. Of these states, only Texas has supported the use of these bridges on a limited basis. Additionally, the 8th District of the US Coast Guard, headquartered in St. Louis Missouri, was contacted. Cited as problematic and frail, pontoon bridges are not presently in use within this 22-state district (US Coast Guard, telephone conversation with Roger Wiebush, July 31, 1996a). Pontoon bridges have also been known to act like dams causing water to back up, sometimes into residential areas (US Coast Guard, telephone conversation with John Wachter, August 8, 1996b). Because of the maintenance, reliability, safety, and transportation issues associated with pontoon bridges, the two-lane pontoon bridge was eliminated from further study as a feasible alternative.

2.2.3.6 Preferred Alternative

The evaluation of feasible alternatives to address the deficiencies of the existing Sunset Beach Bridge covered many factors that have been discussed in detail in the Draft EIS. This draft was distributed for comments to federal, state, and local agencies, and was made available at regional centers for public review and comment. Comments on the Draft EIS were compiled and analyzed in the NCDOT's efforts to refine the feasible alternatives that were evaluated in the Draft EIS. From this process evolved several changes to the alignment of Alternative W1. In addition to the modifications to Alternative W1 resulting in Alternative W1R, agency coordination resulted in a better understanding of the mitigation measures that must be implemented to minimize environmental effects of the various alternatives.

NCDOT and FHWA representatives met with representatives of interested federal and state agencies on June 19, 1996, in the effort to achieve a consensus on a preferred alternative for the project. All representatives agreed that a new structure was necessary because the rehabilitation and the two-lane pontoon bridge alternatives did not address the basic project goals of public safety and transportation efficiency. Furthermore, representatives agreed that the high-span alternatives (C1 and W1R) provide greater transportation benefits than the mid-level bascule bridge alternative (C4). The final consensus among representatives was that when the safety, traffic, cost, and overall environmental effects were compared among alternatives, the least environmentally damaging practicable alternative to address the deficiencies of the Sunset Beach Bridge is the newly revised Alternative W1R. Based on this final analysis, Alternative W1R was adopted as the preferred alternative for the replacement of the Sunset Beach Bridge, eliminating the original alignment of Alternative W1 from further consideration. Accordingly, references in this document to Alternative W1R comprise references to the preferred alternative and vice versa.

2.2.3.7 Bridge Construction Methods

Although dependent upon the construction methods employed (discussed below), total construction time of preferred alternative (Alternative W1R) is estimated to be approximately 45 months or 3.75 years. Turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removals (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August.

The project should be let to bid for construction in June so that the contractor can mobilize at the project site prior to September. This would allow the contractor to begin any in-water pile foundation installation in September without the use of turbidity curtains (as will be required between and inclusive of March and August). Details on how this moratorium and the moratorium on pile removal (including piles used for temporary work bridge, existing bridge, and incidental piles) during this period will affect construction schedules are discussed in the relevant construction

method sections below. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method. A list of relevant NCDOT Best Management Practices (BMPs) is displayed in Section 4.4.

The preferred alternative (Alternative W1R) would require several piers to be constructed in the salt marsh immediately west of the island and adjacent to the causeway, and require the main span piers in the AIWW. This alternative would not require relocation of Big Narrows Channel as would be necessary under the original alignment, Alternative W1. Bridge foundations would most likely be waterline footings. To construct waterline footings, piles or drilled shafts would be installed into the bottom of the waterway. A cast-in-place concrete footing would be constructed on top of the piles or drilled shafts at an elevation near the waterline. Pier columns would be constructed on top of the waterline footings. These pier columns would support the bridge superstructure, including the bridge deck.

Alternative C1 would require piers to be constructed in the salt marsh immediately east side of the island causeway in addition to the main span piers in the AIWW. However, on this side of the causeway, there is no existing navigable waterway similar to the Big Narrows that could provide barge access unless the salt marsh is disturbed by dredging. Because of the presence of salt marsh in this area and the length of the span of Alternative C1, it was assumed that the top-down construction method would be the practical method of construction for this alternative. (Details on the unique applicability of the top-down construction method is discussed below.) For the estimates of Alternative C1's impacts to salt marsh, it was assumed that the top-down construction method would be used since this method minimizes disturbance to the marsh. The pier construction would be similar to those in Alternative W1R.

Alternative C4 would require piers only on land and in the AIWW. The main span of the bascule bridge would likely be constructed using conventional pier construction techniques in water. This technique would comprise of temporary cofferdams (braced steel sheeting placed around the perimeter of the footing from the bottom of the waterway to the waterline) placed at each main span pier location. The cofferdams would allow the contractor to install steel piling, place concrete seal, and construct footings and portions of pier columns located below the waterline. The remaining piers on the water would be similar to those described in Alternative W1R.

The build alternatives (W1R, C1, and C4) would require construction activities in three different types of environments: land, water, and marsh.

Construction on Land. For the northern portions of the proposed Sunset Beach Bridge on land, the construction would begin using conventional land-based equipment. To construct the bridge substructure units, piles or drilled shafts would be installed followed by placement of concrete for the footings. The pier columns would then be constructed on top of the footings to support the bridge superstructure, including the bridge deck. Erection of the superstructure units would be

handled by using land-based cranes with reasonable ease. A list of relevant NCDOT BMPs is displayed in Section 4.4.

Construction in Water and Marsh. For the portion of the proposed Sunset Beach Bridge spanning the AIWW and surrounding marshlands, several methods may be considered for bridge construction. These methods may include: 1) sunken barge, 2) floating barge, 3) construction barge in a dredged channel, 4) top-down construction, 5) modified top-down construction, and 6) temporary work bridge. NCDOT commits to making every effort to maintain the navigability of Big Narrows during the construction period for boats utilizing this waterway. A list of relevant NCDOT BMPs is displayed in Section 4.4.

In areas outside of the navigable portion of the AIWW, both sunken and floating barges could potentially be used. For sunken barges, unloaded barges are floated into position and filled with water or other ballast so that they sink and rest on the waterway bottom. The top of the barge would be above the waterline and construction equipment could work from this platform. Although the waterway bottom habitat would be destroyed directly underneath the sunken barge, the AIWW bottom would not be greatly disturbed.

For the floating barge construction method, the waterway depths allow the barges near the proposed bridge location to float without the need for dredging. This method would be most applicable within the AIWW, where the current dredged navigation channel could be used. Barges would be controlled by tow boats, and at least two would be needed: one to deliver materials, and the other to serve as a platform for construction equipment. The barges would likely be anchored with driven piles or cables. When the pier construction is complete, the anchored barges would be moved and anchored near the next pier construction site. Removal of the driven piles that may be used anchor this platform barge adjacent to the construction site is not to occur between and inclusive of March and August.

For construction barges, the bottom of the waterway may require dredging at locations where the water depth is about three meters (ten feet) or less. The bucket/clam shell dredging technique will be employed where dredging is necessary. During final design, a disposal plan for the dredge spoil will be developed to minimize harm to natural resources, which will likely include deposits in upland areas.

Due to the large area of salt marsh present for Alternative C1, the environmentally favorable top-down construction technique is assumed practicable for only this alternative. Specifically, the absence of an adjacent waterway for construction barge access and the length of Alternative C1's span over both salt marsh and open shallow water pose substantial potential impacts to salt marsh if other construction techniques (barges or a temporary work bridge) are employed. In top-down construction, piles, piers, and girders for the next span are constructed using equipment placed on the previously completed spans. Span lengths are controlled by the reach of an S1 stiff-leg derrick,

which would limit span lengths to 30.5 meters (100 feet). Accordingly, the resulting structure would have more piers than a structure constructed using the other alternative techniques. Due to these operating constraints, construction time is longer and costs are greater. Furthermore, the additional piers necessary with this construction technique would result in a less aesthetically pleasing structure than one constructed using any of the other alternative construction techniques. Span lengths can be increased using modified top-down construction. With this method, temporary foundations are constructed at intermediate locations to allow equipment to construct the permanent piers farther apart. The modified top-down method is also expensive and time-consuming, and would have greater impacts to the waterway bottom due to the addition of the temporary foundations.

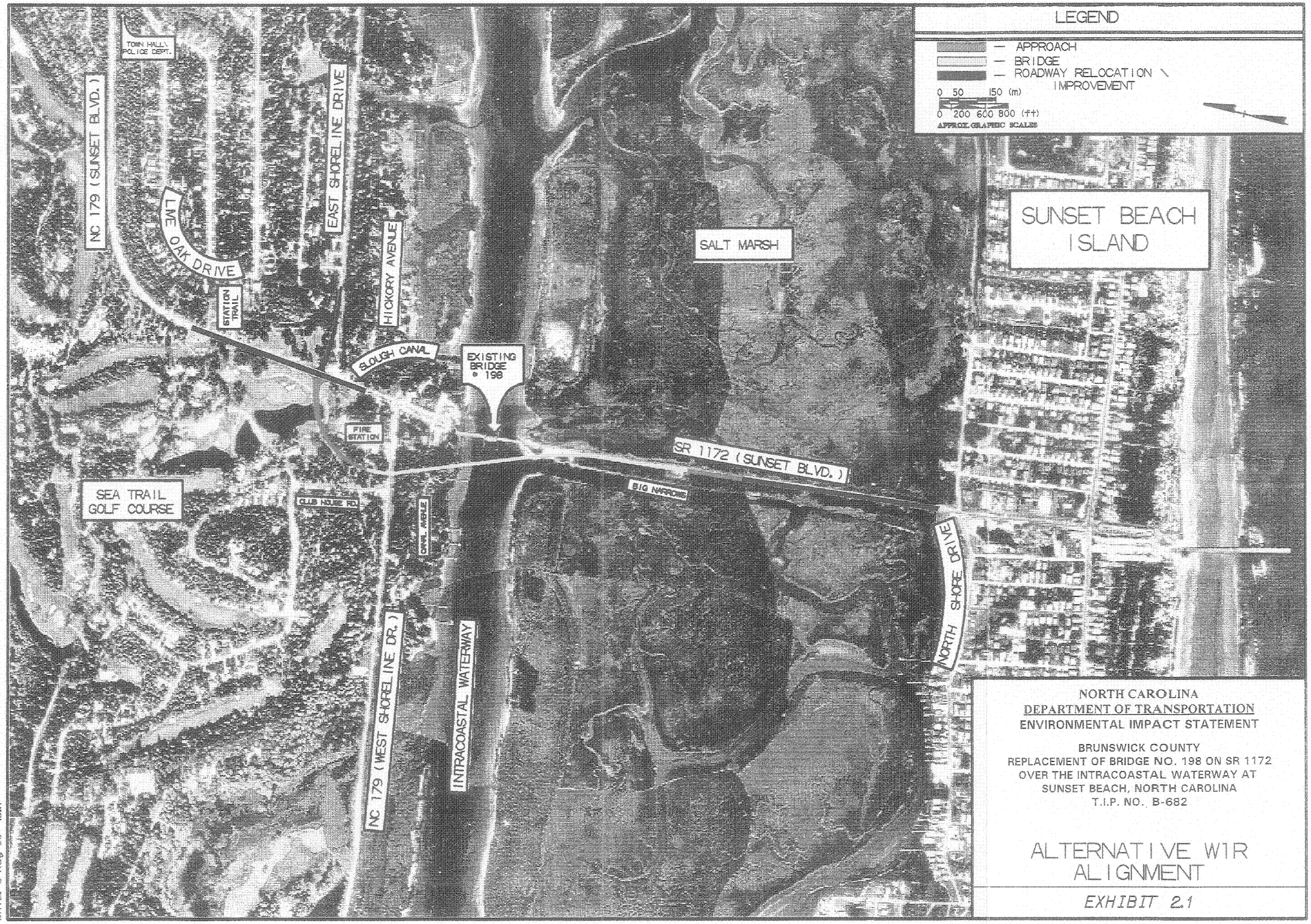
Using a temporary work bridge would be another potential construction method for only areas outside of the AIWW's navigable channel. For this method, a temporary work bridge to support construction equipment would be built adjacent to the location of the permanent bridge being constructed. The work bridge would be removed upon completion of the permanent bridge; however, removal of in-water piles will be accomplished outside of the period between and inclusive of March and August. Impacts to the waterway bottom under this construction method would be considered minimal due to temporary piles.

Based on the environmental impacts of the sunken barge and costs associated with top-down techniques as discussed above, it is unlikely that these construction methods will be incorporated into the final design of Alternative W1R, the preferred alternative for construction. Rather, a combination of a temporary work bridge, floating barge, and construction barges in a dredged channel would likely be employed. If used, the temporary work bridge would be located west of the existing causeway and is preliminarily estimated to extend 320.0 meters (1,050 feet) northward to its terminus, approximately 15.2 meters (50 feet) from the southernmost main span pier in the AIWW. Located outside of the AIWW's main channel, the temporary work bridge would be in little danger of vessel impacts from AIWW traffic. The temporary work bridge would be expanded between pier construction sites with bridge extensions called "fingers." If used, a channel for the construction barges would extend northward from the northern end of this work bridge to a barge loading platform located on the northern side of the AIWW. This barge channel would be maintained with bucket/clam shell dredging, where necessary. Final selection of the construction techniques will be accomplished during final design and evaluated formally through the Section 404 and Section 10 permitting processes. A list of relevant NCDOT BMPs is displayed in Section 4.4.

Construction Staging Areas. For each build alternative, there are potential construction staging areas near the project site. A temporary work and construction staging area and would be constructed on the island portion of the project. The proposed site for the island staging area for Alternative W1R would be west and adjacent to the existing causeway in the southern extreme of the proposed area of fill for the temporary work bridge. This staging area would require only a portion (0.5 hectare [1.3 acres]) of the fill required for the temporary work bridge (1.1 hectares [2.8 acres]).

On the mainland side of the project study area, potential staging areas for construction of Alternative W1R are the property on Canal Avenue currently owned by the NCDOT and the portion of the Sea Trail Plantation Golf Course which will be needed to construct Alternative W1R. Additional staging area will be located in upland areas in the vicinity of the project site. The final location of these staging areas will be evaluated during final design on the basis of logistics and economic practicability. A total estimated area of approximately 1.2 hectares (3.0 acres) of mainland staging area would be required for the preferred alternative.

Potential mainland staging areas for Alternative C1 include the existing section of NC 179 which would be replaced by a new alignment. This area could be used once traffic is rerouted to the new NC 179 alignment. The restaurant property on the west side of SR 1172 near the existing pontoon bridge would be directly impacted by Alternatives C1 and C4. This restaurant property could be used as a staging area for either Alternative C1 or C4.



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REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
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ALTERNATIVE W1R ALIGNMENT

EXHIBIT 2.1

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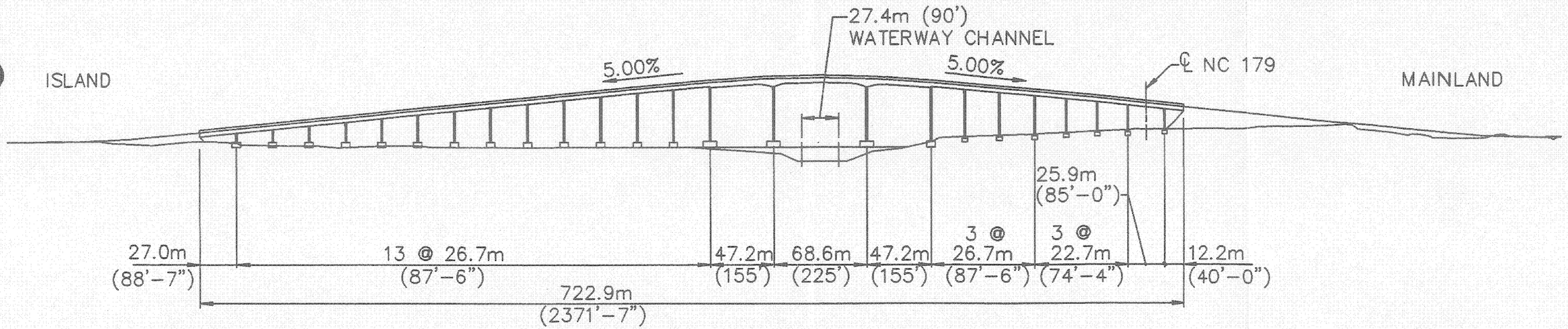
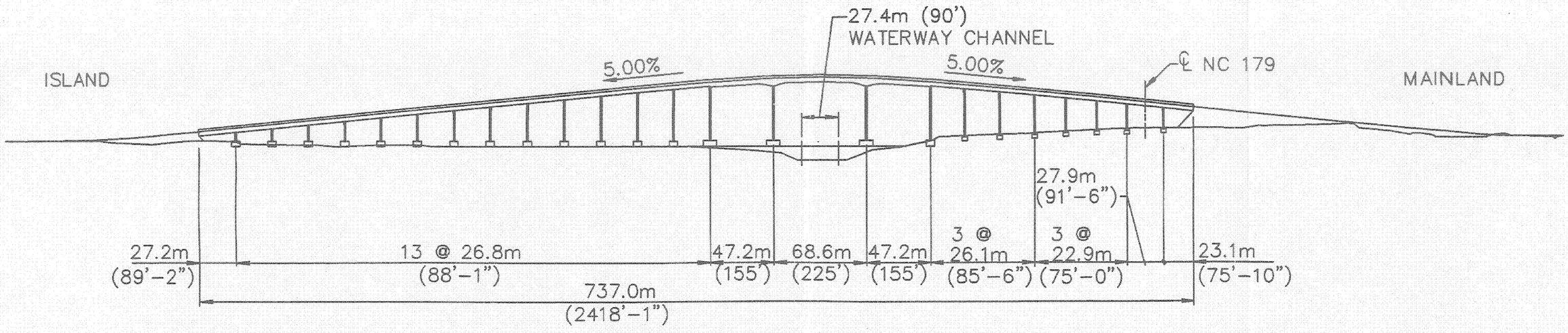


ALTERNATIVE W1R (REVISED WEST HIGH LEVEL)



ALTERNATIVE W1 (WEST HIGH LEVEL)

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PROFILES FOR ALTERNATIVES W1R & W1

EXHIBIT 2.2(A)

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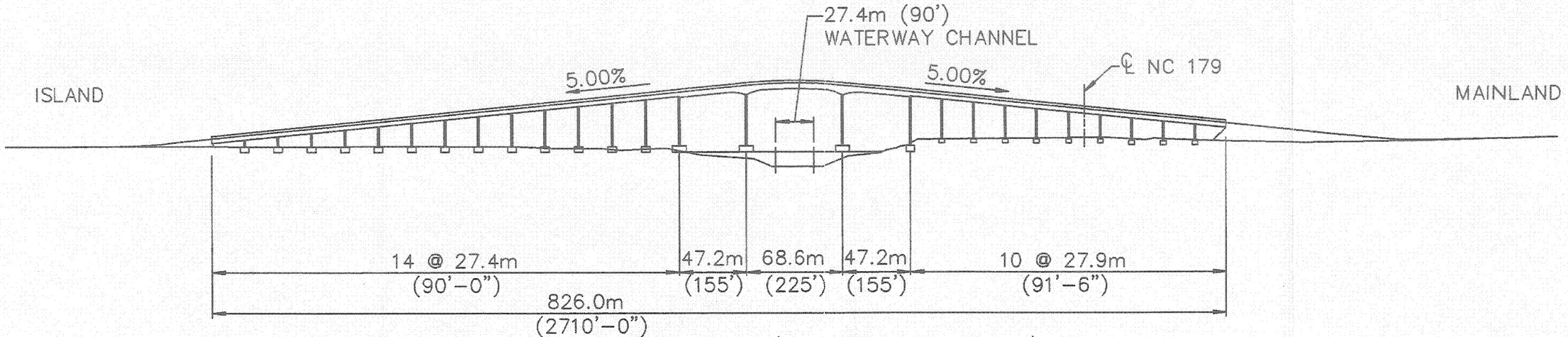
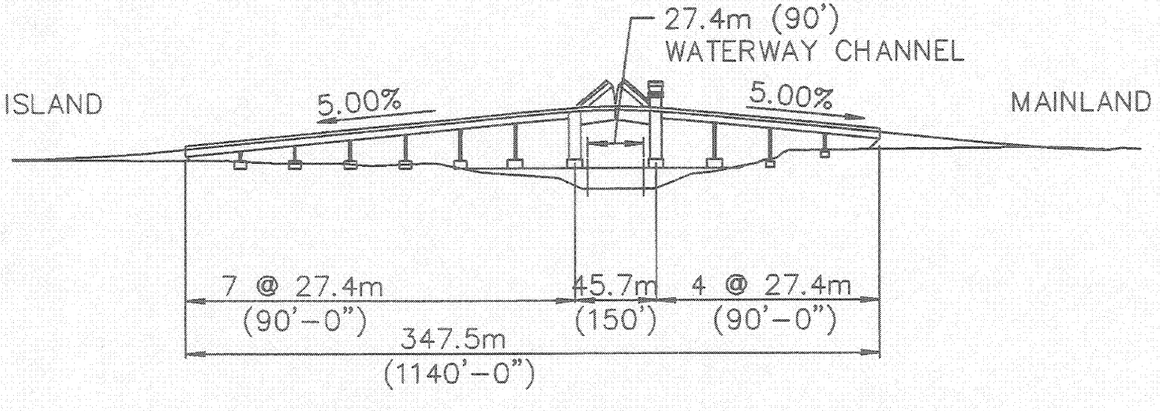


ALTERNATIVE C1 (CENTER HIGH LEVEL)



ALTERNATIVE C4 (CENTER MID–LEVEL BASCULE)

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PROFILES FOR ALTERNATIVES C1 & C4

EXHIBIT 2.2(B)

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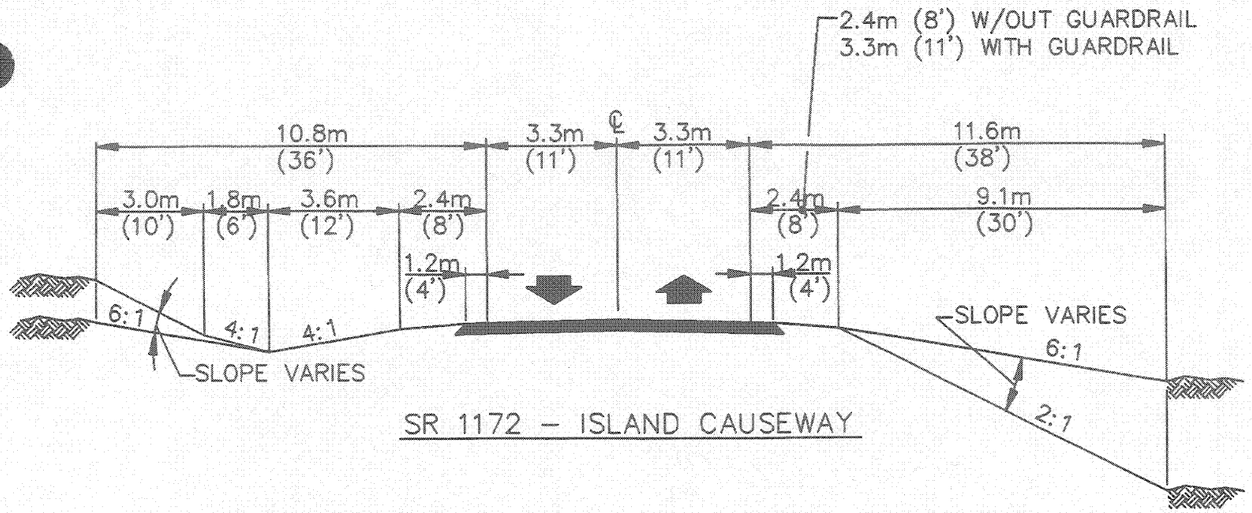
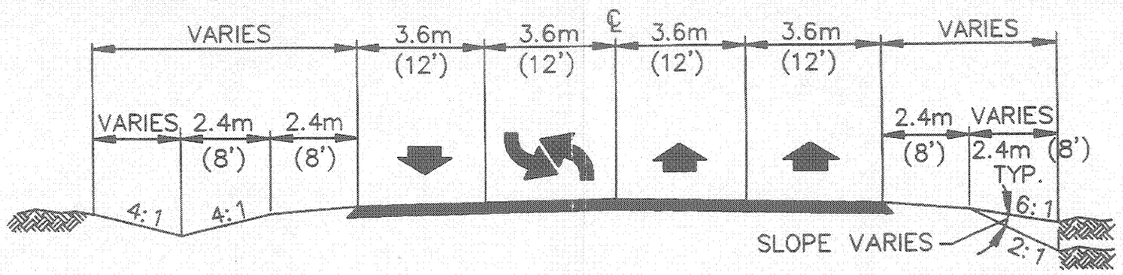
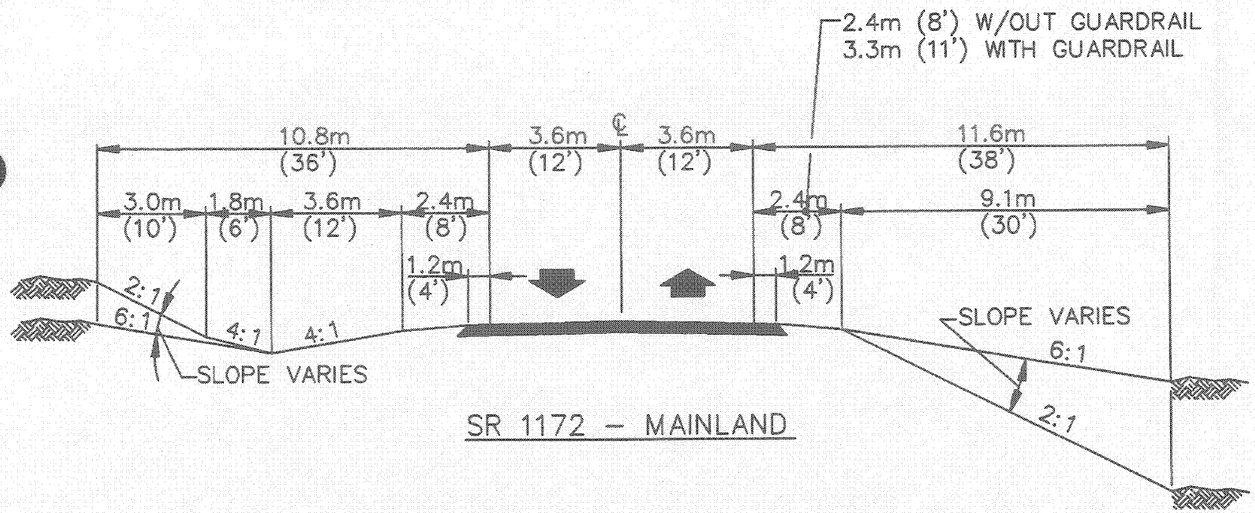


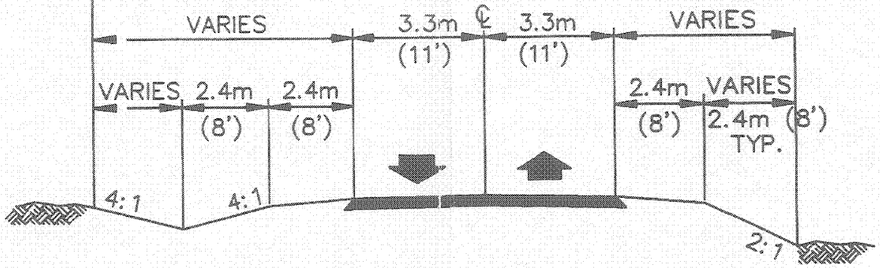
SR 1172 – ISLAND CAUSEWAY



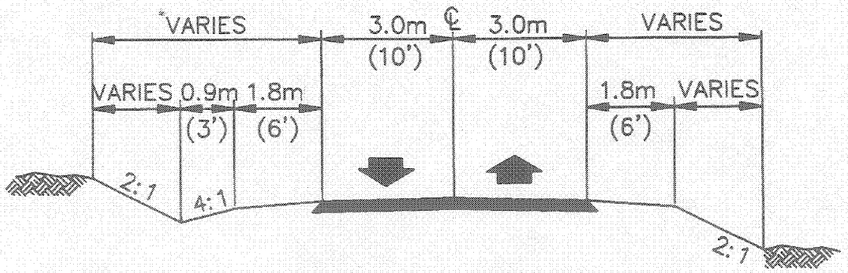
NC 179



SR 1172 – MAINLAND



WEST SHORELINE DR. NEAR NC 179



DETOUR TYPICAL SECTION

NORTH CAROLINA
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ALTERNATIVE W1R & W1
TYPICAL ROAD SECTIONS

EXHIBIT 2.3

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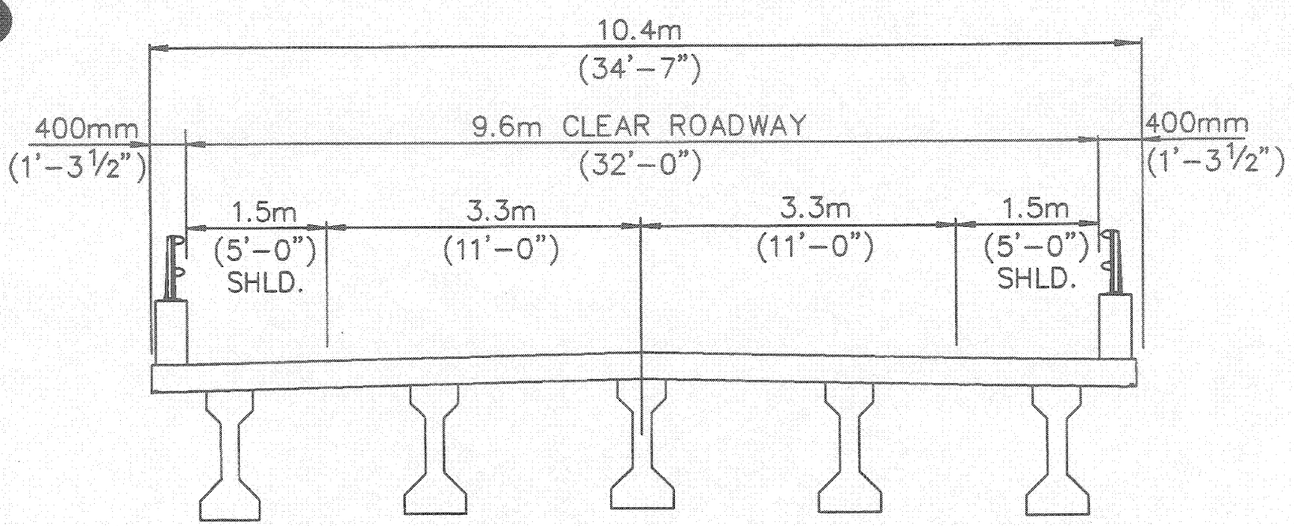
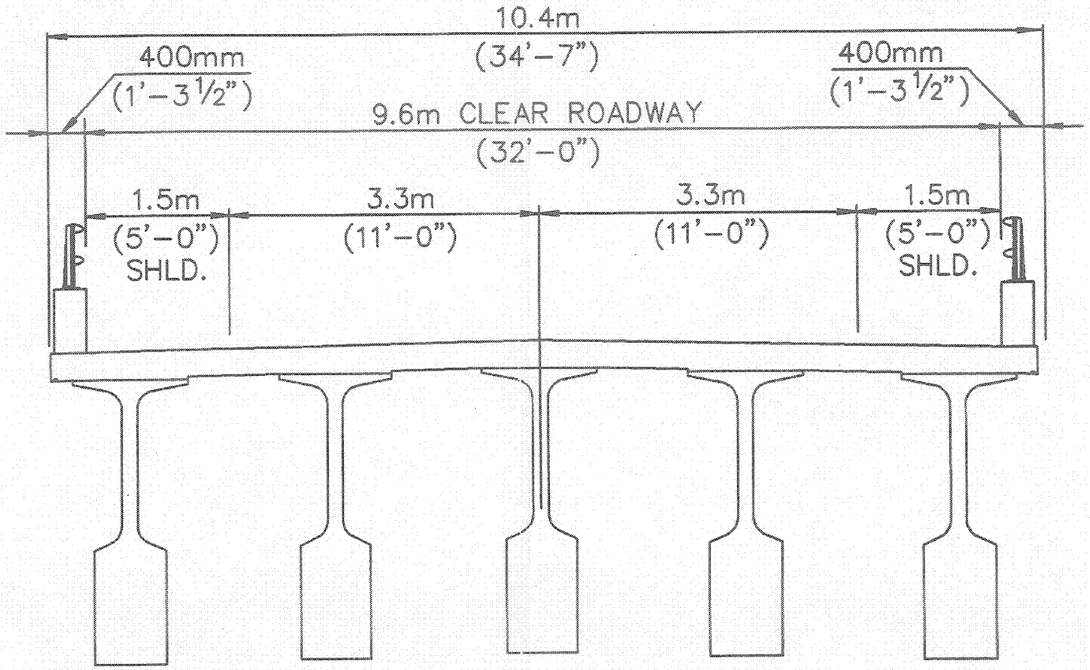
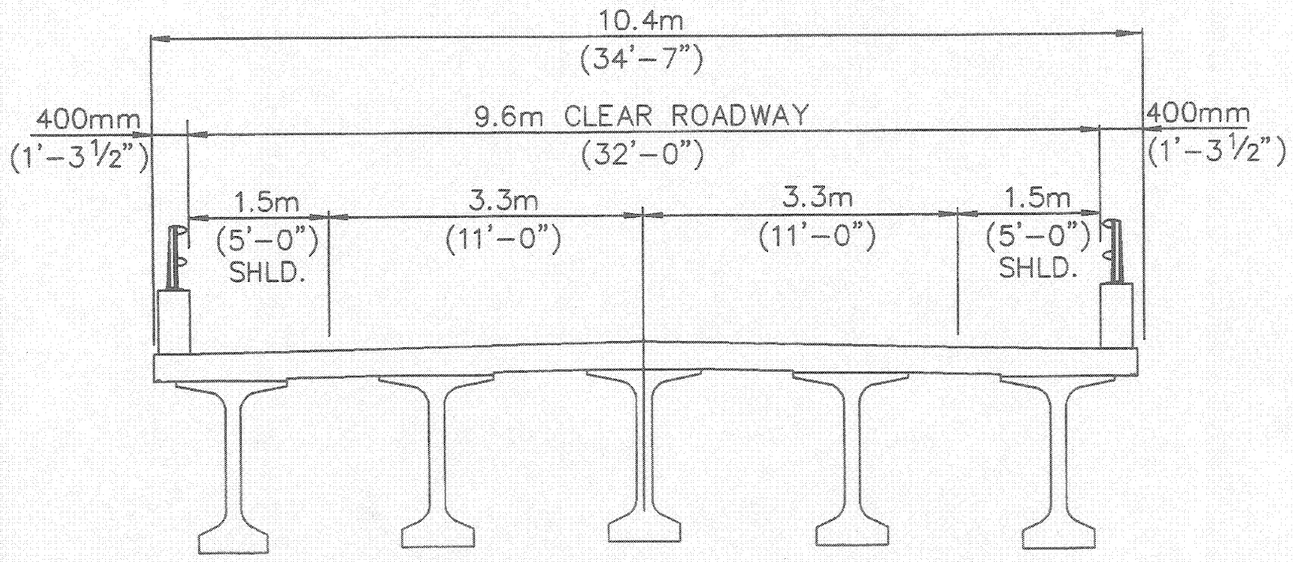


APPROACH SPANS – TYPICAL SECTION





MAIN CHANNEL SPANS – TYPICAL SECTION AT MID–SPAN

MAIN CHANNEL SPANS – TYPICAL SECTION AT PIERS

NORTH CAROLINA
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ALTERNATIVE W1R & W1
TYPICAL BRIDGE SECTIONS

EXHIBIT 2.4

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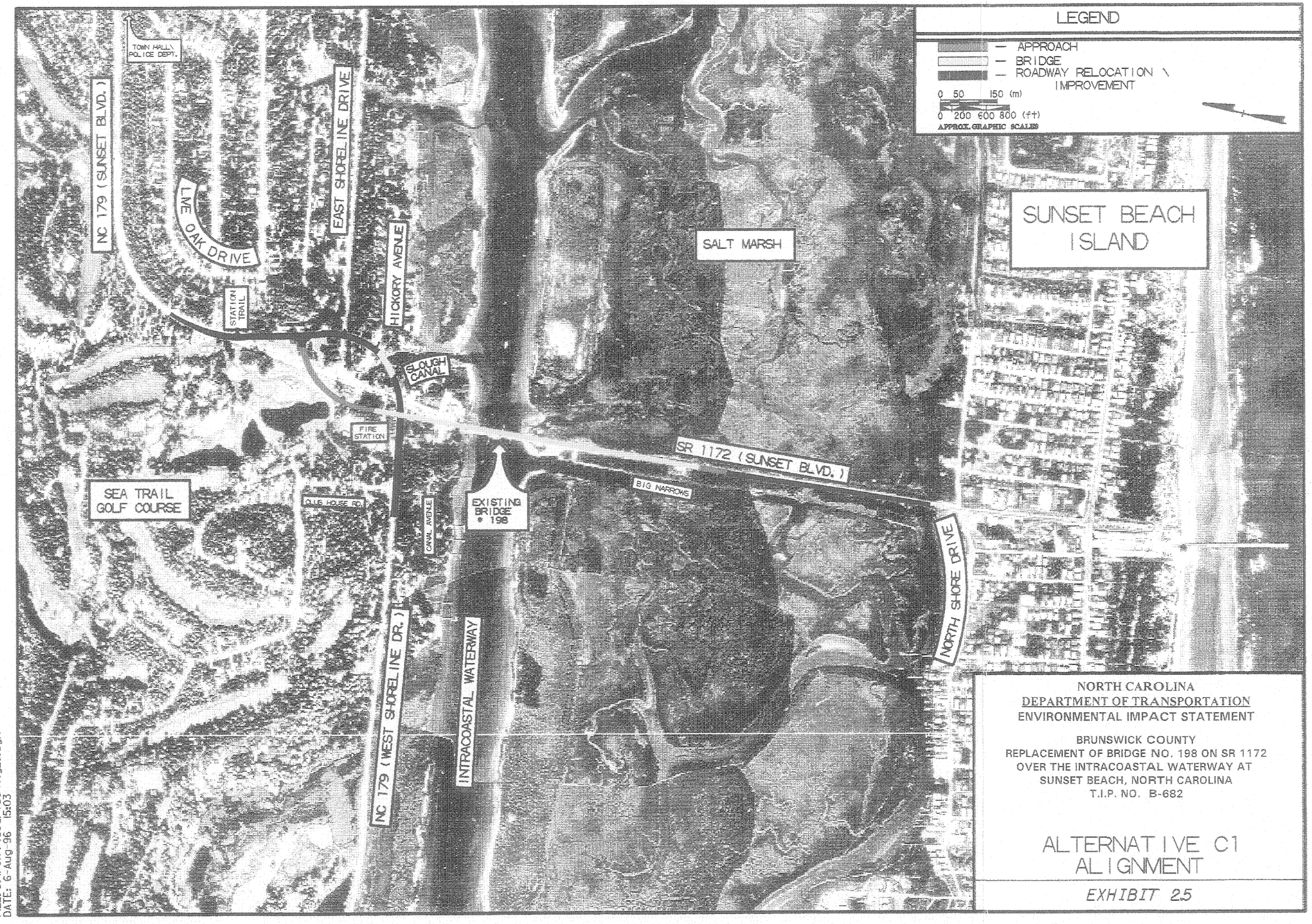

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ALTERNATIVE C1 ALIGNMENT

EXHIBIT 2.5

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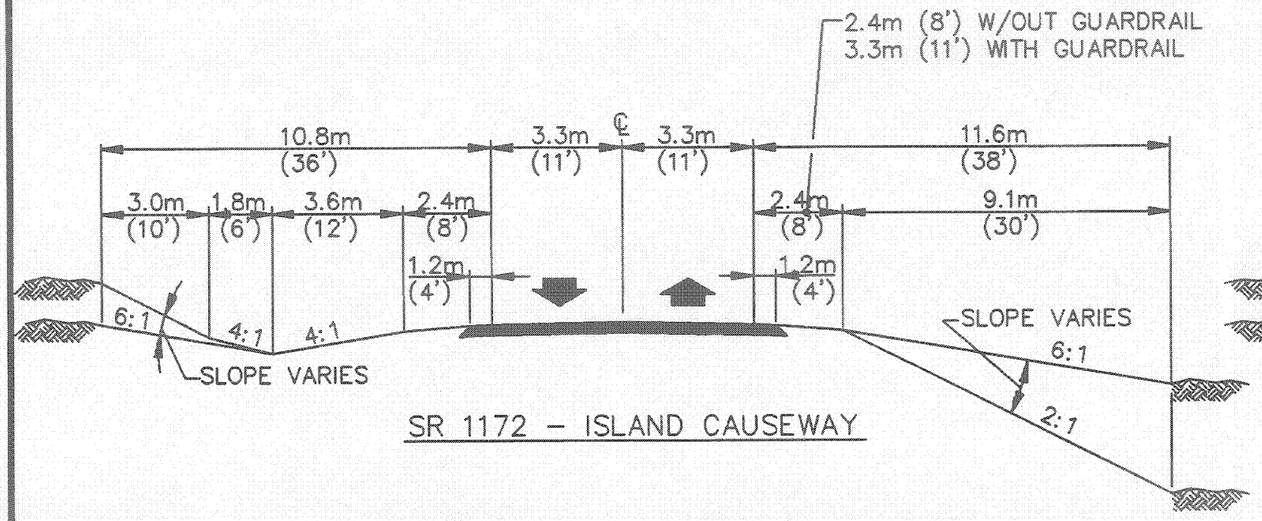
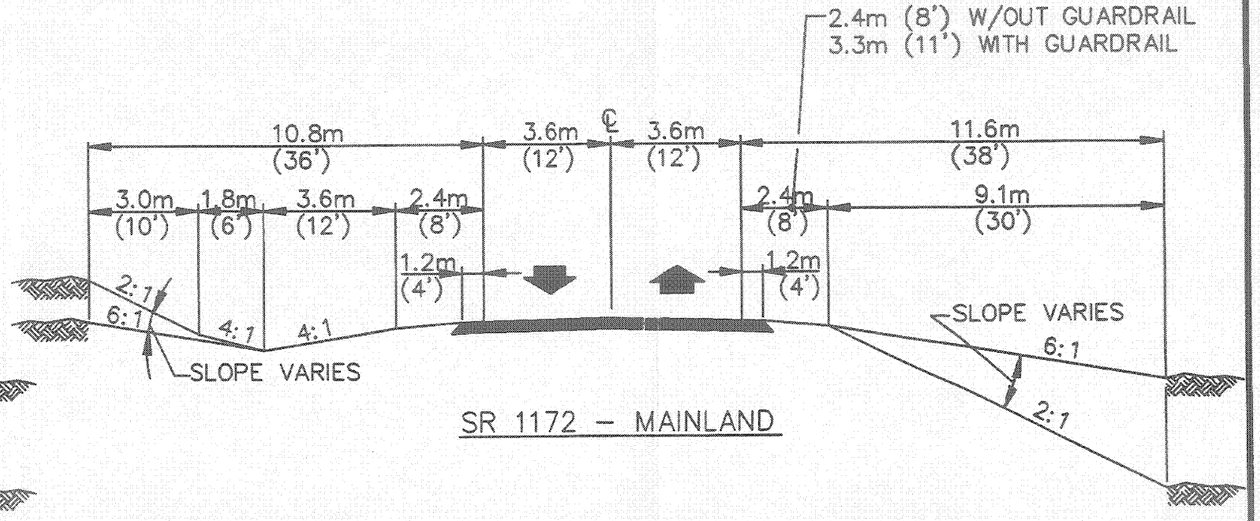
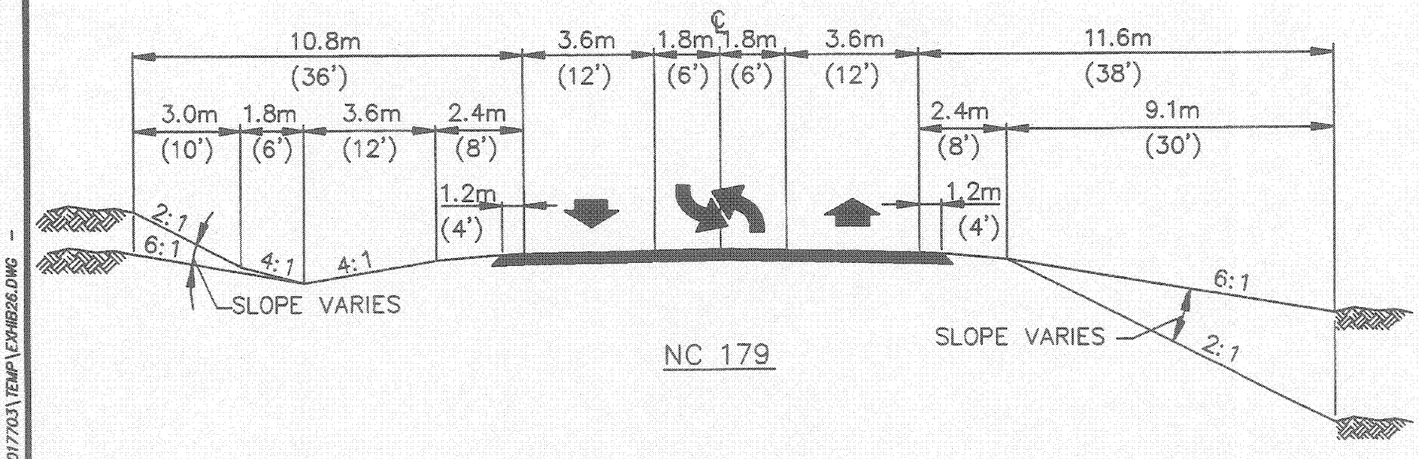


SR 1172 – ISLAND CAUSEWAY



SR 1172 – MAINLAND



NC 179

NORTH CAROLINA
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ALTERNATIVE C1
TYPICAL ROAD SECTIONS

EXHIBIT 2.6

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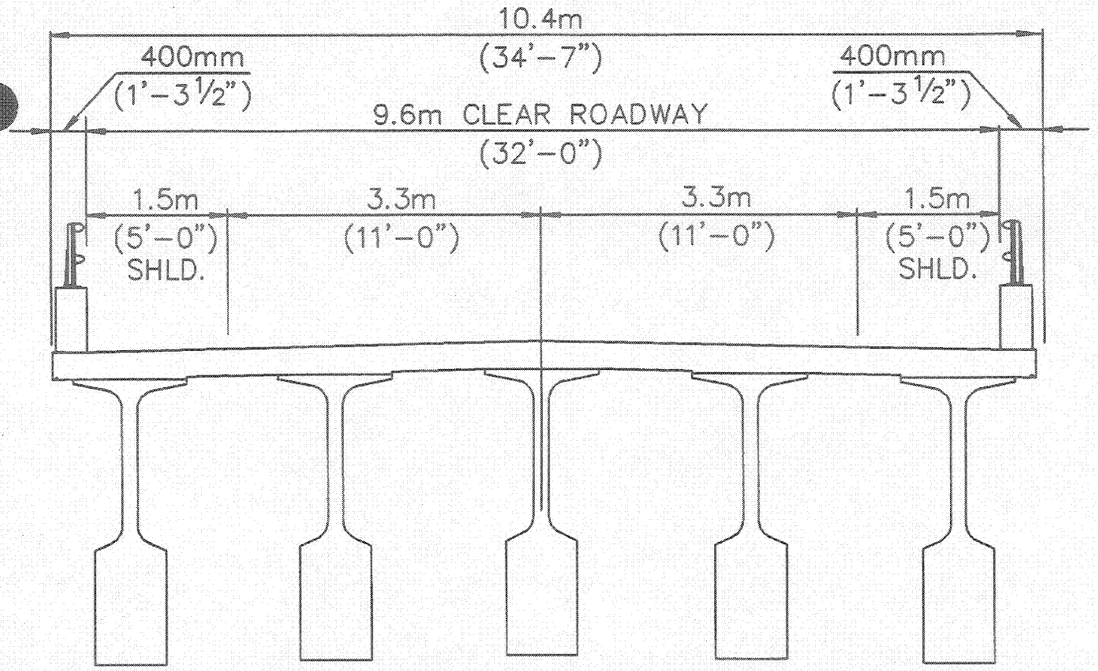
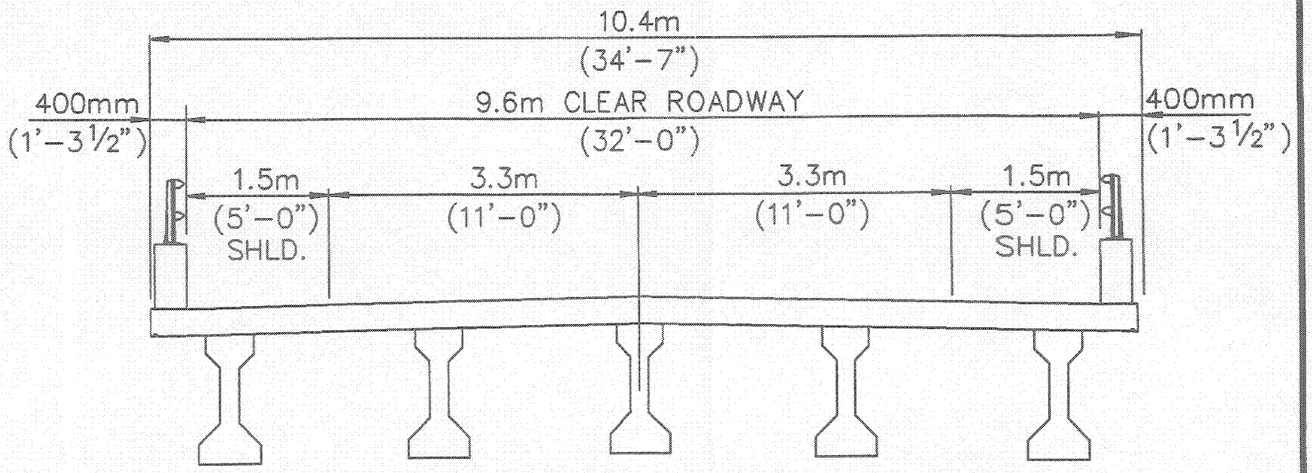
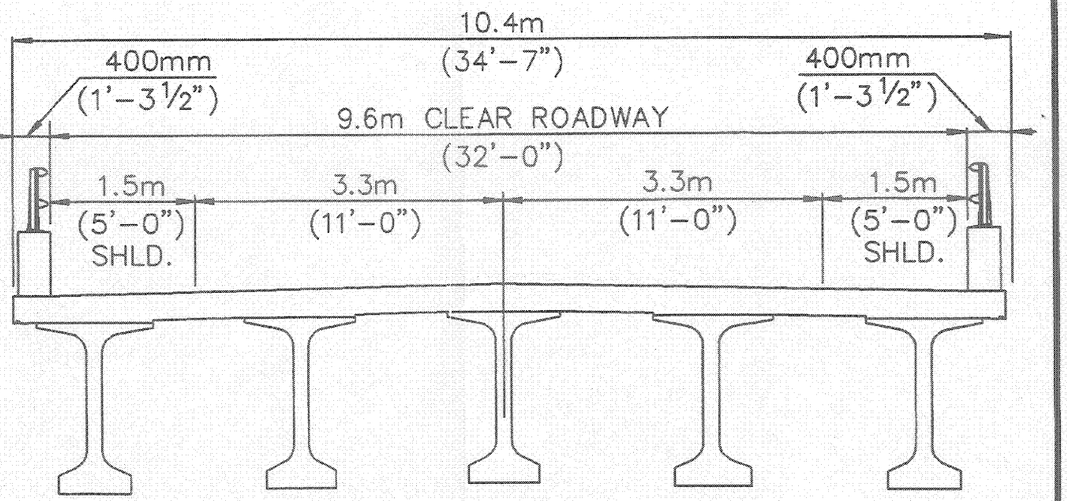


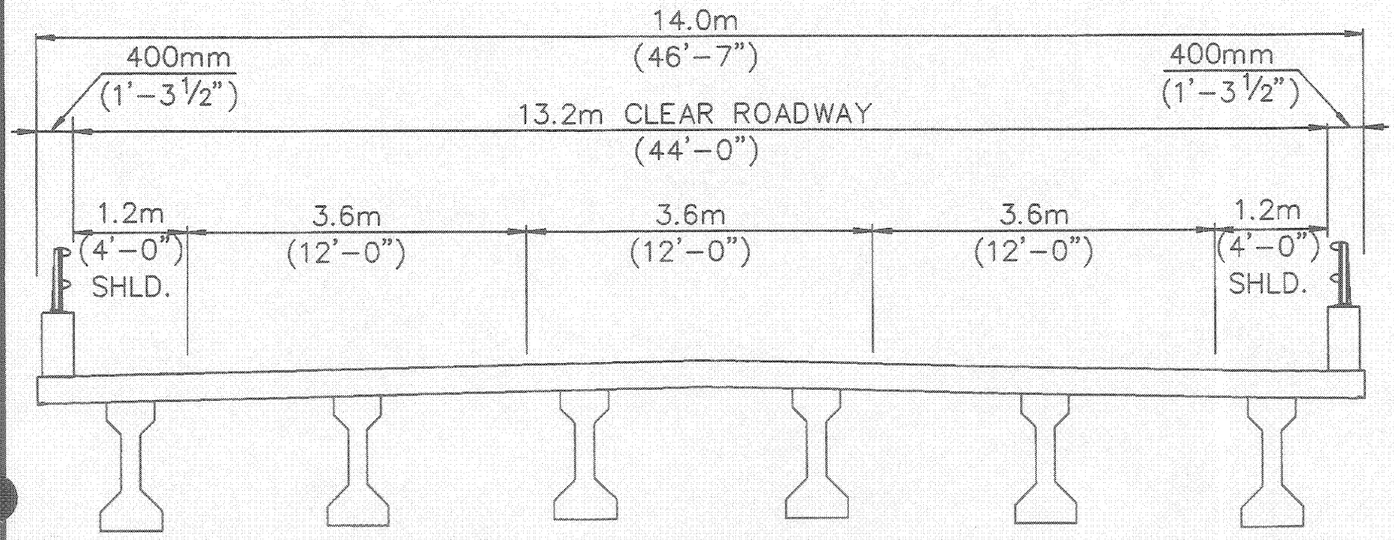
MAIN CHANNEL SPANS - TYPICAL SECTION AT PIERS



APPROACH SPANS - TYPICAL SECTION



MAIN CHANNEL SPANS -
TYPICAL SECTION AT MID-SPAN



SLOUGH CANAL - TYPICAL SECTION

NORTH CAROLINA
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ALTERNATIVE C1
TYPICAL BRIDGE SECTIONS

EXHIBIT 2.7

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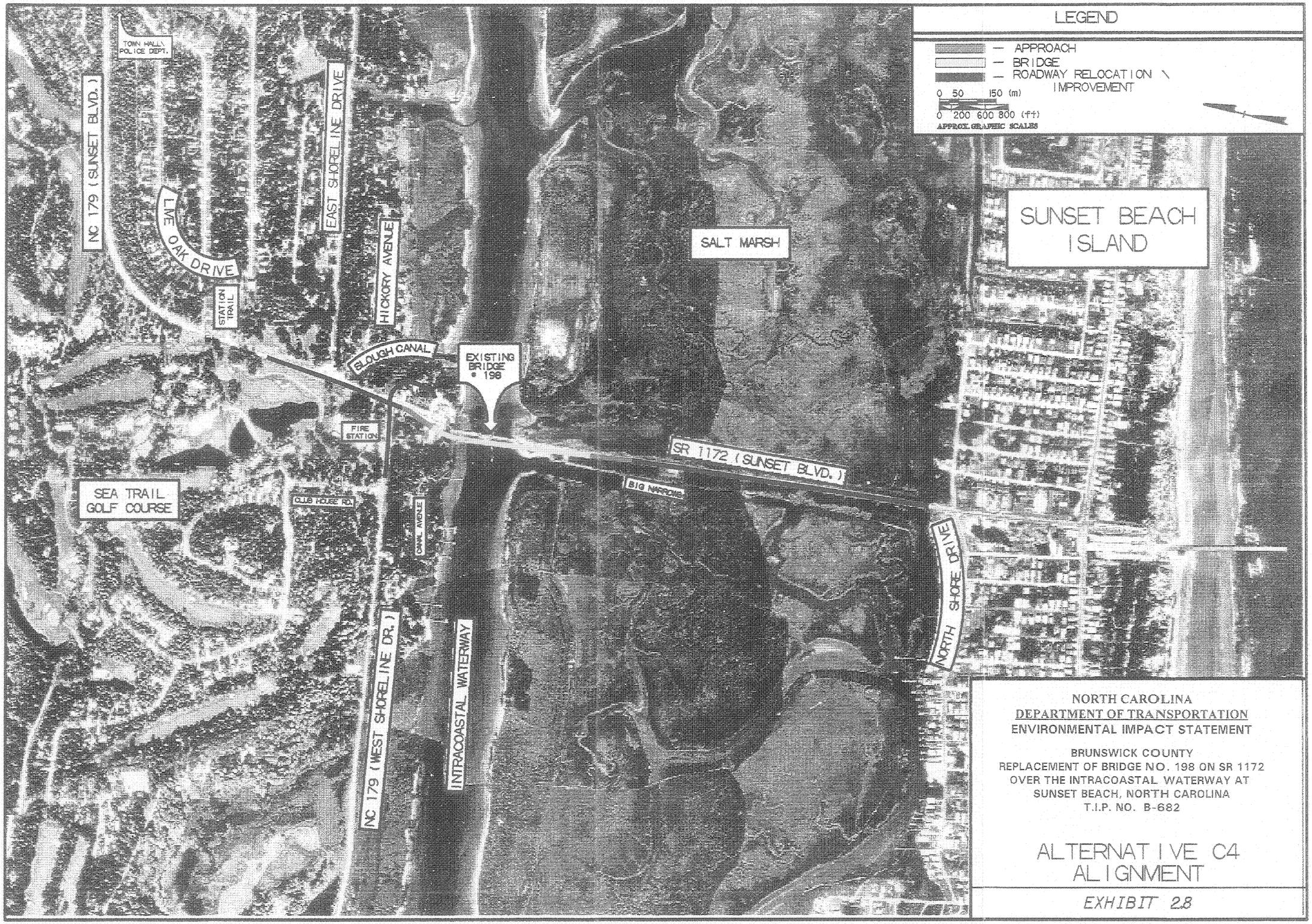

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ALTERNATIVE C4 ALIGNMENT

EXHIBIT 2.8

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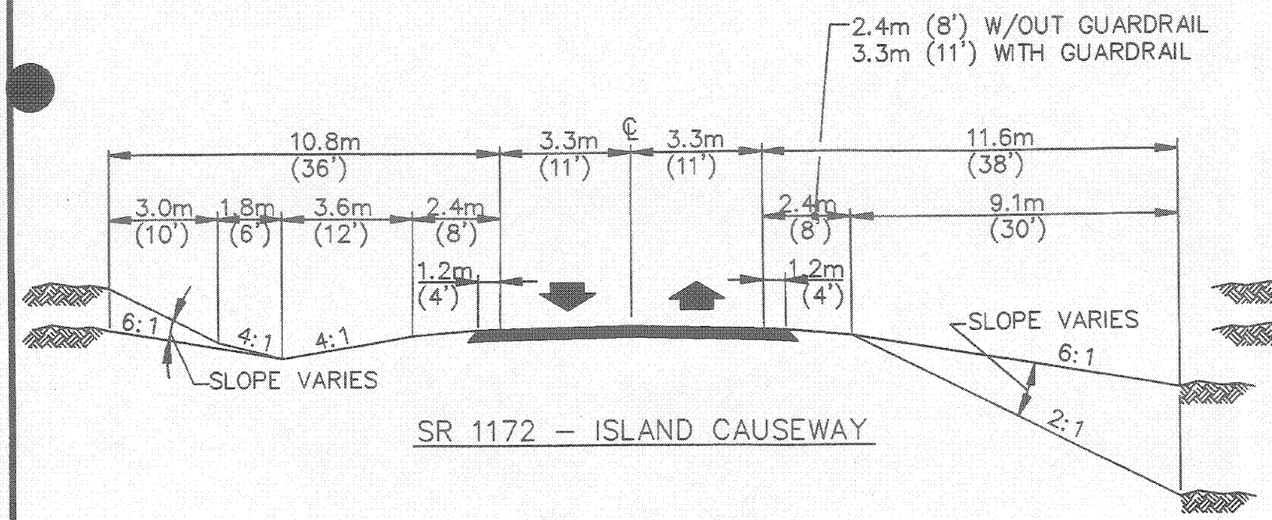
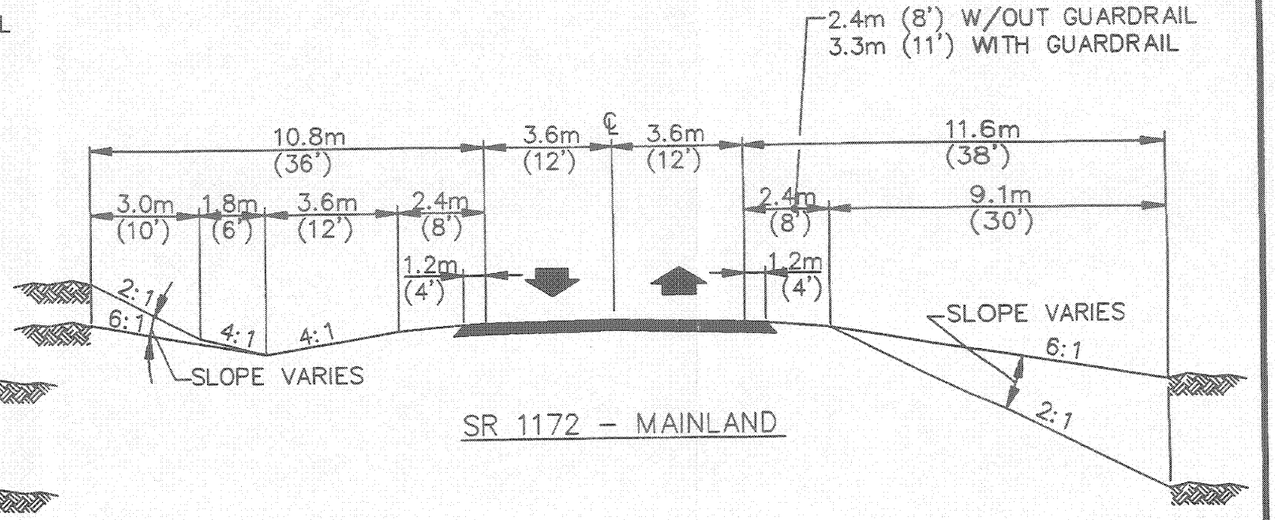
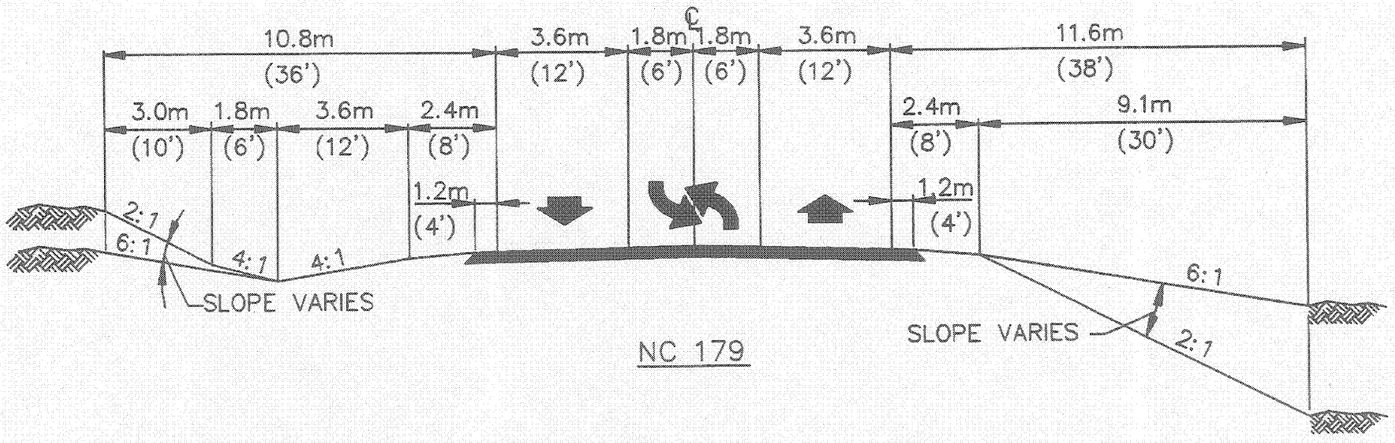


SR 1172 – ISLAND CAUSEWAY



SR 1172 – MAINLAND



NC 179

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ALTERNATIVE C4
TYPICAL ROAD SECTIONS

EXHIBIT 2.9

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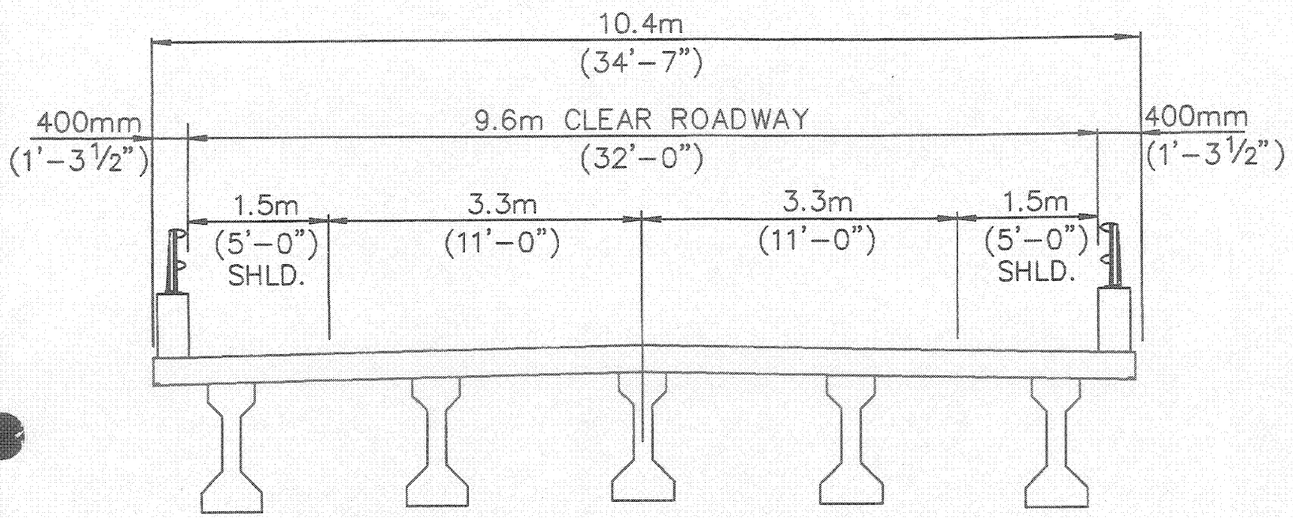
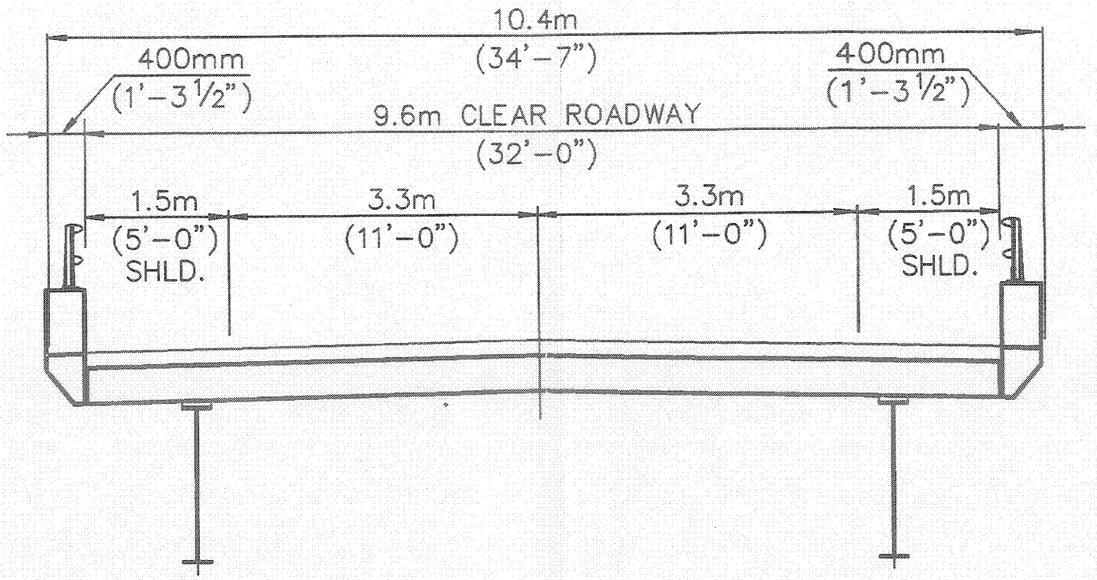


APPROACH SPANS - TYPICAL SECTION



BASCULE SPANS - TYPICAL SECTION

NORTH CAROLINA
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ALTERNATIVE C4
TYPICAL BRIDGE SECTIONS

EXHIBIT 2.10

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2.3 TRAFFIC OPERATIONS AND COST ESTIMATES

2.3.1 Year 2019 Traffic Operations

2.3.1.1 Traffic Volumes

Exhibit 1.5 shows the projected year 2019 traffic volumes for the study area roadways. Future traffic volumes were estimated based on projected 2019 land uses consistent with the CAMA Land Use Plan. As discussed in Section 4.1.1.3, the rate and type of development on Sunset Beach island is not expected to be greatly affected by the type of bridge in place. Since the traffic projections are based on future land uses, the traffic projections are the same for each alternative under consideration, including the No-Build and Rehabilitation Alternatives. However, there would be differences in turning movement volumes between the build alternatives since each build alternative has a different intersection configuration.

As discussed in Section 1.5.1.3, future traffic volumes for the No-Build and Rehabilitation Alternatives may actually be slightly lower than those presented in Exhibit 1.5 since discretionary trips to/from the mainland may not occur as often if frequent pontoon bridge openings create delays getting on and off the island. Discretionary trips are non-essential trips which can be canceled at the discretion of the traveler. Examples of discretionary trips include trips to restaurants or entertainment facilities. Non-discretionary trips would include trips to/from work, health-related trips, or trips to purchase essential items.

Based on studies conducted for bridges at Oak Island and Currituck Sound, North Carolina, future traffic volumes 10-15 percent lower than those presented in Exhibit 1.5 could occur for the No-Build and Rehabilitation Alternatives during summer peak hours, when delays would be greatest (NCDOT, 1995c). However, it should be noted that the future traffic volumes presented in Exhibit 1.5 were used to evaluate the No-Build and Rehabilitation Alternatives since it is not known whether, or by how much, these projected traffic volumes would be reduced from people forgoing some discretionary trips because of delays at the bridge.

2.3.1.2 Levels of Service

Definitions for levels of service are presented in Table 1.1 and in Section 1.5.1.1.

Tables 1.2, 2.4, 2.5, and 2.6 list the projected levels of service for surrounding roadways under the No-Build Alternative, Alternative W1R, Alternative C1, and Alternative C4, respectively. In Tables 2.4, 2.5, and 2.6, NC 179 was evaluated as a two-, three-, and five-lane roadway. However, it should

be noted that, except for the new relocated segment of NC 179 for Alternative C1, NC 179 would not be widened as part of this proposed project, since this project is a bridge replacement. The only areas additional lanes would be constructed are at the modified intersections, where turn lanes and/or storage areas would be added as part of the bridge replacement project. The levels of service which would occur with a widened NC 179 (either three lanes or five lanes) are presented to show what future improvements would be needed to achieve acceptable levels of service. These improvements would need to be implemented as a separate project. It should also be noted that without widening NC 179, future levels of service under the build alternatives would generally be the same or better than future levels of service under the No-Build Alternative.

A comparison of Tables 1.2, 2.4, 2.5, and 2.6 shows that the levels of service for NC 179 and SR 1172 would be the same under any alternative. Generally, NC 179 near the bridge would operate at LOS F during the summer, whether or not a new bridge is constructed. If NC 179 is widened to five lanes, which would need to be done as a separate project, levels of service would be improved to the levels shown in Tables 2.4, 2.5, and 2.6. However, widening NC 179 to five lanes is not currently included as a project in the NCDOT's Transportation Improvement Program.

All signalized intersections under Alternatives W1R, C1, and C4 would operate at LOS C or better during non-summertime peak periods. However, during future summertime peak periods, the intersection of NC 179 with the approach segments of Alternatives W1R, C1 or C4, as well as the No-Build and Rehabilitation Alternatives, would operate at LOS F. Levels of service for turning movements at unsignalized intersections vary, but all alternatives have some turning movements projected to operate at LOS D, E, and F.

2.3.1.3 Volume to Capacity Ratios

The volume to capacity (v/c) ratio is the projected rate of flow on a group of approach lanes divided by the capacity of the group of lanes. Intersection approach capacity is the maximum rate of flow which may pass through the intersection under prevailing traffic, roadway, and signalization conditions (Transportation Research Board, 1985:9-3). A v/c ratio of 1.0 represents 100 percent capacity.

Table 2.7 lists the signalized intersection v/c ratios for each build alternative for morning and evening peak hours and summer peak hours. The table includes projected v/c ratios for individual movements through an intersection (i.e., eastbound left, northbound through, etc.), as well as a composite v/c ratio for the sum of the critical movements within the intersection. NC 179 was analyzed as a two-lane roadway. The v/c ratios were calculated assuming the bridge (Alternative C4, C3, or C3R) over the AIWW was closed to allow vehicles to cross. See Section 2.3.1.4 for a discussion of queues which would result during bridge openings to allow passage of waterway traffic.

TABLE 2.4

YEAR 2019 LEVELS OF SERVICE
ALTERNATIVE W1R (WEST HIGH-LEVEL, REVISED)

Analysis Type	Segment or Intersection	Number of Lanes on Major Roadway[1]	Level of Service (LOS)[2]			
			Morning Peak Hours	Evening Peak Hours	Summer Morning Peak Hours	Summer Evening Peak Hours
Highway	SR 1172	Two	C	C	D	D
	NC 179	Two	E	E	F	F
		Three	E	E	F	F
		Five	C	C	E	E
Signalized Intersections	NC 179 (Shoreline Dr)/ NC 179 (Sunset Blvd)	Two	C	C	F[3]	F[3]
		Three	C	C	F[3]	F[3]
		Five	A	A	A	A
	Alt W1R/ NC 179	Two	C	C	F[3]	F[3]
		Three	C	C	F[3]	F[3]
		Five	C	B	C	C
Unsignalized Intersections[3]	Clubhouse Rd/ NC 179	Three	E B A	E D D	E D C	F E D
		Five	E A B	E A D	F A D	F D E

TABLE 2.4 (continued)

YEAR 2019 LEVELS OF SERVICE
ALTERNATIVE W1R (WEST HIGH-LEVEL, REVISED)

Analysis Type	Segment or Intersection	Number of Lanes on Major Roadway[1]	Level of Service (LOS)[2]			
			Morning Peak Hours	Evening Peak Hours	Summer Morning Peak Hours	Summer Evening Peak Hours
Unsignalized Intersections[4]	Station Trail/ NC 179	Three	E D D	E B B	E E D	E D D
		Five	E A D	E A B	E C D	F A D
	Canal Avenue/NC 179	Three	C A A	C A A	D A A	D A A

Source: Greiner, Inc., 1994a.

1. NC 179 was evaluated as a two-, three-, and five-lane roadway.
2. LOS rated from A-F, with A being best traffic conditions and F being worst traffic conditions.
3. Volume at intersection exceeds maximum saturation flow rate.
4. For Unsignalized Intersections: X = level of service for minor left turn movement
   X = level of service for minor right turn movement
   X = level of service for major left turn movement

TABLE 2.5

YEAR 2019 LEVELS OF SERVICE
ALTERNATIVE C1 (CENTER HIGH-LEVEL)

Analysis Type	Segment or Intersection	Number of Lanes on Major Roadway[1]	Level of Service (LOS)[2]			
			Morning Peak Hours	Evening Peak Hours	Summer Morning Peak Hours	Summer Evening Peak Hours
Highway	SR 1172	Two	C	C	D	D
	NC 179	Two	E	E	F	F
		Three	E	E	F	F
		Five	C	C	E	E
Signalized Intersections	Alt C1/NC 179	Three	C	C	F[3]	F[3]
		Five	B	B	C	C
Unsignalized Intersections[3]	Clubhouse Rd/ NC 179	Three	E B A	E D D	E D C	F E D
		Five	E A B	E A D	F A D	F D E

TABLE 2.5 (continued)

YEAR 2019 LEVELS OF SERVICE
ALTERNATIVE C1 (CENTER HIGH-LEVEL)

Analysis Type	Segment or Intersection	Number of Lanes on Major Roadway[1]	Level of Service (LOS)[2]			
			Morning Peak Hours	Evening Peak Hours	Summer Morning Peak Hours	Summer Evening Peak Hours
Unsignalized Intersections[4]	Station Trail/ NC 179	Three	E D D	E B B	E E D	E D D
		Five	E A D	E A B	E C D	F A D
	Shoreline Drive/NC 179	Three	E E E	E C B	F F E	E E D
		Five	E B E	E A C	F D F	F B E

Source: Greiner, Inc., 1994a.

1. NC 179 was evaluated as a two-, three-, and five-lane roadway.
2. LOS rated from A-F, with A being best traffic conditions and F being worst traffic conditions.
3. Volume at intersection exceeds maximum saturation flow rate.
4. For Unsignalized Intersections: X = level of service for minor left turn movement
   X = level of service for minor right turn movement
   X = level of service for major left turn movement

TABLE 2.6

YEAR 2019 LEVELS OF SERVICE
ALTERNATIVE C4 (MID-LEVEL BASCULE)

Analysis Type	Segment or Intersection	Number of Lanes on Major Roadway[1]	Level of Service (LOS)[2]			
			Morning Peak Hours	Evening Peak Hours	Summer Morning Peak Hours	Summer Evening Peak Hours
Highway	SR 1172	Two	C	C	D	D
	NC 179	Two	E	E	F	F
		Three	E	E	F	F
		Five	C	C	E	E
Signalized Intersections	Alt C4/NC 179	Three	C	C	F[3]	F[3]
		Five	C	C	B	C
Unsignalized Intersections[3]	Clubhouse Rd/ NC 179	Three	E B A	E D D	E D C	F E D
		Five	E A B	E A D	F A D	F D E

TABLE 2.6 (continued)

YEAR 2019 LEVELS OF SERVICE
ALTERNATIVE C4 (MID-LEVEL BASCULE)

Analysis Type	Segment or Intersection	Number of Lanes on Major Roadway[1]	Level of Service (LOS)[2]			
			Morning Peak Hours	Evening Peak Hours	Summer Morning Peak Hours	Summer Evening Peak Hours
Unsignalized Intersections[4]	Station Trail/ NC 179	Three	E D D	E B B	E E D	E D D
		Five	E A D	E A B	E C D	F A D
	Shoreline Drive/NC 179	Three	F D D	F C B	F E E	F D C
		Five	F B D	F A C	F C E	F A D

Source: Greiner, Inc., 1994a.

1. NC 179 was evaluated as a two-, three-, and five-lane roadway.
2. LOS rated from A-F, with A being best traffic conditions and F being worst traffic conditions.
3. Volume at intersection exceeds maximum saturation flow rate.
4. For Unsignalized Intersections: X = level of service for minor left turn movement
   X = level of service for minor right turn movement
   X = level of service for major left turn movement

TABLE 2.7

SIGNALIZED INTERSECTION VOLUME TO CAPACITY RATIOS

Travel Direction	Movement	YEAR 2019 - AM Volume to Capacity Ratios					YEAR 2019 - PM Volume to Capacity Ratios				
		Alt W1R		Alt C1	Alt C4	Alt C3/C3R	Alt W1R		Alt C1	Alt C4	Alt C3/C3R
		NC 179 Dogleg*	Alt W1R/ NC 179	Alt C1/ NC 179	Alt C4/ NC 179	NC 179 Dogleg*	NC 179 Dogleg*	Alt W1R/ NC 179	Alt C1/ NC 179	Alt C4/ NC 179	NC 179 Dogleg
East bound	Left	1.01	0.71	0.83	1.00	0.97	0.73	0.57	0.87	0.91	0.85
	Through	--	0.79	--	--	--	--	0.79	--	--	--
	Right	0.01	0.79	0.25	0.12	0.13	0.00	0.79	0.47	0.09	0.10
West bound	Left	--	0.06	--	--	--	--	0.00	--	--	--
	Through	--	0.24	--	--	--	--	0.80	--	--	--
	Right	--	0.24	--	--	--	--	0.80	--	--	--
North bound	Left	0.14	0.75	0.50	0.28	0.97	0.06	0.35	0.92	0.93	0.89
	Through	0.82	0.72	0.91	0.88	0.95	0.15	0.36	0.56	0.35	0.32
	Right	--	0.72	--	--	--	--	0.36	--	--	--
South bound	Left	--	0.16	--	--	--	--	0.00	--	--	--
	Through	0.55	0.90	0.92	0.73	0.95	0.23	1.02	1.02	0.89	0.85
	Right	0.68	0.18	0.18	0.75	0.59	1.05	0.23	0.23	0.96	0.93
Overall		0.99	0.84	0.89	0.97	0.97	0.98	0.87	0.98	0.96	0.93

TABLE 2.7 (Continued)

SIGNALIZED INTERSECTION VOLUME TO CAPACITY RATIOS

Travel Direction	Movement	YEAR 2019 - AM SUMMER Volume to Capacity Ratios					YEAR 2019 - PM SUMMER Volume to Capacity Ratios				
		Alt W1R		Alt C1	Alt C4	Alt C3/C3R	Alt W1R		Alt C1	Alt C4	Alt C3/C3R
		NC 179 Dogleg*	Alt W1R/ NC 179	Alt C1/ NC 179	Alt C4/ NC 179	NC 179 Dogleg*	NC 179 Dogleg*	Alt W1R/ NC 179	Alt C1/ NC 179	Alt C4/ NC 179	NC 179 Dogleg
East bound	Left	1.62	1.08	1.18	1.71	1.89	1.08	1.01	1.24	1.97	1.26
	Through	--	1.15	--	--	--	--	1.23	--	--	--
	Right	0.01	1.15	0.32	0.19	0.21	0.00	1.23	0.65	0.17	0.14
West bound	Left	--	0.11	--	--	--	--	0.15	--	--	--
	Through	--	0.33	--	--	--	--	1.11	--	--	--
	Right	--	0.33	--	--	--	--	1.11	--	--	--
North bound	Left	0.06	1.26	0.69	0.89	0.84	0.06	0.94	1.18	1.03	1.24
	Through	0.30	1.02	1.34	0.91	0.76	0.23	0.52	0.82	0.10	0.44
	Right	--	1.02	--	--	--	--	0.52	--	--	--
South bound	Left	--	0.28	--	--	--	--	0.29	--	--	--
	Through	0.60	1.31	1.36	0.88	0.67	0.34	1.47	1.50	0.93	1.18
	Right	1.03	0.27	0.38	0.92	0.92	1.55	0.35	0.33	1.54	1.38
Overall		1.23	1.24	1.25	1.32	1.42	1.31	1.25	1.31	1.26	1.37

* This is the intersection where NC 179 (West Shoreline Dr.) makes a 90 degree intersection with NC 179 (Sunset Blvd), forming a tee with SR 1172.

As shown in Table 2.7, the v/c ratios for summertime peak hours under any alternative are generally higher than for off-season peak hours, with more instances of projected volumes exceeding capacities.

When analyzing the performance of signalized intersections, both the v/c ratio and the level of service should be considered. Unlike roadway segments, where v/c ratios and levels of service are directly related and analyzed simultaneously, the v/c ratios and levels of service for an intersection are analyzed separately. The level of service is based on the "average stopped delay per vehicle for various movements within the intersection." While v/c ratios affect delays at intersections, there are other parameters that more strongly affect delays, such as the quality of progression, length of green signal phases, and signal cycle lengths. Therefore, for any given v/c ratio, a range of delay values, as well as levels of service, may result (Transportation Research Board, 1985:9-3).

2.3.1.4 Queuing Analysis

A queuing analysis was conducted to estimate queue lengths, the duration of traffic flow interruption, and the frequency of interruption due to bridge openings under Alternative C4 (Greiner, Inc., 1994b). The high-level alternatives (W1R and C1) would not require bridge openings and traffic flow would not be interrupted. The queuing analysis assumed that the average opening time for the mid-level bascule alternative was six minutes: two minutes to open the bridge, two minutes for watercraft to pass through, and two minutes to close the bridge. Average bridge opening durations were based on the Wrightsville Beach bascule bridge in New Hanover County (Greiner, Inc., 1994b:1).

Based on the projected 2019 evening peak hour traffic projections, a maximum of 222 vehicles was assumed to cross the existing bridge. If the bascule bridge opened at the beginning of the peak 15-minute period, about 92 passenger cars (52 southbound on the mainland and 40 northbound on SR 1172 on the island) would queue up during the six minutes the bridge is open to waterway traffic. The southbound queue on the mainland "fills" the 152.4-meter (500-foot) length between the NC 179/SR 1172 intersection and the bridge entrance, and queues an additional 198.1 meters (650 feet) onto NC 179 (Sunset Boulevard portion) and 45.7 meters (150 feet) onto NC 179 (West Shoreline Drive portion). The northbound traffic on the island would queue up 304.8 meters (1,000 feet) along the causeway (Greiner, Inc., 1994b:2).

These queue lengths are less than those which would occur under the No-Build Alternative. As discussed in Section 1.5.1.3, queue lengths for the No-Build and Rehabilitation alternatives would fill an additional 396.2 meters (1,300 feet) onto NC 179 (Sunset Boulevard portion), 106.7 meters (350 feet) onto NC 179 (West Shoreline Drive portion), and 464.8 meters (1,525 feet) on the island causeway.

When the bascule bridge completes its cycle allowing waterway vessels to pass and reopens to allow vehicular traffic to cross, vehicles in front of the queue begin discharging while others arrive at the back of the queue. Unlike the existing pontoon bridge, mainland and island queues can begin simultaneous dispersion under Alternative C4. The mid-level bascule alternative would require about three minutes for the queue to dissipate, in contrast to the 27 minutes required under the No-Build Alternative (Greiner, Inc., 1994b:2).

The estimated queue lengths and durations were based upon the assumption that the bridge opens during the peak evening hour and therefore, represents a worst-case scenario. Alternative C4 would only need to open for vessels greater than 9.1 meters (30 feet) in height and would average about 6.2 openings per day (Greiner, Inc., 1994d:7). The existing bridge opens an average of 10.6 times per day (Greiner, Inc., 1994c:7). The likelihood and frequency of the Alternative C4 bridge being opened during the evening peak 15 minute period would be less than it would be for the No-Build Alternative.

2.3.2 Safety

As discussed in Sections 1.6.1 and 1.6.2, any access interruption to the island caused by bridge openings, either scheduled or unscheduled, diminishes public safety because it restricts the ability of fire, police, and emergency rescue units to respond to an emergency. In addition, the general public is not advised of the risks associated with the unavailability of emergency services when they visit or stay on the island. Therefore, the frequency of bridge openings (times when vehicles can not cross) is an important factor to consider when evaluating public safety for different alternatives.

Table 2.8 lists the estimated average daily bridge openings associated with the high-level fixed spans, mid-level bascule, and existing bridge configurations. These estimates are from the Social Impact Report (Hayes and Associates, 1994b) and are based on the results of the Vessel Height and Traffic Report prepared for the project (Greiner, Inc., 1994c). Under the No-Build Alternative and the Rehabilitation Alternative, the bridge would have to open an average of 10-11 times per day.

The 19.8-meter (65-foot), high-level, fixed-span bridge provides a fixed link between the island and the mainland and is the best design in terms of public safety. Evacuation procedures would also be facilitated with a high-level bridge. A high-level, fixed-span bridge (Alternatives W1R and C1) would not be prone to mechanical problems as would the mid-level bascule bridge (Alternative C4) or the current or rehabilitated pontoon bridge. The only times that a high-level, fixed-span bridge would be closed would be during extremely high winds or because of a severe traffic accident. All pleasure and commercial vessels would have uninterrupted passage along the AIWW.

The mid-level bascule bridge (Alternative C4) would have to open an estimated 6-7 times per day for boat traffic, which is less frequent than the existing number of bridge openings. On the average, 63 percent of all boats would be able to pass under the 9.1-meter (30-foot) bascule bridge. As shown

TABLE 2.8

AVERAGE DAILY BRIDGE OPENINGS FOR BOAT TRAFFIC BASED ON 1993 VESSEL HEIGHT SURVEY DATA

DESIGN	AVERAGE DAILY OPENINGS		
	SUMMER	FALL	ANNUAL
High-Level, Fixed-Span Bridge (19.8 meters [65 feet] clearance)	0	0	0
Mid-Level Bascule Bridge (9.1 meters [30 feet] clearance)	3.3	8.5	6.2
Existing Pontoon Bridge	10.0	11.1	10.6

Note: These data are the average frequencies of bridge openings that would be required for each noted structure height category in the summer and fall seasons, as well as an average of the two seasons. Averages based on data obtained during a survey of vessel heights at the Sunset Beach Bridge conducted in August and October 1993. Because no significant growth trend is observed from historical vessel counts between 1986 and 1994 (see Exhibit 1.6), averages produced for this analysis are considered to be generally representative of future values.

Source: Greiner, Inc., 1994c.

in Table 2.8, a mid-level bridge may only have to open 3-4 times per day during the peak summer season because about 84 percent of all vessels observed during this time would be able to pass under the mid-level bridge (Greiner, Inc., 1994c). A mid-level bridge would have to open more frequently during the fall and spring since large pleasure craft migrate between winter and summer berths during these times.

Traffic congestion caused by bridge openings is another consideration. The emergency service response problems associated with traffic congestion and the current pontoon bridge are described in Sections 1.6.1 and 1.6.2. Traffic would back up during openings of the mid-level bascule bridge (Alternative C4), but congestion would be less than with the current pontoon bridge. Less vehicles would be stopped at the bascule bridge than the existing pontoon bridge because there would no longer be the waiting period associated with allowing only one direction of travel to cross the bridge at a time. The traffic queue which would develop during bridge openings would clear faster with the bascule bridge since both directions of traffic could move across at the same time (see Section 2.3.1.4). It is also anticipated that there would be fewer openings with the bascule bridge than the pontoon bridge since there would be 9.1 meters (30 feet) of vertical clearance under the main span.

The two high-level bridge alternatives (W1R and C1) would not have congestion problems associated with bridge closings. However, during the peak summer season, delays could still occur at the approach intersections on the mainland.

A third consideration related to public safety is the probability of the bridge closing due to mechanical failure, extreme tide conditions, and severe weather. High-level, fixed-span bridges (Alternatives W1R and C1) would not have to be closed because of mechanical failure. Only extremely high winds and traffic accidents typically close this type of bridge. The bascule bridge (Alternative C4) could experience mechanical problems, but would be more reliable than the pontoon bridge design. Bascule bridges do not open to allow passage of vessel traffic when winds are over 56 kilometers (35 miles) per hour. However, vehicles could still cross the bridge during these conditions. The mid-level bascule would not be vulnerable to extreme tide conditions as occurs with the current pontoon bridge.

In summary, the high-level, fixed span alternatives (Alternatives W1R and C1) would be the most reliable and efficient designs in terms of public safety and emergency access. Access would be continuous for both vehicular and waterway traffic.

The mid-level bascule bridge (Alternative C4) would be more reliable and efficient than the existing or rehabilitated pontoon bridge designs. Scheduled openings of the existing or rehabilitated pontoon bridge would be more frequent than under the bascule bridge due to lack of vertical clearance for waterway traffic. Unscheduled openings to allow passage of waterway traffic would also occur more often due to severe weather, excessively high or low tides, mechanical problems, and on-demand

openings for commercial vessels. Traffic congestion, which can slow response times to island emergencies, would be greatest under the existing bridge configuration.

2.3.3 Cost Estimates

Estimated construction, operations/maintenance, and right-of-way costs for the build alternatives (W1R, C1, and C4) are presented in Table 2.9. As shown in the table, Alternative C1 (high-level fixed span bridge) would be the most costly of the three build alternatives at $19,281,100. The main differences between the C1 and the other alternatives are 1) the longer bridge structure required in order to minimize impacts to businesses on the mainland side of the project and 2) the increase in right-of-way costs required for this alternative. The mid-level bascule bridge would be the second highest cost alternative ($18,606,250), with the highest maintenance and operation costs of any alternative. This alternative would require an operator 24-hours per day and more frequent maintenance due to the mechanical components of the bridge. The mechanical components of the bascule bridge also make it more costly to construct than the W1R high-level fixed span bridge, even though the bascule structure is shorter in length.

Alternative W1R is estimated to cost $15,142,700. Although costs of W1R do not differ greatly from the estimated costs of Alternative W1 ($15,665,400), Alternative W1R would cost approximately $523,000 less than the Alternative W1 alignment. This savings is primarily attributed to the avoidance of dredging costs along Big Narrows Channel that would no longer be necessary with Alternative W1R.

The No-Build and Rehabilitation Alternatives would be the least costly. Total costs for maintaining the existing pontoon bridge over the next 40 years are estimated to be about $2.5 million. This includes operating the swing bridge, repainting the barge every 7-10 years, replacing the barge every 20 years, and performing routine maintenance and repairs. Costs for rehabilitating and maintaining the pontoon bridge over the next 40 years are estimated to be $3,807,580. However, there are other unquantifiable costs associated with these alternatives relating to vessel collisions. The No-Build and Rehabilitation Alternatives would be more prone to collisions with vessels than the build alternatives. Unquantifiable public costs include emergency management, loss of public services, and loss of income to people stranded on the island and to volunteers donating their time.

2.3.4 Cost Effectiveness Analysis

A Cost-Effectiveness Analysis (Greiner, Inc., 1994e and updated in 1996d), incorporated by reference into this EIS, was conducted to compare the No-Build Alternative, Rehabilitation Alternative, and Alternatives W1R, C1, and C4. The alternative with the lowest estimated present worth cost is considered to be the most economical.

TABLE 2.9

COST ESTIMATES FOR BUILD ALTERNATIVES

ITEM DESCRIPTION	ALTERNATIVE W1R WEST HIGH-LEVEL FIXED SPAN (Dollars)	ALTERNATIVE C1 CENTER HIGH-LEVEL FIXED-SPAN (Dollars)	ALTERNATIVE C4 CENTER MID-LEVEL BASCULE (Dollars)
Clearing and Grubbing	$82,500	$111,500	$31,000
Unclassified Excavation	95,000	84,856	30,680
Borrow Excavation	293,650	234,360	118,050
Undercut Excavation	14,500	26,665	33,335
Soil Stabilization	5,800	10,666	13,334
Drainage	125,000	163,000	135,000
Pavement Removal	13,450	24,360	11,304
Fine Grading	20,000	20,000	15,000
New Pavement	233,410	356,598	167,904
Pavement Widening	199,175	68,634	126,294
Resurfacing	106,480	69,311	75,790
Subgrade Stabilization	66,320	73,692	46,824
Guardrail	14,880	19,680	14,400
Guardrail Anchors	9,600	9,600	9,600
Erosion Control	85,000	50,000	28,900
Traffic Signal	40,000	40,000	40,000
Traffic Control	45,000	45,000	45,000
Thermo and Markers	50,000	50,000	50,000
New Bridge Over Intracoastal Waterway	7,683,200	8,672,000	8,572,800
New Bridge Over Slough Canal	0	237,600	0
Channel Dredging	0	0	0
Utilities	60,000	60,000	60,000
Mobilization and Miscellaneous	1,367,035	1,562,478	1,499,785
Engineering and Contracts (15%)	1,600,000	1,800,000	1,700,000
SUB-TOTAL, CONSTRUCTION	**$12,200,000**	**$13,800,000**	**$12,800,000**
SUB-TOTAL, OPERATIONS AND MAINTENANCE	**$1,564,700**	**$1,781,100**	**$3,650,750**
SUB-TOTAL, RIGHT OF WAY	**$1,378,000**	**$3,700,000**	**$2,155,500**
TOTAL COSTS	**$15,142,700**	**$19,281,100**	**$18,606,250**

Source: NCDOT, 1996, updated construction costs. Greiner, Inc., 1996d, updated other costs.

* Operations/Maintenance Costs are amortized over a 40-year period.

2.3.4.1 Analysis Methodology

The total present worth cost for each alternative was determined by calculating public agency costs and road user costs. These costs are described below. Since the operations and maintenance costs and the road user costs are annual costs, they are converted to present worth values with a time-discount factor, using a discount rate of 10 percent over 25-year and 40-year periods. An analysis period of 25 years was selected to utilize traffic forecasts provided by NCDOT and a 40-year analysis period was selected to provide a comparison over a longer period of time.

Public Agency Costs. Public agency costs include capital expenditures for construction and right of way and annual costs of maintenance and operation. Maintenance costs include repainting, resurfacing, and repairs (machinery, electrical systems, navigational lighting systems, bridge fenders, etc.) where applicable. The maintenance costs for the high-level bridges (Alternatives W1R and C1) also include deck replacement after 20 years.

The drawbridge alternatives have operations costs which include bridge tenders' salaries and utility costs for power and telephone. The high level bridges have utility costs for lighting only.

Road User Costs. Road user costs include vehicle running costs, vehicle delay costs, and vehicular accident costs. Vehicle running costs are a function of different alignments, grades, direction and number of turns, and stops at intersections and for bridge openings.

Vehicle delay costs are incurred when a drawbridge is opened or temporarily out of service. These costs would be incurred under Alternatives C4, C3, and C3R. Vehicle delays were based on the frequency of bridge openings and on traffic volumes. The delay calculations for the No-Build and Rehabilitation Alternatives (C3 and C3R) are based on the number of bridge openings in 1993 (4,481 openings), with an average opening time of 10 minutes. For the mid-level bascule alternative (C4), it is anticipated that there would be 2,800 openings per year. Based on the Vessel Height and Traffic Report (Greiner, Inc., 1994c), it was estimated that about 62.5 percent of the vessels traveling the AIWW are less than 9.1 meters (30-feet) high and would be able to pass under the mid-level bascule without it having to open. Therefore, vehicle delay calculations for Alternative C4 reflect a 62.5 percent reduction in bridge openings.

It was assumed that the bridge opening frequency would remain the same throughout the analysis periods, and that vehicle delays would increase proportionally to vehicular traffic growth.

As discussed in Section 1.6.3, accident rates for SR 1172 and NC 179 are lower than other rural North Carolina highways. These lower accident rates were used in the cost-effectiveness analysis. All reported vehicle accidents in the project area involved only property damage (NCDOT, 1993c), so only cost figures for this type of accident are used. Costs not included in the accident cost

calculations are those of public safety during a bridge opening and bridge damage caused by vessel collisions.

2.3.4.2 Analysis Results

Table 2.10 present the results of the cost-effectiveness analysis. The most cost-effective alternative is the No-Build Alternative, for both the 25-year and 40-year analysis periods. Although the No-Build Alternative has the lowest total present worth, the road user costs are the highest of the five alternatives.

The high-level fixed span bridges (Alternatives W1R and C1) have the lowest road user costs because there are no vehicle delay costs. Access across these high-level bridges would be continuous in both directions. The mid-level bascule bridge (Alternative C4) has the highest present worth costs primarily due to public agency costs for construction, maintenance, and operation.

TABLE 2.10

COST-EFFECTIVENESS ANALYSIS SUMMARY: 10% DISCOUNT RATE

Cost Item	Alternative W1R		Alternative W1		Alternative C1		Alternative C4		No-Build Alternative (C3)		Rehabilitation Alternative (C3R)	
	25-Year	40-Year	25-Year	40-Year	25-Year	40-Year	25-Year	40-Year	25-Year	40-Year	25-Year	40-Year
PUBLIC AGENCY COSTS												
Construction	$12,200,000	$12,200,000	$12,700,000	$12,700,000	$13,800,000	$13,800,000	$12,800,000	$12,800,000	$0	$0	$1,359,950	$1,359,950
Right of Way	$1,378,000	$1,378,000	$1,378,000	$1,378,000	$1,700,000	$1,700,000	$2,155,500	$2,155,500	$0	$0	$0	$0
Maintenance	$1,559,460	$1,561,290	$1,582,160	$1,583,990	$1,775,860	$1,777,690	$2,248,430	$2,313,950	$774,730	$1,096,850	$724,330	$1,096,850
Operations	$3,130	$3,410	$3,130	$3,410	$3,130	$3,410	$1,249,680	$1,336,800	$1,262,760	$1,350,780	$1,262,760	$1,350,780
SUBTOTAL	**$15,140,590**	**$15,142,700**	**$15,663,290**	**$15,665,400**	**$19,278,990**	**$19,281,100**	**$18,453,610**	**$18,606,250**	**$2,037,490**	**$2,447,630**	**$3,347,040**	**$3,807,580**
ROAD USER COSTS												
Running Vehicle	$8,345,349	$9,261,139	$8,362,754	$9,278,544	$7,350,265	$8,155,205	$6,644,514	$7,372,124	$7,228,479	$8,020,089	$7,228,479	$8,020,089
Vehicle Delay	$0	$0	$0	$0	$0	$0	$4,686,606	$5,199,866	$7,498,481	$8,319,621	$7,498,481	$8,319,621
Accident	$69,161	$76,441	$69,161	$76,441	$65,971	$72,891	$64,174	$70,894	$71,209	$78,689	$71,209	$78,689
SUBTOTAL	**$8,414,510**	**$9,337,580**	**$8,431,915**	**$9,354,985**	**$7,416,235**	**$8,228,095**	**$11,395,294**	**$12,642,884**	**$14,798,170**	**$16,418,400**	**$14,798,170**	**$16,418,400**
TOTAL 1996 PRESENT WORTH	**$23,555,100**	**$24,480,280**	**$24,095,205**	**$25,020,385**	**$26,695,225**	**$27,509,195**	**$29,848,904**	**$31,249,134**	**$16,835,660**	**$18,866,030**	**$18,145,210**	**$20,225,980**

Note: For a sensitivity analysis, costs were also calculated using a four percent discount rate; however, aggregated 40-year costs (total 1996 present worth) for the three build alternatives (Alternatives W1R, C1, and C4) revealed that Alternative C4 was the most expensive build option and Alternative W1R was the least expensive build option under this rate as well.

Source: Greiner, Inc., 1996d.

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CHAPTER 3

3.0 AFFECTED ENVIRONMENT

This chapter describes the existing economic, social, cultural, physical, and natural environments within the project study area. The inventory and evaluation of the existing affected environment provides the necessary baseline from which to determine the impacts of the proposed project alternatives. The impacts are discussed in Chapter 4.

3.1 EXISTING HUMAN ENVIRONMENT

3.1.1 Land Use and Community Characteristics

This section is based on the Land Use Impact Report (1994a) and the Social Impact Report (1994b) prepared for the project by Hayes and Associates. These reports are incorporated by reference into this EIS.

3.1.1.1 Regional Background

Sunset Beach, like other North Carolina coastal communities, has experienced tremendous growth since its incorporation in 1963. Although the year-round population has been relatively small, it doubled between 1980 and 1990, and nearly doubled again between 1990 and 1993.

Table 3.1 presents the 1970, 1980, and 1990 year-round population estimates for Sunset Beach and Brunswick County. The year-round population growth at Sunset Beach is consistent with the strong overall growth trends in the County. Most of Brunswick County's growth occurred in the beach areas and on the mainland adjacent to the AIWW. Over one-third of Brunswick County's population increase during the 1980's occurred in Shallotte Township (which includes the municipality of Sunset Beach). The County estimates that 56 percent of its future growth in the 1990's will also occur in Shallotte Township (Hayes and Associates, 1994a:2).

Brunswick County is divided into six townships. Shallotte Township covers the southeastern portion of the county and includes the towns of Sunset Beach, Shallotte, Ocean Isle, and Calabash.

The rapid growth rate in Sunset Beach was primarily due to extensive annexations on the mainland. Between 1963 and 1993, the Town approved 13 annexations, which increased the Town's land area by 168.8 hectares (417.1 acres) (a 24.1 percent increase) (Hayes and Associates, 1994a:2). Most of the vacant land that was annexed has been subsequently subdivided for residential or commercial development.

The Town's rapid growth rate is also evident in the number of building permits issued during the 1980s. Between 1981 and 1992, permits were granted in the Town and extraterritorial area (ETA) for construction of 1,613 dwelling units (Hayes and Associates, 1994a:2). Table 3.2 shows the locations of building permits issued by the Town between January 1992 and August 1993. New growth during this 20-month period, as shown in the table, has been evenly divided between the island and mainland parts of Sunset Beach.

3.1.1.2 Population Characteristics

Table 3.3 presents a 1993 population summary for Sunset Beach. The table includes estimates of year-round residents, seasonal residents, and day visitors.

Current Year-Round Population. The rapid growth rates of the past, described in Section 3.1.1.1, are expected to continue during the 1990's. Approximately 60 percent of Sunset Beach's residential lots have been developed, and construction in the beach areas and mainland golf course communities has been widespread. The August 1993, population estimates based on the 1993 CAMA Land Use Plan Survey confirm this growth (Hayes and Associates, 1994a:4). The 1993 year-round population is estimated to be a total of 943 people: 269 people on the island, 246 people on the mainland, and 428 people in the ETA (Hayes and Associates, 1994a:4).

Seasonal Residential Population. The seasonal population of Sunset Beach is comprised primarily of three groups: 1) property-owning summer residents, 2) overnight visitors who rent beach or golf course units, and 3) day visitors who spend a few hours or an entire day at Sunset Beach. There appears to be a substantial number of vacation units, both on the island and mainland. Some of these units may be rented out when not being used by the owner and thereby may be continuously occupied. There are also two motels on the island with a combined total of 40 rooms. When all of the units are completely occupied, the population of Sunset Beach's Planning Area (island, mainland, and ETA) could reach seasonal highs of 12,036 people (see Table 3.3). This is in significant contrast to the estimated year-round population of 943 for the entire Planning Area (Hayes and Associates, 1994a:6).

Day Visitors. In general, day visitors come to Sunset Beach to use the beach or the golf courses. The most popular times for beach-going day visitors are summer Saturdays, whereas golfers play the four championship courses year-round. The number of beach-going day visitors were estimated based on the number of legal parking spaces available on the island. According to a spring 1992 survey conducted by the Sunset Beach Police Department, there were 283 legal public parking spaces on the island available to day visitors. In addition, there are 150 private paid parking spaces available at the fishing pier (Hayes and Association, 1994a:7). Parking restrictions are enforced by the Town's Police Department. According to Sunset Beach Police records, 132 parking tickets were issued on the island between January 1, and December 14, 1994.

TABLE 3.1

YEAR-ROUND TOWN AND COUNTY POPULATION TRENDS

YEAR	SUNSET BEACH	BRUNSWICK COUNTY
1970	108	24,223
1980	140*	35,777
1990	311	50,985
Percent Increase 1980-1990	122.1%	42.5%

Source: United States Census, 1970, 1980, and 1990.

* Estimate from Town of Sunset Beach 1987 CAMA Land Use Plan Update.

TABLE 3.2

LOCATION OF NEW BUILDING PERMITS ISSUED BY SUNSET BEACH JANUARY 1992 - AUGUST 1993

Dates	Location	Single-Family	Duplex**	Multi-Family	Mobile Home	Commercial
1/92 - 12/92	Island	37	6 (12)	--	--	--
	Mainland	39	--	4 (24)	--	--
	ETA*	14	--	--	17	2
	TOTAL	**90**	**6 (12)**	**4 (24)**	**17**	**2**
1/93 - 8/93	Island	19	6 (12)	--	--	--
	Mainland	19	--	3 (16)	--	--
	ETA*	21	--	--	16	--
	TOTAL	**59**	**6 (12)**	**3 (16)**	**16**	--

Source: Hayes and Associates, 1994a: Table 1.4.

* ETA - Extraterritorial jurisdiction
** x (x) = number of buildings permitted (number of dwelling units)

TABLE 3.3

SUNSET BEACH PLANNING AREA POPULATION SUMMARY - 1993

LOCATION	POPULATION TYPE				
	Year-Round	Seasonal	Beach Day Visitors	Golf Day Visitors	TOTAL
Island	269	7,216	2,797	--	**10,282**
Mainland	246	1,772	--	497	**2,515**
ETA*	428	3,048	--	--	**3,476**
TOTAL	**943**	**12,036**	**2,797**	**497**	***16,273***

Source: Hayes and Associates, 1994a.

* ETA = Extraterritorial area

A survey of beach-going day visitors at Sunset Beach and Ocean Isle was conducted by Hayes and Associates on Saturday, July 30, and Tuesday, August 2, 1994 (see Section 3.1.2.2). Twenty-seven visitors were interviewed at Sunset Beach. The average number of persons per vehicle was 2.8, and these visitors stayed at the beach an average of 2.6 hours. Assuming the average number of people per vehicle (2.8) and a turnover rate of three vehicles per day per free public parking space and one vehicle per day in the paid private spaces, a total of 2,797 beach-going day visitors are estimated to come to Sunset Beach on a peak day (Hayes and Associates, 1994a:7).

Statistics from the four championship golf courses provide an indication of the number of golfing day visitors (see Table 3.3). It was assumed that golf club members playing the courses were also year-round or seasonal residents of Sunset Beach. Non-member players were assumed to be day visitors. The average number of golfing day visitors in 1993 was estimated to be 497 per day (Hayes and Associates, 1994a:7).

3.1.1.3 Socioeconomic Characteristics

As shown in Table 3.4, the racial composition of Brunswick County's population has changed from 63.4 percent white in 1950 to 81.1 percent white in 1990. As shown in Table 3.5, the racial composition of Shallotte Township in 1990 was similar to the County's composition. The 1990 US Census recorded no black or other non-white races in the 1990 year-round population of the Town of Sunset Beach (which is in Shallotte Township).

Table 3.6 presents the age distribution of Brunswick County's population from 1960 to 1990. As shown in the table, the County's population has been getting older. In 1960, about 25.2 percent of the population was over 45, and in 1990 this percent had risen to 39.1. Likewise, the number of school-age children (19 and under) dropped from 45.6 percent of the County's population in 1960 to 26.2 percent of the population in 1990 (Brunswick County, 1993:14).

Sunset Beach residents tend to be wealthier, as well as older, than the County's population as a whole. The residents of Sunset Beach are primarily middle-age adults and retirees. The 1990 Census reported that 42 percent of the Town's population was over 55, while only 13.8 percent was under 18 (Hayes and Associates, 1994a:9). The per capita income for Sunset Beach residents was $31,658 in 1990, as compared to a per capita income of $11,688 for Brunswick County residents and $12,885 for North Carolina residents (Hayes and Associates, 1994a:9).

The Town of Sunset Beach is also a town of "newcomers." Only 38 percent of the Town's population had lived in the same residence as of 1985. The remaining 62 percent had recently moved to the area. Of the "newcomers," 28 percent had lived outside of North Carolina just prior to moving to Sunset Beach (Hayes and Associates, 1994a:9).

TABLE 3.4

BRUNSWICK COUNTY RACIAL COMPOSITION - 1970-1990

RACE	1950	1960	1970	1980	1990
White	63.4%	64.6%	69.3%	76.3%	81.1%
Black	36.6	35.4	30.7	23.7	18.1
Other	--	--	--	--	0.8

Source: Brunswick County, 1993.

TABLE 3.5

1990 COUNTY/TOWNSHIP/MUNICIPALITY RACIAL COMPOSITION

RACE	BRUNSWICK COUNTY	SHALLOTTE TOWNSHIP	SUNSET BEACH MUNICIPALITY
White	81.1%	82.5%	100%
Black	18.1	17.0	0
Other	0.8	0.5	0

Source: Resources Development Commission, 1991.

TABLE 3.6

BRUNSWICK COUNTY PERCENT POPULATION BY AGE GROUP

AGE GROUP	1960	1970	1980	1990
Less than 5	12.0%	9.6%	7.3%	6.5%
5-14	24.1	21.5	17.4	12.9
15-19	9.5	9.6	9.0	6.8
20-24	5.5	7.6	7.6	6.0
25-44	23.7	22.7	27.0	28.8
45-64	18.0	20.6	21.0	24.4
Over 65	7.2	8.4	10.8	14.7

Source: Brunswick County, 1993:14.

3.1.1.4 Existing Land Use

There are approximately 868.9 hectares (2,147 acres) of land, water, wetlands, and marshes within the corporate limits of the Town of Sunset Beach. The ETA contains an additional 1,155.4 hectares (2,855 acres). Exhibit 3.1 shows the existing land uses in the project area. Table 3.7 presents a breakdown of the land acreages within Sunset Beach.

Within the Town's corporate limits, there are about 408.3 hectares (1,009 acres) of potentially developable land and 460.5 hectares (1,138 acres) of undevelopable shorefront, marshes, and waterways. Within the Town's ETA, there are about 681.9 hectares (1,685 acres) of potentially developable land and 473.5 hectares (1,170 acres) of undevelopable shorefront, marshes, and waterways (Hayes and Associates, 1994a:12).

Based on the acreages listed in Table 3.7, only about 47 percent of the land within current corporate limits, and 59 percent of the land within the ETA, is suitable for development. Final determination of development suitability is done on a site-by-site basis, by examining factors such as septic tank feasibility, soil type, and wetland classification (Hayes and Associates, 1994a:12).

Land uses within Sunset Beach are typical of a beach and golf resort community. There are no agricultural, forestry, manufacturing, or industrial uses within Sunset Beach's jurisdiction. Existing land uses are predominantly residential, with some supporting commercial, governmental, and recreational uses (see Exhibit 3.1).

Nearly all the developable land on the island and mainland has been subdivided into building lots, mostly for single-family structures. About 60 percent of the island and 49 percent of the corporate mainland has already been developed. Some of the remaining lots may not be developable if they contain soils unsuitable for supporting a septic system. However, the provision of centralized sewer and other technologies (see Section 3.1.3) could permit the development of these lots in the future (Hayes and Associates, 1994a:14).

Residential Uses. Most of the residential land uses in Sunset Beach are single-family homes. In addition to the 833 single-family units located on the island in 1993, there were also 128 duplexes, six multi-family units, and 40 motel rooms. In 1993, the mainland had 297 single-family units and 256 multi-family units, mostly in golf course complexes. The ETA had 296 single-family homes and 645 mobile homes (Hayes and Associates, 1994a:13). According to the Town's zoning ordinance, mobile homes are allowed only in the ETA.

Commercial Uses. Within the Town's corporate limits, commercial land uses are concentrated in three areas. On the island, commercial uses are located along SR 1172 (Sunset Boulevard) and include two motels, five real estate offices, and several stores. A cluster of commercial uses are also located on the mainland side of the Sunset Beach Bridge, near the SR 1172/NC 179 intersection.

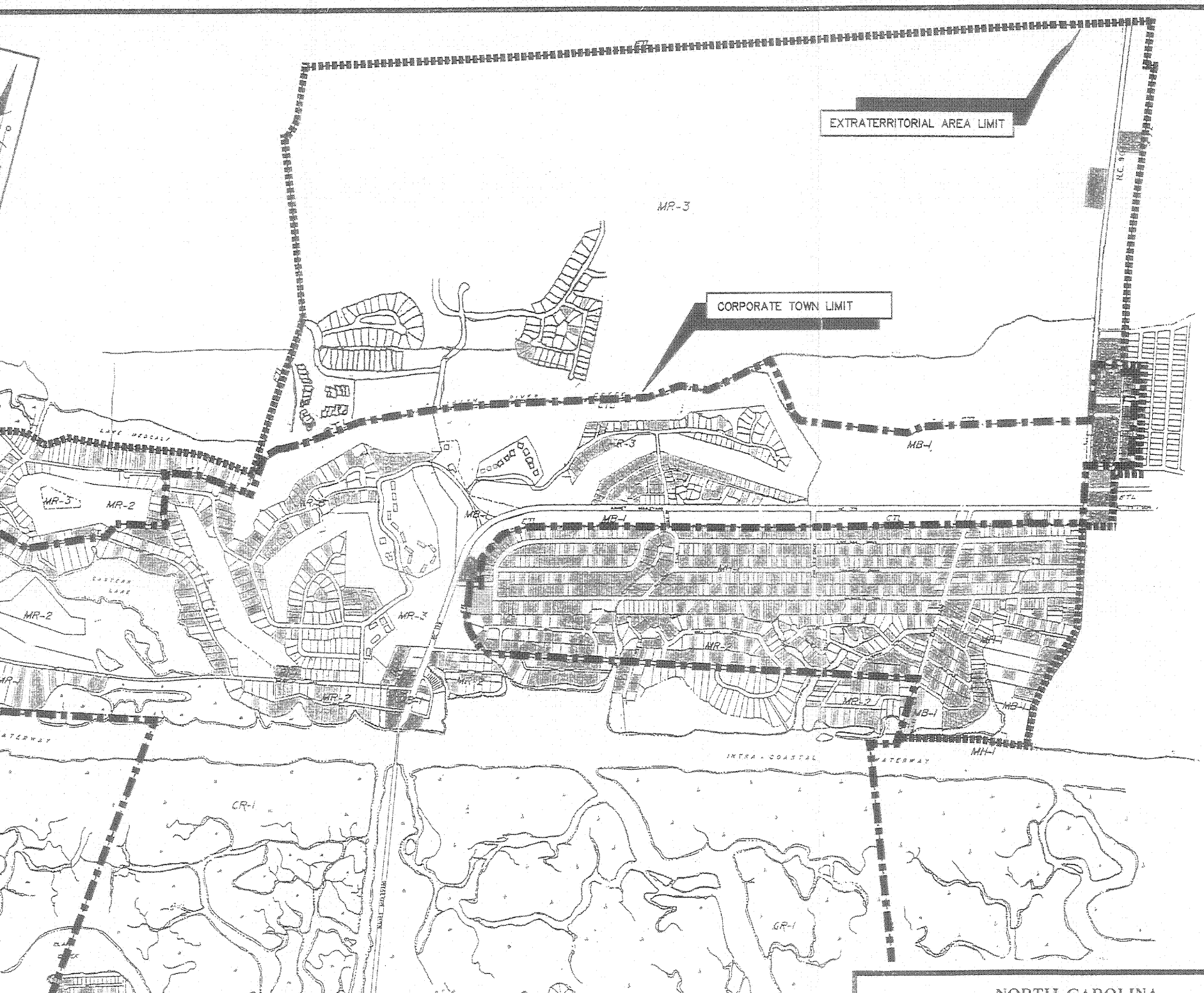

EXTRATERRITORIAL AREA LIMIT
CORPORATE TOWN LIMIT
MR-3
MR-2
MB-1
MH-1
CR-1
INTRA-COASTAL WATERWAY
LAKE MEDLEY
SUTTON LAKE
N.C. 9

TABLE 3.7

LAND AREAS IN SUNSET BEACH

ISLAND/ MAINLAND	LAND TYPE	HECTARES (ACRES)		
		CORPORATE LIMITS	ETA*	TOTAL PLANNING AREA
Island	Shorefront	43.7 (108)	1.6 (4)	45.3 (112)
	Land	105.6 (261)	13.4 (33)	119.0 (294)
	Marsh and Water	373.9 (924)	407.5 (1,007)	781.5 (1,931)
	SUBTOTAL	523.3 (1,293)	422.5 (1,044)	945.8 (2,337)
Mainland	Land	302.7 (748)	668.6 (1,652)	971.3 (2,400)
	Marsh and Water	42.9 (106)	64.4 (159)	107.2 (265)
	SUBTOTAL	345.6 (854)	732.9 (1,811)	1,078.5 (2,665)
TOTAL		868.9 (2,147)	1,155.4 (2,855)	2,024.3 (5,002)

Source: Hayes and Associates, 1994a:Table 1.12.

* Extraterritorial Area

The third area is a relatively new commercial shopping center called Pelican Square, located on NC 904 near its intersection with NC 179. Pelican Square contains a major grocery store, three restaurants, and several retail stores. It is about 3.2 kilometers (two miles) from the project study area along eastbound NC 179. According to the Town's zoning map, there are substantial areas zoned for commercial activities in other locations within the Town's total Planning Area (Hayes and Associates, 1994a:13).

Government/Institutional Uses. The Sunset Beach Town Hall and Police Department are located at the intersection of NC 179 and Pine View Drive. The Sunset Beach Volunteer Fire Department, the Town Garage, and Water Tower are located on NC 179, about 182.9 meters (200 yards) from the existing Sunset Beach Bridge (see Sections 1.6.2 and 2.3.2). A US Post Office is located on NC 904 near Pelican Square. There are also two churches on the mainland in the ETA which are classified as institutional uses (see Section 3.1.1.5).

Recreational Uses. The principal recreation areas in Sunset Beach are the beachfront, the island fishing pier, and the four mainland golf courses. There are no official public boat launching facilities within Sunset Beach, but there are two informal public boat launches and one private launch. The informal launches are not recognized or maintained as official boat ramp facilities by the Town, County, or State. Recreational facilities are described in more detail in Section 3.1.1.5 - Community Facilities and Services.

3.1.1.5 Community Facilities and Services

Social and community resources within Sunset Beach include churches, cemeteries, schools, public and private recreational facilities, and government facilities.

Churches. There are two churches in the mainland ETA. The Seaside United Methodist Church is located on NC 904, and the Lighthouse Mission Church is near the Shady Forest subdivision on NC 179. The Calabash Presbyterian Church, outside of the Sunset Beach Planning Area, offers worship services on the island during the summer (Hayes and Associates, 1994b:17).

Cemeteries. There are two small family cemeteries in Sunset Beach, which date back to the early 1900's. The Frink family cemetery is located near the first hole of the Maples Golf Course. The other cemetery is on SR 1162, near its intersection with NC 179 and NC 904. Neither cemetery is within the project study area.

Schools. There are no public or private schools within the Sunset Beach planning area. In the fall of 1993, there were 10 school-age children living on the island and 72 school-age children on the mainland. Public school bus transportation is available for these children. School officials noted that the buses may be late arriving to school once or twice a month because of bridge-related delays (Hayes and Associates, 1994b:17).

Recreational Facilities. There are 33 dedicated and marked beach access points in the Town, most of which are located at ends of streets on the island. There are also 10 unmarked and unimproved publicly-owned easements on the island which provide access to estuarine waters. These easements are not marked by signage for use by the public (Town of Sunset Beach, 1992:17). There are 283 public parking spaces and a public gazebo on the island, but no public restrooms (Hayes and Associates, 1994a:14). As with any beach community, this area attracts swimmers, boaters, bicyclists, pedestrians, and joggers.

The existing Sunset Beach Bridge itself serves as a tourist attraction to some degree. People will travel to the bridge to watch it open and to take photographs (Hayes and Associates, 1994b:18).

There are no official public boat launching facilities within Sunset Beach. The Sea Trail Plantation has a private boat launching ramp on the mainland, and there are two informal boat ramps which have been used for several years. The private ramp is at the end of Park Road, about 1.8 kilometers (1.1 miles) east of the existing pontoon bridge. One informal ramp, which can only be used at high tide, is located outside the study area at the end of SR 1242, along the AIWW near Bonaparte Retreat. The other informal ramp is located near the existing Sunset Beach Bridge, on the west side of the island causeway. A common misconception is that this ramp is owned by the North Carolina Department of Transportation (NCDOT) or another public agency. The boat ramp has not been officially maintained or recognized by any agency although occasional deposits of marl have been made by Brunswick County at the County Commissioner's request. The NCDOT owns the right of way adjacent to the road, and the Gore family owns land outside of the right of way. The boat ramp crosses both the NCDOT and Gore properties. The public has launched boats at this site for decades. This "allowed trespass" boat ramp can be used during high and low tide, generally for boats under 18 feet in length (Hayes and Associates, 1994a:14).

Private recreational facilities in the Town include the Sunset Beach Fishing Pier and the four mainland championship golf courses operated by Sea Trail Plantation and Oyster Bay. In addition, Sea Trail Plantation and Oyster Bay have swimming pools and tennis courts available for residents and guests.

Town Services. Issues associated with providing police, fire, and emergency rescue services to the island are discussed in detail in Sections 1.6.2, 2.3.2, and 3.1.1.4. In February 1996, the Town of Sunset Beach Police Department and administration and building inspection offices moved to a newly constructed building at the corner of Pine View Drive and NC 179. Located west of this new location, the old facility on NC 179 was demolished. Response times to the island from the new facility are generally the same as those from the old facility. However, under the existing conditions, traffic congestion on the existing bridge delays response times by police personnel by up to two minutes.

The Calabash Emergency Medical System provides rescue services to Sunset Beach, Calabash, and Grissettown. The Calabash station is located just south of the intersection of SR 1163 and NC 179 near Calabash. The squad consists of 20 volunteer EMT-trained members. The squad has three ambulances equipped with standard basic and advanced life support systems (Hayes and Associates, 1994b:22). Response times to the island of Sunset Beach depend on traffic conditions and the position of the pontoon bridge.

The Sunset Beach Volunteer Fire Department is located on NC 179 just south of the intersection of NC 179 and SR 1172. About 20 mainland volunteers serve the Town and surrounding area. The fire station has a 47.3 liters per second (l/sec) (750 gallon per minute [gpm]) pumper truck, a 78.9 l/sec (1,250 gpm) pumper truck, one 7,570 liter (2,000 gallon) fire tanker, one 101 l/sec (1,600 gpm) brush truck, and a salvage truck which carries tools. The existing pontoon bridge limits the size of fire fighting equipment which can be purchased and extremely limits the type of fire fighting equipment which can respond to an island fire. The tallest fire ladder which can be transported to the island is a 10.7-meter (35-foot) ladder. However, it is estimated that the 3-story beach houses on the island would need a 10.7- to 12.2-meter (35-40 foot) high ladder truck.

3.1.1.6 Existing Uses of Navigable Waterways

There are three navigable waterways in the project area: AIWW, Big Narrows Channel, and Slough Canal. The AIWW is heavily used by commercial and pleasure craft traveling up and down the eastern seaboard. The US Army Corps of Engineers (COE) maintains the waterway channel at 27.4 meters (90 feet) wide and 3.7 meters (12 feet) deep. Section 1.5.2 describes the AIWW traffic.

The Big Narrows Channel is an unmaintained, meandering channel west of the existing bridge and island causeway (SR 1172). The channel flows from Mad Inlet at the ocean to the AIWW (see Exhibit 3.7). People can access the AIWW by launching small boats into the Big Narrows channel from the boat ramp on the causeway and from homes along the estuary on the western portion of the island. This channel is not maintained by the COE or any public or private entity.

The Slough Canal extends about 426.7 to 487.7 meters (1,400-1,600 feet) into the mainland east of the existing pontoon bridge. The end of the Canal is just east of NC 179. Two businesses, Bill's Seafood market and Crabby Oddwater's restaurant are located at the end of the canal. The owner of these businesses has maintained and dredged the canal at his expense. Based on information supplied by the owner and other users of this canal, three commercial fishing boats currently dock at the pier near the market/restaurant. These boats, about 7.6 to 10.7 meters (25-35 feet) long and 9.1 to 10.7 meters (30-35 feet) high, sell their catch to the market and restaurant. Owners of the commercial fishing boats indicate that the Slough Canal has been in use 25-30 years. Other users of Slough Canal include people in pleasure craft who travel to the end of the canal to purchase supplies and seafood, pick up or unload passengers, or to eat at the restaurant. The Slough Canal also provides a protected, deep water haven for boats during storms.

3.1.1.7 Land Use Planning

The Town of Sunset Beach uses several land use planning tools to manage and direct growth. The 1992 Town of Sunset Beach Coastal Area Management Act (CAMA) Land Use Plan Update sets the major land use policy for the Town. Zoning and subdivision ordinances, as well as capital improvement policies, are also used to manage growth.

1992 CAMA Land Use Plan. The North Carolina Coastal Resources Commission requires each coastal community to update their CAMA plans every five years. The adopted and certified plans are used by local, state, and federal officials for the issuance of CAMA Major and Minor Development Permits and for Consistency Review of all federal and state projects within the community. The Town's CAMA Land Use Plan is important for determining future growth in the Town and whether a proposed project is "consistent" with Town policies. For determining the consistency of the proposed project with the CAMA Land Use Plan, three aspects of the plan are especially pertinent: Areas of Environmental Concern, Land Classification, and Policy Statements regarding growth and bridge improvement.

The CAMA Land Use Plan classifies lands for future development under seven different categories. All lands within the mainland portion of the study area are designated as Developed or Urban Transition. The island portion of the study area is classified as Conservation or Conservation Spoil. The Developed classification provides for continued intensive development or redevelopment, and the Urban Transition category provides for future intensive urban development on currently vacant land.

The area of the proposed bridge project lies within several types of Areas of Environmental Concern (AECs), which are defined in the CAMA Land Use Plan. All AECs are classified as Conservation or Conservation Spoil. The purpose of the Conservation class is to provide for the effective long-term management and protection of significant, limited, or irreplaceable areas. Areas meeting the intent of this classification include AECs such as public trust waters, estuarine waters, coastal wetlands, ocean hazards, and estuarine shorelines, as well as other unique lands that may not be afforded protection by another agency but are known for their natural scenic, historical, cultural, or hazardous nature. In Sunset Beach, the following AECs are listed in this classification: Coastal Wetlands; Estuarine Shorelines, excluding those areas adjacent to already-developed lots; Inlet Hazard Areas; Ocean Hazard Areas; and Ocean Erodible Areas. Exhibit 3.2 shows the AECs in the project study area. Because of their unique, productive, cultural, or natural feature, Conservation lands should not be developed, or if developed, they should be developed in a cautious and sensitive fashion in order to protect wetlands. Conservation Spoil is a subclass of Conservation and includes lands suitable for spoil areas related to the maintenance of major waterways (Town of Sunset Beach, 1992:82). Urban services, public or private should not be provided in these areas as a catalyst to stimulate intense development. In most cases limited on site services will adequately support any limited development within this class and will also protect the very features that justify the area's

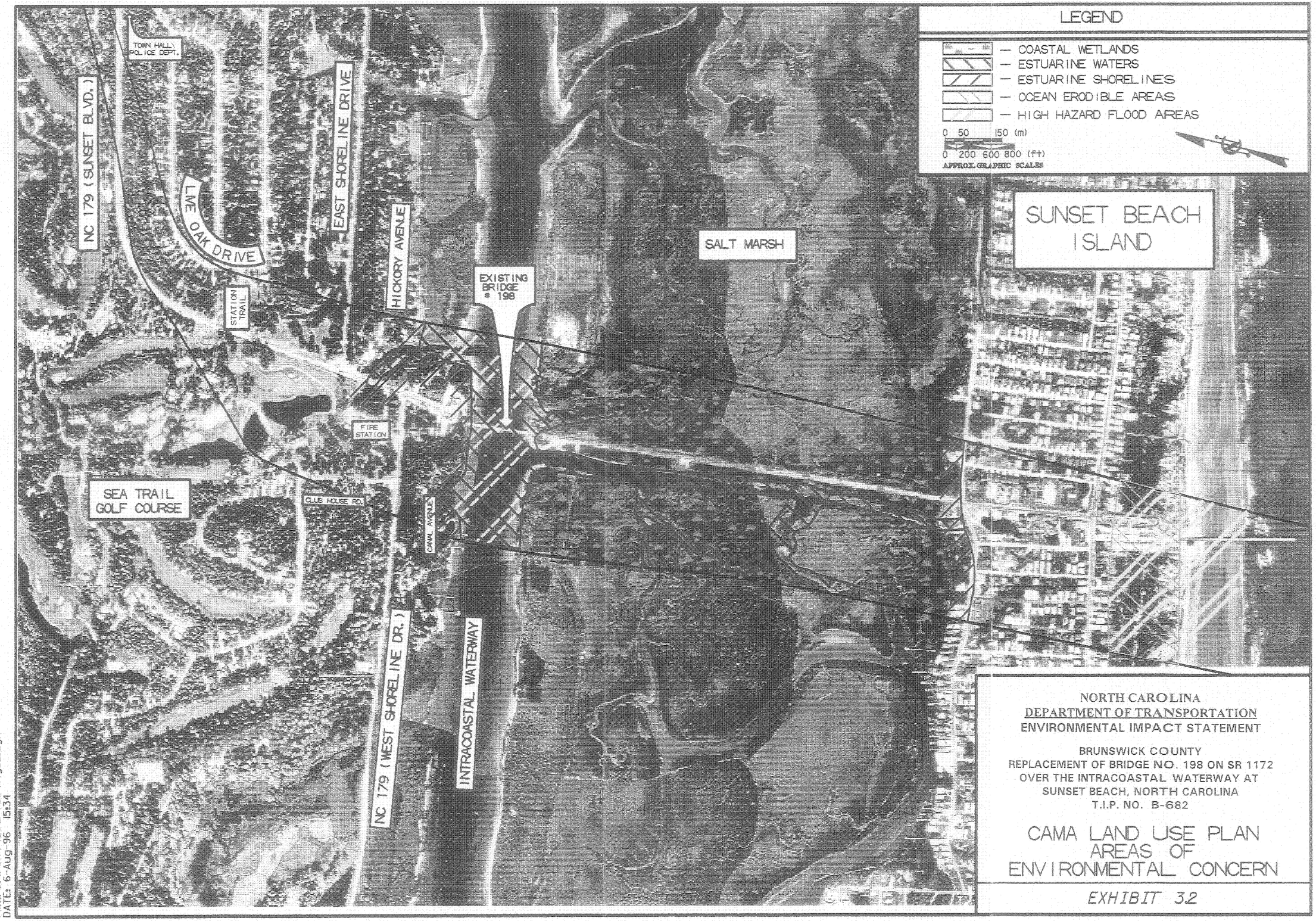
inclusion in the Conservation class. It should be understood that even though AEC standards occasionally permit urban development on a lot by lot basis within the various AECs and that services are occasionally provided, this is the exception rather than the rule, and the primary intent of the Conservation class is to provide protection for the resources included therein.

Also included in the Conservation class is Bird Island (also discussed in Section 3.2.3.3). Bird Island is included because this island is considered an AEC and has regional significance as a Coastal Complex Natural Area as cited by the North Carolina Heritage Program. Preservation of Bird Island through acquisition by the State or by a non-profit organization is the ultimate objective of the Town and most of the residents. However, if public acquisition does not occur, sections of Bird Island may meet the AEC lot-by-lot criteria for development. Such development will be regulated by appropriate zoning restrictions, which will require that the significant natural features of the island will not be disturbed and that only low-density residential development will be allowed. Provision of urban services such as water and sewer improvements will not be extended to Bird Island. Moreover, Bird Island does not meet the criteria for Federal Flood Insurance as mandated by the Coastal Barrier Resources Act (COBRA) because it is an undeveloped coastal barrier island.

The project study area contains the AIWW, the Big Narrows channel, and Slough Canal, which are all navigable waterways (see Exhibit 1.2). A CAMA Land Use Plan policy pertaining to navigable waterway states, "In the absence of overriding public benefit, any use which significantly interferes with the public right of navigation or other public trust rights which apply in the area shall not be allowed" (Town of Sunset Beach, 1992:53). Section 4.1.1.4 discusses the proposed alternatives in relation to this policy. The Town of Sunset Beach's attitude towards growth is clearly shown in its CAMA Land Use Plan Policy regarding desired growth patterns:

> As it is very important that the atmosphere and character of a quiet, relaxing family beach be maintained, Sunset Beach is not interested in promoting high-rise development or manufacturing industries within its Planning Area. Also, intense commercial development, beyond that necessary to serve year-round residents and tourists, will not be encouraged. Residential development is considered desirable as long as there is no major or irreversible damage to environmentally sensitive areas. It is the Town's intentions, as reflected in its zoning ordinance and zoning map, to allow a mixture of residential development in a balanced manner throughout its Planning Area (Town of Sunset Beach, 1992:70).

The Town's official position regarding the Sunset Beach Bridge is also contained in the CAMA Land Use Plan. The Town supports improved bridge access to the island in order to improve public safety and emergency evacuation. Two policy statements from the CAMA Land Use Plan pertain to the Sunset Beach Bridge. These statements are included in Section 1.7 of this EIS. Historically, the Town has maintained a consistent attitude toward managing growth.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

CAMA LAND USE PLAN AREAS OF ENVIRONMENTAL CONCERN

EXHIBIT 3.2

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DATE: 6-Aug-96 15:34

It should also be noted that on February 6, 1995, the Sunset Beach Town Council officially endorsed by resolution a 19.8-meter (65-foot) high-level bridge between the island and mainland portions of the Town (Town of Sunset Beach, 1995a), and on June 4, 1996, the Sunset Beach Town Council adopted a resolution requesting NCDOT to give priority to the Sunset Beach Bridge project (Town of Sunset Beach, 1996 [Appendix F-III: 50]).

Zoning Ordinance and Map. The Town's Zoning Ordinance and Map regulate land use within the Town and its ETA. The provisions which apply to the mainland and the island are slightly different. Minimum lot sizes apply to mainland residential zoning, while maximum height restrictions apply to all island zoning. In addition, supplementary enforcement provisions for ocean set-backs and dune protection apply to the island.

The zoning ordinance and map are consistent with the Town's desire to remain a "family-oriented" beach. At the request of the Town of Sunset Beach, the State Legislature ratified a bill on June 17, 1993, which authorizes a 10.7-meter (35-foot) height restriction for buildings on the island. This restriction can only be changed by public referendum. High-rise development is not permitted on the island unless a majority of the registered Sunset Beach voters pass a referendum allowing higher building heights. Only year-round residents are eligible to become registered voters in Sunset Beach.

The Town of Sunset Beach has established a Conservation Reserve District (CR-1) zoning district as a means to implement its CAMA Land Use Plan policies. The purpose of this zoning district is as follows:

> The CR-1 Conservation Reserve District is established as a district to provide effective long-term management of significant or irreplaceable areas which include major wetlands; open spaces; essentially undeveloped shorelines that are unique, fragile, or hazardous for development; undeveloped barrier and estuarine islands; and significant wildlife and plant habitats or areas that have a high probability for providing necessary habitats or areas that have a high probability for providing necessary habitat conditions; or areas that provide limited recreational opportunities. Single-family, low-density residential uses may be permitted in upland areas.

Permitted uses in this zoning district include spoil sites, detached single-family homes with a maximum of one detached dwelling per acre of total "net buildable area," accessory buildings, swimming pools, bulkheads, private noncommercial piers and docs, coastal reserves, estuarine sanctuaries, wildlife sanctuaries, utility crossings, and bridges and causeways.

All AECs within the Town of Sunset Beach are zoned as CR-1. These include Bird Island, the AIWW spoil islands, and the salt marshes bordering the island and AIWW. The low-density

restrictions of the Conservation District help to protect habitats and wetlands. In addition, the definition of "Net Buildable Area" further protects wetlands by restricting any area defined as a wetland by state or federal law from being considered as part of the buildable land area.

These policies and regulations protecting AECs and wetlands may not be changed unless due process is followed. Amendments to CAMA Land Use Plans and maps require a public hearing after a 30-day public notice has appeared in the newspaper and public facilities. Copies of the proposed amendment must be made available during this time period. All proposed CAMA plan amendments must be approved by the Coastal Resources Commission (Hayes and Associates, 1996).

Rezoning requests also require public notice and hearings. No zoning regulation or map will be amended, supplemented, changed, modified, or repealed until notice of the hearing has appeared for two successive weeks in a newspaper with general circulation. Protests from at least 20 percent of the adjoining property owners mandate that the proposed change cannot be approved without a favorable vote of three-fourths of the Town Council members (Hayes and Associates, 1996).

Subdivision Regulations. The Town's subdivision regulations guide the general design of newly developing areas. A subdivision is the division of any parcel or tract into two or more lots for the purpose of development. The purpose of the regulations is to ensure the development of adequate streets and utilities, safe and sanitary dwellings, suitable residential neighborhoods, recommendations for the purchase of space for public uses, and proper land records.

3.1.2 Economic Conditions

This section is based on two reports prepared by Hayes and Associates: the Land Use Impact Report (1994a) and the Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC (1994c). These reports are incorporated by reference in this EIS.

3.1.2.1 Sunset Beach Economic Conditions

Sunset Beach is a resort community whose economy is driven by real estate development, tourism, golfing, and travel. The Town's economic base primarily consists of services, such as the two island motels, beach house rentals, restaurants, gift and specialty shops, privately-owned golf courses, and a fishing pier. All of these services are directed toward the traveling and vacationing public and, therefore, are dependent on the seasonal influx of visitors. Many businesses do not stay open year-round. However, more stores and services are remaining open to serve the region's year-round population, which is now large enough to support a major grocery store in Pelican Square (Hayes and Associates, 1994b:10).

Real estate development and resort rentals are the most significant factor in the Town's economy. The 1980 CAMA Land Use Plan reported 455 total residential units, which expanded to 863 in 1985, and to 1,560 in 1993 (Hayes and Associates, 1994b:10). Increases in accommodation taxes collected indicate growth in real estate rentals. The accommodations tax is a three percent tax charged on rental units, which has been collected by the Town since January 1989. Between 1990 and 1991, the amount of accommodations tax collected increased by 38.8 percent. It increased again by 31.1 percent between 1992 and 1993 (Hayes and Associates, 1994b:10).

The impact of the golf courses on the Town's economy is evident by the fact that 181,392 golfers used the four courses between June 1992, and May 1993 (Hayes and Associates, 1994b:11).

Another indication of the continuing substantial growth rate of the Town's economy is the rise in property valuations. Property valuations have been steadily increasing since 1982 (Hayes and Associates, 1994b:11).

3.1.2.2 Day-Visitor Survey at Sunset and Ocean Isle Beaches

On Saturday, July 30, and Tuesday, August 2, 1994, Hayes and Associates conducted a survey of day visitors at Sunset and Ocean Isle beaches (Hayes and Associates, 1994a:Appendix A). A total of 96 visitors were surveyed in the town parking lots on the islands. At Sunset Beach, 27 day visitors and six overnight visitors were interviewed. At Ocean Isle, 50 day visitors and 13 overnight visitors were interviewed.

Ocean Isle Beach was selected as a survey site because it is the closest beach to Sunset Beach and it has a high-level bridge. Visitors to Ocean Isle were considered to be the most likely beach-going group to change their beach destination patterns if a new bridge was built at Sunset Beach.

Numerous factors influence beach destination choices. Based on the survey results, each beach has a different geographic area from which it draws most of its day visitors. The average distance traveled to Sunset Beach by the day visitors was 9.2 kilometers (5.7 miles). About 88 percent of the people interviewed came from Sunset Beach's mainland area and Calabash. Ocean Isle draws from a larger geographic area, and the average distance traveled by those interviewed was 35.1 kilometers (21.8 miles). About 72 percent of the Ocean Isle visitors interviewed came from Ocean Isle's extraterritorial mainland area, Shallotte, the Sunset Beach mainland, Calabash, and the counties of Columbus, Bladen, and Robeson.

The average number of persons per vehicle was observed to be 2.8 at Sunset Beach and 3.7 at Ocean Isle. Ocean Isle day visitors tended to stay longer (an average of 4.1 hours) than Sunset Beach day visitors (2.6 hours). The fact that people traveled farther to reach Ocean Isle may help explain the differences in vehicle occupancy and length of stay.

Survey results also indicated that Sunset Beach day visitors were less likely to spend money on the island. Nearly 93 percent of Sunset Beach visitors interviewed spent no money on the island, as compared to 66 percent who spent no money at Ocean Isle beach. Average expenditures were $2.60 per vehicle at Sunset Beach and $5.40 per vehicle at Ocean Isle. These discrepancies could be attributed to the fact that Ocean Isle has more island commercial businesses than Sunset Beach.

Day visitors seemed to travel to both beaches for basically the same reasons. The people interviewed indicated that beach quality, proximity, parking availability, and family tradition influenced their destination choice.

3.1.2.3 Impacts of Holden Beach and Ocean Isle High-Level Bridges

Analysis Methodology. In order to estimate the potential impacts of a bridge replacement in Sunset Beach, Hayes and Associates, in association with Apogee Research, evaluated the historical impacts of bridge replacements on two neighboring islands in North Carolina: Holden Beach and Ocean Isle Beach.

These two beaches were selected for analysis for several reasons. These beaches are all located in southeastern Brunswick County and share a regional, tourist-dominated economy. Development in all three towns was initiated by a single principal landowner/developer. Most of Holden Beach was at one time owned by the Holden family, while the Williamson and Gore families are the principal landowners and developers of Ocean Isle and Sunset Beach. Most importantly, high-level, fixed-span bridges at Holden Beach (dedicated in May 1986) and Ocean Isle (dedicated in November 1985) replaced existing swing bridges (Hayes and Associates, 1994c:2). The Holden Beach swing bridge was one lane wide and the Ocean Isle swing bridge was two lanes wide.

The objective of the study was to analyze land use and economic conditions in Holden Beach and Ocean Isle as of the early 1990's, and to determine whether these conditions had been influenced by the construction of the high-rise bridges in the 1980's.

Three approaches were used to try to define the impact of the high-level bridges on Holden Beach and Ocean Isle. The first step was an attempt to collect data which would reveal growth trends from 1980 to 1992. Because Holden Beach and Ocean Isle are small towns (less than 5,000), sales tax information was not available, nor were these towns' records computerized until the late 1980's. The best indicator of growth trends available was building permit data, which were used in this analysis.

The second approach involved interviewing key people in all three beach communities (Holden, Ocean Isle, and Sunset) in order to elicit their perceptions of the impacts of the high-level bridges. The people interviewed were familiar with the towns prior to construction of the high-level bridges, and represented elected officials, town government, real estate, and retail interests.

The third approach examined the beach communities' CAMA Land Use Plans and land use regulations to determine historical attitudes toward growth.

Holden Beach. The Town of Holden Beach is a narrow, barrier island, about 12.9 kilometers (8 miles) long and 243.8 to 1,097.3 meters (800-3,600 feet) wide. In 1933, a two-car, cable-guided ferry was built. Substantial development did not occur on the island until after World War II. The road from Shallotte was paved and, in 1954, a swing-span drawbridge was installed. Most of the island's 300 houses were destroyed in 1954 by Hurricane Hazel, but redevelopment began almost immediately (Hayes and Associates, 1994c:3).

According to the United States Census, Holden Beach had 136 year-round residents in 1970, 232 residents in 1980, and 626 residents in 1990. Seasonal residents (those staying overnight) were estimated to number 3,927 in 1970, 6,800 in 1980, and 10,460 in 1990 (Hayes and Associates, 1994c:3). None of the CAMA Land Use Plans for these years estimated the number of day visitors to the Town.

Holden Beach is about 616.8 hectares (1,524 acres) in size and has not changed its boundaries since its incorporation in 1969. The corporate limits of the Town are the barrier island. The Town has not exercised its power of extraterritorial jurisdiction on the mainland. There are about 21 hectares (52 acres) of shorefront, 265.5 hectares (656 acres) of marsh and waterways, and 330.2 hectares (816 acres) of land. Land uses in Holden Beach are primarily residential, with some limited commercial and institutional uses. As stated in the Town's 1990 CAMA Land Use Plan, the residential portion of the island has 1,724 dwelling units and is about two-thirds developed. The Town can accommodate an estimated 862 additional residential units. However, many of the vacant lots may require a more expensive pressurized septic tank system. Development of a centralized sewer system is being explored by the Town (Hayes and Associates, 1994c:4).

Like Sunset Beach, the Town of Holden Beach has enacted a building height limit of 10.7 meters (35 feet), which can only be changed by public referendum. Holden Beach's attitude towards growth has been characterized as being "growth without change" (Hayes and Associates, 1994c:6). This attitude is reflected in the 10.7-meter (35-foot) building height limitation, as well as in CAMA Land Use Plan policy statements. The Holden Beach 1990 CAMA Land Use Plan policy statements regarding growth are:

> Holden Beach's policy is to discourage large incremental amounts of growth and development and large increases in population. Low to medium density residential growth is preferred. Spatial segregation of conflicting land uses will be encouraged. This policy is implemented through the Town's zoning and subdivision ordinances (Holden Beach, 1990:6-20).

> The Town of Holden Beach recognizes the importance and necessity of summer/seasonal residential tourists in houses (rental) and properly managed camping facilities. However, it is the policy of the Town not to promote or encourage commercial/hotel development to accommodate tourists. Holden Beach does not want to promote 'high intensity' tourism. All development proposals will be thoroughly reviewed for consistency with this and other policies of this plan (Holden Beach, 1990:6-18).

As indicated in the policy statements above, Holden Beach wants to continue to be a "family-oriented" beach with low to medium density residential development. Commercial services are severely limited. This same attitude towards growth was reflected in the 1980 and 1984 CAMA Land Use Plans. The 1980 CAMA Land Use Plan states that the one-lane swing bridge existing at that time was one of the most undesirable characteristics of the Town. The 1984 CAMA Land Use Plan stated the following about the swing bridge, which was replaced in 1986:

> One major transportation issue in Holden Beach has been the one-lane swing bridge over the Intracoastal Waterway...The new bridge will, however, bring new land management issues to the forefront: increased commercial development activity along the causeway; new building at the island foot of the high rise bridge; and redevelopment as old-obsolete structures are removed from the island across the new, wider bridge. Completion of the new bridge may well be the most important single factor affecting future island development (Holden Beach, 1984:9).

Now that the Holden Beach high-level bridge has been in place for over eight years, examination of building trend data, current land use, and interviews with local officials and residents reveals that the induced impact of the high-rise bridge has actually been relatively minor (Hayes and Associates, 1994c:7).

Table 3.8 lists the number of residential and commercial building permits issued by the Town of Holden Beach between 1982 and 1992. The number of dwelling unit permits issued prior to the opening of the high-level bridge was greater than the number of permits issued after the bridge replacement. Between 1982 and 1985, the Town issued permits for an average of 105 units per year. Between 1986 and 1992, the average was 54 units per year. Building speculation prior to the anticipated bridge opening is one possible explanation for this difference. However, interviews with local public officials and business leaders revealed that most thought that the national economy and federal tax laws were a more plausible explanation.

As shown in Table 3.8, there was a minor shift in commercial development. The six commercial permits issued after the bridge opening reflects the relocation of real estate offices to near the foot of the bridge on the island. Likewise, on the mainland, new commercial development occurred

along the road approaching the bridge. This commercial strip lies outside the Town's jurisdiction and is not shown in Table 3.8. Some who were interviewed suggested that the new commercial activity was actually a case of repressed demand because businesses which wanted to locate to Holden Beach were waiting for a decision on the final bridge alternative before constructing or relocating their business (Hayes and Associates, 1994c:7).

The new high-level bridge has greatly facilitated the movement and recycling of obsolete and endangered homes off the island. Approximately 50 houses have been moved off Holden Beach since the high-level bridge was opened. About 50 more homes meet the Federal Emergency Management Act (FEMA) guidelines, and they may be moved in the future. Prior to construction of the high-level bridge, only one endangered home had been moved off the island by barge; others were demolished.

In summary, examination of building trend data, current land use, and interviews with local officials and residents reveals that the induced impact of the high-level bridge has been relatively minor at Holden Beach. The number of dwelling units constructed was greater prior to the opening of the high-level bridge. Local business leaders attributed the building downswing to the national recession in the late 1980's and changes in federal tax treatment of second homes in 1986 (Hayes and Associates, 1994c:iii).

Ocean Isle Beach. The Town of Ocean Isle Beach is a barrier island about 9.7 kilometers (6 miles) long and 0.4 to 0.8 kilometer (0.25 to 0.50 mile) wide. There is a 67.1-meter (220-foot) long commercial strip development located along the bridge approach road on the mainland, which is also part of the Town. The Town was incorporated in 1959. In 1990, the Town established an ETA on the mainland, which consisted of residential and vacant land.

According to the United States Census, Ocean Isle Beach had 78 year-round residents in 1970. According to the 1981 CAMA Land Use plan, this number rose to 180 residents in 1980. In 1990, year-round residents numbered 523 within corporate limits and 435 in the ETA. Seasonal residents were estimated to number 3,000 in 1970; 6,000-7,000 in 1980; and 14,730 in 1990. The 1990 CAMA Land Use Plan estimated that there were about 9,980 day visitors coming to Ocean Isle on peak days.

The Town corporate limits are about 777 hectares (1,920 acres) in size, of which 372.3 hectares (920 acres) are marsh or waterway. The ETA consists of 784.7 hectares (1,939 acres), with 263.5 hectares (651 acres) of marsh and waterway. Both the island and the mainland have a considerable amount of vacant land, which is in contrast to Holden and Sunset beaches. About 74 percent of the island is vacant and can be developed (307.6 hectares [760 acres]), and 77 percent of the mainland ETA is vacant and can be developed.

TABLE 3.8

BUILDING PERMITS ISSUED BY HOLDEN BEACH AND OCEAN ISLE BEACH

YEAR	HOLDEN BEACH					OCEAN ISLE BEACH				
	Single-Family Buildings	Duplex Units	Multi-Family Units	TOTAL Residential Units	Commercial Buildings	Single-Family Buildings	Duplex Units	Multi-Family Units	TOTAL Residential Units	Commercial Buildings
PRIOR TO OPENING HIGH-LEVEL BRIDGE										
1982[1]	--	--	--	57	--	83	2	51	136	1
1983[1]	--	--	--	116	--	99	6	116	221	2
1984	94	30	12	136	0	102	2	96	200	2
1985	86	12	12	110	0	99	6	0	105	2
(Subtotal)	(180)	(42)	(24)	(419)	(0)	(383)	(16)	(263)	(662)	(7)
AFTER OPENING OF HIGH-LEVEL BRIDGE										
1986	30	18	0	48	1	15	0	0	15	4
1987	45	28	0	73	1	38	6	73[3]	117	1
1988	38	16	0	54	3	24	0	0	24	2
1989	41	6	0	47	0	27	0	0	27	2
1990[2]	42	10	0	52	0	35	2	0	37	1
1991	49	4	0	53	1	32	0	0	32	1
1992	50	2	0	52	0	36	0	0	36	2
(Subtotal)	(295)	(84)	(0)	(379)	(6)	(207)	(8)	(73)	(288)	(13)
TOTAL	475	126	24	798	6	590	24	336	950	20

Notes: 1. Only the total number of permits issued was available for Holden Beach in 1982 and 1983.

2. An extra-territorial area for Ocean Isle Beach established on mainland in 1990. Between 1990-1992 there were 26 single-family building permits issued in the ETA that are not included in this table.

3. Construction of Ocean Point, a 73-unit high-rise building.

Source: Hayes and Associates, 1994c:Table 1.3 and 1.6.

Mid-rise and high-rise residential buildings are permitted in Planned Residential Districts in Ocean Isle Beach, unlike Holden and Sunset beaches which have 10.7-meter (35-foot) building height restrictions. A town sewer system was established in 1987, and it now extends to all parts of the island.

The high-level bridge was opened in November 1985, replacing a two-lane swing bridge built in 1956. As shown in Table 3.8, residential growth was slower after the high-level bridge opened. The number of dwelling units constructed before the high-level bridge was opened (about 166 units per year) was greater than the number of units constructed afterwards (about 41 units per year). This same slowdown in development occurred in Holden Beach. Interviews with local residents revealed that most thought the downturn was caused by the national economy and federal tax laws.

The Ocean Isle 1986 CAMA Land Use Plan, like the Holden Beach plan, predicted that improved bridge access would result in more cars and people coming to Ocean Isle, and "planning for more extensive services as the result of increasing development is an issue which must be addressed by Ocean Isle Beach" (Ocean Isle Beach, 1990:13). Also like Holden Beach, the influence of the high-level bridge on development at Ocean Isle has been minor.

There was only one major change in residential land use after the high-level bridge. In 1987, Ocean Point, a 15-story condominium building containing 73 units was built on the western end of Ocean Isle. According to the developers of Ocean Point, the condominium project was not dependent upon construction of a high-level bridge nor a central sewer system. The 15-story condominium building had been in the planning stage for many years prior to the opening of the high-level bridge. In addition, a package treatment plant for the condominium project had been planned, and would have been less expensive than the Town sewer system. Construction of the high-rise building would have been possible with the two-lane swing bridge.

The developer indicated that demand was the most important factor for constructing the condominium project, not the type of bridge access. More high-rise buildings were originally planned for the Ocean Point project, and these towers could be built if the market demand for them improves. Consequently, in the case of Ocean Isle Beach, it is misleading to assume a relationship between the improved access due to the high-level bridge and the construction of high-rise buildings (Hayes and Associates, 1994c:12).

Commercial development in Ocean Isle nearly doubled in land area between 1980 and 1990, and was evenly divided between the island and mainland. In 1980, there were six acres of commercial use, by 1985 there were 6.5 hectares (16 acres), and by 1990 there were 9.1 hectares (22.5 acres). Commercial building permits averaged two per year, both before and after the high-level bridge opened (Hayes and Associates, 1994c:14).

One small mainland shopping center displaced by the new bridge relocated to another site on the mainland. It has been suggested that a new restaurant on the island may not have been built without the presence of the high-level bridge because the owners wanted dependable access. Two new real estate buildings were built along the mainland bridge approach road. One of the owners had considered moving to the island in order to avoid delays caused by the previous bridge. However, this owner decided to rebuild on the mainland once the plans for the high-level bridge were announced. Construction of the new high-level bridge may have caused some new commercial development, but perhaps the greatest impact was upon individual business owners' decisions about whether to locate on the mainland or island (Hayes and Associates, 1994c:14).

These development trends should also be understood in reference to the Town's attitude towards growth, as indicated in its CAMA Land Use Plan policies and land use regulations. The 1990 CAMA Land Use Plan policies regarding growth are:

> The Town of Ocean Isle Beach wishes to maintain its image of a quiet, relaxing family beach community. Intense commercial development, beyond that necessary to serve tourists and residents will not be encouraged. Commercial accommodations, and basic retailing and services are uses that are encouraged (Ocean Isle Beach, 1990:53).
>
> Ocean Isle Beach will continue to support tourism as its main economic base. The development of non-intensive recreational and commercial uses will be encouraged in order to enhance services for the public (Ocean Isle Beach, 1990:56).
>
> In accordance with the Town's Zoning Ordinance, and policies aimed at protecting natural resources and fragile areas, more dense residential development such as townhouses, cluster homes, and mid-rise to high-rise condominiums are permitted (Ocean Isle Beach, 1990:52)..

Like Holden Beach, Ocean Isle wants to be a "quiet, relaxing, family beach community." However, subtle differences toward commercial and residential growth are evident. Ocean Isle favors commercial development along the causeway corridor on both the mainland and island, and more dense residential development, including mid- to high-rise residential buildings.

In summary, the induced land use impacts of the high-level bridge have been relatively minor at Ocean Isle. As with Holden Beach, the number of dwelling units constructed was greater prior to the opening of the high-level bridge. Interviews with local officials and residents revealed that most thought that the downswing was attributed to the national economy and changes in federal tax laws, rather than a surplus of residential development caused by pre-bridge speculation. The construction of the Ocean Point 15-story condominium on Ocean Isle in 1987 was not related to the opening of

the high-level bridge since the project had been planned many years prior to the bridge opening. The construction of the new bridge may have caused some new commercial development in Ocean Isle. However, the greatest impact was probably felt by individual business owners who decided whether to locate their business on the island or mainland (Hayes and Associates, 1994c:iii).

3.1.3 Utilities

3.1.3.1 Electric Power Distribution

Electric power transmission within the study area is provided by the Brunswick Electric Membership Cooperative (EMC). Electric power is supplied to the island portion of Sunset Beach by two submerged distribution lines which run parallel to, and about 15.2 to 18.3 meters (50-60 feet) east of, the existing pontoon bridge and SR 1172 causeway. These lines are located approximately 3.7 meters (12 feet) under the AIWW. Both lines carry 7.2 kilovolt (kV) line-to-ground voltage and 12.47 kV line-to-line voltage (Brunswick EMC, 1997).

3.1.3.2 Water and Sewer Facilities

This section is based on the Water Quality and Sewer Service Technical Memorandum (Greiner, Inc., 1994f) prepared for the project. This report is incorporated by reference into this EIS.

Water. Brunswick County owns and operates the water system that supplies the Town of Sunset Beach and its ETA. The Town buys its treated water from the Brunswick County Water Service. Once the water reaches the Town, the Town is responsible for distribution of the water throughout its jurisdiction. All Town residents are required to be connected to the public water system and to pay a minimum water usage fee. The majority of ETA residents are also connected to the water system. An 8-inch water line to the Sunset Beach island runs under the AIWW about 100 feet west of the existing pontoon bridge.

According to the Town's 1992 CAMA Land Use Plan, the Brunswick County Water Service and the Town of Sunset Beach will have sufficient capacity to accommodate the projected peak population through 1997. Peak demands in Sunset Beach are estimated to be about four percent of the County's total capacity (Town of Sunset Beach, 1992:43).

Sewer. The Town of Sunset Beach is currently served by ground absorption waste disposal systems (individual septic tanks), which are approved and permitted by the Brunswick County Health Department (Greiner, Inc., 1994f:3).

Soils suitable for septic systems are lacking in the area. Twelve out of the fourteen soil types found in Sunset Beach have severe limitations for septic tank systems (Hayes and Associates, 1994a:20).

There have been documented septic system breakouts identified in the area of Sunset Beach. There are also a number of building sites on the mainland and the island of Sunset Beach for which the Brunswick County Health Department will not issue septic tank permits. Lot inspections for septic tank permit approvals are only conducted after a building permit application has been filed. Therefore, the number of undeveloped lots which can not be permitted for septic tanks can not be readily quantified (Greiner, Inc., 1994f:3). It should be noted that package treatment plants can be constructed in areas that are not suitable for septic systems. There is an existing package treatment plant in the Town which serves the Colony multi-family development on the mainland (Town of Sunset Beach, 1992:43).

The Town of Sunset Beach is currently involved in pursuing the development of a centralized sewer system, which would provide sewer service to a 142.5-square kilometer (55-square mile) area of Brunswick County. The proposed project is being managed by the South Brunswick Water and Sewer Authority, which consists of representatives from the Towns of Calabash and Sunset Beach and Brunswick County. (Greiner, Inc., 1994f:3).

In 1994, State officials determined that the 201 Study and Environmental Assessment (EA) evaluating provision of centralized sewer service was sufficient and, therefore, approved funding for the project. The resulting Finding of No Significant Impact (FONSI) from the EA was contested by local citizens by petition submitted in the summer of 1995. In November 1995, the courts rendered that a North Carolina SEPA EIS must be prepared in order to identify and assess the impacts of this proposed action. As of May 1997, this EIS was in preparation.

An initial treatment facility having a capacity of about 9.5 million liters per day (2.5 million gallons per day) is envisioned. Effluent from the treatment facility would be reused, primarily for golf course irrigation (Greiner, Inc., 1994f:4). It is important to note that the sewer system is being designed to accommodate single-family densities rather than high-rise development in the current land use plan (Hayes and Associates, 1994a:20).

3.1.4 Visual Environment

3.1.4.1 Regional Landscape

The regional landscape in and around the project site can be described as being located within the Tidewater Region of the physiographic province of the southeastern Coastal Plain. The topography is characterized by a relatively flat plain, which slopes gently southeast and is broken by low escarpments adjacent to stream valleys. Elevations range from five to 7.6 meters (25 feet) above mean sea level (MSL). Coastal fringe forest, coastal fringe evergreen forest, mesic pine flatwoods, pine savannas, and ocean and estuarine areas are example of natural communities which comprise the regional landscape.

3.1.4.2 General Viewshed Description

The area surrounding the project site is characterized by extremely flat topography, a mid-size forest canopy, and broad, open vistas dominated by the sky. Vegetation consists of pines, oaks, and various shrubs typically associated with southeastern North Carolina. The AIWW is a predominant feature which crosses through the central portion of the project site. The AIWW is bordered by dredge spoil islands and large expanses of salt marsh. The AIWW has an aesthetic value, as well as a commercial one.

Other important features in the project area include the barrier islands: Sunset Beach and Bird Island. Sunset Beach island is developed as a recreational/vacation residential community, while Bird Island remains undeveloped and uninhabited. The Atlantic Ocean on the other side of the Sunset Beach barrier island, can not be seen from the project site. On the mainland, development can be generally described as low-density residential, although there are several businesses on the mainland within the immediate project vicinity.

3.1.5 Cultural Resources

3.1.5.1 Archaeological Resources

An archaeological survey of the project area was first undertaken in 1980. The survey encompassed areas east and west of the existing pontoon bridge. One archaeological site on the mainland, west of the existing bridge, was recorded as a result of the survey (NCDOT, 1980).

During the initial archaeological investigations for this highway project conducted in 1980, prehistoric archaeological site 31BW391 was located and found to extend into the Area of Potential Effect (APE) for the bridge replacement project as it was defined at that time. It should be noted that site 31BW391 was previously misidentified in NCDOT (1980), the Draft EIS, and its incorporated memoranda as site 31BW65. This typographical error has been corrected and incorporated into the project files and reports dated after December 1, 1996.

The 1980 report states that "it should be noted that along the AIWW some evidence of aboriginal occupation can be expected in any area where the natural land surface has survived modern alteration" (NCDOT, 1980:1). The report concludes that site 31BW391 does not contain significant archaeological remains. However, there is a possibility that some archaeological features could be preserved underneath the investigated shell layers (NCDOT, 1980:2). Therefore, the report recommended that some additional testing be conducted in areas west of the existing bridge, where the land was relatively undisturbed.

In response to this recommendation, archaeological test excavations were taken at Site 31BW391 in 1985 (NCDOT, 1985). The archaeological testing revealed that the midden deposits at the site are very thin within the project area. The 1985 report stated that there is little likelihood that prehistoric features are present under the midden deposit and that the site is not a significant archaeological resource eligible for inclusion on the National Register of Historic Places. The report concluded that no further archaeological work was necessary (NCDOT, 1985:9). The State Historic Preservation Office (SHPO) concurred with the conclusions of the 1985 report.

During the scoping process conducted for this EIS, the NC Department of Cultural Resources wrote that there are no known National Register-eligible archaeological sites within the project study area, and it is unlikely that any archaeological resources which may be eligible for inclusion in the National Register of Historic Places will be affected by project construction. Therefore, the North Carolina Department of Cultural Resources recommended that no archaeological investigation be conducted in connection with the proposed project (North Carolina Department of Cultural Resources,1992).

In 1995, the Archaeology Unit of the NCDOT reviewed the findings and conclusions of the 1980 and 1985 reports prepared for Site 31BW391 and concluded that, given the length of time since the previous studies were completed, it would be advisable to conduct additional tests at Site 31BW391 if the selected alternative would impact the site. Accordingly, a second phase of investigations was completed in September 1996. The primary purpose of the current investigation was to determine whether any archaeological deposits within this APE possess the quality of significance as defined as National Register eligibility (36CFR 60.4[a-d]). The Phase II Testing methodology for this project was designed to identify, delineate, and evaluate cultural materials present within the portion of Site 31BW391 that lies within the alignment of Alternative W1R. Coordinated with the SHPO, these investigations were completed within compliance with the National Historic Preservation Act. Twenty-six screened shovel test and one one-square-meter test unit were placed at site 31BW391, concentrating upon the portion of the site to be included in the highway construction limits. In addition, 10 areas within the APE were mechanically stripped. Analysis of those units, along with data generated from the shovel testing of the site during the original survey and testing, provided a basis for site evaluation.

The Phase II archeological investigations undertaken by NCDOT failed to discover any intact cultural features or locally and/or regionally significant archaeological deposits within the APE. Section 4.1.5 discusses this conclusion in more detail.

3.1.5.2 Historic Architectural Resources

The APE of the proposed project in relation to historic architectural resources was reviewed in the field by NCDOT staff. The only structure found to require further analysis within the APE was the existing Sunset Beach pontoon bridge. A report concerning the eligibility of the Sunset Beach

Bridge for listing in the National Register of Historic Places was prepared by NCDOT (NCDOT, 1993a). This report is included by reference into this EIS. The report concluded that the existing bridge is not eligible for the National Register.

History of the Existing Sunset Beach Bridge. Mannon C. Gore, with the assistance of William Benton, dredged and constructed the original Sunset Beach pontoon bridge between 1950 and 1953. No other professional help was employed. Mr. Gore operated the bridge for approximately 7-8 years before it was taken over by the NCDOT in 1960 (NCDOT, 1993a:4).

When the bridge was taken over by the NCDOT, extensive rebuilding was performed. New timber approaches were constructed about 400 feet from the original site and new decking was used. Under contract with NCDOT, SHC of Wilmington built a new wooden barge to replace the original metal barge, a new fender system, and a new operator/machinery house. SHC also installed a new cable system and new cantilevered aprons. The original floating bridge was towed out of the AIWW and sunk off Sunset Beach as an artificial reef (NCDOT, 1993a:4).

Since 1961, repairs and maintenance to the existing pontoon bridge have been extensive. Components and materials have been upgraded over the years. The floating barge has been replaced twice; the creosote pile clusters have been replaced twice with steel H-piles; joists, deck boards, and bridge rails have been replaced when needed with treated timber; the fender system has been reconstructed and replaced; the types of cable operating the bridge and counterweights have been upgraded; and in 1991, the cable system was changed from friction winches to hydraulic winches (NCDOT, 1993a:4).

Determination of Eligibility. For a property less than fifty years old to be considered potentially eligible for the National Register, that property must be historically significant and have demonstrable exceptional importance. Given the nature of floating pontoon swing span bridges, the Sunset Beach bridge is not considered to be of exceptional importance, and therefore is not considered potentially eligible for the National Register (NCDOT, 1993a:5).

In a letter dated October 15, 1993, the State Office of Historic Preservation concurred that the existing bridge "does not have the special significance necessary to meet the exceptions outlined in Criterion Consideration G of the National Park Service's Guidelines" for National Register listing of properties less than 50 years old (North Carolina Department of Cultural Resources, 1993).

3.2 EXISTING PHYSICAL ENVIRONMENT

3.2.1 Hydrology

3.2.1.1 Navigable Waterways

The AIWW, Slough Canal, and Big Narrows channel are navigable waterways in the project area. Section 3.1.1.6 describes the existing uses of these three navigable waterways.

The AIWW is maintained by the US Army Corps of Engineers (COE). The COE provides for a channel 3.7 meters (12 feet) deep and 27.4 meters (90 feet) wide. The disposal areas for dredged materials are located along the southern side of the AIWW, on either side of the existing Secondary Road (SR) 1172 causeway (COE, 1992). Vessel traffic on the AIWW is described in Sections 1.5.2 and 1.6.1.

The Slough Canal is located approximately 350.5 meters (1,150 feet) to the east of the existing bridge and extends about 457.2 meters (1,500 feet) into the mainland from the AIWW. The end of the canal is adjacent to NC 179. The owner of the market and restaurant at the end of Slough Canal maintains the canal so that commercial vessels can pick up supplies and deliver seafood to his business.

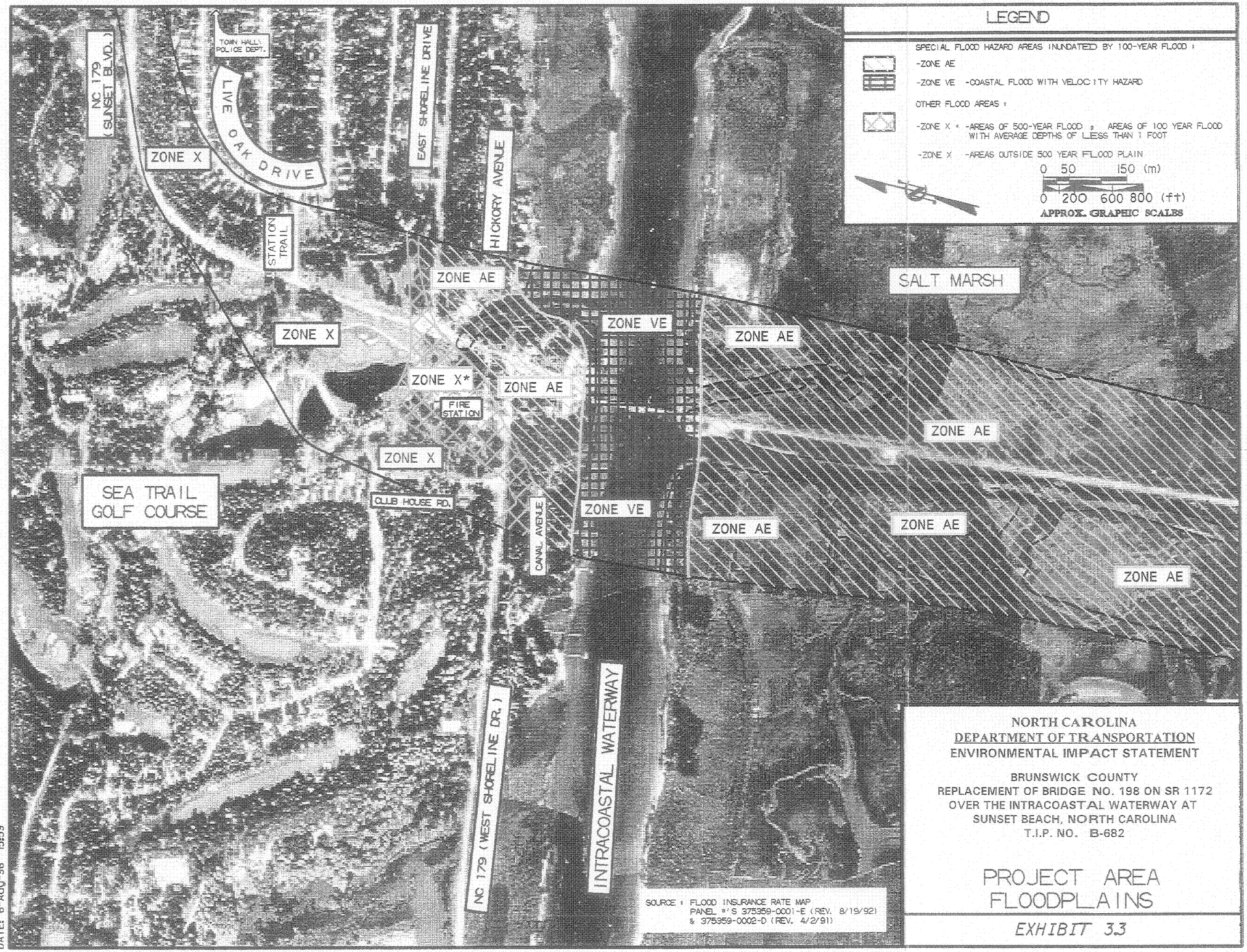
The Big Narrows channel is located on the island side of the AIWW, about 61 meters (200 feet) west of the existing bridge (see Exhibit 1.2). The channel has an outlet/inlet to the Atlantic Ocean and the AIWW, and is apparently self-flushing. The channel can be used to access the AIWW from the northwest side of the island, but it is not currently maintained by any public or private entity.

3.2.1.2 Floodways and Floodplains

There are no regulatory floodways within the project study area.

As defined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, there are High Hazard Flood Areas and Flood Hazard Areas within the project area. FEMA first identified flood hazard areas for Sunset Beach in 1972. The most recent revision to the Flood Insurance Rate Maps was on August 18, 1992.

As shown in Exhibit 3.3, there are four zones within the project area: Zone VE, Zone AE, Zone X Special Designation, and Zone X. Zone VE is a High Hazard Flood Area, which is an area subject



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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

PROJECT AREA FLOODPLAINS

EXHIBIT 3.3

to high velocity waters (including, but not limited to, hurricane wave wash) in a storm having a one percent chance of being equaled or exceeded in any given year (100-year storm). Within the project area, Zone VE is the AIWW.

Zone AE areas are within the 100-year floodplain and have base flood elevations ranging from four to 5.2 meters (13-17 feet). Within the project area, Zone AE consists of the salt marsh and causeway on the island and the first 61.0 to 243.8 meters (200-800) feet on the mainland adjacent to the AIWW.

Zone X Special Designation areas are those areas corresponding to: (1) the 500-year floodplain, (2) areas of 100-year flooding where average depths are less than one foot, (3) areas of 100-year flooding where the contributing drainage area is less than 2.6 square kilometers (one square mile), and (4) areas protected from the 100-year flood zone by levees. Within the project area, Zone X Special Designation defines the 500-year floodplain.

Zone X areas are higher elevation lands outside of the 500-year floodplain.

Flooding at Sunset Beach is associated mainly with tropical storms and hurricanes. Freshwater flooding is not significant due to the limited size of the drainage areas and the large outfall available to the Atlantic Ocean. FEMA estimates that the tidal surges created by strong storms can reach elevations of 4.6 meters (15.2 feet) in the project area. At this flood elevation, the existing Sunset Beach pontoon bridge and SR 1172 island causeway are inundated and cannot serve as emergency access, or any other kind of access.

3.2.2 Water Quality

3.2.2.1 Surface Water Quality

In accordance with 15A, North Carolina Administrative Code 2B.0311, the North Carolina Division of Water Quality (DWQ), formerly a part of the North Carolina Division of Environmental Management (DEM), has classified the water quality of different surface waters within the state. These classes are based on the "best usage" for each water body, as determined through studies, evaluations, and public hearings to consider the proposed classification schemes. Each class is subject to protection toward maintaining "best usage" and to regulation of discharges into the waters. In November 1991, the DWQ issued reports for the Lumber River Basin, which includes the water systems of Sunset Beach (Town of Sunset Beach, 1992:33).

Waters in the project area are classified as Class SA (Tidal salt waters). Class SA waters are used for: shellfishing for market purposes, primary recreation, aquatic life propagation and survival, fishing, wildlife, and secondary recreation. The SA classification of the AIWW indicates a water system which has the best usage for shellfishing and swimming. Class SA waters also carry a

supplemental classification of High Quality Waters (HQW). These types of waters are protected by an Antidegradation Policy. Protection methods are established by the DEHNR Sedimentation Control Commission.

The AIWW is also classified as a Primary Nursery Area (PNA) by the DEHNR Marine Fisheries Commission. PNAs have been designated as being highly productive habitat for juvenile marine species. Destruction of these areas, either physically by dredging and filling or by pollution, reduces their effectiveness as PNAs. Although the AIWW has been designated a PNA and is conducive to shellfish breeding, the Division of Marine Fisheries has closed the area to harvesting due to elevated fecal coliform bacteria levels (Greiner, Inc., 1994g:20).

The North Carolina DEHNR monitors water quality. Data was retrieved for the AIWW monitoring station near Sunset Beach for the period of 1983 to 1993. This data is presented in Table 3.9. During this period, levels of cadmium, chromium, copper, lead, nickel, mercury, dissolved oxygen, and total coliform in excess of the standards were present. Unfortunately, detailed monitoring was reduced in 1987. Therefore, it is not possible to monitor any recent trends in water quality regarding arsenic, cadmium, chromium, copper, lead, nickel, zinc, and mercury. In general, trends for the parameters listed in Table 3.9 seem to indicate stable or improving water quality in the AIWW near Sunset Beach. The total chloride parameter continues to fluctuate in excess of standards for coastal waters, which may be the result of strong tides and freshwater inflows from rainfall runoff (Greiner, Inc., 1994g:21). Although monitored fecal coliform levels seem to be decreasing, the maximum measured levels are still above standards for Class SA waters and, as stated above, elevated fecal coliform levels have closed the area to shellfish harvesting.

In 1993, Powell Associates of NMB, Inc., prepared a report titled, "Demonstration of Impact or Non-Impact of Residential Septic Tanks on Groundwater and Surface Water Quality." The report states that "Routine fecal coliform bacteria sampling and testing data and reports obtained from the Shellfish Sanitation Branch of the DEHNR Division of Health Services and other studies indicate that estuarine water quality degradation around the island of Sunset Beach is the result of pollution originating both on the island and from distant locations" (Powell Associates of NMB, Inc., 1993:3).

Pollution is likely to occur adjacent to the island of Sunset Beach as a result of runoff from island surfaces during stormwater events. A prime source of fecal coliform content in runoff is likely "breakout" from septic tank systems (Powell Associates of NMB, Inc., 1993:4). "High fecal coliform counts were measured in (estuarine) waters at several locations around the island, while much lower counts were recorded for samples taken at the existing Sunset Beach bridge and along the SR 1172 causeway" (Powell Associates of NMB, Inc., 1993:7).

Currently, SR 1172 and the existing bridge do not have a stormwater management system which utilizes treatment and attenuation systems. Runoff from the paved surfaces directly enters the AIWW and adjacent salt marsh (Greiner, Inc., 1994g:21).

TABLE 3.9

WATER QUALITY MONITORING RESULTS (1983-1993)

Parameter[1]	Standards for all Tidal Saltwaters[2]	MONITORING RESULTS[3] Maximum Measured (Minimum Measured)										
		1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Turbidity (NTU)	25	14.0 (5.1)	8.0 (4.5)	9.1 (3.4)	9.1 (2.1)	11.0 (4.3)	8.8 (3.6)	6.1 (3.3)	17.0 (4.1)	14.0 (5.4)	7.3 (4.9)	17.0 (5.9)
Dissolved Oxygen (mg/l)	5	8.0 (5.3)	9.9 (5.9)	9.9 (5.4)	9.0 (5.0)	9.3 (6.5)	11.5 (6.9)	10.0 (6.0)	8.4 (5.1)	6.4 (5.6)	8.5 (5.8)	8.2 (6.4)
pH (SU)	6.8-8.5	8.3 (7.7)	8.2 (7.4)	8.3 (7.7)	8.2 (7.9)	8.2 (7.6)	8.0 (7.9)	8.1 (7.4)	7.8 (7.6)	7.8 (7.7)	7.8 (7.5)	8.1 (7.3)
Arsenic (μg/l)[4]	50	10 (10)	10 (10)	10 (10)	10 (10)	--	--	--	--	--	--	--
Cadmium (μg/l)[4]	5	50 (40)	20 (20)	20 (20)	10 (10)	--	--	--	--	--	--	--
Chromium (μg/l)[4]	20	50 (50)	50 (50)	50 (50)	50 (25)	--	--	--	--	--	--	--
Copper (μg/l)[4]	3	40 (30)	20 (20)	20 (20)	16 (10)	--	--	--	--	--	--	--
Lead (μg/l)[4]	25	500 (200)	200 (100)	100 (100)	70 (50)	--	--	--	--	--	--	--
Nickel (μg/l)[4]	8.3	200 (100)	100 (100)	100 (100)	100 (100)	--	--	--	--	--	--	--
Zinc (μg/l)[4]	86	50 (20)	40 (20)	40 (20)	12 (10)	--	--	--	--	--	--	--

TABLE 3.9 (Continued)

WATER QUALITY MONITORING RESULTS (1983-1993)

Parameter[1]	Standards for all Tidal Saltwaters[2]	MONITORING RESULTS[3] Maximum Measured (Minimum Measured)										
		1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Mercury (μg/l)[4]	0.025	0.2 (0.2)	0.2 (0.2)	1.0 (0.2)	0.2 (0.2)	--	--	--	--	--	--	--
Total Fecal Coliform (MTFCC/100 ml)	200 (Human Health) 14 (Class SA Water)	20 (10)	90 (10)	250 (10)	300 (10)	50 (10)	70 (10)	70 (10)	90 (10)	10 (10)	30 (10)	30 (10)

1. NTU = Nephelometric turbidity units
   mg/l = milligrams per liter
   μg/l = micrograms per liter
   MTFCC = mean total fecal coliform counts per 100 milliliters
2. Administrative Code Section: 15A NCAC 2B.0200 as amended June 1, 1994. Standards are for aquatic life unless otherwise noted.
3. NC Division of Environmental Management.
4. Monitoring discontinued in 1987.

An emergency response plan is in effect for the Town of Sunset Beach (Town of Sunset Beach, 1992:Appendix 2). This plan applies to fires, chemical spills, hurricanes, bridge failure, earthquakes, and oil spills. If a spill threatens navigable waters, the Town Administrator would notify the US Coast Guard (USCG) in Wilmington. In these instances, the USCG will determine the appropriate response and coordinate cleanup activities.

3.2.2.2 Groundwater Quality

On the mainland in the project area, groundwater typically lies at elevations of 2.4 to 4.0 meters (8-13) feet below existing ground surfaces. In the salt marsh on the island of Sunset Beach, groundwater lies 0 to 0.9 meters (0-3 feet) below the surface of the marsh (North Carolina Department of Transportation (NCDOT), 1992).

Although there are still a few deep public and private wells in Sunset Beach, the Town's primary source of water is the Brunswick County Water system. The public wells in Sunset Beach are all located on the mainland and are activated only during peak demand periods. The Brunswick County Water Service anticipates disconnecting these wells when planned improvements to the county water system are completed. All Town residents and most ETA residents are connected to the county water system (Town of Sunset Beach, 1992:33).

Based on the results of their investigations, Powell Associates of NMB, Inc. concludes that existing septic tank systems on the island of Sunset Beach are "most likely having an adverse impact on the groundwater and surface water quality on and around the island of Sunset Beach" (Powell Associates of NMB, Inc., 1993:3). This was reflected by increased levels of fecal coliform and other constituents of wastewater recorded in groundwater samples (Powell Associates of NMB, Inc., 1993).

The Powell Associates report identifies three basic factors which could contribute to declines in groundwater and estuarine water quality. The first is an existing high groundwater table on the island. Effluent from septic systems may not have time to be treated before coming into contact with groundwater. The second factor is the nature of the soils in the area. Excessively permeable coarse grained soils, such as those found on the island, are not effective in the removal of viruses from septic tank effluent. The third factor is population density. The DEHNR Division of Water Quality recognizes the potential adverse impact of using septic tank systems in higher density areas (greater than 11,223 liters of water per hectare (1,200 gallons of water per acre), or greater than three residential units per acre) in coastal regions (Powell Associates of NMB, Inc., 1993).

3.2.3 Geology, Soils, and Prime Farmlands

A geotechnical investigation was conducted on Alternative W1 (West High-Level Fixed Span) by Westinghouse Environmental and Geotechnical Services, Inc. (1990) when Alternative W1 was

chosen for construction under the Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) process, prior to the US District Court's subsequent requirement for an Environmental Impact Statement (EIS) (see Section 1.3.2).

Since all the present build alternatives (W1R, C1, and C4) are close together (within between 121.9 and 152.4 meters [400-500 feet]), it is likely that the general geological formations observed during field investigations of the Alternative W1 alignment would also underlie the other alternative alignments. The NCDOT will conduct additional geotechnical investigations, if necessary, to further define the soils and geologic conditions in Alternative W1R's corridor.

3.2.3.1 Geology and Soils

Geology. The study area is located near the southern boundary of the Tidewater Region of the Coastal Plain physiographic province. Elevations typically range from sea level to 6.1 to 7.6 meters (20-25 feet) above mean sea level (MSL) (NCDOT, 1992). The project site is within an area mapped on the 1985 NC Geologic Map as post-Tertiary Age surficial deposits. These deposits include clean sands on the barrier island and on the higher ground of the mainland, and soft muck deposits underlying the salt marsh and water channels (Westinghouse Environmental and Geotechnical Services, 1990).

Based on test boring data at 28 locations along the Alternative W1 alignment, near-surface deposits in the area are underlain by sandy silts and clays, which contain occasional lenses of shell hash. These underlying materials appear to be part of the late Tertiary Age Waccamaw Formation. The top of the Waccamaw Formation appears to vary from 4.6 meters (15 feet) below the surface to 0 meter below the surface, and gently dips south. Below this soft clay layer, there exists a very stiff to hard variably sandy marine clay, which appears to be similar to the late Cretaceous Pee Dee Formation. The Pee Dee Formation exists at 9.1 meters (30 feet) below the surface along the south end of the site (island side) to three meters (10 feet) below the surface at the north end. It exhibits a variably thick, partially cemented clayey sand and gravel cap layer beneath the north side of the AIWW (Westinghouse Environmental and Geotechnical Services, Inc., 1990:3).

Soils. "All of the soils in the county formed in Coastal Plain sediment or in sediment deposited by streams flowing through the county" (United States Department of Agriculture [USDA], 1986:2). A soil association is a landscape that has a distinctive pattern of soils in defined proportions. It typically consists of one or more major soils and at least one minor soil. The soils within an association can vary in slope, depth, stoniness, drainage, and other characteristics (USDA, 1986:5).

There are two soils associations within the project study area. The Bohicket-Newhan-Lafitte soil association comprises the island portion of the study area, and the Kureb-Wando soil association comprises the mainland portion. These soils associations are described below. The properties of

specific soils within each association are discussed in Section 4.2.3 in relation to their potential to affect construction of the build alternatives.

The Bohicket-Newhan-Lafitte soil association is comprised of nearly level, very poorly drained soils that have a clay-like subsoil or are mucky throughout, and soils which are gently sloping to steep, excessively drained, and sandy throughout. This soil association is found on tidal flats, coastal ridges, and barrier dunes. Mapped areas are typically long and narrow (USDA, 1986:9). "Most of the acreage of this association is in marsh grasses. The sandy ridges have scattered beach grasses, wax myrtle, and yaupon holly" (USDA, 1986:10). Some areas of the association support scrub vegetation and maritime forest. The Bohicket and Lafitte soils are important habitat for wetland plants and wildlife. The Newhan soils are used for recreation and coastal residential development (USDA, 1986:10).

The Kureb-Wando soil association, found on the mainland portion of the study area, is comprised of nearly level to sloping, excessively drained soils that are sandy throughout. These soils are located on uplands, primarily in the southern part of Brunswick County (USDA, 1986:9). Most of the acreage of this association is in woodland.

3.2.3.2 Prime And Important Farmlands

The Farmland Protection Policy Act (7 CFR Part 658) establishes criteria for identifying and considering the effects of federal programs on the conversion of farmland to non-agricultural uses. For the purposes of the Act, important farmland is divided into three categories: Prime, Unique, or of Local or Statewide Importance (Public Law 97-98, Subtitle 1, Section 1540). The three categories are defined in the law as follows:

> Prime farmland. Land which has "the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soils erosion." Land committed to urban development or water storage is not included.
>
> Unique farmland. Land used for production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed.
>
> State and Locally Important farmland. Land of statewide or local importance for the production of food, fiber, forage, or oilseed crops as determined by the appropriate state or local government agency.

Brunswick County is 222,874 hectares (550,713 acres) in size (USDA, 1986:1). Within Brunswick County, there are about 30,595 hectares (75,598 acres) of Prime farmland, 34,440 hectares (85,101 acres) of Unique farmland, and 105,299 hectares (260,190 acres) of State/Local Important farmland (Brunswick County, 1993:59). It should be noted that these areas are based on soil types found in the county. The actual amount of farmland available in the county is less since many of the suitable soil types are located in areas impractical to farm due to lack of access, high water tables, or other reasons (Brunswick County, 1993:59).

Within the Town of Sunset Beach, there are currently no major agricultural or forestry activities. On the mainland, there is a small area of Foreston soil, which is designated a prime farmland soil type in Brunswick County. However, the small size of this tract "precludes it as being suitable for prime farmland" (Town of Sunset Beach, 1992:40).

Because the proposed project is located within a municipality (Town of Sunset Beach), the proposed project is exempt from regulation under the Farmland Protection Policy Act. Furthermore, according to the NCDEHNR Division of Soil and Water Conservation, commercial development has eliminated any Unique, Prime, or State/Locally Important farmland in the project study area (DEHNR, 1992).

3.2.3.3 Coastal Barrier Resources

The Coastal Barrier Resources Act of 1982 (COBRA) was enacted to minimize loss of human life, wasteful expenditure of federal monies, and damage to fish, wildlife, and other resources associated with the coastal barriers along the Atlantic coast. It restricts all future federal expenditures and financial assistance, such as the Federal Flood Insurance Program, that have the effect of supporting development of these coastal barrier units. The US Fish and Wildlife Service (USFWS) has been charged with maintaining an inventory of these resources in the *Coastal Barrier Resources System Photographic Atlas*. Review of this inventory for North Carolina revealed that one protected parcel is located in the study area (USFWS, 1994). The eastern border of the Waties Island Complex, parcel MO1, is located in the westernmost portion of the Town of Sunset Beach, approximately 457 meters (1,500 feet) east of the corporate town limit. This parcel extends west to an area generally referred to as Bird Island. Approximately 607 hectares (1,500 acres) large, this parcel abuts the developed western portion of the island and spans from the AIWW to the Atlantic Ocean. The northeastern corner of the parcel is located approximately 1.9 kilometers (1.2 miles) west of the existing Sunset Beach Bridge. No vehicular access exists to the Island.

As discussed in Section 3.1.1.7, Bird Island is considered an AEC in the Town of Sunset Beach and has regional significance as a Coastal Complex Natural Area as cited by the North Carolina Heritage Program (Hayes and Associates, 1996).

3.2.4 Hazardous Materials

This section is based on a survey of the project study area conducted by the Geotechnical Unit of the NCDOT (NCDOT, 1992). The survey included review of State files and a field reconnaissance of the study area. The NC Division of Solid Waste Management files and the NCDEHNR Division of Environmental Management/Groundwater Section incident lists were reviewed to determine whether any known unregulated dumps or other potentially contaminated sites are within the study area. Based on this review, it was concluded that none of the known sites in Brunswick County are located within the study area (NCDOT, 1992).

The field reconnaissance survey identified three sites in the study area which contain or potentially contain underground storage tanks (USTs). These sites are shown in Exhibit 3.4 and are described below.

Site 1. This site is an abandoned business located in the west side of SR 1172, about 12.2 meters (40 feet) north of the SR 1172/Canal Avenue intersection. One pump was observed on the premises by NCDOT Geotechnical Unit personnel, and the tank associated with this pump is estimated to hold less than 1,893 liters (500 gallons) (NCDOT, 1992). The tank is located about 35.1 meters (115 feet) from the centerline of SR 1172. No information was available from the Groundwater Section of DEM regarding this site.

Site 2. This site is the Island Grocery, located on the west side of SR 1172, about 13.7 meters (45 feet) south of the SR 1172/NC 179 intersection. Three USTs were observed on the premises by NCDOT Geotechnical Unit personnel, and there is the possibility of a fourth abandoned tank (NCDOT, 1992). The tanks are located approximately 22.9 meters (75 feet) from the existing SR 1172 centerline. No information was available from the Groundwater Section of DWQ regarding this site.

Site 3. This site is Bill's Seafood, located on the east side of SR 1172. Three pumps are located about 10.7 meters (35 feet) south of the SR 1172/NC 179 intersection and 15.2 meters (50 feet) east of the SR 1172 centerline. There are also above-ground tanks located behind the restaurant. No information was available from the Groundwater Section of DWQ regarding this site.

3.2.5 Air Quality

This section is based on the Air Quality Assessment Report prepared for the proposed project (Greiner, Inc., 1994h). The report is incorporated by reference into this EIS.

The project is located within the jurisdiction for air quality of the Wilmington Regional Office of the DEHNR and the US Environmental Protection Agency (EPA).

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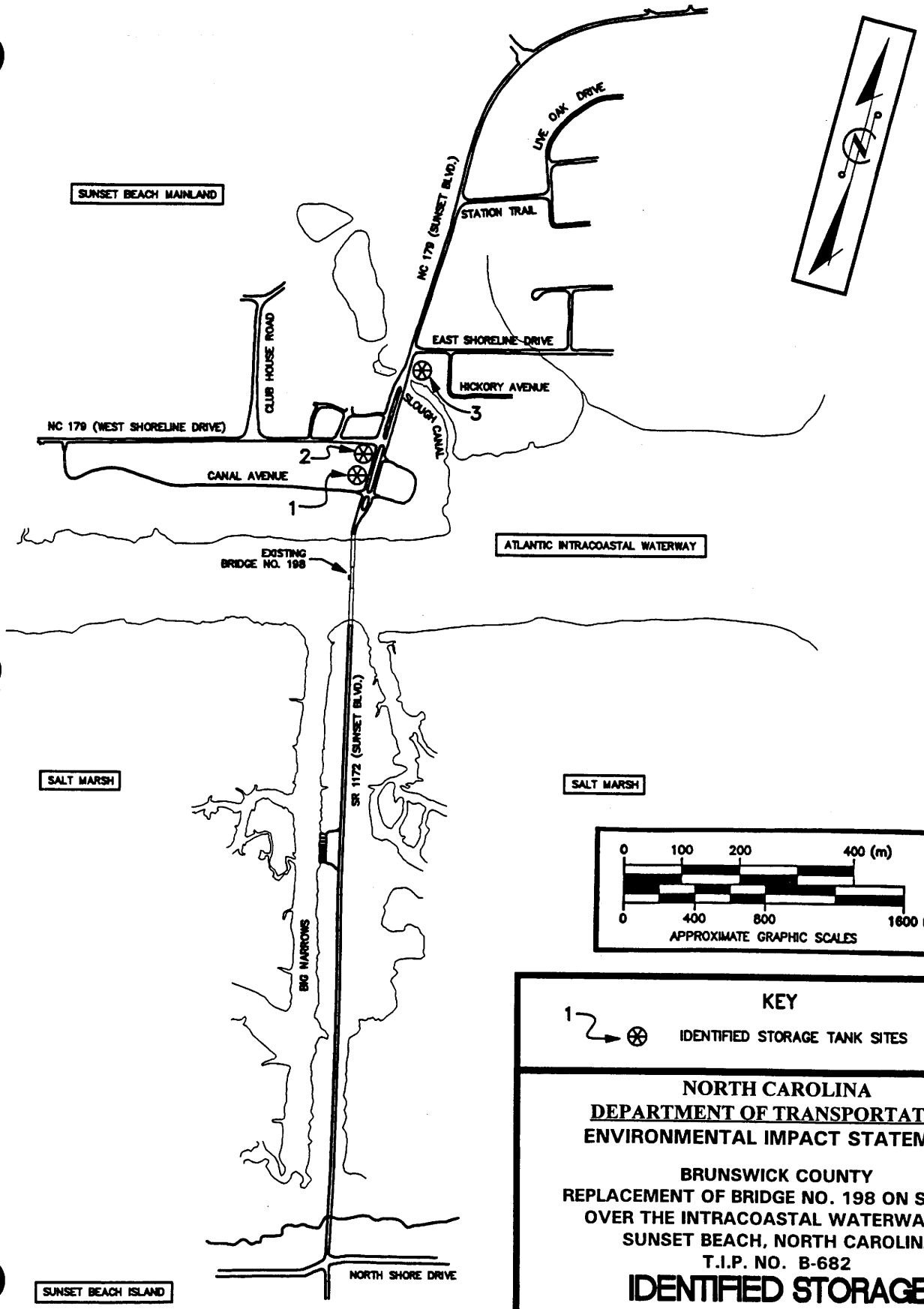

KEY

1 → ⊛ IDENTIFIED STORAGE TANK SITES

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

IDENTIFIED STORAGE TANK SITES

EXHIBIT 3.4

The EPA has established primary and secondary Ambient Air Quality Standards (AAQS) for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM10), and lead (Pb). These standards are listed in Table 3.10. The primary AAQS must "protect the public health with an adequate margin of safety," and the secondary standards must "protect the public welfare from known or anticipated adverse effects (aesthetics, crops, architecture, etc.)" (Federal Clean Air Act 1990: Section 109). The primary standards were established, with a margin of safety, considering long-term exposures for the most sensitive groups in the general population (i.e., children, senior citizens, people with breathing difficulties). The State of North Carolina has also adopted these standards, with some minor differences indicated in Table 3.10.

Monitoring is the most reliable means of determining ambient air quality conditions. The DEHNR Division of Environmental Management operates monitoring stations throughout North Carolina, but there are currently none in Brunswick County (DEHNR, 1994).

In accordance with the Federal 1990 Clean Air Act Amendments, all areas within the state are designated as either in attainment or non-attainment with respect to the AAQS. Areas that meet the AAQS are designated as attainment. Brunswick County has been designated as an attainment area for all six criteria pollutants.

3.2.6 Noise

This section is based on the Noise Impact Assessment Report prepared for the proposed project (Greiner, Inc., 1994i). The report is incorporated by reference into this EIS.

3.2.6.1 Characteristics of Noise

Noise can be defined as any sound that is undesirable. The magnitude of noise is defined by its sound pressure level (SPL), which is related to the ratio of the measured sound pressure over a reference sound pressure. The reference pressure is the pressure of the weakest sound audible to a healthy human hearing system. The resulting quantities from the ratio equation are expressed in terms of decibels (dB) on the SPL scale. A dB is an interval on the SPL scale, with 0 dB as the threshold of hearing and 130 dB as the level which causes pain.

A-weighted sound level quantities often correlate well with the subjective response of people to the magnitude of a sound level. For example, A-weighting takes into account the fact that humans are more sensitive to higher frequency sounds than lower frequency sounds. The term decibel is often abbreviated as dBA, meaning the sound, or noise, levels are A-weighted.

TABLE 3.10

AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	NATIONAL PRIMARY STANDARD*	NATIONAL SECONDARY STANDARD*	NORTH CAROLINA STANDARD*
Ozone	1 Hour[a]	0.12 ppm	Same as primary	0.12 ppm
Carbon Monoxide	8 Hours[b]	9 ppm	None	9 ppm
	1 Hour[b]	35 ppm	None	35 ppm
Sulfur Dioxide	Annual Arithmetic Mean	80 $\mu g/m^3$	None	80 $\mu g/m^3$
	24 Hours[b]	365 $\mu g/m^3$	None	365 $\mu g/m^3$
	3 Hours[b]	None	1300 $\mu g/m^3$	1300 $\mu g/m^3$
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm	Same as primary	0.053 ppm
Particulates < 10 microns	Annual Geometric Mean	50 $\mu g/m^3$	Same as primary	50 $\mu g/m^3$
	24 Hours[a]	150 $\mu g/m^3$	Same as primary	150 $\mu g/m^3$
Lead	Quarterly Arithmetic Mean	1.5 $\mu g/m^3$	Same as primary	1.5 $\mu g/m^3$

* $\mu g/m^3$ = micrograms of pollutant per cubic meter of air
ppm = parts per million

a = Not to be exceeded on more than an average of one day per year.
b = Not to be exceeded more than once per year.

Noise descriptors have been developed to more fully describe the noise environment and its effect on human activities. The most commonly used descriptor for vehicular traffic noise is the equivalent sound level (Leq), which is defined as the steady state sound level that contains the same acoustic energy as the actual time-varying sound level occurring over the same time period. Sound levels in this document are given as Leq for a one-hour time period.

The degree of disturbance experienced due to particular sounds depends on three considerations: (1) the amount and nature of the intruding sound, (2) the relationship between the intruding sound and background noise, and (3) the type of activity occurring when the sound is heard.

Loud noise levels and noise levels which change markedly with time are usually considered more disturbing than constant noise levels. The impulsive noise from a jack hammer or intermittent noise from passing trucks would be more intrusive than the constant noise from a fan or a steady flow of traffic.

With regard to the second factor, the annoyance of a sound can depend on background noise levels. For example, a car horn would be more noticeable in the country than the city because background noise levels would be lower in the country and would be comprised of more natural sounds.

The activity a person is engaged in when a sound is heard can also influence whether the sound is judged to be annoying. For example, a siren sounding at night when people are trying to sleep would be more disturbing than the same siren heard during the day.

3.2.6.2 Existing Noise Levels

Noise monitoring was conducted in the project area by URS Greiner, Inc. (formerly Greiner, Inc.) personnel to measure existing noise levels, identify predominant noise sources, and to validate the computer model used in the noise prediction analysis. The noise monitoring procedures were based on the methodologies contained in the report titled, "Sound Procedures for Measuring Highway Noise" (Federal Highway Administration [FHWA], 1981).

The first step in the noise monitoring program was the identification of Noise Sensitive Areas (NSAs) in the project study area. The NSAs were defined to correspond to existing or future planned residential development likely to be affected by roadway relocations as a result of replacing the existing bridge. Four NSAs were identified in the project study area. These NSAs are shown in Exhibit 3.5 and are described below:

NSA-1. NSA-1 is located in the northeast quadrant of the intersection of NC 179 and East Shoreline Drive. The area contains approximately 30 single-family homes adjacent to NC 179. The topography is flat and distances from NC 179 to receivers in the area vary from 30.5 to 121.9 meters

(100 to 400 feet). The terrain in the area is level and covered with grass and trees. Two office buildings are also located adjacent to NC 179, but these are not considered noise-sensitive areas.

NSA-2. This NSA is located within the Sea Trail Plantation development, in the northwest quadrant of the NC 179/SR 1172 intersection. The area represents about 20 multi-family residential units in two-story buildings near NC 179 (Sunset Boulevard). Topography is flat and setback distances from the roadway vary from 18.3 to 121.9 meters (60 to 400 feet). A fire station, an office building, and a few other businesses, which are not considered noise-sensitive areas, are located adjacent to NC 179.

NSA-3. This NSA is located in the southeast quadrant of the NC 179/East Shoreline Drive intersection. The area represents about 10 single-family homes adjacent to East Shoreline Drive. Topography is the area is flat. Setback distances from East Shoreline Drive to the receivers vary from 18.3 to 121.9 meters (60 to 400 feet). One office building and two restaurants, which are not considered noise-sensitive receivers, are located adjacent to NC 179.

NSA-4. This NSA is located in the southwest quadrant of the NC 179/SR 1172 intersection. The area represents about 10 single-family homes adjacent to NC 179. Topography in the area is flat and setback distances from NC 179 vary from 18.3 to 91.4 meters (60 to 300 feet). One restaurant is located on the east end of the NSA, adjacent to and west of SR 1172.

Noise level measurements were taken on weekdays in July 1994, with a Metrosonics MS-3100 Sound Level Meter. Measurements were conducted during morning and evening peak hour traffic periods from 6-9 a.m. and from 4-7 p.m.. The average travel speed on NC 179 was observed to be approximately 64 kilometers per hour (40 mph). Where possible, traffic counts were also recorded during the monitoring periods.

Noise level measurements were taken at four sites, one in each NSA. These measurement locations are shown in Exhibit 3.5. The results of the monitoring program are presented in Table 3.11. Traffic, human activity, birds, and others contributed to the existing noise environment. As shown in the table, measured noise levels ranged from 48.4 dBA Leq to 57.1 dBA Leq.

For the two measurement sites located near existing roadways, the existing noise levels were modeled using recorded traffic counts as input to the FHWA computer model STAMINA 2.0 (FHWA, 1983). Model results were then compared to the measured noise levels to determine if any adjustments to model output would be necessary when modeling future traffic conditions. Table 3.11 lists the computer model results. As shown in the table, differences between the measured and modeled noise levels are within an acceptable margin of three decibels. No adjustment to future predicted noise levels was necessary. Estimated future noise levels are discussed in Section 4.2.6.2.

TABLE 3.11

NOISE MONITORING DATA SUMMARY

NSA	Receiver Location	Measured Noise Level (dBA Leq)[1]	Offset Distance m (ft)	Traffic Volume[2]			Modeled Noise Level (dBA Leq)	Difference Between Measured and Modeled Noise Levels
				Cars	Medium Trucks	Heavy Trucks		
1	111 Live Oak Drive	51.7	40.5 (133)	236	4	4	52.3	0.6
2	Golf Course	55.0	29.3 (96)	236	4	4	56.1	1.1
3	107 Hickory Avenue	48.4	29.9 (98)	--	--	--	NA[3]	--
4	201 Canal Drive	57.1	106.7 (350)	--	--	--	NA[3]	--

Source: Greiner, Inc., 1994i.

1. This column includes the noise levels measured during the evening peak periods, which were higher than the levels recorded during the morning peak periods.

2. Traffic volumes were recorded during both the morning and evening peak periods at the same time noise measurements were taken. The volumes shown are for both directions of travel.

3. No calibration data is available because traffic was not the only source of noise occurring on the site during the measurement periods.

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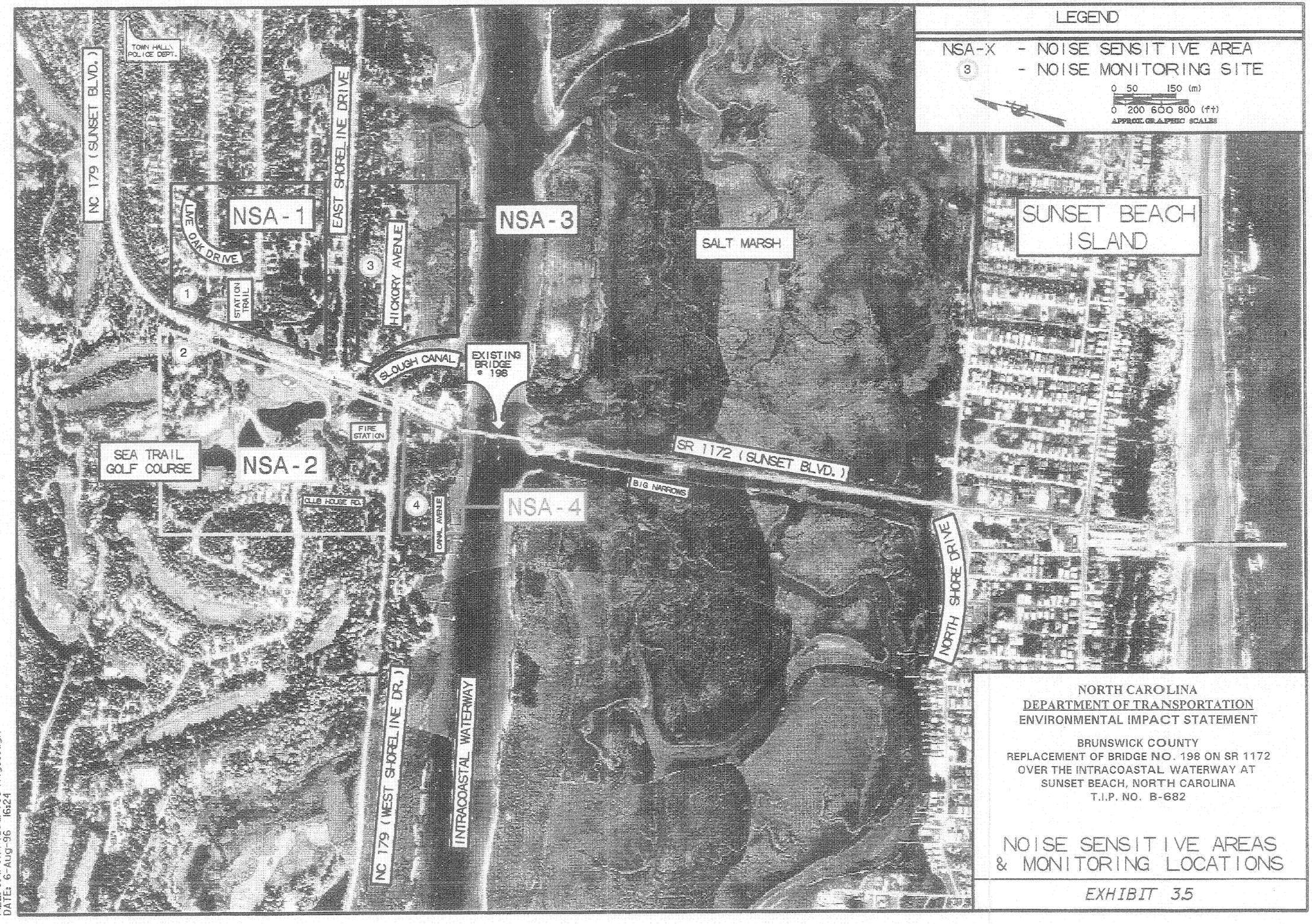

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

NOISE SENSITIVE AREAS & MONITORING LOCATIONS

EXHIBIT 3.5

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3.3 EXISTING NATURAL ENVIRONMENT

This section is based on the Natural Resources Technical Memorandum (Greiner, Inc., 1994g) and its addendum (Greiner, Inc., 1996c) prepared for the project, which are incorporated by reference into this Environmental Impact Statement (EIS).

3.3.1 Biotic Communities

Exhibits 3.6 and 3.7 show the biotic communities present within the study area and on the barrier island of Sunset Beach. Appendix E includes a list of flora identified in the study area (Part I) and a list of identified and potentially occurring fauna (Part II).

3.3.1.1 Survey Methodology

Information on natural resources was gathered by: review of aerial photographs, soil surveys, and topographic maps; site reviews; personal communication with federal, state, and local agency personnel; and a compilation of numerous journal articles and published literature.

The area investigated for natural resources includes the project study area (mainland, AIWW, island causeway, and salt marsh) and the barrier island of Sunset Beach. The barrier island was evaluated due to the potential for secondary impacts to the natural environment. However, since the barrier island is outside the limits of the project study area (see Exhibit 1.2), it is not included in the quantification of direct impact acreages.

A field survey of the study area was conducted on October 13, and 14, 1993. Prior to the field survey, all potential wetland boundaries within the project study area and barrier island were identified by reviewing National Wetlands Inventory (NWI) maps, Natural Resources Conservation Service (formerly Soil Conservation Service) Soil Surveys, United States Geological Survey (USGS) topographic maps, and aerial photographs. Wetlands were identified in the field utilizing the three-parameter approach outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (US Army Corps of Engineers (COE), 1987). The three parameters analyzed were vegetation, soils, and hydrology. Wetland and upland systems within the study area were classified according to the "Classification of the Natural Communities of North Carolina, Third Approximation" (North Carolina Natural Heritage Program (NHP), 1990). Wetland community descriptions also include the US Fish and Wildlife Service (USFWS) Classification, which is based on the publication "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin, *et.al.*, 1979).

Vegetative communities were analyzed for species composition. If any area had greater than 50 percent hydrophytic vegetation under normal circumstances, the vegetation parameter was assumed to be met. Soil samples taken in the field were compared with a Munsell Soil Color Chart to

determine soil color. Wetland hydrological characteristics observed in the field include: the presence of water, oxidized root channels, soil saturation, water marks, drift lines, sediment deposition; and morphological plant adaptations such as shallow roots, multiple tree trunks, and adventitious roots.

Consultation with the US Fish and Wildlife Service (USFWS), the North Carolina Wildlife Resource Commission (NCWRC), and the NHP (NHP), has indicated that there is the potential for federally- and/or state-listed endangered or threatened species to occur in the study area. A review of published literature provided a basis for the evaluation of potential impacts to plant and animal species within the project study area and barrier island.

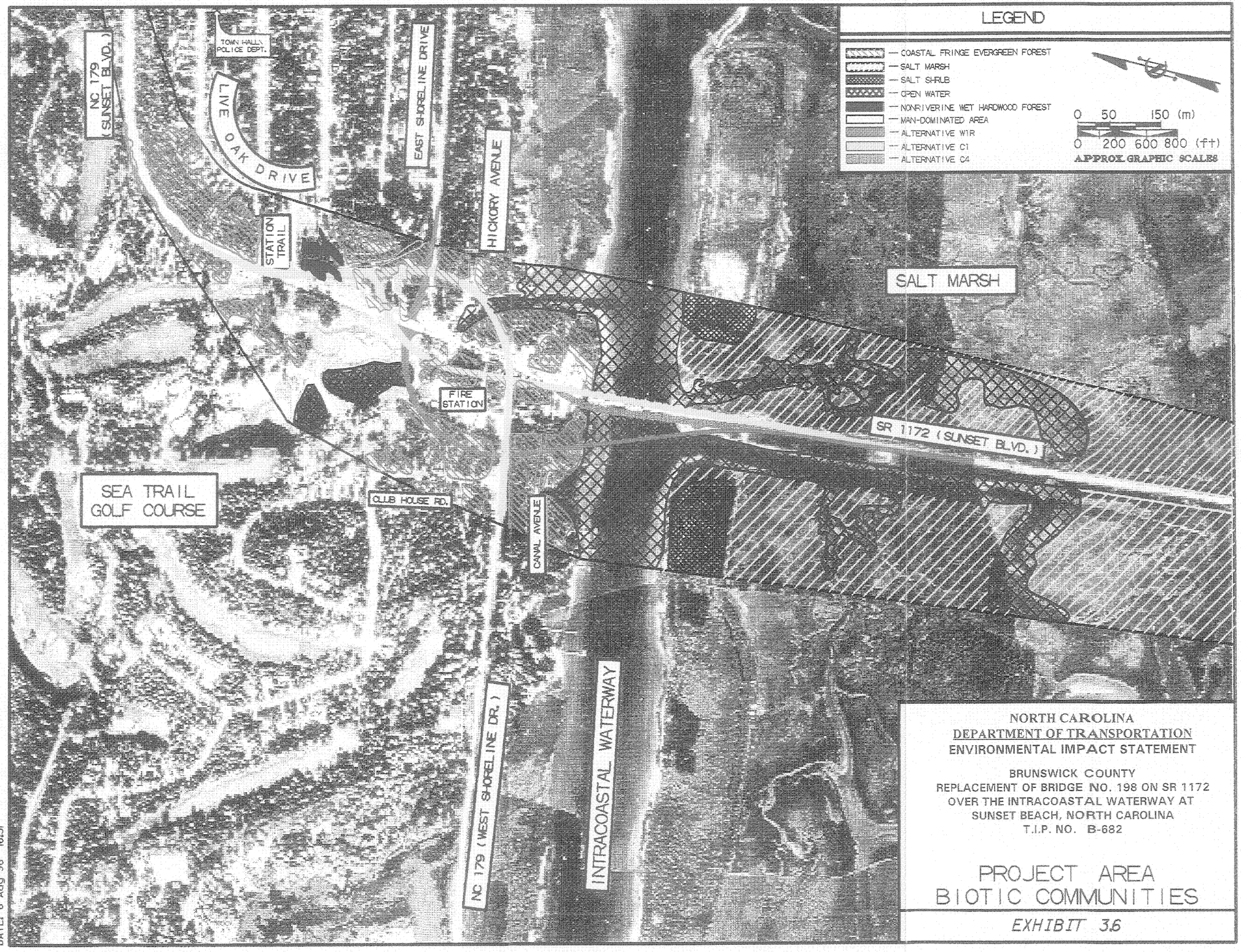
3.3.1.2 Upland Natural Systems

Exhibits 3.6 and 3.7 show the biotic communities within the project study area and on the Sunset Beach barrier island. Upland communities, including man-dominated areas, comprise approximately 43 percent of the study area. On the mainland, much of the area's historic upland habitats have been developed (Greiner, Inc., 1994g:7). The remaining undeveloped uplands are comprised largely of a remnant coastal fringe evergreen forest. Upland communities on the barrier island include upper beach, dune grass, and maritime shrub. Mainland and barrier island upland communities are described in more detail below.

Project Study Area Upland Communities. Coastal fringe evergreen forest is the only natural upland community found on the mainland in the project area. This community is generally a mesic forest found on flat to low hills near the mainland coast. The NHP has identified coastal fringe evergreen forest as a natural community with a state rank of S1, according to the Nature Conservancy's rating system. A state rank of S1 means the natural community is critically imperiled in the state because of extreme rarity or otherwise very vulnerable to extinction (NHP, 1996).

The canopy of the coastal fringe evergreen forest is dominated by loblolly pine (*Pinus taeda*), live oak (*Quercus virginiana*), and laurel oak (*Quercus laurifolia*). The understory is dominated by yaupon holly (*Ilex vomitoria*), sassafras (*Sassafras albidum*), and red bay (*Persea borbonia*). Ground cover is sparse and low in diversity. However, a few vines such as green brier (*Smilax* sp.) and wild grape (*Vitis* sp.) were observed.

At the northern end of the proposed project, woody successional species have established in areas that have been recently cleared. Ragweed (*Ambrosia artemisiifolia*), dog fennel (*Eupatorium* spp.), elderberry (*Sambucus canadensis*), various grapes, milkweeds (*Asclepias* spp.), brier (*Smilax* sp.), and various grasses and sedges (*Poa* spp. and *Cyperus*) were identified.



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PROJECT AREA BIOTIC COMMUNITIES

EXHIBIT 3.6

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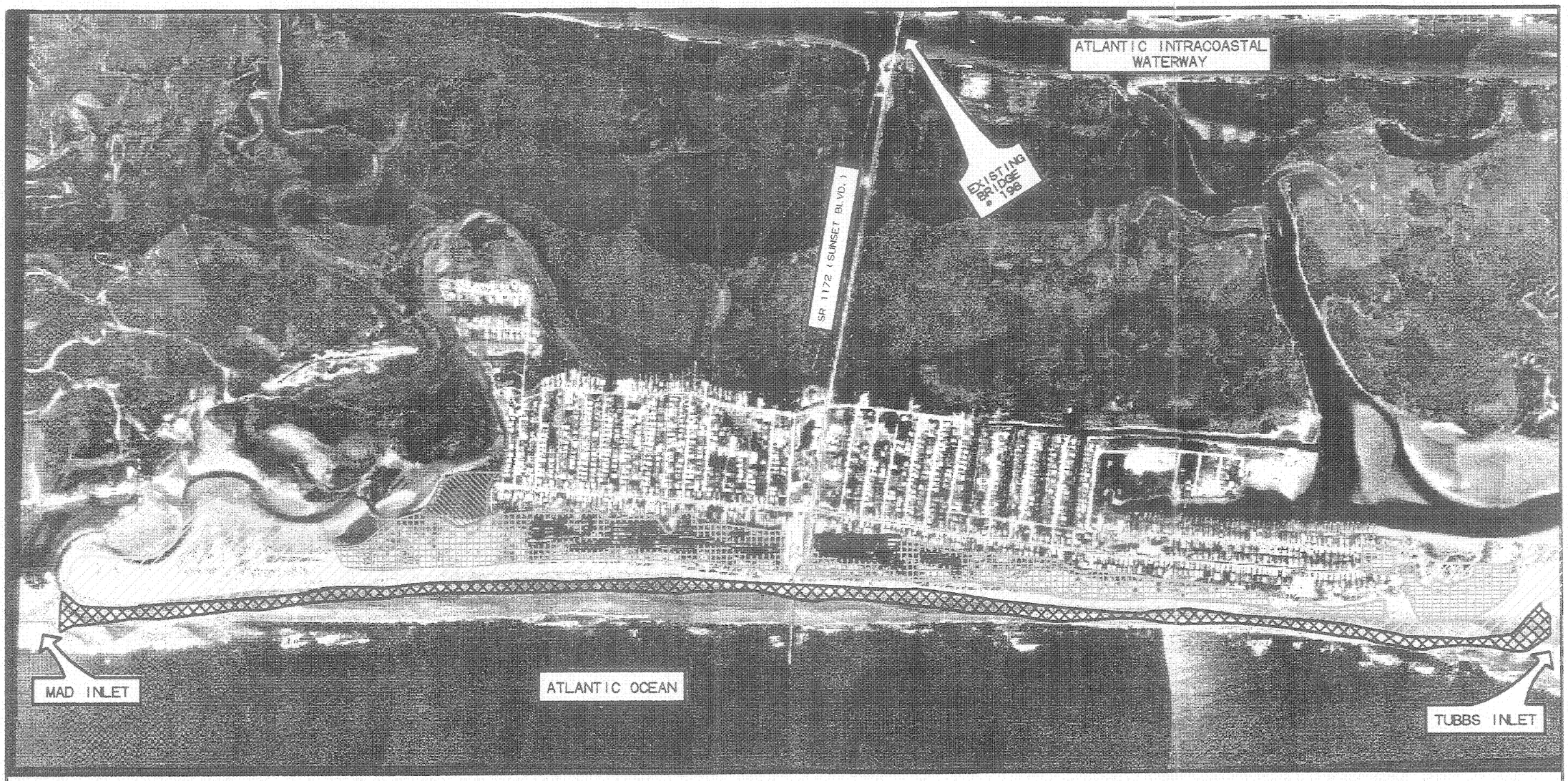

LEGEND

- UPPER BEACH
- LOWER BEACH
- SALT MARSH
- DUNE GRASS
- MARITIME SHRUB

0 100 300 (m)
0 400 800 1200 (ft)
APPROX. GRAPHIC SCALES

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BARRIER ISLAND BIOTIC COMMUNITIES

EXHIBIT 3.7

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The coastal fringe evergreen forest supports a limited number of animals, including the eastern gray squirrel (*Sciurus carolinensis*), pileated woodpecker (*Drycopus pileatus*), and eastern screech owl (*Otus asio*) (Greiner, Inc., 1994g:10).

Barrier Island Upland Communities. The barrier island of Sunset Beach is outside the project study area limits (see Exhibit 3.7). However, it has been speculated that if the existing bridge is replaced, secondary impacts could occur to the barrier island's natural environment. Therefore, descriptions of the barrier island's three natural communities (upper beach, dune grass, and maritime shrub) are provided below.

The upper beach community occurs oceanward of the primary dunes. It is frequently inundated by high spring tides and storm tides. According to levels of disturbance, it is sparsely vegetated with beach morning glory (*Ipomoea imperati*), seashore purslane (*Sesuvium portulacastrum*), and bitter panicum (*Panicum amarum*). This community has the ability to quickly succeed to the dune grass community if protected from severe disturbance (Greiner, Inc., 1994g:11).

The dune grass community is found landward from the upper beach community. This community occurs on coarse shifting or recently stabilized sands. Excessively drained sandy soils with generally high amounts of salt spray support the primary dune community, which is dominated by sea oats (*Uniola paniculata*), saltmeadow cordgrass (*Spartina patens*), and seashore elder (*Iva imbricata*) (Greiner, Inc., 1994g:11).

The maritime shrub community is found landward of the primary dunes. The NHP had identified maritime shrub as a natural community with a state rank of S3 and a global rank of G4, according to the Nature Conservancy's rating system. A state rank of S3 means the natural community is either very rare in the state, or found locally in a restricted area. A global rank of G4 means that the community is apparently secure globally, although it may be quite rare in parts of its range (NHP, 1996).

Maritime shrub is typical of a secondary dune community and is comprised of a variety of species of ground cover dominated by saltmeadow cordgrass, pennywort (*Hydrocotyle bonariensis*), and goldenrod (*Solidago* spp.). The maritime shrub community has been known to become temporarily disturbed or permanently converted to other community types by sand dune migration, erosion, and/or an increase in salt spray disturbance. Artificial dune building by snow fences and Christmas tree barricades has led to the development of a continuous line of high dunes. This, in turn, has made the communities specific to the barrier island difficult to distinguish from one another (Greiner, Inc., 1994g:12).

3.3.1.3 Wetlands/Surface Water Communities

A limited variety of wetland community types are found within the project study area. Typically, they support a varied population of aquatic animals, including oysters, shrimp, more than 75 species of fish, and numerous aquatic birds such as ducks, geese, herons, egrets, and wood storks (Greiner, Inc., 1994g:12). Wetland communities within the project study area include: nonriverine wet hardwood forest, salt marsh, salt shrub, and surface waters (see Exhibit 3.6). On the barrier island, wetland communities include: lower beach and salt marsh (see Exhibit 3.7). These communities are described in more detail below. There is no submerged aquatic vegetation (SAV) within the study corridors.

Project Study Area Wetland Communities. The nonriverine wet hardwood forest community is dominated by Carolina willow (*Salix caroliniana*), loblolly pine, tulip poplar *(Liriodendron tulipifera*), and sweetgum (*Liquidamber styraciflua*). Although the community has been impacted severely by development, the nonriverine wet hardwood forest provides a source of cover and a feeding area for reptiles, amphibians, birds, and mammals. In addition, this community type provides flood volume storage through the detention of water, and provides cycling of nutrients and retention of pollutants from adjacent upland area. The USFWS classification for this wetland type is PF01C (Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded) (Greiner, Inc., 1994g:13).

Extensive estuarine wetlands (salt marshes) dominated by smooth cordgrass (*Spartina alterniflora*) are located in the intertidal areas between the barrier island and the mainland, east and west of the existing island causeway (Secondary Road (SR) 1172). The salt marsh is a highly productive system which provides a feeding area, cover, and a nursery for a variety of animals. Invertebrates and fish utilize the marsh as a nursery area because of its high productivity (food source) and dense cover, which acts as a barrier from predators. Multiple birds and mammals also utilize the salt marsh as a feeding area. The USFWS classification for this wetland is E2EM1N (Estuarine, Intertidal, Emergent, Persistent, Regularly Flooded) (Greiner, Inc., 1994g:13).

The salt shrub community is located on dredged spoil piles in areas east and west of the island causeway (SR 1172), south of the AIWW. These upland margins are intermittently flooded or saturated. The salt shrub communities serve as a form of shoreline protection in cases of storm events. In addition, many passerine birds use the shrubs for nesting, roosting, and feeding. The vegetation is dominated by marsh elder (*Iva frutescens*), groundsel tree (*Baccharis halimfolia*), wax myrtle (*Myrica cerifera*), and seaside oxeye (*Borrichia frutescens*). The USFWS classification for this wetland is E2EM1P (Estuarine, Intertidal, Emergent, Persistent, Irregularly Flooded) (Greiner, Inc., 1994g:13).

Within the project study area, the surface water community type applies to the salt waters of the AIWW and numerous tidal creeks, and the fresh waters of one excavated pond. The saltwater and

freshwater areas function as both nursery and feeding grounds for a variety of fish and invertebrates. Reptiles, amphibians, birds, and mammals use these areas for feeding and reproduction. With respect to water quality, the sediments within these areas provide a sink for many nutrients which are utilized by the benthic community. The freshwater areas may also function as a means of groundwater recharge. The USFWS classification for saltwater systems located within the AIWW is E1UB (Estuarine, Subtidal, Unconsolidated Bottom) and E2USN (Estuarine, Intertidal, Unconsolidated Shore, Regularly Flooded). The one excavated freshwater pond is located in a former coastal fringe evergreen forest that has been developed as a golf course (Sea Trail Plantation). The pond area is dominated by cattail (*Typha* sp.) on the outer edge. The USFWS classification for this system is PEM1Fh (Palustrine, Emergent, Persistent, Semi-Permanently Flooded Diked/Impoundment).

Barrier Island Wetland Communities. Since there is the potential for secondary impacts, descriptions of barrier island natural communities are included in this section even though the barrier island is outside the project study area. The wetland communities present on the barrier island include lower beach and salt marsh.

The lower beach community is seaward of the upper beach community, in the intertidal zone on the ocean side of the barrier island. The USFWS classification for this area is M2USN (Marine, Intertidal, Unconsolidated Shore, Regularly Flooded). This community supports a diverse number of invertebrate animals, but no vascular plants.

The salt marsh community is an estuarine wetland located in the intertidal areas on the landward side of the barrier island. It is part of the same salt marsh that is within the project study area (see Exhibit 3.6). The USFWS classification for this wetland is E2EM1N (Estuarine, Intertidal, Emergent, Persistent, Regularly Flooded) (Greiner, Inc., 1994g:13).

3.3.2 Wildlife

3.3.2.1 Terrestrial Communities

Wildlife observations were conducted during the biotic community field surveys. Additionally, a list of wildlife species known or expected to occur in Brunswick County (but not necessarily in the study area) is included in Appendix E, Part II.

The coastal fringe evergreen and nonriverine wet hardwood forest communities located on the mainland support a limited population of wildlife due to development and habitat fragmentation. However, the extensive salt marsh, salt shrub, and surface water communities within the project study area support numerous mammals, birds, reptiles, amphibians, and invertebrates.

3.3.2.2 Aquatic Communities

The AIWW, sounds, and creeks around Sunset Beach support a wide variety of invertebrates commonly found in warm bodies of water. Invertebrates which typically inhabit this area include hard clams (*Mercenaria mercenaria*), blue crabs (*Callinectes* spp.), oyster (*Crassostrea virginica*), and various shrimp. A detailed macro-invertebrate survey was not conducted for this project. However, a list of species that occur in Brunswick County is included in Appendix E, Part II.

3.3.2.3 Fisheries Resources

Commercial Fisheries. Commercial fishing is a vital part of the Brunswick County economy. According to the NC Division of Marine Fisheries (NCDMF), commercial fisheries in Brunswick County had a total annual catch averaging about 2.5 million pounds for the period 1983 to 1995 (Greiner, Inc., 1996c:8). This annual catch, which includes finfish and shellfish, has provided an annual payment averaging $1.6 million for finfish landings and $2.1 million for shellfish landings.

Within the project study area, commercial fishing boats use Slough Canal to deliver their catches to Bill's Seafood, located at the upper end of the canal. Slough Canal is maintained by the owner of Bill's Seafood for this purpose.

The AIWW, sounds, and creeks around Sunset Beach support a large variety of commercial fish species. It is likely that the small creeks and sounds also provide foraging and spawning habitat for a number of commercially important finfish. The salt marsh areas along the Sunset Beach island causeway (SR 1172) and the AIWW have been designated as Primary Nursery Areas (PNAs) by the NCDMF. Unfortunately, most of the Sunset Beach area is closed to shellfish harvesting due to elevated levels of fecal coliform bacteria. In areas not closed to shellfish harvesting, shrimp, blue crab, oysters, and clams can be gathered.

Of particular commercial importance in this area are the summer flounder *(Paralich thysnospace dentatus)*, spotted sea trout *(Cynoscion nebulosus)*, spot *(Leiostomus xanthurus)*, shrimp (*Penaeus* sp.), and blue crab (*Callinectes sapidus)*. Habitats and seasonal population variations of these species are described in detail below.

Summer flounder *(Paralichthys dentatus)*: Summer flounder or fluke are commonly found in estuarine bays and shallow coastal waters from Cape Cod to the southeast coast of Florida. They prefer open water areas with sand or sandy mud bottoms and a salinity less than 10 parts per thousand (ppt).

Adult summer flounder feed on crustaceans, mollusks and fish. Juveniles mainly feed on zooplankton. Striped bass (*Morone saxatilis*), bluefish (*Pomatomus saltatrix*), and other larger fish species prey upon the summer flounder.

Adult flounder migrate offshore to spawn in the late fall and winter months, usually October to March. They spawn near the bottom of shelf waters at depths of 30-200 meters (98-656 feet). The larvae are then transported by the currents to estuarine nursery areas. The juveniles distribute amongst the grass beds and tidal marsh creeks. As yearlings, they move to the ocean in the summer and return as adults to estuaries and coastal waters in the winter and spring. The salt marsh and surface waters within the project area are important nursery habitats for post-larval and juvenile summer flounder.

Spotted sea trout (*Cynoscion nebulosus*): Spotted sea trout or speck are commonly found in coastal and non-barrier shoreline waters. They prefer brackish, shallow water with extensive grass beds, adjacent to deep waters (3-6 meters [10-20 feet]). Deep open waters are sometimes used as a refuge from cold and during the low tides of winter. The seatrout has a wide range of tolerance to salinity but prefers waters of 15-34 ppt.

Adult spotted sea trout feed infrequently, once or twice a week, preferring fish, but they will also eat shrimp and crabs.

Adults spawn when salinity and temperature rise in late spring through early fall in low salinity portions of estuaries and coastal bays, in or near deeper channels adjacent to grass flats. The larvae collect in shallow vegetation and grass beds until, as adults, they move offshore to deeper waters in winter months. The salt marsh and surface waters within the project area are important to the spotted seatrout for foraging, spawning, and nursery habitat.

Spot (*Leiostomus xanthurus*): Spot or flat croaker are commonly found in estuarine and coastal waters from Cape Cod to Mexico. They prefer mud or sand bottoms and have been found at salinities of 0-60 ppt and temperatures from 8-31°C.

Adult spot are bottom feeders that prefer polychaetes, copepods, nematodes, and annelids. Juveniles mainly feed on plankton and later amphipods and polychaetes. The spotted seatrout is a primary predator of the spot.

Adult spot frequently migrate offshore to spawn in the late fall and winter months (October - March). The larvae tend to be most abundant in mid-water, along the bottom during the day and the surface at night. Tidal transport carries them into tidal creeks and marshes where they later metamorphose to juveniles about mid-December to mid-April. The salt marsh and surface waters within the project area are important for foraging and as nursery habitats for post-larval and juvenile spot.

Shrimp (*Penaeus* sp.): Shrimp are commonly found in coastal waters along the Atlantic coast in loose peat or sandy mud substrate. They can tolerate wide ranges of salinity (2-40 ppt) and temperature (15-32°C). However, they are adversely affected by sudden changes in salinity and/or temperature.

Shrimp are omnivorous and prefer a diet ranging from detritus to small invertebrates and fish. Carnivorous fish and crustaceans prey upon the shrimp.

Adults spawn offshore during most of the year at depths greater than 18 meters (59 feet). Ocean currents carry larvae inshore to coastal areas during late winter and early spring. When temperatures climb above 11°C, post-larvae begin to move into estuaries with the tides and later migrate to marsh grass communities between March and June. The post-larvae utilize the estuarine nursery grounds from March through July to metamorphose into juveniles. As they grow, they move to deeper, more saline waters to mature. Although growth rates are dependant upon temperature, salinity, and food availability, most reach sexual maturity by fall. The salt marsh and surfacc waters within the project area are important nursery habitats for larvae and post-larvae shrimp.

Blue crab (*Callinectes sapidus*): Blue crabs are commonly found in coastal waters, bays, and estuaries along the Atlantic coast in soft detritus, mud or mud-shell bottoms. They prefer shallow estuarine water and can tolerate a wide range of temperature and salinity but require at least 20-30°C and 10-30 ppt for proper larval development.

Mating season of blue crabs occurs from May through October in low-salinity waters, in the upper reaches of estuaries. The females then migrate to the lower ends of the estuaries and bays where salinity is higher. Approximately two to nine months after mating, the females release planktonic larvae, which drift out to sea where they feed and develop into juveniles. The juveniles then migrate to shallower, less saline water in the upper reaches of estuaries and tributaries. Generally, juveniles reach maturity during the spring/summer following the year of hatching.

Blue crabs through various stages of their life cycle serve as both predator and prey of plankton, small invertebrates, crustaceans, and fish.

Most blue crabs migrate to deep, warmer waters in the winter months and then return to tidal creeks, marshes, and sounds when temperatures rise in the summer. However, females tend to remain in the spawning areas for the duration of their lives with some instances of movement of short distances out to sea. The salt marsh and surface waters within the project area are important habitat for foraging, spawning, and as nursery grounds of the blue crab.

Recreational Fisheries. Recreational fishing data for the Sunset Beach area are limited. The NCDMF conducted an on-shore survey of recreational fisherman in Brunswick County during 1993. Table 3.12 lists the types of fish mentioned by those surveyed and how frequently the fish were

TABLE 3.12

TARGET SPECIES OF BRUNSWICK COUNTY RECREATIONAL FISHERMEN IN 1993

FISH SPECIES	FREQUENCY OF CATCH	PERCENT OF TOTAL CATCH
Spot	39	45.9
King Mackerel	15	17.6
Bluefish	10	11.8
Flounders, Paral	5	5.9
Spanish Mackerel	5	5.9
Spotted Seatrout	5	5.9
Sheepshead	4	4.7
Banded Drum	1	1.2
Kingfishes	1	1.2

Source: NC Division of Marine Fisheries 1993 on-shore survey of recreational fishermen in Brunswick County.

caught. A majority of the species targeted by recreational fishermen are also targeted by commercial fishermen. These species include: bluefish (*Pomatomus saltatrix*), spotted seatrout (*Cynoscion nebulosus*), flounder (*Paralichthys* spp.), kingfishes (*Menticirrhus* spp.), and mackerel (*Scomberomorus* spp.).

3.3.3 Federally-Protected Species

In accordance with Section 7 of the Endangered Species Act of 1973, as amended, the project study area and the barrier island were evaluated for the potential occurrences of federal threatened and endangered species. These areas were also evaluated for the potential occurrences of state-listed threatened and endangered species. Informal consultation was held with the USFWS and the NHP regarding the identification of threatened and endangered species which could occur within the project study area and barrier island (Greiner, Inc., 1994g:23).

The USFWS provided a revised list of threatened and endangered species for Brunswick County (USFWS, 1996a [dated August 23, 1996]). Plants and animals federally classified as Endangered, Proposed Endangered, Threatened, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended.

Table 3.13 presents the federally-listed threatened and endangered plant and animal species for Brunswick County, their classification status, habitat preferences, availability of preferred habitat within the study area, and likelihood of occurrence in the study area. The basis for this table includes the local occurrence of various habitats, sightings of the species in the field, and/or signs of species (calls, scat, tracks, etc.). Only natural systems were considered as potential habitat due to the highly altered character of man-dominated areas in the project vicinity. Likelihood of occurrence in the study area was rated as marginal, low, moderate, or high. A "marginal" rating means that a species preferred habitat is not present in the study area and it is unlikely that the species is present in the area. A "low" rating means that a single habitat community is present in the area which could support the subject species. A "moderate" rating means that multiple community types are present in the study area which could support the subject species. A "high" rating means that the species or its sign have been observed in the study area.

3.3.3.1 Plants

As shown in Table 3.13, there are three federally endangered or threatened plant species potentially occurring in Brunswick County: the federally-threatened sea beach amaranth (*Amaranthus pumilis*), the federally-endangered rough-leaved loosestrife (*Lysimachia asperulaefolia*), and the federally-endangered Cooley's meadowrue (*Thalictrum cooleyi*).

TABLE 3.13

FEDERALLY-PROTECTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

PROTECTED SPECIES	FEDERAL STATUS IN COUNTY[1]	STATE STATUS IN COUNTY[1]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[2]	ON-SITE HABITAT CLASSIFICATION[3]
PLANTS					
Amaranthus pumilis (Sea beach amaranth)	T	T	Ocean Beaches and island end flats.	High: Present within study area.	Upper beach and dune grass.
Lysimachia asperulaefolia (Rough-leaved loosestrife)	E	E	Pocosins.	Marginal: Preferred habitat is not present within study area.	--
Thalictrum cooleyi (Cooley's meadowrue)	E	E	Savannas.	Marginal: Preferred habitat is not present within study area.	--
FISH					
Acipenser brevirostrum (Shortnose sturgeon)	E	E	Brackish water of large rivers and estuaries; rarely in freshwater rivers.	Low: Single community type present within study area.	Surface water.
REPTILES					
Caretta caretta (Loggerhead sea turtle)	T	T	Nests on beaches and forages in oceans and sounds.	Moderate: Multiple community types present within study area.	Surface water, upper beach.
Chelonia mydas (Green sea turtle)	T	T	Nests on beaches and forages in oceans and sounds.	Moderate: Multiple community types present within study area.	Surface water, upper beach.
Dermochelys coriacea (Leatherback sea turtle)	E	E	Nests on beaches and forages in oceans; rarely in sounds.	Moderate: Multiple community types present within study area.	Surface water, upper beach.
Lepidochelys kempii (Kemp's ridley sea turtle)	E	E	Inhabits oceans and sounds.	Low: Single community type present within study area.	Surface water.

TABLE 3.13 (Continued)

FEDERALLY-PROTECTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

PROTECTED SPECIES	FEDERAL STATUS IN COUNTY[1]	STATE STATUS IN COUNTY[1]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[2]	ON-SITE HABITAT CLASSIFICATION[3]
BIRDS					
Charadrius melodus (Piping plover)	T	T	Breeds on ocean beaches and island end flats.	Moderate: Multiple community types present within study area.	Upper beach and dune grass.
Falco peregrinus (Peregrine falcon)	E	E	Nests in cliffs and forages in coastal ponds and mudflats	Moderate: May occur as a fall transient or winter resident.	Salt marsh, surface water, upper beach.
Haliaectus leucocephalus (Bald eagle)	T	E	Coastal areas, rivers, and lakes.	Moderate: Multiple community types present within study area.	Coastal fringe evergreen forest, salt shrub, surface water, salt marsh.
Mycteria americana (Wood stork)	E	E	Marshes, swamps, and lagoons.	High: Present within study area.	Salt marsh, surface water, upper beach.
Picoides borealis (Red-cockaded woodpecker)	E	E	Breeds in mature open pine.	Marginal: Preferred habitat is not present within study area.	--
MAMMALS					
Felis concolor couguar (Eastern cougar)	E	E	Inhabits remote areas and requires extensive forested systems.	Marginal: It is considered to be extirpated from North Carolina and is highly unlikely to be found in the study area.	--
Trichechus manatus (West Indian manatee)	E	E	Inhabits warm waters of estuaries and river mouths.	Marginal: It is unlikely that this species would migrate as far north as the project site.	Surface water.

1. STATUS: Federal: E = Endangered T = Threatened State: E = Endangered T = Threatened
2. Study area includes the project study area and the barrier island.
3. North Carolina Natural Heritage Program, Classification of the Natural Communities of NC, Third Approximation. 1990.

Sources: North Carolina Natural Heritage Program (NC Natural Heritage Program)

1995a Natural Heritage Program List of the Rare Animal Species of North Carolina. Compiled by H. LeGrand, Jr. and S. Hall. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation: Raleigh, N.C..

1995b Natural Heritage Program List of the Rare Plant Species of North Carolina. Compiled by J. Amoroso and A. Weakley. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation: Raleigh, N.C..

1996 Natural Heritage Program Element List. July 9.

1996 Endangered, Threatened, and Candidate species and Federal Species of Concern by County in North Carolina. U.S. Fish and Wildlife Service. August 23.

No protected plants have preferred habitat in the project study area. The seabeach amaranth has preferred habitat on the barrier island. During the field surveys, this plant was found on the eastern section of the barrier island, outside the project study area.

3.3.3.2 Fish

The shortnose sturgeon (*Acipenser brevirostrum*) is a federally-listed endangered species. Habitat within the project study area has the potential for providing foraging areas for sub-adult and adult shortnose sturgeon. This species is a bottom dwelling, anadromous fish which frequents the brackish water of large rivers and estuaries along the east coast of North America. The sturgeon generally prefers low salinity water at depths up to 10-30 meters (33-98 feet) in winter and 2-10 meters (7-33 feet) in summer.

Juveniles feed on benthic crustaceans and insect larvae. Adults feed on gastropods found on plant surfaces, as well as polychaetes, and small benthic fish. The sturgeon will root along the bottom picking up large amounts of nonfood materials (i.e., mud). They feed mostly at night or on windy days when turbidity is high and light penetration is low.

Shortnose sturgeon migrate upstream during winter where they spawn sometime in late winter and spring. Spawning occurs in regions of fast flowing brackish or freshwater as deep as three meters (10 feet) over small rubble or gravel bottoms and temperatures between 9-12°C. The juveniles and non-spawning adults are usually confined to estuarine and riverine environments and do not move out to sea. The shortnose sturgeon are reliant on salt marsh and surface water areas for foraging and as nursery habitats for juvenile sturgeon. Although it is highly unlikely that the waters in the Sunset Beach area are utilized for spawning by the shortnose sturgeon, the waters in the vicinity of the Sunset Beach Bridge could be used by sub-adults and adults as foraging grounds. (Greiner, Inc., 1996b).

3.3.3.3 Reptiles, Amphibians, and Invertebrates

There are no federally-listed threatened or endangered amphibians or invertebrates potentially occurring in the project study area. Four reptiles listed as threatened or endangered may be found within the surface waters of the project study area or on the barrier island. The leatherback sea turtle (*Dermochelys coriacea*) and Kemp's ridley sea turtle (*Lepidochelys kempii*) are federally-listed as endangered. The loggerhead sea turtle *(Caretta caretta*) and the green sea turtle (*Chelonia mydas*) are federally-listed as threatened.

The leatherback sea turtle is the largest of all marine sea turtles and has a wide range of occurrence. It nests on beaches and its principal food source is jellyfish. Nesting habitat is available on the Sunset Beach barrier island. Mature Kemp's ridley sea turtles are restricted to the Gulf of Mexico,

while immature specimens have been collected along the North American coast. The project study area has potential habitat for this species.

Loggerhead sea turtles are found in temperate and subtropical waters worldwide. Loggerheads have been observed nesting on the oceanside beaches of the Sunset Beach barrier island. The North Carolina Wildlife Resources Commission and Non-Game and Endangered Wildlife Program confirmed twelve loggerhead turtle nests in 1990, five nests in 1991, and seven nests in 1992. Brunswick County Parks and Recreation Department reported eight loggerhead nests for 1993 and 19 nests for 1994 (Brunswick County, 1995a).

The green sea turtle is primarily a herbivore. It migrates extensively to find feeding areas, often distant from nesting beaches. The project study area and barrier island contain suitable nesting areas for this species, but the probability of its occurrence is low.

3.3.3.4 Birds

Based on literature review and agency contacts, four of the five bird species listed in Table 3.13 as federally-threatened or endangered for Brunswick County have the potential to occur in the project study area or on the barrier island. The four threatened or endangered bird species include: peregrine falcon (*Falco peregrinus*), bald eagle (*Haliaectus leucocephalus*), wood stork (*Mycteria americana*), and piping plover (*Charadrius melodus*). The red-cockaded woodpecker (*Picoides borealis*) prefers mature open pine forests, which are not present in the project study area or on the barrier island.

The federally-endangered peregrine falcon rarely breeds in North Carolina, but it may occur in the Sunset Beach area as a fall transient or a winter resident.

The federally-threatened bald eagle nests in mature forests near large bodies of water. Habitat is available in the project study area, but no bald eagle nests have been recorded.

The federally-endangered wood stork resides along the coast in wetland areas. Records indicate that the wood stork feeds within the project study area tidal marshes.

The federally-threatened piping plover has been observed using the sand spit areas at the eastern and western ends of the barrier island for feeding, nesting, and wintering.

3.3.3.5 Mammals

There is potential habitat in the project study area for the federally-endangered West Indian manatee (*Trichechus manatus*). This species makes occasional migrations into and through the coastal waters of North Carolina during the warmer months of the year. Manatees may be found in the fresh,

brackish, and marine waters of coastal areas, bays, lagoons, estuaries, rivers, and inland lakes. They are typically found in waters between one and two meters (three and seven feet) deep (USFWS, 1996b).

3.3.4 Federal Candidate and State-Listed Species

The NHP provided a list of rare species, natural communities, and special animal habitats known to occur or to have formerly occurred in the vicinity of the project. This list is displayed in Appendix E, Part III and contains the state and federal protective statuses and state and global rankings. The State Endangered Species Act provides for the conservation, management, and protection of rare fauna in North Carolina. Under this act, it is unlawful to possess or disturb any federal or state-listed animal, unless approved by the North Carolina Wildlife Resources Commission.

State-listed plant species are protected under the North Carolina Plant Protection and Conservation Act of 1979. Under this act, it is illegal to dig, disturb, or remove any protected species without written permission of the landowner; nor is it legal to sell, barter, or trade any listed plant unless approved and permitted by the North Carolina Department of Agriculture.

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CHAPTER 4

4.0 ENVIRONMENTAL CONSEQUENCES

This chapter of the report describes both the positive and negative probable environmental effects of the build, rehabilitation, and no-build alternatives; and identifies potential mitigation measures for adverse impacts of the preferred alternative, Alternative W1R.

As the preferred alternative, Alternative W1R is analyzed in this Final EIS in greater detail than Alternative W1 was analyzed in the Draft EIS. This additional detail was necessary to refine impact predictions so that appropriate mitigation measures to address these impacts could be developed. Resulting mitigation measures for the implementation of the preferred alternative are discussed by issue in Sections 4.1 through 4.3 of this document. Additional details of the mitigation measures necessary to address the impacts to natural resources resulting from Alternative W1R are discussed in the Mitigation Plan in Appendix H of this Final EIS. Section 4.10 summarizes the various impacts discussed in this chapter.

Impacts can be defined as one of three types: direct, indirect, or cumulative. Direct impacts are those which "are caused by the action and occur at the same time and place" (40 Code of Federal Regulations (CFR) 1508.8). Direct impacts can include: construction dredging, visual quality impacts, and traffic noise effects.

Indirect impacts can be more subtle, but still have a relatively strong cause and effect relationship with a proposed action. Indirect impacts, also referred to as secondary impacts, are "caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8). Indirect impacts can include effects related to changes in land use patterns, population density, or growth rate; and related effects on air, water, and ecosystems (40 CFR 1508.8).

Cumulative impacts result from the incremental consequences of an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). These types of impacts are usually less defined than indirect impacts, but can add to other disturbances and eventually lead to a measurable environmental change (Federal Highway Administration (FHWA), 1992).

4.1 IMPACTS TO THE HUMAN ENVIRONMENT

4.1.1 Land Use and Community Impacts

This section is based on the following reports prepared for the project, all of which are incorporated by reference into this Environmental Impact Statement (EIS): Land Use Impact Report (Hayes and Associates, 1994a), Social Impact Report (Hayes and Associates, 1994b), Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC (Hayes and Associates, 1994c), and the Economic Impact Analysis (Apogee Research, 1994).

4.1.1.1 Socio-Demographic Changes in Population

Year-Round and Seasonal Residents. One possible secondary effect of replacing the existing Sunset Beach pontoon bridge is a change in the composition of the island population, both regarding age and working status, and the distribution between year-round and seasonal occupancy (Apogee Research, 1994:25).

Alternatives W1R, C1, and C4 would improve both safety and traffic flow, which are important concerns for potential year-round residents. These improvements may increase demand for on-island year-round residences. In turn, this could have implications for the composition of the island's population. It is possible that the proposed replacement of the existing bridge with Alternative W1R, C1, or C4 could stimulate an increase in working families and retirees living on Sunset Beach island and a concomitant shift away from primarily rental properties having seasonal occupants. Since the average number of persons per unit is lower for year-round residences (2.2 persons per unit) than seasonal rental units (8.0 persons per unit), the result would be a lower occupancy rate on the island and a reduced area expenditure on food and entertainment during the peak season (Apogee Research, 1994:26). Based on comments gathered during the economic impact study, this possible trend could be further complicated by the fact that some retirees rent out their island homes during the peak season, leaving the island to avoid congestion and/or to take advantage of income gained by renting at peak rates (Apogee Research, 1994:26).

It should be noted that the possible changes in population composition described above are only hypotheses, based on concerns voiced by area residents, and evidence of bridge-induced shifts in population characteristics at Holden Beach and Ocean Isle gathered from interviews rather than from objective census data. Demographic data available for 1990 do not distinguish between mainland and island portions of Sunset Beach. Also, there are no consistent historical data for Sunset Beach, Ocean Isle, and Holden Beach concerning population composition or seasonal versus permanent residency (Apogee Research, 1994:27). Consequently, a comparative evaluation of the demographic impacts of replacing the existing Sunset Beach bridge can not be conducted.

Day Visitors. Based on the survey of day visitors conducted on July 30, and August 2, 1994, a new bridge at Sunset Beach (Alternatives W1R, C1, or C4) would only have a minor influence on choice of beach destination (see Sections 3.1.1.2 and 3.1.2.2).

In general, day visitors currently going to Sunset Beach would continue to do so if the existing bridge was replaced. Some Ocean Isle day visitors would occasionally go to Sunset Beach for a change of location, but most would still go to Ocean Isle as a matter of routine. A few Ocean Isle day visitors would consider going to Sunset Beach on a more regular basis if a new bridge was built. The day visitors who would change their beach destination preference most likely are those who live closer to Sunset Beach or live about equal distance between the two beaches. However, the survey indicated that the majority of Ocean Isle day visitors would always go to Ocean Isle no matter what type of bridge was at Sunset Beach (Hayes and Associates, 1994c:3).

Any potential bridge-related increases in day visitors to Sunset Beach would be affected by other variables, including: the presence and location of a boat ramp, number of public parking spaces on the island, provision of non-auto transportation from the mainland, and number and nature of commercial services. All the build alternatives (W1R, C1, and C4) would displace the existing island boat ramp (see Section 4.1.1.5). Day visitors coming to the island to launch their boats would no longer do so, unless the boat ramp is relocated on the island.

It is not clear how parking availability would affect day visits to Sunset Beach island. One person interviewed by Apogee Research felt that even when no public parking is available on the island, visitors still come and park illegally. Another interviewed by Apogee Research, Inc. felt that day visitors depart soon after their arrival if no parking is available near the beach, even if there are spaces further away. This same interviewee also felt that, given the price of land on the island, the extent of development adjacent to the beach, and the existing liberal policy on non-resident on-street parking, convenient parking is already at its maximum capacity (Apogee Research, Inc., 1994:14). There was a common perception among surveyed Ocean Isle day visitors that they would either have to pay for parking or that there is shortage of parking at Sunset Beach. This perception functions for many as a deterrent to visiting Sunset Beach (Hayes and Associates, 1994a:Appendix).

The limitation on day visitors imposed by insufficient parking capacity is a constraint at this time. However, shuttle buses from satellite parking on the mainland could enable more day visitors to reach the island. At least one mainland developer has considered using a shuttle as a way of easing access for residents and visitors under future conditions, perhaps in conjunction with a development-affiliated beach facility to be used as a recreational base for mainland residents. It is not clear whether a new bridge would affect the decision to provide such a service (Apogee Research, Inc., 1994:14).

In many beach communities, the existence of extensive commercial attractions draws day visitors to resort areas. However, Holden Beach, Ocean Isle, and Sunset Beach have limited commercial

facilities. Those that do exist primarily serve the island populations, rather than act as magnets to attract day visitors. All three islands' Coastal Area Management Act (CAMA) Land Use Plans indicate their desires to remain "family-oriented" beaches and their interests in constraining commercial activity through zoning (Apogee Research, Inc., 1994:14).

The number of day visitors to all beaches along the North Carolina coast, including Sunset Beach, will continue to increase as the population of coastal counties and mainland communities continues to grow (Hayes and Associates, 1994c:3). Most of the day visitors surveyed in Ocean Isle and Sunset Beach came from within 35.4 kilometers (22 miles) of the beaches. This area can be defined as the Lockwood Folly and Shallotte Townships, which are the fastest growing areas of Brunswick County. The combined year-round population of these two townships increased from 13,943 in 1980 to 22,523 in 1990, for a 61.5 percent residential growth (Hayes and Associates, 1994c:21). As shown in Table 3.1, Brunswick County's population as a whole grew from 35,777 in 1980 to 50,985 in 1990.

4.1.1.2 Relocation and Direct Land Use Impacts

Direct Land Use Impacts. Table 4.1 lists the acreages of different land uses which would be required for permanent right of way under each build alternative. The No-Build and Rehabilitation Alternatives would not require additional permanent right of way. The Rehabilitation Alternative may require temporary easements for traffic detours.

As shown in Table 4.1, Alternatives W1R and C1 would require about one acre of developed residential land for right of way. Alternative C4 would not require any developed residential land for right of way. Lots with residences, businesses, or government buildings located on them were considered developed, as was the Sea Trail Plantation property. Alternative W1R's right of way would require the most institutional land and Sea Trail Plantation land, but the least commercial land. Alternative C1 would directly impact the most commercial land, both developed and undeveloped. In addition, the bridge over Slough Canal needed for Alternative C1 would impact existing commercial uses of the canal by businesses located at the end of the canal.

Mitigation for Direct Land Use Impacts. The North Carolina Department of Transportation (NCDOT) will pay fair market value for all lands required for Alternative W1R's right of way. All necessary right of way will be acquired by the NCDOT prior to the start of construction activities.

Relocation Impacts. A relocation study was conducted by the NCDOT in February 1995, to estimate the number of residences and businesses which would be displaced under each proposed alternative (NCDOT, 1995d). The relocation reports are included as Appendix D of this document.

TABLE 4.1

ESTIMATED DIRECT LAND USE IMPACTS

ALTERNATIVE	ZONING*	(D)EVELOPED/ (U)NDEVELOPED	AREA IMPACTED [hectares (acres)]
Alternative W1R	MR-2 (residential)	D	0.42 (1.04)
		U	0.27 (0.67)
	MR-3 (Sea Trails)	D	1.51 (3.73)
	R1-1 (institutional)	D	0.12 (0.32)
	MB-1 (commercial)	D	0.20 (0.50)
		U	0.50 (1.23)
	Unzoned (marsh)	U	1.17 (2.89)
Alternative C1	MR-2 (residential)	D	0.42 (1.03)
		U	0.00
	MR-3 (Sea Trails)	D	0.06 (0.14)
	R1-1 (institutional)	D	0.04 (0.10)
	MB-1 (commercial)	D	1.15 (2.84)
		U	1.27 (3.15)
	Unzoned (marsh)	U	0.72 (1.79)
Alternative C4	MR-2 (residential)	D	0.00
		U	0.04 (0.11)
	MR-3 (Sea Trails)	D	0.08 (0.20)
	R1-1 (institutional)	D	0.04 (0.10)
	MB-1 (commercial)	D	0.92 (2.28)
		U	0.00
	Unzoned (marsh)	U	0.34 (0.83)

* Zoning definitions from Hayes and Associates, 1994a:17.
MR-2 = Mainland Residential District. Minimum lot size is 10,000 square feet.
MR-3 = Mainland Multi-family Residential Development, allows single- and multi-family units
R1-1 = Recreational-Institutional District, for government buildings, schools, churches, etc.
MB-1 = Mainland Business District, primarily for retail trade.

TABLE 4.2

ESTIMATED RELOCATION IMPACTS

ALTERNATIVE	RESIDENTIAL RELOCATIONS	BUSINESS RELOCATIONS*			
		Small	Medium	Large	Total
Alternative W1R (West High-Level)	0	0	0	0	0
Alternative C1 (Center High-Level)	3	2	1	0	3
Alternative C4 (Center Mid-Level Bascule)	0	2	1	0	3
Alternative C3R (Rehabilitation Alternative)	0	0	0	0	0
Alternative C3 (No-Build Alternative)	0	0	0	0	0

Source: NCDOT,1995 (see Appendix D).

* The following ranges were used to determine whether a business was small, medium, or large:

Small business - 1-10 employees
Medium business - 11-50 employees
Large business - > 50 employees

The results of the relocation study are shown in Table 4.2. Alternatives W1R, C3R (Rehabilitation), and C3 (No-Build) would not displace any residences or businesses. Alternative C4 would displace three businesses. Alternative C1 would displace three residences and three businesses. The relocation reports indicate that business services will still be available after implementation of any of the alternatives since there are similar businesses which would remain unaffected.

Direct displacement impacts to businesses and residences would be mitigated through implementation of the relocation assistance programs described below.

Relocation Assistance. The NCDOT has determined that there are suitable sites available within the study area for displaced businesses and residents. The availability of residential and non-residential units for sale and rent was determined based on information obtained from realtors, newspapers, and real estate multiple listing services.

It is the policy of the NCDOT to ensure that suitable locations for displaced residents and businesses will be available prior to construction of federally-assisted projects. The NC Board of Transportation has three programs available to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments or Rent Supplement.

With the Relocation Assistance Program, experienced NCDOT staff will be available to provide displaced residents and businesses with information pertaining to financing, availability, and prices of homes and business sites for sale and rent.

The Relocation Moving Payments Program generally provides payment of actual moving expenses encountered during relocation.

Where displacement would force an owner or tenant to purchase or rent property of higher cost or to lose a favorable financing arrangement (in cases of ownership), the Relocation Replacement Housing Payments and Rent Supplement Program will compensate up to $22,500 to owners who are eligible and qualify, and up to $5,250 to tenants who are eligible and qualify.

The relocation program established for the proposed action will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) and the North Carolina Relocation Assistance Act (General Statute (GS) 133-5 through 133-18). The program provides assistance to displaced persons in relocating to a replacement site in which to live or do business. At least one relocation officer is assigned to each highway project for this purpose.

The relocation officer determines the needs of displaced families, individuals, businesses, non-profit organizations, and farm operations for advisory services without regard to race, color, religion,

gender, or national origin. The NCDOT will schedule its work to allow ample time, prior to displacement, for negotiations and possession of replacement housing that meets decent, safe, and sanitary standards. The displacees are given at least a 90-day written notice after NCDOT purchases the property. Relocation of displaced persons and businesses will be offered in areas not generally less desirable in regard to public utilities and commercial facilities. Rent and sales prices of replacement property offered will be within the financial means of the families and individuals displaced. The relocation officer will assist owners of displaced residences, businesses, non-profit organizations, and farm operations in searching for and moving to replacement property.

The Moving Expenses Payments Program is designed to compensate the displacees for the costs of moving personal property from homes, businesses, non-profit organizations and farm operations acquired for a highway project. Under the Replacement Program for Owners, NCDOT will participate in reasonable incidental purchase payments for replacement dwellings, such as attorney's fees, surveys, appraisals, and other closing costs. If applicable, the NCDOT also makes a payment for any increased interest expenses for replacement housing payments, increased interest payments, and incidental purchase expenses. Reimbursement to owner-occupants for replacement housing payments, increased interest payments, and incidental expenses may not exceed a combined total of $22,500, except under the Last Resort Housing Provision.

A displaced tenant may be eligible to receive a payment to rent a replacement dwelling or to make a down payment, including incidental expenses, on the purchase of a replacement dwelling. This payment shall not exceed $5,250. The down payment is based upon what the state determines is required when the rent supplement exceeds $5,250.

It is the state's policy that no person will be displaced by the NCDOT's federally-assisted construction projects unless and until a comparable or adequate replacement housing or business site has been offered or provided for each displacee within a reasonable period of time prior to displacement. No relocation payment received will be considered as income for the purposes of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law.

Last Resort Housing is a program used when comparable replacement housing is not available or when it is unavailable within the displacee's financial means and the replacement payment exceeds the federal and state legal limitations. This program allows broad latitude in methods of implementation by the state so that decent, safe, and sanitary replacement housing can be provided.

4.1.1.3 Secondary Land Use Impacts

One concern regarding the proposed project that has been voiced by some citizens is that a new two-lane bridge, particularly a high-level bridge, would cause secondary impacts by accelerating development and facilitating high-rise construction on the island. As discussed below, replacement

of the existing bridge with a more reliable two-lane structure is not expected to greatly affect the rate and type of development in Sunset Beach.

Permanent residents comprise a small proportion of the Sunset Beach island population (3.8 percent in August, 1993). Replacing the existing bridge would have its greatest influence on demand for housing from three population subgroups: working families (who would no longer face an uncertain commute), retiree permanent residents (who would no longer worry about access to medical care), and retiree visitors and second home owners (who are currently intimidated by congestion and safety issues).

In general, demand for housing among younger vacationers would not be as influenced by the type of access to the island. Most come to the barrier islands for family-oriented vacations and are not committed to mainland access for entertainment. Thus, congestion is less of a disincentive for this younger group. Similarly, access to medical care and safety are generally thought to be less important to this group as well (Apogee Research, Inc., 1994:19).

Therefore, the core of any potential bridge-influenced acceleration in demand for island housing would originate from an expansion in the number of working families and retirees interested in permanent residence or increased retiree interest in second homes on the island (Apogee Research, Inc., 1994:19). As discussed in Section 3.1.1.3, population statistics show that the percentage of older age groups in Brunswick County's and Sunset Beach's populations are increasing. Therefore, one could expect that the desire for reliable access would also increase.

As discussed in Section 3.1.2.3, examination of building trend data, current land use, and interviews with local officials and residents reveals that the induced secondary impacts of high-level bridges have been relatively minor at both Ocean Isle and Holden Beach. The number of dwelling units constructed in both towns was greater prior to the opening of the high-level bridges. Exhibit 4.1 presents historical data on building permits for Holden Beach, Ocean Isle, and Sunset Beach. The Sunset Beach data excludes mobile homes. Mobile homes are only permitted in the extraterritorial area (ETA). By excluding them from the data, a better indication of island activity can be presented.

Exhibit 4.2 presents the estimated trend lines for the pre- and post-high level bridge periods 1982-1985 and 1986-1992, based on the permit data (Apogee Research, Inc., 1994:21). These trend lines are developed from a regression analysis of the actual data shown in Exhibit 4.1, and they show that, overall, the number of building permits issued has generally been decreasing over time. Local business leaders in Holden Beach and Ocean Isle attributed the building downswing in the later half

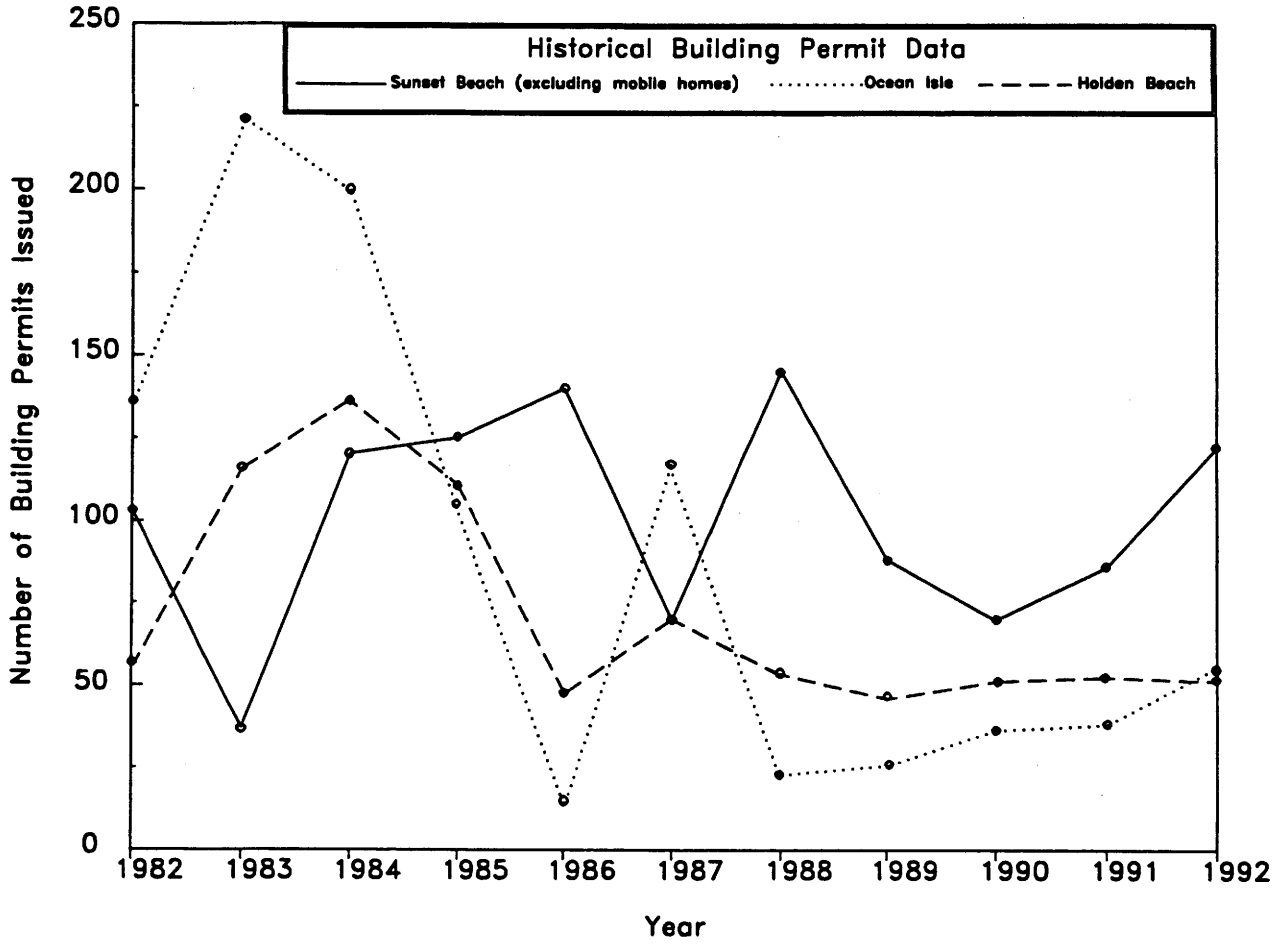
of the 1980's to the national recession in the late 1980's, and 1986 changes in the federal tax treatment of second homes, rather than a surplus of residential development caused by pre-bridge speculation (Hayes and Associates, 1994c:iii).

Comparison of data in Exhibit 4.1 reveals that Sunset Beach actually had an overall greater residential growth rate than either Holden Beach or Ocean Isle during most of the period 1982-1992. This higher rate of residential development continued even after 1986, when the high-level bridges at Holden Beach and Ocean Isle became operational. One partial explanation for the higher growth rate is that the planning area for Sunset Beach includes not only the island, but also 2,665 acres on the mainland. Since 1986, the major focus of mainland development has been Sea Trail Plantation, a residential championship golf course community. For most of the same period, Ocean Isle consisted of the island and a small commercial strip along the causeway road on the mainland. Ocean Isle did not establish an ETA until 1990. Holden Beach consists of just the island itself. Moreover, residential golf course developments similar to Sea Trail Plantation have not been constructed near Ocean Isle or Holden Beach (Hayes and Associates, 1994c:18).

Consequently, building permit data for just the islands should be compared. During 1992, Sunset Beach issued permits for 37 single-family and 12 duplex units on the island, for a total of 49 dwelling units. During the same year, permits were issued for 36 dwelling units on the island portion of Ocean Isle and 52 dwelling units on Holden Beach. The rate of development in 1992 was similar in Sunset Beach and Holden beach and lower in Ocean Isle. Apparently, the type of bridge access did not directly influence the rate of development on any of the three islands in 1992 (Hayes and Associates, 1994c:17).

Other factors are important to the rate and type of development on all three islands: sewage treatment capacity, pattern of ownership of platted undeveloped land, and zoning regulations. At present, dependence on septic systems may limit the development potential and occupancy rates on the island. However, if a centralized sewer system is not built, developers can find other ways to provide sewage treatment. For example, private package treatment plants could be constructed. A sewer system would make it easier to develop the remaining platted single-family and duplex unit lots, accelerating full build out of the island (Apogee Research, Inc., 1994:22). However, most people interviewed by Apogee Research, Inc. felt that all three islands (Holden Beach, Ocean Isle, and Sunset Beach) are destined to be fully built out regardless of the type of bridge connecting them to the mainland. The Town's CAMA Land Use Plan and zoning regulations will guide any development occurring on the island. Historically, Sunset Beach has maintained consistent attitudes towards growth.

Many people interviewed by Apogee Research, Inc. felt that the dominance of one owner was a significant factor in determining the rate and type of development (Apogee Research, Inc., 1994:22). Most of Holden Beach was at one time owned by the Holden Family, while the Williamson and Gore



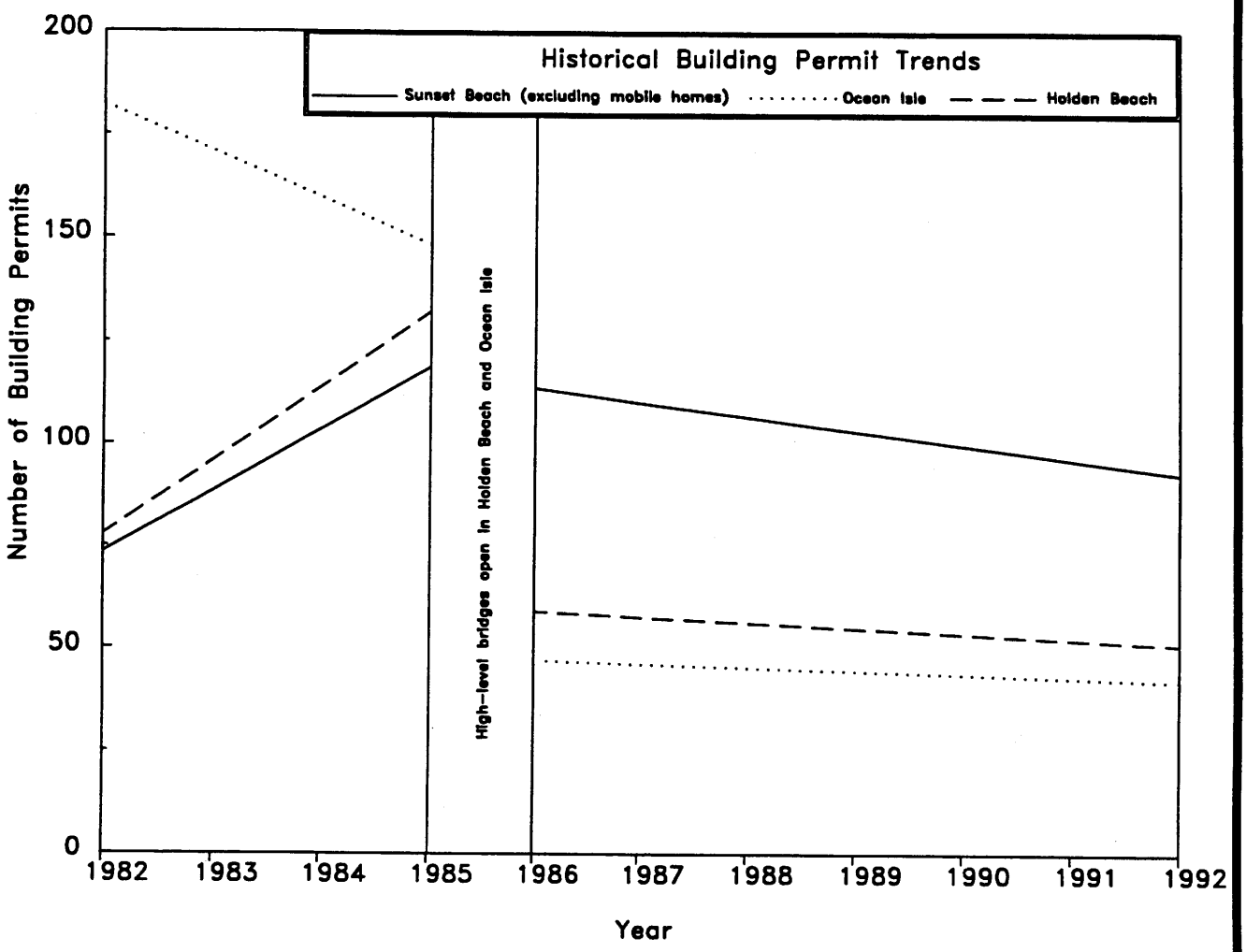
Source: Apogee Research, Inc., 1994

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

HISTORICAL BUILDING PERMIT DATA

EXHIBIT 4.1



Source: Apogee Research, Inc., 1994

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BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
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BUILDING PERMIT TRENDS GRAPH

EXHIBIT 4.2

families are the principal landowners and developers of Ocean Isle and Sunset Beach (Hayes and Associates, 1994c:1).

Some people have hypothesized that a new high-level bridge would generate pressure for changes in zoning to permit high density development. To alter Sunset Beach's existing 10.7-meter (35-foot) building height restriction, a majority of Sunset Beach registered voters would have to vote to do so in a public referendum. The voting population of Sunset Beach only includes full-time residents registered as voters in the Town of Sunset Beach. There continues to be very strong interest in Sunset Beach, as indicated in the CAMA Land Use Plan, for retaining restrictive zoning that would prohibit high density development as well as expanded commercial activity on the island. Ocean Isle has a high-level bridge and a sewer system, yet it has also retained zoning restrictions on the unit size which can be built on each platted lot (Apogee Research, Inc., 1994:23).

It is possible that the influence of Sea Trail Plantation on future development in Sunset Beach has been greater than the influence the high-level bridges have had on future development in Holden Beach and Ocean Isle. Other highway improvements to Interstate 40, US 421, US 17, and US 74-76, which would provide better road access to these beach communities, may have had more of a secondary impact on growth than did the high-level bridges. Based on comparative studies of Holden Beach and Ocean Isle, replacement of the existing Sunset Beach pontoon bridge with a high-level bridge (Alternatives W1R and C1) or a bascule bridge (Alternative C4) is not likely to greatly influence the rate and type of development on the island. The community's attitude towards growth, the national economy, and the demand for resort housing may affect development more than the type of bridge access provided (Hayes and Associates, 1994c:20).

4.1.1.4 Land Use Planning

Consistency with the CAMA Land Use Plan. As discussed in Section 3.1.1.6, CAMA land use plans are used by local, state, and federal officials for the issuance of major and minor CAMA development permits and for Consistency Review of all federal and state projects within the community. For determining the consistency of the proposed project with the CAMA Land Use Plan (Town of Sunset Beach, 1992), three aspects of the plan are especially pertinent: Areas of Environmental Concern, Land Classification, and Policy Statements regarding growth and bridge improvement.

The proposed bridge project lies within several types of Areas of Environmental Concern (AECs), including: Estuarine Waters, Estuarine Shorelines, Coastal Wetlands, and High Hazard Flood Areas. Any major land disturbing activity within Areas of Environmental Concern would require a CAMA Major Development Permit.

The project study area contains the AIWW, the Big Narrows channel, and Slough Canal, which are all navigable waterways and public trust areas (see Exhibit 1.2). One of the CAMA Land Use Plan

policies pertaining to navigable waterways states, "In the absence of overriding public benefit, any use which significantly interferes with the public right of navigation or other public trust rights which apply in the area shall not be allowed" (Town of Sunset Beach, 1992:54). None of the proposed alternatives would interfere with the public right of navigation along the AIWW. Although the original alignment under Alternative W1 would encroach on the Big Narrows Channel, the revised alignment (Alternative W1R) would be located east of the Big Narrows Channel. Therefore, channel relocation would not be necessary under Alternative W1R. Furthermore, NCDOT will make every effort to maintain navigability of Big Narrows during the construction period for boats utilizing this waterway. Alternative C1 would require a bridge over Slough Canal to convey NC 179 traffic. This bridge would provide 1.2 meters (4 feet) of vertical clearance, which would interfere with navigation by prohibiting most boats from traveling the last 61 meters (200 feet) of the canal. Access to the businesses at the end of Slough Canal would be blocked.

The CAMA Land Use Plan classifies lands for future development under seven different categories. All lands within the mainland portion of the study area are designated as Developed or Urban Transition. The island portion of the study area is classified as Conservation or Conservation Spoil.

All bridge alternatives would be consistent with the Developed and Urban Transition land classifications. Conservation lands should be developed in a cautious and sensitive fashion in order to protect wetlands (Hayes and Associates, 1994b:16). The NCDOT will, in consultation with the US Army Corps of Engineers (COE), minimize wetlands impacts along the alignment of Alternative W1R. A Section 404 Permit will be obtained from the COE for any work in waters of the US, including wetlands.

The Town's official position regarding the Sunset Beach Bridge is also contained in the CAMA Land Use Plan. The Town of Sunset Beach supports improved bridge access to the island in order to improve public safety and evacuation of the island (Hayes and Associates, 1994a:16). The following two statements are from the Sunset Beach 1992 CAMA Land Use Plan:

> To promote public safety, the Town of Sunset Beach supports improved bridge access to the island. As stated in a resolution passed on October, 11, 1982, the Town Council of Sunset Beach supports the planning efforts of the North Carolina Department of Transportation to provide better access to the island and requests that the renovation of the bridge or other measures to facilitate improved safety conditions be accomplished as expeditiously as possible (Town of Sunset Beach, 1992:70).
>
> Town officials continue to support the efforts of the NCDOT to provide better and more reliable bridge access to the island (Town of Sunset Beach, 1992:77).

On February 6, 1995, the Sunset Beach Town Council officially endorsed by resolution a 19.8 meter (65-foot) high-level bridge between the island and mainland portions of the town (Town of Sunset Beach, 1995a), and on June 4, 1996, the Town of Sunset Beach passed an ordinance requesting that NCDOT give the Sunset Beach Bridge replacement project priority (Town of Sunset Beach, 1996 [Appendix F-III: 50]).

In summary, Alternatives W1R, C1, and C4 would be consistent with the Town's CAMA Land Use Plan policy, which states that more reliable bridge access between the mainland and island is supported. However, the low-level bridge over Slough Canal associated with Alternative C1, which would block access to the upper end of the canal, appears to be inconsistent with the CAMA Land Use Plan policy, which states that public access to navigable waters should not be restricted. Businesses at the end of Slough Canal use the canal for delivery of seafood and other supplies. The owner of the seafood market and restaurant at the end of Slough Canal has funded maintenance of the canal. The canal is also used by boaters to pick up and discharge passengers, to visit the businesses at the end of the canal, and as a shelter during storms. These uses would be blocked by the low-level bridge over the canal proposed under Alternative C1.

Mitigation. The NCDOT will obtain a CAMA Major Development Permit for the preferred alternative, Alternative W1R, issued by the North Carolina Division of Coastal Management. In addition, the NCDOT will, in consultation with resource agencies, incorporate measures into the preferred alternative's design which will minimize impacts to Areas of Environmental Concern. The NCDOT will obtain a Section 404 permit from the COE for construction activities within wetland areas.

4.1.1.5 Impacts to Community Facilities and Services

None of the proposed alternatives would directly impact schools, churches, or cemeteries.

As discussed in Section 2.3.2, emergency service (police, fire, medical) access to and from the island would be more reliable under Alternatives W1R and C1, and, to a lesser extent, Alternative C4. Emergency service access would be least reliable under the Rehabilitation and No-Build Alternatives.

Alternatives W1R, C1, and C4 would displace the unofficial boat launching area located on the island causeway (SR 1172) near the existing pontoon bridge. This traditional small boat launching area is important to many local boaters, and its proposed displacement was protested during the public reviews held in the 1980s (Hayes and Associates, 1994b:26). It should be noted that this boat ramp has been an "allowed" trespass and has not been officially maintained or recognized by any agency although occasional marl deposits have been made at this launch by Brunswick County at the County Commissioner's request. Efforts are underway to relocate this boat ramp. Three potentially suitable alternate ramp sites have been identified in the vicinity of the Sunset Beach area.

The NCDOT is presently evaluating these sites for feasibility in coordination with other state and federal agencies.

4.1.1.6 Pedestrian and Bicycle Considerations

Pedestrians and bicyclists use the existing pontoon bridge to travel to and from the mainland. Currently, neither the bridge nor the causeway road on the island has shoulder areas for pedestrians and bicyclists. On August 3, 1992, the Town of Sunset Beach passed a resolution requesting that the NCDOT construct a bicycle lane along the causeway. The resolution acknowledged that bicycling along the existing causeway is dangerous, especially in heavy traffic during the summer season.

The NCDOT Office of Pedestrian and Bicycle Transportation considers improved access for bicyclists and pedestrians a key element of the planning and design of a replacement bridge (NCDOT, 1995e).

Both the No-Build and Rehabilitation Alternatives would maintain the existing crossing and would not provide any improvements in bicycle and pedestrian access.

The proposed configurations of all three build alternatives (Alternatives W1R, C1, and C4) would provide for safer bicycle/pedestrian travel over the AIWW and along the causeway portion of SR 1172. All three alternatives would include 1.5 meters (five feet) of lateral clearance in both directions on the bridge (either high-level fixed or mid-level bascule) and 1.2-meter (4-foot) wide paved shoulders on the mainland bridge approach and along the island causeway (see Exhibits 2.3 and 2.6). Alternative C4 would provide more convenient access for pedestrians and bicyclists than Alternatives W1R and C1 since the mid-level bridge would not be as high, and would require a shorter climb/descent over the bridge. It should be noted that the proposed bridge designs would not be pedestrian facilities as defined by the American Association of State Highway and Transportation Officials (AASHTO). These types of facilities require raised sidewalks and other special considerations. However, the proposed bridge designs would not create hazards to bicyclists or pedestrians crossing the bridge and would provide an improvement over the existing bridge conditions.

The Office of Bicycle and Pedestrian Transportation recommends that AASHTO standard 1.4-meter (54-inch) tall bicycle-safe bridge rails and safe drainage covers be included in the design of a replacement bridge (NCDOT, 1995e). This recommendation has been included as part of the proposed build alternatives (see Exhibits 2.4, 2.7, and 2.10).

4.1.1.7 Other Community Issues

Community Opinion. The existing Sunset Beach pontoon bridge and its possible replacement are a continuing subject of community debate. Public opinion about the pontoon bridge can be divided into three general categories: 1) advocates for maintaining the existing bridge, 2) people who support improved access to the island, and 3) people who enjoy the "quaintness" of the existing bridge, but "hate" the bridge when delayed by it (Hayes and Associates, 1994b:30).

The Sunset Beach Taxpayers Association (SBTA) is the major advocacy group for maintaining the existing bridge. Those who support maintaining the existing bridge favor the "quaintness of the pontoon bridge," since the bridge serves as a scenic and unique gateway to the island. According to a recent letter to the North Carolina Secretary of Transportation from the SBTA dated June 17, 1996, the SBTA ". . . strongly disagree[s] that the best bridge option for Sunset Beach Island is a high-rise." (SBTA, 1996 [Appendix F-III:51]).

Other town residents, as well as town and public safety officials, support improved access to the island in order to promote public safety and the welfare of island residents and visitors.

The third perspective is from those who "love" the bridge when their waiting time to get across is minimal, and who "hate" the bridge when they are delayed by it. There is a sense that public opinion among this group may be shifting towards support for bridge replacement. A June 1992, island brush fire also upset some residents since a fire truck could not immediately respond because the pontoon bridge was open for boat traffic. Numerous residents were distraught over the March 13, 1993, storm which closed the bridge for 12 hours with only five minutes advance notice (see Section 1.6.1).

On Friday, January 20, 1995, a barge struck the pontoon bridge and the pontoon portion broke free. The permanent residents of the island, workers, and six day visitors were stranded. Light vehicles were allowed to cross the bridge about 24 hours later. Delivery trucks and buses could not cross the bridge for five days. The AIWW was closed to all boat traffic for 4 ½ days. Traffic congestion during the peak summer seasons is also becoming more severe and is exceeding the tolerance level of many residents and visitors (Hayes and Associates, 1994b:30).

Public opinion about the Sunset Beach bridge was mixed in surveys conducted during the 1986 and 1992 CAMA Land Use Plan update processes. Responses to these surveys were consistently divided between supporting and opposing replacement of the existing bridge. However, it should be noted that these surveys were conducted through written questionnaires mailed out to Sunset Beach planning area residents and property owners. The surveys were voluntary and not scientific and reflect the opinions of only those who responded (Hayes and Associates, 1994b:30).

During the summer of 1994, the owners of the Island Market on the island of Sunset Beach placed a book on display in their store to gather patrons' comments regarding replacement of the existing bridge. The survey question was: "The State plans on replacing our bridge with a fixed concrete high rise. How do you feel? Please write your comments and tell us where you are from." A compilation of these comments was submitted by the Sunset Beach Taxpayer's Association (SBTA) (SBTA, 1994). This survey was not scientific, and details of how the comments were gathered were not provided. For example, it is not known where in the market the book was displayed (behind the register or freely accessible), the exact times it was displayed, or how the survey was presented to patrons. Chapter 7 of this EIS (Public Involvement) discusses all of the public comments received during the study period and includes a summary of the Island Market comment book.

As of December 1996, there has not been a scientific survey conducted to determine current public opinion concerning whether the existing bridge should be replaced. Whether to replace the current pontoon bridge has always been a subject of community debate and will probably always be a divisive community issue (Hayes and Associates, 1994b:31).

Crime. A major concern expressed by several Sunset Beach residents during the interview process conducted by Apogee Research, Inc. and Hayes and Associates was that high-level bridges in Ocean Isle and Holden Beach caused crime to increase because criminals now had better and more reliable access to the islands. The North Carolina State Bureau of Investigation Uniform Crime reporting center was contacted to determine whether crime statistics were available to confirm this impression. Unfortunately, uniform and reliable crime data were not available (Hayes and Associates, 1994c:24). Some residents also contend that the existing pontoon bridge functions as a deterrent for crime because the drawbridge attendant serves as a "gatekeeper" by observing all who cross the bridge (Hayes and Associates, 1994b:20).

Discussions with police officials at Holden Beach and Ocean Isle revealed that in their opinion, crime was actually deterred by the high-level bridges because police departments also benefitted by the more dependable and reliable access. Moreover, criminals also gain access to the islands by boat, and the type of bridge access would not influence this criminal activity (Hayes and Associates, 1994b:21).

The Holden Beach, Ocean Isle, and Sunset Beach Police Departments and officials noted that the quality of the police force, good street lighting, property identification, and the availability of crime prevention programs such as Neighborhood Watch deterred crime, not the type of bridge access available. Police officials in Holden Beach, Ocean Isle, and Sunset Beach noted that the single-road accesses to the islands facilitate roadblock operations, and this feature also did not depend upon what type of bridge access was available (Hayes and Associates, 1994b:21).

Based on the above discussion, none of the five proposed alternatives are expected to adversely affect crime rates on the island of Sunset Beach.

4.1.1.8 Environmental Justice Evaluation

On February 11, 1994, President Clinton signed Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations (59 FR 7629). EO 12898 was designed to supplement Title VI of the Civil Rights Act of 1964, EO 12250 and the resulting promulgated regulations for the US Department of Transportation (USDOT) implementing this Act (49 CFR Part 21). All of which prohibit discriminatory practices in programs receiving federal financial support. The thrust of EO 12898 is to identify and address, as appropriate, disproportionately high adverse human health or environmental effects of each agency's programs policies, and activities on minority populations and low-income populations. Specifically, this EO mandates that all federal agencies provide a strategy to implement this EO, which charges each federal agency with responsibility of,

> "conduct[ing] its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin" (59 FR 7629, Section 2-2).

This order also requires each agency to,

> "whenever practicable and appropriate, . . . collect, maintain and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. Such information shall be made available to the public, unless prohibited by law; and (c) Each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding Federal facilities that are . . . (2) expected to have a substantial environmental, human health, or economic effect on surrounding populations. Such information shall be made available to the public, unless prohibited by law. . ." (59 FR 7629, Section 2-3(b)).

This EO also states that, "each federal agency, whenever practicable and appropriate, shall share information and eliminate unnecessary duplication of efforts through the use of existing data systems and cooperative agreements among federal agencies and with State, local, and tribal governments" (59 FR 7629, Section 2-3(d)).

In response to the mandates of EO 12898, the USDOT developed a Final Environmental Justice Strategy (60 FR 125: 33896) and a proposed USDOT Order titled, *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The analysis contained in this Final EIS is consistent with that outlined in the USDOT Final Strategy and proposed Order.

Based upon project studies and review of anticipated effects from the preferred alternative (Alternative W1R) as described in Sections 4.1 through 4.9, this project has been implemented in accordance with Executive Order 12898.

4.1.2 Economic Impacts

This section is based on the Economic Impact Analysis prepared for this project by Apogee Research, Inc. (1994), which is incorporated by reference into this EIS.

4.1.2.1 Mainland Economic Impacts

Commercial Activity. Replacement of the existing Sunset Beach pontoon bridge with a high-level bridge (Alternatives W1R and C1) would reduce average travel time and improve the predictability of travel times from the island to the mainland. The same effects would occur with a mid-level bascule bridge (Alternative C4), but to a lesser extent. Under the build alternatives, reduced uncertainty and travel delay during peak periods could stimulate island-to-mainland discretionary trips and generate an increase in purchases from mainland stores, restaurants, and entertainment facilities by island residents and vacationers (Apogee Research, Inc., 1994:15). Under the No-Build and Rehabilitation Alternatives future traffic volumes 10-15 percent lower could occur, based on studies conducted for bridges at Oak Island and Currituck Sound, North Carolina (NCDOT, 1995c).

In the off-peak period, island residents and renters have fewer problems crossing the bridge to the mainland stores and restaurants. A new bridge should not affect commercial activity during these months.

Several people interviewed by Apogee Research Inc. felt that, during the peak season, island residents and renters limit their discretionary trips to stores, restaurants, and entertainment facilities on the mainland because bridge delays and traffic congestion make it difficult to keep appointments, and because such visits are not worth the time and aggravation of crossing the bridge. Also, some people interviewed felt that permanent residents minimize their visits to the mainland during the peak season to avoid summertime crowds at the destination points themselves, not because of bridge congestion. It is not clear whether easier access would overcome some of the permanent residents' resistance to mainland activities during the peak season (Apogee Research Inc., 1994:16).

Mainland Property Development. The primary driving forces for mainland development are essentially independent of the ease or difficulty of access to the island of Sunset Beach. Thus, the direct and secondary economic effects of replacing the existing bridge on mainland development are likely to be marginal (Apogee Research, Inc., 1994:18).

Annexation data and anecdotal evidence, such as existing plans for additional golf resort communities, indicate that past and continuing interest in mainland developmen, at least at present,

seems to be independent of improvements in peak season access to the island beaches (Apogee Research, Inc., 1994:17).

Apogee Research Inc.'s interviews with area business people provide confirmation that development on the mainland will likely continue whether or not a new bridge is built. The area is becoming known for its championship golf courses, drawing visitors from abroad as well as from the mid-Atlantic and northeastern states. People are drawn to the general southern North Carolina area by lower taxes, good climate, and leisurely lifestyle.

Beach access could be an important factor in attracting potential mainland residents and visitors, especially those who are beach oriented but cannot afford the higher property costs, do not want to climb the stairs necessary to reach first floors of raised island homes, or who are concerned about flood damage and hurricanes. However, it appears that developers are not concerned about beach access and its effect on their sales. If the pontoon bridge is not replaced and access to the island becomes more difficult, developers expect to work around this problem, perhaps by building private beach facilities on the island for mainland property owners and providing shuttle transportation to these beach facilities (Apogee Research, Inc., 1994:17).

Golf courses are probably the most substantial force in mainland development, and the affiliated resort/retirement communities may attract a clientele that does not consider beach access important. Although beach access may be a minimal concern for golfers committed to staying on the mainland, there may be a minority of golfers who would prefer to stay on the island and "commute" to the golf courses but are currently deterred due to concerns about bridge delays. Improved access might draw some golfers away from the mainland and onto the island.

4.1.2.2 Island Economic Impacts

Day Visitors. Whether or not replacing the existing pontoon bridge stimulates an increase in day visitors to the beach, any projected increases are likely to have a minimal direct and secondary economic impact since day visitors spend very little in Sunset Beach, Holden Beach, and Ocean Isle. According to the non-statistical day visitor survey conducted by Hayes and Associates (1994a:Appendix), the average amount day visitors spent was $5.40 per vehicle at Ocean Isle and $2.60 per vehicle at Sunset Beach. The tendency for day visitors to bring their own supplies and purchase very little at the beach is likely to continue on Sunset Beach island in spite of a bridge replacement that eases access. This is due to the fact that the island has few commercial establishments and no commercial entertainment activities, except the fishing pier. Commercial expansion is tightly limited by zoning ordinances that are supported by policies in the CAMA Land Use Plan. In addition, the island population is strongly committed to maintaining the current "family-oriented" atmosphere on the island (Apogee Research, Inc., 1994:15).

Property Values. As discussed in Section 4.1.1.3, the proposed bridge replacement is unlikely to affect the rate and type of residential or commercial development on the island. Although some people feel a new bridge could accelerate the rate of build-out of platted lots, there is no evidence from Holden Beach or Ocean Isle to support such a hypothesis. Thus, there are not likely to be substantial direct and secondary economic effects attributable to bridge-induced development on Sunset Beach island.

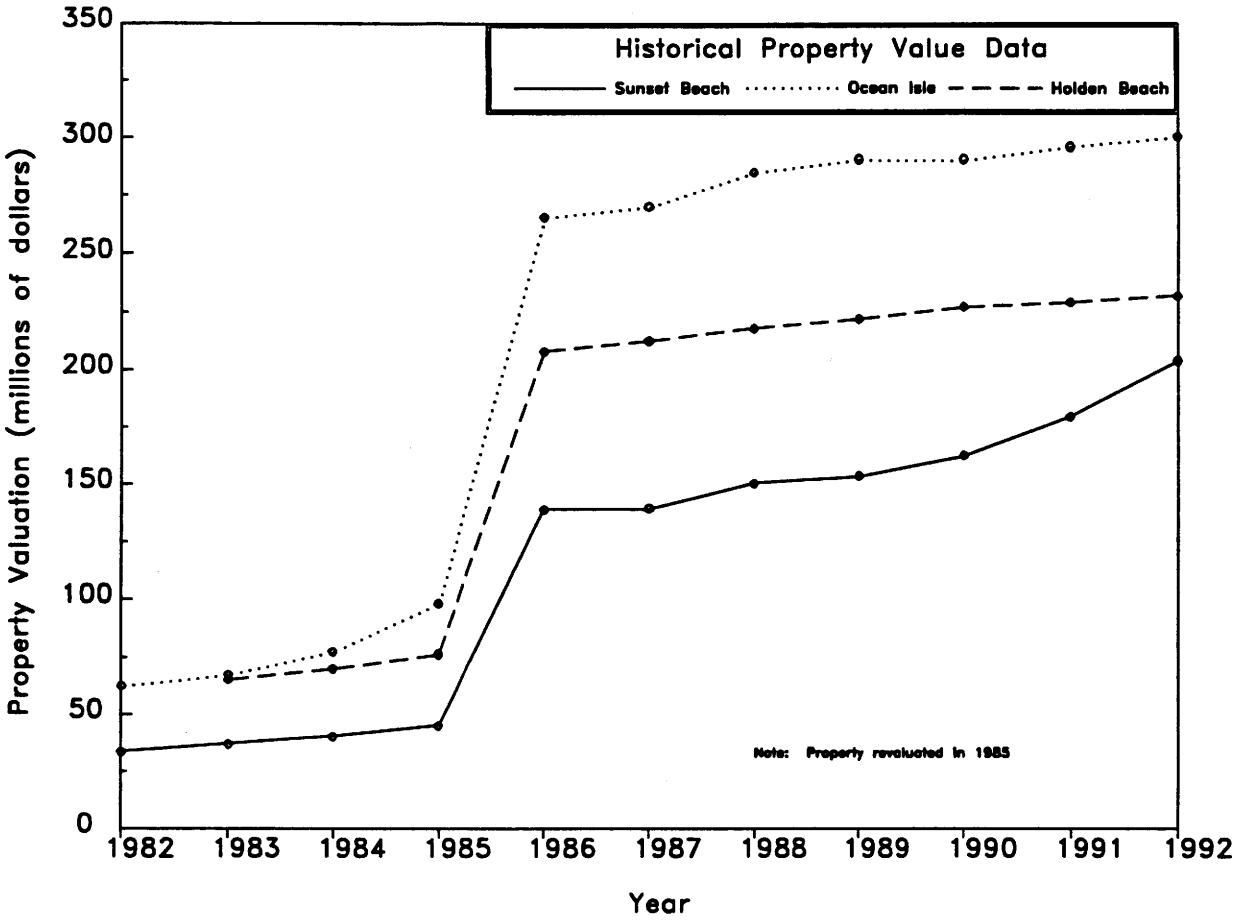
Exhibit 4.3 shows property values over time in Holden Beach, Ocean Isle, and Sunset Beach. Exhibit 4.4 shows computed trends based on the property value data. The trends shown in Exhibit 4.4 were developed using a regression analysis of the actual data shown in Exhibit 4.3, and indicate that property values have been generally increasing over time in all three beach communities, although the rate of increase is slightly higher in Sunset Beach. Property values are a function of the number of units as well as the value of each unit, and thus are a composite index of demand for housing on the islands. As indicated in Exhibits 4.3 and 4.4, property value data do not support the hypothesis that new bridges at Holden Beach and Ocean Isle spurred a substantial increase or decrease in the value of island property. Although per unit value can not be computed because an inventory of total units per year is not available, it can still be shown that the rate of increase in property values was greater for Sunset Beach than the other two islands during the post-1986 period.

4.1.2.3 Other Economic Impacts

Town Finances. One economic gain from replacing the existing bridge with a high-level alternative (Alternatives W1R or C1) would be budgetary savings for the Town. Under current conditions, the Town posts two auxiliary police officers at the bridge to control and direct traffic during peak season weekends. This cost the Town $25,000 in 1993, an expenditure which would be unnecessary with a two-lane fixed high-level bridge (Apogee Research, Inc., 1994:27). If a mid-level bascule bridge is constructed (Alternative C4), vehicles would still have to queue up when the bridge opens to allow watercraft through. During summer peak hours, police may still be needed to direct traffic under Alternative C4. Traffic control officers will continue to be needed during the peak season under the No-Build or Rehabilitation Alternatives.

The Town also incurred costs in 1985 and 1995 when the existing pontoon bridge was out of service due to barge collisions. These costs are hard to quantify, but include costs associated with emergency management, redirecting traffic, and assisting with repairs. Alternatives W1R, C1, and C4 would be less prone to collisions than the existing pontoon bridge since they would be easier to navigate through due to wider horizontal clearances and larger visual profiles.

Town finances could also be affected by the proposed bridge if property appreciation accelerates. However, as discussed in Section 4.1.2.2, historical property value data do not support the hypothesis that new bridges at Holden Beach and Ocean Isle spurred an increase or decrease in the value of island property.



Source: Apogee Research, Inc., 1994

NORTH CAROLINA
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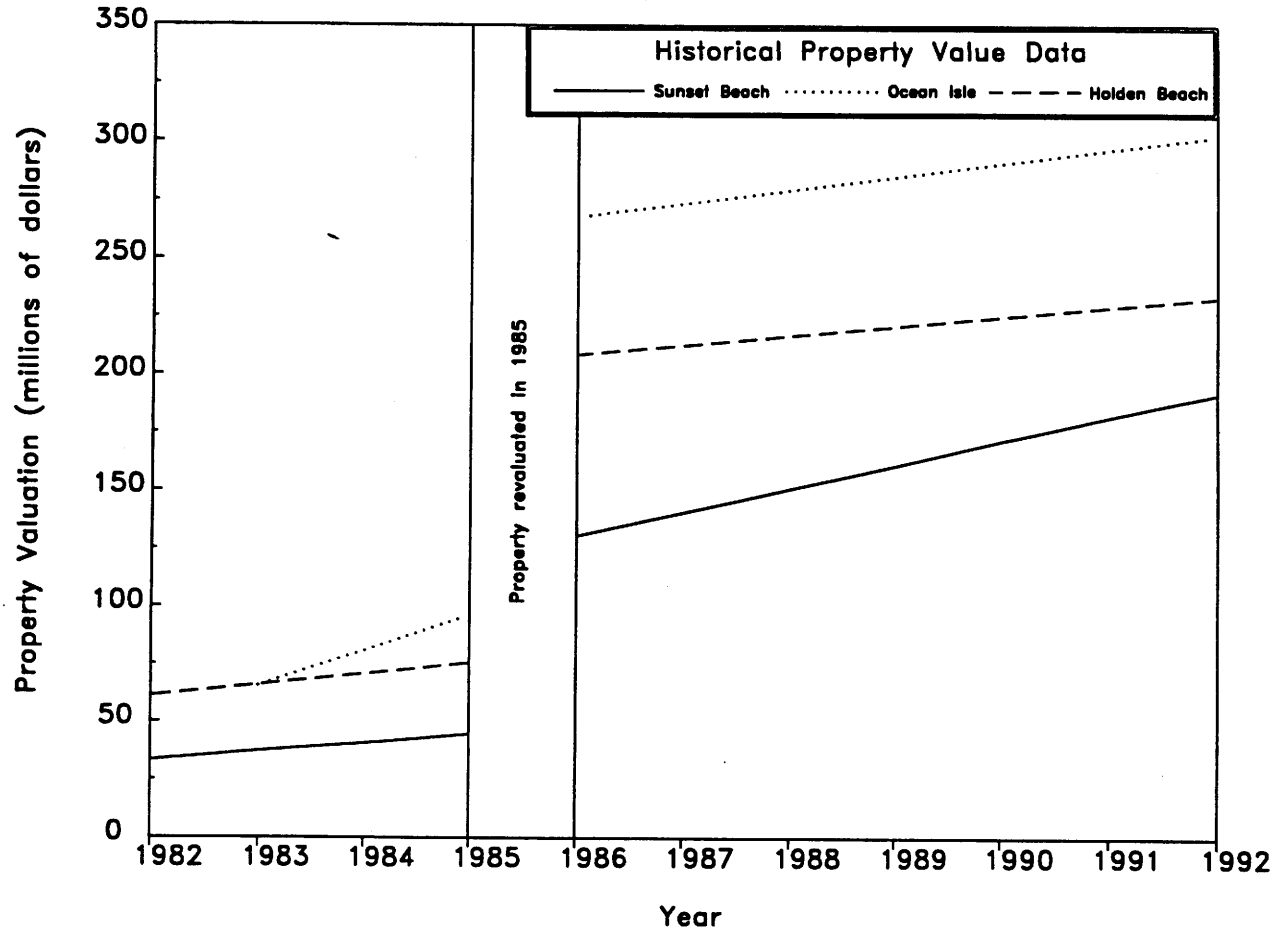
HISTORICAL PROPERTY VALUE GRAPH

EXHIBIT 4.3



Note: This graph shows the pre- and post-1985 trends in property values. The Ocean Isle and Holden Beach high-level bridges were opened in late 1985 and early 1986, respectively.

Source: Apogee Research, Inc., 1994

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PROPERTY VALUE TRENDS GRAPH

EXHIBIT 4.4

House Salvaging. The width and instability of the current pontoon bridge precludes moving houses from the island to the mainland for relocation. Replacing the existing bridge would allow movement, resale, and reuse of beach houses that are economically obsolete due to increased land values on the island or are at-risk because of environmental conditions. Individual owners and the federal government could possibly gain financially from house salvaging that would be possible by replacing the existing bridge with any of the build alternatives (Alternatives W1R, C1, and C4). The potential for house salvaging could also boost residential upgrading.

On Holden Beach and Ocean Isle, houses can be salvaged and moved to the mainland over the high-level bridges. The Federal Emergency Management Agency (FEMA) will pay 110 percent of the value of an at-risk house (exclusive of the land) that is within 6.1 meters (20 feet) of an escarpment. Ten percent of the payment is used to remove the house and septic system, and the remainder is used to reimburse the owner. With the high-level bridges, the government can transport the house to the mainland and sell it in an area not at risk of extreme weather, thus recouping some of the cost and/or providing subsidized housing to low-income families (Apogee Research, Inc., 1994:29).

Salvaging homes in this manner is not possible with the existing Sunset Beach bridge nor would it be possible under the Rehabilitation Alternative. Under the No-Build and Rehabilitation Alternatives, at-risk homes on the island of Sunset Beach would need to be moved to a new, safer site on the island, upgraded to conform to more stringent codes, or demolished and replaced (Apogee Research, Inc., 1994:29).

The economic benefit of house salvaging depends on the number of candidate houses on Sunset Beach and their resale value. There are no statistics available as to the number of candidate houses on Sunset Beach island (Apogee Research, Inc., 1994:29). Approximately fifty homes have been moved off Holden Beach since the high-level bridge was opened, and about fifty more meet FEMA guidelines and may be moved in the future (Hayes and Associates, 1994c:9).

Cost of Doing Business on the Island. By reducing travel time, the proposed Alternatives W1R, C1, and C4 would reduce the cost to mainland companies of delivering supplies and making service calls to the island (Apogee Research, Inc., 1994:30). Travel time would not be reduced under the No-Build or Rehabilitation Alternatives.

At this time, it appears that the sellers and transporters of goods and services are absorbing the costs of existing bridge-related delays. There is no evidence of premiums charged for island deliveries. People interviewed by Apogee Research, Inc. noted that suppliers complain about the wait at the Sunset Beach bridge when making deliveries.

Fishing Tournaments. Sport-fishing tournaments can be affected by the current pontoon bridge. Tournament sport-fishing is a high-stakes competition, with prizes up to $50,000. Speed in accessing and returning from open ocean fishing sites is critical in the race to finish. During poor

weather, boat captains prefer to use the AIWW, which could involve passing through the Sunset Beach bridge. Conflicts could arise due to existing bridge operations as tournament sport-fishing increases in popularity. Fishing boats might pay for commercial licenses and force the bridge to open on demand, or pressures may come to bear to open the bridge for waterway traffic during times when competing boats are leaving and returning. A high-level bridge (Alternative W1R and C1) would not interfere with tournament sport-fishing activities.

4.1.3 Utilities

4.1.3.1 Electric Power Distribution

Impacts. As discussed in Section 3.1.3.1, electric power is supplied to the island portion of Sunset Beach by two submerged distribution lines which run parallel to, and about 15.2 to 18.3 meters (50-60 feet) east of, the existing pontoon bridge and SR 1172 causeway. These lines are submerged approximately 3.7 meters (12 feet) below the AIWW.

None of the proposed alternatives would impact the power distribution lines crossing the AIWW. However, on the mainland, the island distribution line runs north/south, parallel to the Sunset Boulevard segment of NC 179. There is also another distribution line which runs east/west along the West Shoreline Drive segment of NC 179. Alternatives W1R, C1, and C4 would cross some of these distribution lines. The No-Build Alternative (C3) and the Rehabilitation Alternative (C3R) would not affect existing power distribution lines.

Mitigation. NCDOT will coordinate with the Brunswick Electric Membership Cooperative (EMC) during the final design phase of the project, regarding necessary relocation and reconfiguration of power distribution lines crossed by Alternative W1R.

4.1.3.2 Water and Sewer Facilities

Water. None of the proposed alternatives are anticipated to impact water distribution facilities.

Sewer. As discussed in Section 3.1.3.2, development of a centralized sewer system for the Sunset Beach-Calabash area is currently being planned. State officials have approved funding for the project; however, construction of this facility cannot commence until the EIS has been completed and results in a Record of Decision (ROD) indicating that no significant impacts would result or that appropriate mitigation for significant impacts would be provided. If the centralized sewer system is constructed, some areas of Sunset Beach unsuitable for septic tanks could then be developed. For example, there are approximately 100 platted lots in the Riverside-Cedar Point area on the northeast side of the island which cannot accommodate a septic system. This area could be developed if a centralized sewer system is built (Hayes and Associates, 1994a:20).

However, development will likely continue in Sunset Beach, with or without a sewer system, as long as there is demand for resort housing. If a centralized sewer system is not constructed, developers will find other ways to build on large tracts of land, such as the Riverside-Cedar Point area, which can not support septic tanks. For example, developers could build private package treatment plants, as was done in the Colony multi-family development on the Sunset Beach mainland (Hayes and Associates, 1994a:20).

There has also been some conjecture regarding the necessity of attaching a new sewer line to the proposed replacement bridge, creating the impression that sewer service could not be provided to the island unless a new bridge was constructed. This is not the case (Greiner, Inc., 1994f:4). On March 5, 1990, the Town of Sunset Beach unanimously adopted a resolution urging that NCDOT engineers design a new bridge to allow for attachment of water and sewer lines. On March 25, 1990, the NCDOT decided that it would not be feasible to attach water and sewer lines to a new structure. The Town, therefore, withdrew its request by a resolution dated April 2, 1990 (756 F. Supp. 904 (E.D.N.C. 1990)).

In summary, the construction of any of the proposed alternatives (W1R, C1, C4, C3, and C3R) would not be related to the decision to provide centralized sewer service in Sunset Beach.

4.1.4 Visual Environment

The following section is based on the Visual Impact Assessment (VIA) Report prepared for the proposed project (Greiner, Inc., 1994j). This report is incorporated by reference into this EIS.

4.1.4.1 Analysis Methodology

The impacts of project alternatives were evaluated using the Visual Resource Assessment Procedure for US Army Corps of Engineers (Smardon *et al*, 1988). This procedure was developed for the COE, primarily for water resource projects. The methodology is designed to ensure a complete and thorough assessment of a visual resource and potential impacts resulting from a proposed activity.

The assessment for the Sunset Beach Bridge Replacement Project utilized the *Basic Visual Impact Assessment Procedure*. For the purpose of clarity, all terminology specific to the assessment methodology is italicized to distinguish these words from general descriptive terms. The Rehabilitation Alternative was considered as being visually the same as the No-Build Alternative.

The purpose of the methodology is to determine the difference between the No-Build and Build Alternatives using a *Visual Impact Assessment Value (VIA)* and *Visual Modifier Rating* and *Landscape Composition Rating*. The *VIA* value for an alternative is a numerical measure of visual impact. The No-Build and Rehabilitation Alternatives were assigned *VIA* values of 0.0 since these alternatives served as baselines from which to compare the visual impact of the build alternatives.

The *Visual Modifier Ratings* show how changes in landscape components due to the build alternatives result in changes in *Spatial Dominance*, *Scale Contrast*, and *Compatibility* of visual resources in the study area. The *Landscape Composition Ratings* describe the organization of elements (including a new bridge) in the landscape, which are seen from each viewpoint. Each viewpoint simulation is assessed as a whole, instead of as individual visual elements. *Landscape Composition* is described as *Prominent*, *Significant*, or *Inconspicuous*. The *Visual Modifier Rating* and *Landscape Compositions Rating* are used to support and explain the numerical *VIA* value.

The following is an outline of the *Basic Visual Impact Assessment Procedure*:

1. Perform a *Management Classification System* evaluation
   a. Identify the *Regional Landscape*.
   b. Determine what *Similarity Zones* might exist.
   c. Establish a regionally applicable *Assessment Framework*.
   d. Identify the general *Management Class* that applies to *Similarity Zones* in the study area.
2. Perform the *Visual Impact Assessment Procedure* based on results in Step 1
   a. Establish representative *Viewpoints*.
   b. Describe prominent visual resources from each *Viewpoint*.
   c. Perform a *Viewpoint Assessment* for each viewpoint and each alternative.
   d. Determine the numerical *Visual Impact Assessment Value* for each alternative.
   e. Based on Step 2d, determine whether the visual impact caused by each alternative is *Beneficial, Desirable, Acceptable, or Adverse*.
   f. Determine the *Visual Modifier* and *Landscape Composition Ratings*.

Steps 1a and 1b. The *Regional Landscape* is described in Section 3.1.4.1. Similarity Zones represent physiographic areas of land which have common characteristics of landform, water resources, vegetation/ecosystems, land use, and land use intensity. As opposed to the diversity which can exist in a *Regional Landscape*, *Similarity Zones* have a fairly homogenous and unified landscape and visual character. For this evaluation, the project study area can be considered a single *Similarity Zone*.

Step 1c. The *Assessment Framework* includes an evaluation of the landform, water resources, vegetation, land use, and user activity for the *Similarity Zones*. In this evaluation, there is only one *Similarity Zone*, which is the project study area. Specific features within the *Similarity Zone* were assigned to one of the five resource categories (landform, water resources, etc.) and defined as *Distinct*, *Average*, or *Minimal* visual resources. For example, under the Land Use category, public trust areas were considered *Distinct* visual resources, residential areas and the existing bridge were considered *Average*, and public roadways were considered *Minimal*. Under the User Activity category, birdwatching was considered a *Distinct* resource, golfing was considered *Average*, and dredging and waterway maintenance were considered *Minimal*.

Step 1d. From the list created for the *Assessment Framework*, a *Total Assessment Value* number was generated. This number is used to determine the *Management Class* that fits the project. The study area had a *Total Assessment Value* of 15, which corresponds to the *"Retention" Management Class*. There are five *Management Classes: Preservation, Retention, Partial Retention, Modification,* and *Rehabilitation.* The *"Retention" Management Class* includes projects with *Total Assessment Values* of 14-16 and is defined as those areas that are regionally recognized as having distinct visual quality, but may not be institutionally protected. Structures, operations, and use activities should remain subordinate to the existing visual resources and should repeat the form, line, color, texture, scale, and composition characteristics of the resource (Greiner, Inc., 1994j:15).

Steps 2a, 2b, and 2c. Once the *Management Class* has been determined, the *Visual Impact Assessment Procedure* is implemented. The first step in this procedure is to establish representative *Viewpoints* from which to analyze visual resources and to perform a *Viewpoint Assessment.* For this study, eight *Viewpoints* were established and inventoried based on maps and field surveys. For each separate *Viewpoint* under each build alternative, water resources, landform, vegetation, land use, user activities, and special considerations were rated as *Distinct, Average*, or *Minimal,* as compared to existing conditions, and assigned a value.

As part of the *Viewpoint Assessment*, the *Modifier* and *Landscape Composition Ratings* were also assessed under each resource category for each build alternative compared to the existing conditions. For the *Modifier Rating Compatibility*, the presence of each alternative from each viewpoint was rated as *Compatible*, *Somewhat Compatible*, or *Not Compatible* with each resource category (water resources, landform, etc.). For the *Modifier Rating Scale Contrast*, the contrast between the build alternative and the resource category was rated as *Minimal*, *Moderate*, or *Severe*. For the *Modifier Rating Spatial Dominance*, the presence of the build alternative in relation to the resource category was rated as *Subordinate*, *Co-dominant*, or *Dominant*. The *Landscape Composition Rating* for each build alternative from each *Viewpoint* was rated as *Inconspicuous*, *Significant*, or *Prominent*.

Step 2d. The *Visual Impact Assessment Values* for each category (water resources, landform, etc.) under each *Viewpoint* were separated by alternative and organized in a table. The individual values were then summed and divided by the number of viewpoints to produce a value for each resource category (water resources, landform, etc.) for each build alternative. These values were then added together to obtain the final *Visual Impact Assessment Value* (*VIA*) for each build alternative, which provides the basis for comparison among alternatives.

Step 2e. The *Management Class* for the study area was determined to be *"Retention."* For the Retention class, a *VIA* ranging from 10 to -2 would be *Acceptable*. *VIA* values less than -2 would indicate an *Adverse* visual impact.

Step 2f. The *Modifier Ratings* determined for each resource category for each alternative under each *Viewpoint* in Step 2c are collected and evaluated to determine which descriptor appears most often

for each *Modifier Rating* (*Compatibility Rating, Scale Contrast, Spatial Dominance*). This same process is repeated for the *Landscape Composition Rating.*

4.1.4.2 Analysis Results

The eight viewpoints used in the VIA are described in Table 4.3. Their locations are shown in Exhibit 4.5. Appendix C of this Final EIS contains the rendered views from these viewpoints.

The following final *Visual Impact Assessment Values* (*VIAs*) for each of the build alternatives were obtained as a result of the *Basic Visual Impact Assessment* procedure. Values less than -2 indicate an *Adverse* visual impact. Since the No-Build and Rehabilitation Alternatives served as baselines, their *VIA* values are 0.0.

Alternative W1R	*VIA* = -2.124
Alternative C1	*VIA* = -2.0
Alternative C4	*VIA* = -1.625

Based on the methodology described in Section 4.1.4.1, Alternatives C1 and C4 would have *Acceptable* visual impacts, as defined by the *"Retention" Management Class*. Alternative W1R would have an *Adverse* visual impact as defined by the *"Retention" Management Class*, although the *VIA* value is outside the range by only 0.124. Although views would differ slightly between Alternative W1R and the alignment of Alternative W1, these differences did not affect the *VIA* value. Therefore, the *VIA* values of Alternative W1R and Alternative W1 were scored identically.

The *VIA* value is lower for Alternative W1R than Alternatives C1 and C4 because the bridge traverses the skyline at an angle to the AIWW. This horizontal alignment of Alternative W1R is more perpendicular to the direction of mainland viewing points than the other construction alternatives (C1 and C4), creating a more obvious viewing profile.

With respect to the *Landscape Composition Rating*, the build alternatives scored equally between being rated *Inconspicuous* or *Significant*, as opposed to *Prominent*. This is reflective of the fact that none of the proposed new bridge structures would be overwhelmingly prominent from island viewpoints due to distance. However, any of the build alternatives would be a noticeable feature from the mainland viewpoints.

TABLE 4.3

VIEWPOINTS USED IN VISUAL IMPACT ASSESSMENT PROCEDURE

Viewpoint*	Island or Mainland	DESCRIPTION
1	Island	Eastern side of island, atop a dune facing the salt marsh.
2	Island	Looking north from the Sunset Beach Fishing Pier, which extends into the ocean near the center of the island.
3	Island	Western side of island, on an undeveloped residential lot facing the salt marsh.
4	Mainland	Twin Lakes Seafood restaurant, looking south over the parking lot at the Intracoastal Waterway.
5	Island	On the beach, near the fishing pier, looking north. This viewpoint would be typical of someone returning to their car after a day at the beach.
6	Mainland	On a mainland residential property about 700 feet west of existing bridge, facing the Intracoastal Waterway.
7	Mainland	Italian Fisherman restaurant, looking south at the Intracoastal Waterway. This location and view is depicted locally in paintings and photographs.
8	Mainland	On a mainland vacant residential lot, about 1,200 feet northeast of the existing bridge, looking south at the Intracoastal Waterway.

* See Exhibit 4.5 for a map of viewpoint locations. Appendix C of this Final EIS contains the rendered views from these viewpoints.

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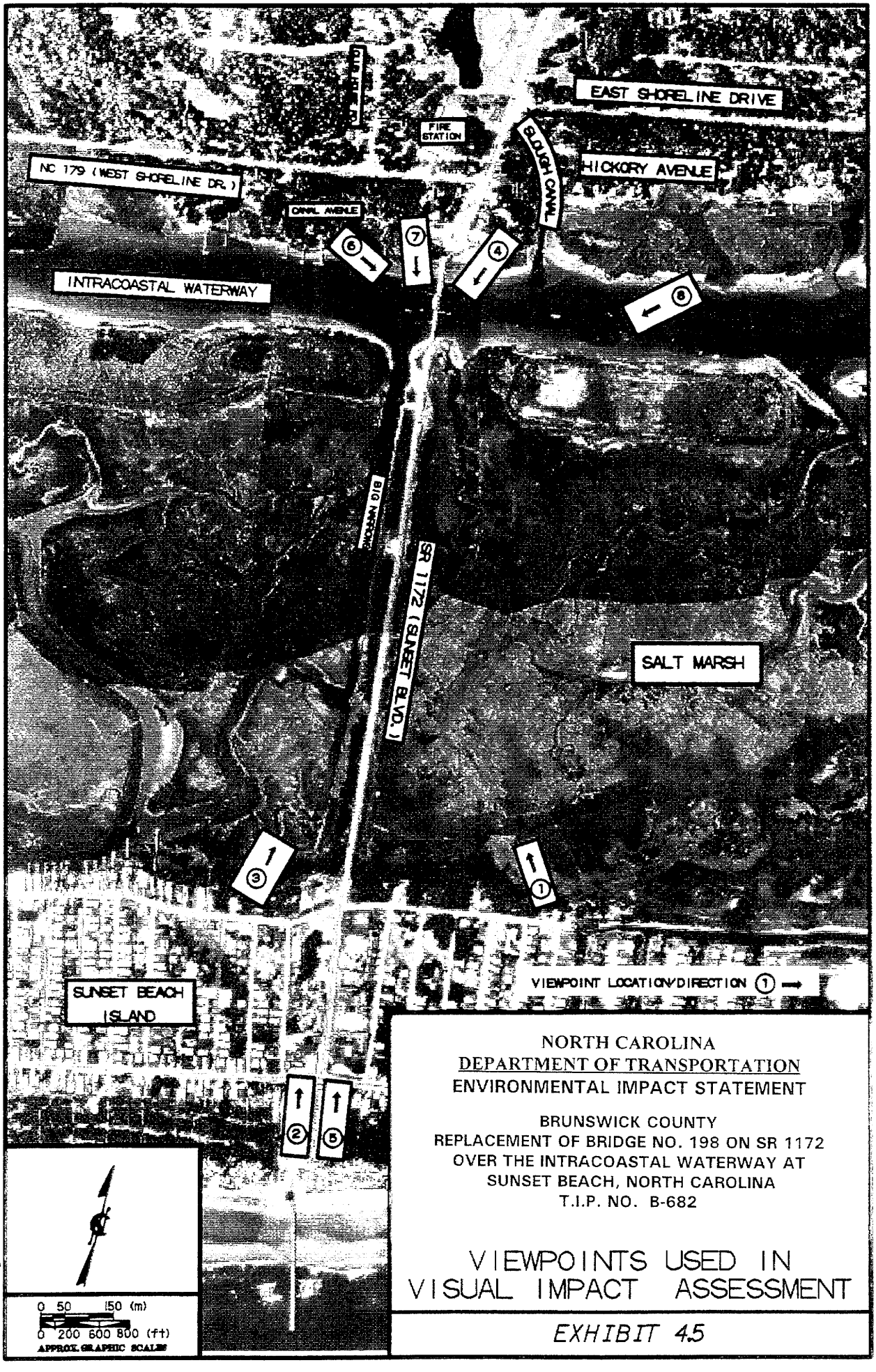

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

VIEWPOINTS USED IN VISUAL IMPACT ASSESSMENT

EXHIBIT 4.5

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Alternatives C1 and W1R were virtually identical with respect to the *Modifier Ratings Compatibility*, *Scale Contrast*, and *Spatial Dominance*. Alternative C4 was rated as having less of an impact with respect to these modifiers.

Although not incorporated into the *VIA* values for the various alternatives, navigational lighting on the bridge would be limited to low-voltage navigational lights on the underside of the bridge and would, therefore, create minimal adverse visual impacts to the surrounding nighttime viewscape.

4.1.5 Cultural Resources

Impacts. As discussed in Section 3.1.5.1, there is one archaeology site in the project area, Site 31BW391. In 1985, the site was determined not to be significant or eligible for the National Register of Historic Places. In 1992, the State Historic Preservation Office (SHPO) concurred with this finding.

In 1995, the Archaeology Unit of the NCDOT reviewed the findings and conclusions of the 1980 and 1985 reports prepared for Site 31BW391 (NCDOT, 1995b). Based on this review, the NCDOT Archaeology Unit concluded that, given the length of time since the previous studies were completed and the fact that Alternative W1R has been selected as the preferred alternative for construction , it would be advisable to conduct additional tests at Site 31BW391. Accordingly, a second phase of investigations was completed in September 1996. The Phase II archeological investigations undertaken by NCDOT within the portion of prehistoric site 31BW391 as it relates to Alternative W1R failed to discover any intact cultural features or locally and/or regionally significant archaeological deposits within the Area of Potential Effect (APE). The NCDOT and FHWA determined, and the SHPO concurred, that Site 31BW391 is not eligible for listing on the National Register of Historic Places per Section 106 of the National Historic Preservation Act of 1966, as amended (Appendix F-III:55). Furthermore, it was determined by NCDOT and FHWA that Site 31BW391 does not possess the quality of significance to warrant preservation in place as defined by Section 4(f) of the USDOT Act of 1966. Therefore, no adverse impacts to any significant archaeological site are anticipated from the implementation of Alternative W1R. Likewise, Site 31BW391 would not be affected by Alternative C1, Alternative C4, the No-Build Alternative (C3), or the Rehabilitation Alternative (C3R). The North Carolina SHPO concurs with NCDOT's finding that no further archaeological investigations need be conducted in conjunction with the project (Appendix F-III:55).

The NCDOT and FHWA determined, and the SHPO concurred, that the existing Sunset Beach pontoon bridge is not eligible for listing in the National Register of Historic Places (North Carolina Department of Cultural Resources, 1993).

4.1.6 Energy

Implementation of any of the build alternatives is expected to result in less total energy utilization than the No-Build and Rehabilitation Alternatives (C3 and C3R). Construction of a replacement bridge will initially require the consumption of energy and resources that would not be used if the project were not built. Operation of the facility, however, will compensate for the energy lost during construction by increasing the efficiency of the roadway system.

Implementing Alternatives W1R and C1 would create more efficient travel patterns in the study area. Energy efficiency would result from decreased vehicle and watercraft delays and more efficient vehiclular operating speeds. Because Alternatives W1R and C1 are fixed-span bridges, there would be no vehicle delays associated with opening the bridge to allow watercraft passage, and no watercraft delays associated with having the bridge closed to allow vehicles to cross.

Alternative C4 would also provide increased energy efficiency over the existing conditions, but to a lesser extent than Alternatives W1R and C1. Under Alternative C4, vehicles and watercraft will still have to occasionally queue up to wait for passage, but not as often as they would under the No-Build and Rehabilitation Alternatives (Alternatives C3 and C3R). Because the mid-level bascule bridge (Alternative C4) will provide for two lanes of vehicular travel, the vehicle queue would disperse more quickly than it does with the existing bridge (see Section 2.3.1.3) and vehicles would spend less time idling.

The project is considered consistent with the Federal Energy Policy and Conservation Act.

4.2 IMPACTS TO THE PHYSICAL ENVIRONMENT

4.2.1 Hydrology

4.2.1.1 Navigable Waterways

Impacts. The Intracoastal Waterway, Big Narrows, and Slough Canal are navigable waterways within the project area. All proposed alternatives involve crossing the Intracoastal Waterway. Alternative C1 would also include a bridge over Slough Canal. Unlike Alternative W1, Alternative W1R would not encroach on the existing Big Narrows channel alignment.

Alternative W1R. The preferred alignment of Alternative W1R would require fewer piers in the Intracoastal Waterway than the existing pontoon bridge, and these piers would be spaced farther apart. As a result, resistance to flow along the Intracoastal Waterway would decrease, and flushing efficiency in the waterway would improve.

As noted, this alternative would not require the realignment of the Big Narrows channel as would be necessary for the alignment of Alternative W1. Therefore, the existing self-flushing capabilities of the Big Narrows channel would be preserved, and the associated impacts to sediment transport and corresponding navigability that could result by realignment of the Big Narrows would be fully avoided under Alternative W1R. Furthermore, the North Carolina Department of Transportation (NCDOT) will make every effort to maintain navigability of Big Narrows during the construction period for boats utilizing this waterway.

Alternative C1. Like Alternative W1R, Alternative C1 would require fewer piers in the water than the existing bridge, and these piers would be spaced farther apart. The decrease in number of piers and the increase in spacing would decrease the resistance to flow in the Intracoastal Waterway, creating better flushing characteristics for the Intracoastal Waterway and secondary channels in the vicinity. The proposed alignment of Alternative C1 would most likely preserve the existing local drainage patterns and self-flushing capability of the Big Narrows channel since the alignment of this alternative is located near the existing bridge alignment.

Alternative C1 would also require a bridge over Slough Canal for relocated NC 179. This bridge would be located approximately 76.2 meters (250 feet) from the upper end of the canal and would provide about 1.2 meters (4 feet) of clearance over the water. The hydraulic function of the canal would most likely not be affected, although most boats would not be able to travel to the businesses at end of the canal.

Alternative C4. Alternative C1 would require fewer piers in the water than the existing bridge, and these piers would be spaced farther apart. The design of the mid-level bascule would decrease the

resistance to flow along the Intracoastal Waterway, but not as much as the high-level bridge alternatives. Like Alternative C1, the proposed alignment of Alternative C4 would most likely preserve the existing local drainage patterns and self-flushing capability of the Big Narrows channel since the alignment of this alternative is located near the existing bridge alignment.

Mitigation. The preferred alternative, Alternative W1R, would cross only the Intracoastal Waterway. As noted, because the existing self-flushing capabilities of the Big Narrows channel would be unaffected by the preferred alternative, no mitigation would be necessary to maintain the flow of the channel; however, NCDOT will conduct additional modeling prior to construction, in order to ensure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained. (Greiner, Inc., 1996a).

The NCDOT will coordinate with the US Coast Guard (USCG), the US Army Corps of Engineers (COE), and other resource agencies to ensure that the preferred alternative meets these agencies' standards for bridges over navigable waterways. In accordance with Section 9 of the Rivers and Harbors Act of 1899, the NCDOT will obtain a permit from the USCG for the Alternative W1R bridge over the Intracoastal Waterway.

NCDOT will make every effort to maintain navigability of Big Narrows during the construction period for boats utilizing this waterway. Construction activities associated with preferred alternative will involve discharge of excavated or fill materials into waters of the US, which includes wetlands. The NCDOT will incorporate Best Management Practices (BMPs) into Alternative W1R to minimize hydrological and water quality impacts and will work with the COE to develop additional measures to minimize impacts to these waters. (A list of relevant NCDOT BMPs is displayed in Section 4.4.) In accordance with Section 404 of the federal Clean Water Act of 1977, a permit will be obtained from the COE for work in waters of the US.

Further consultation with the COE will be conducted under Section 10 of the Rivers and Harbors Act of 1899 for any work affecting navigable waterways. The US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) also review Section 10 and Section 404 permits and provide recommendations on minimizing impacts to natural resources. In addition, a North Carolina Dredge and Fill Permit will be obtained from the NC Division of Coastal Management since the project will involve excavation and/or filling activities in estuarine waters, tidelands, and marshlands.

4.2.1.2 Floodways and Floodplains

Impacts. All five project alternatives will involve activities within the 100-year floodplain and a High Hazard Flood Area, as defined by the Federal Emergency Management Agency (FEMA). Substantial changes to existing flood heights, floodplain limits, or flood risks are not anticipated to occur under implementation of any of the proposed alternatives.

Mitigation. A systematic hydrological and flood study will be incorporated into the final design of the preferred alternative, Alternative W1R, to ensure adequate vertical bridge clearances.

The new bridge will be designed to meet federal, state, and local regulations related to flooding, floodplains, and scour protection. A scour analysis will be conducted as part of the final engineering design. Scour occurs when the materials around the footings of a bridge are washed away, causing the footings become undermined as a result of tides, storms, or currents.

Floodplain Finding. Executive Order 11988, "Floodplain Management," and DOT Order 5650.2, "Floodplain Management and Protection," were established to avoid adverse impacts due to the occupancy and alteration of the 100-year floodplain unless that location is the only practical alternative. It is required that every effort be made to minimize the potential risks to human safety and property and to minimize negative effects on natural and beneficial floodplain value.

Because the project is the replacement of an existing bridge on the Intracoastal Waterway, complete avoidance of floodplains is not practicable. Furthermore, as discussed in Section 2.2.3.6, the final consensus among agency representatives was that when the cost, safety, traffic, aesthetic, and overall environmental effects were compared among alternatives, the least environmentally damaging practicable alternative to address the deficiencies of the Sunset Beach Bridge is Alternative W1R. As noted above, the new bridge will be designed to meet federal, state, and local regulations related to flooding, floodplains, and scour protection.

Pursuant to Executive Order 11988, construction of portions of the Alternative W1R were determined to be within the base floodplain. Encroachments include areas of the 100-year floodplain and High-Hazard Flood Areas. Despite these encroachments, no substantial changes to existing flood heights, floodplain limits, or flood risks are anticipated to occur under implementation of the preferred alternative (Alternative W1R). Therefore, the proposed action would not constitute a significant encroachment.

4.2.2 Water Quality

4.2.2.1 Surface Water Quality

Impacts. The proposed build alternatives (W1R, C1, and C4) and the Rehabilitation Alternative (C3R) have the potential to temporarily degrade water quality in the Intracoastal Waterway, Slough Canal, Big Narrows channel, and surrounding salt marsh as a result of sedimentation and soil erosion during construction. An increase in the turbidity of surface waters due to sedimentation may be detrimental to aquatic life since it may block light transmission and slow biochemical and natural purification processes. Under the No-Build Alternative (C3), temporary direct and indirect water quality impacts associated with construction activities would be avoided.

With the revisions to the alignment of Alternative W1 resulting in the preferred alternative (W1R), disturbance of waterway bottom sediment would be much less than would occur under Alternative W1. Under the Alternative W1R alignment, three piers would be located in waterways compared to 11 piers in waterways required for the original alignment of Alternative W1. Disturbance of waterway bottom sediment would be greatest for Alternative C4, which would require the placement of four piers in the waterway. Two of these piers would be large main span piers constructed using the coffer dam construction technique, and two piers would be constructed using the driven pile construction technique, as would be used for all piers for Alternative W1R and Alternative C1. (See Section 2.2.3.7 for details of these construction techniques.) Like the preferred alternative (Alternative W1R), Alternative C1 would require three piers in waterways. The Rehabilitation Alternative (C3R) would require replacement of the existing bridge piles, which would also disturb the waterway bottom. NCDOT commits that any dredging required to create and/or maintain a channel for floating construction barges would be accomplished with the use of the bucket/clam shell dredge method.

Implementation of the Rehabilitation Alternative or the No-Build Alternative would not disturb dry ground areas. Table 4.4 lists the estimated number of dry ground acres which would be disturbed during construction of Alternatives W1R, C1, and C4. The more area that is disturbed, the greater the chance for erosion and sedimentation. As shown in Table 4.4, Alternative W1R would disturb the largest area (4.6 hectares [11.5 acres]). Alternative C1 would disturb (4.2 hectares [10.4 acres]), and Alternative C4 would disturb the smallest area (1.9 hectares [4.6 acres]). For these estimates, it was assumed that the area of disturbance for each alternative included the construction footprint of the roadway relocations and bridge approaches, as well as a 27.4-meter (90-foot) wide area underneath the bridge centered on the bridge centerline. Where the proposed project crossed existing paved roadways, these areas were not considered to contribute to erosion and sedimentation problems.

Currently, Secondary Road (SR) 1172 does not have a stormwater management system which utilizes treatment and attenuation systems. Runoff from the paved surfaces directly enters the Intracoastal Waterway and adjacent salt marsh (Greiner, Inc., 1994f:21). The high-level bridges at Holden Beach and Ocean Isle have scupper holes through the bridge structures where untreated stormwater runoff enters directly into the Intracoastal Waterway and surrounding areas. Currently, scupper holes are also proposed for managing stormwater runoff from Alternatives W1R, C1, and C4.

Stormwater runoff would increase under any of the build alternatives (W1R, C1, and C4) due to the increase in impervious roadway surface area as compared to existing conditions. This is an unavoidable, long-term impact. However, as described below, measures to minimize stormwater runoff will be incorporated into the design Alternative W1R, as practicable.

Mitigation. As noted in Section 4.2.1.1, NCDOT will conduct additional hydraulic modeling prior to construction, in order to insure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained. (Greiner, Inc., 1996a).

The NCDOT will incorporate measures into the design of the preferred alternative to control non-point source water quality impacts as described in the NCDOT's "Best Management Practices for Protection of Surface Waters" (NCDOT, 1991). The goal of these BMPs is "to prevent degradation of the state's waters through the location, construction, or operation of the highway system" (NCDOT, 1991). (A list of relevant NCDOT BMPs is displayed in Section 4.4.) These measures will be incorporated into the final engineering design of Alternative W1R and will be detailed in an erosion and sedimentation control plan. This plan will be prepared in accordance with the guidelines and requirements of the NC Sedimentation Pollution Control Act (15A North Carolina Administrative Code (NCAC) 4B.0001-0027). Selection and implementation of the BMPs will be consistent with the NCDOT's statewide National Pollutant Discharge Elimination System (NPDES) permit.

Since the preferred alternative (W1R) would cross over SA waters designated as Primary Nursery Areas (PNA) (see Section 3.2.2.1), the practicability of providing hazardous spill catch basins will be further investigated in accordance with NCDOT's BMPs. For the same reasons and because the length and the percent grade of the proposed structure allow consideration for such measures, the routing of stormwater from the bridge to dispersion areas on the mainland or island instead of the use of scupper holes will be evaluated for feasibility and practicability. Suitable areas for stormwater detention or flow dispersal are located in the vicinity of the proposed structure on the island side of the project and, therefore, enable this measure to be considered for effectiveness and practicality. Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practicable and feasible. The practicability of routing stormwater from the bridge's crest northward to the mainland is still under investigation. These mitigation measures will be evaluated fully during final design.

The BMPs to minimize short-term sedimentation and erosion impacts during construction include, but are not limited to, the following measures. It is anticipated that these measures would trap 70-85 percent of the sediment eroded from the construction site. Natural dilution and dispersion processes in the study area surface waters would limit this impact to the short term (NCDOT, 1991).

- Scheduling construction activities to minimize exposed area and duration of exposure.
- Temporary seeding, sodding, and/or mulching of disturbed areas.
- Use of gravel or straw on exposed surfaces prior to revegetation.
- Revegetating as soon as possible after construction.

TABLE 4.4

ESTIMATED AREA OF DISTURBED EARTH

LOCATION OF DISTURBED AREA	ALTERNATIVE W1R (hectares [acres] disturbed)	ALTERNATIVE C1 (hectares [acres] disturbed)	ALTERNATIVE C4 (hectares [acres] disturbed)
Island	1.4 (3.4)	1.5 (3.7)	0.8 (2.1)
Mainland	3.3 (8.1)	2.7 (6.7)	1.0 (2.5)
Total	4.7 (11.5)	4.2 (10.4)	1.9 (4.6)

Assumptions:

- Paved areas within estimated construction footprint not included in listed acreage.
- For bridges over land, all unpaved area underneath bridge up to 45 feet on either side of the bridge centerline assumed to be disturbed.

- Construction of temporary sediment traps and use of silt fences.
- Wetting exposed areas during windy conditions.
- Covering stockpiled materials.

Other relevant BMPs are listed in Section 4.4. Alternative W1R will be designed to comply with North Carolina water quality standards. Water quality certification from the North Carolina Division of Water Quality (DWQ), formerly a part of DEM, will be obtained prior to construction, in accordance with the 1982 amendments of the Clean Water Act. This certification will be coordinated through the federal Clean Water Act Section 404 dredge and fill permitting process for wetlands and through the North Carolina Coastal Area Management Act (CAMA) permitting process for major developments. State stormwater certification will also be obtained from the DWQ. Requirements for this state certification vary by the classifications of water to which the project would drain. The waters surrounding the project site are classified Class SA, as discussed in Section 3.2.2.1. The NCDOT will coordinate with the DWQ to determine the appropriate stormwater control measures. Design measures would include allowing stormwater discharge from the roadways and bridge approaches to filter through vegetated swales along the shoulders of the roadway and the limited use of wetlands for natural treatment. Curb and gutter construction would not be practicable in this area since elevations are low and flat. Specific BMPs outlined in the DWQ's, *Stormwater Best Management Practices* include wet detention ponds, stormwater wetlands, sand filters, bioretention areas, grassed swales, extended dry detention basins, filter strips, and infiltration devices (North Carolina Department of Environment, Health, and Natural Resources (DEHNR), 1995).

4.2.2.2 Groundwater Quality

The project area is presently served by a municipal water supply system which is not dependent on groundwater wells in the area. Impacts to use of groundwater resources are not anticipated under any of the five proposed alternatives.

4.2.3 Geology, Soils, and Prime Farmlands

4.2.3.1 Geology and Soils

Impacts. The properties of the soils within the study corridors can directly affect the engineering design of the project. The No-Build Alternative (C3) would not have soils impacts. Soil limitations for the build alternatives (W1R, C1, and C4) and the Rehabilitation Alternative (C3R) include erosion hazard, shrink/swell potential, differential settlement, low strength, corrosiveness, and flood hazard. Flood hazards are discussed in Section 4.2.1.

Exhibit 4.6 shows the locations of the six soil types within the study area. Table 4.5 lists some of the soils' properties (US Department of Agriculture (USDA), 1986). On the mainland, Wando soils

underlie the following areas: SR 1172, the area around the SR 1172/NC 179 intersection, and the portion of NC 179 (West Shoreline Drive) west of the intersection. Pactolus, Leon, and Kureb soils underlay NC 179 north of the NC 179/East Shoreline Drive intersection.

On the island, the causeway (SR 1172) is on Bohicket soils. Newhan soils comprise the Intracoastal Waterway dredging spoil piles located to the east and west of the causeway. None of the project alternatives would encroach on these spoil piles. However, this soil type may still be encountered within the project construction area since natural features can shift over time. Also, it should be noted that the soils mapping used to determine the soil types in the study area is at the large scale of one centimeter equal to 240 meters (one inch equal to 2,000 feet) (USDA, 1986), which can affect the accuracy of the mapped soil areas.

As shown in Table 4.5, the shrink/swell potential is high only for Bohicket soils, which are on the island side of the project. The corrosion risk for uncoated steel is high for Bohicket, Leon, and Newhan soils. The corrosion risk for concrete is high for Bohicket, Leon, and Pactolus soils.

A geotechnical investigation was conducted on Alternative W1 (West High-Level Fixed Span) by Westinghouse Environmental and Geotechnical Services (1990) when Alternative W1 was chosen for construction under the Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) process, prior to the US District Court's subsequent requirement for an Environmental Impact Statement (EIS) (see Section 1.3.2). This geotechnical investigation provided recommendations for: bridge foundation designs, pile driving criteria, lateral load designs, bridge approach slope stability, settlement analysis, fender pilings, and channel dolphins. The primary design considerations for the bridge were ship impact loads and storm-induced scour. The primary design concern for the bridge approach on the causeway was soil settlement due to the presence of non-cohesive sandy soils. These same primary considerations will apply to the design of any of the bridge replacement alternatives evaluated in this EIS.

Mitigation. Since Alternative W1R's alignment is located just east of the original alignment under Alternative W1, the results of the 1990 geotechnical survey conducted by Westinghouse Environmental and Geotechnical Services will be used as much as possible in the design of the preferred alternative (W1R).

Soil and geologic limitations will be overcome through proper engineering design, incorporating techniques such as soil modification and the use embankment material meeting NCDOT standard specifications.

An updated geotechnical investigation will be conducted for Alternative W1R (the preferred alternative) during the final engineering design phase of the project. The need for, and location of, additional borings will be determined at this time.

TABLE 4.5

PHYSICAL PROPERTIES OF SOILS IN STUDY AREA

Soil Name and Symbol	Suitability as Roadfill	Depth in centimeters (inches)	USDA Texture	Classification		Risk of Corrosion		Shrink/ Swell Potential
				Unified	AASHTO	Uncoated Steel	Concrete	
Bohicket (BO)	Poor: Low strength, wetness, shrink-swell	0-38 (0-15)	Silty clay loam	CH, MH	A-7	High	High	High
		38-178 (15-70)	Silty clay, clay, sandy clay	CH, MH	A-7	High	High	High
Kureb (KrB)	Good	0-203 (0-80)	Fine sand	SP, SP-SM	A-3	Low	Low	Low
Leon (Lo)	Poor: Wetness	0-203 (0-80)	Fine sand	SP, SP-SM	A-3, A-2-4	High	High	Low
Newhan (NhE)	Fair: Slope	0-203 (0-80)	Fine sand	SP, SP-SM	A-3	High	Low	Low
Pactolus (PaA)	Fair: Wetness	0-140 (0-55)	Fine sand	SM, SP-SM	A-2, A-3	Low	High	Low
		140-203 (55-80)	Sand, Loamy sand, Loamy fine sand	SP-SM, SM	A-2, A-3	Low	High	Low
Wando (WaB)	Good	0-140 (0-55)	Fine sand	SP-SM, SM	A-2, A-3	Low	Moderate	Low
		140-252 (55-99)	Sand, Fine sand	SP, SP-SM, SM	A-2, A-3	Low	Moderate	Low

Source: USDA, 1986.

1. The Unified and American Association of State Highway And Transportation Officials (AASHTO) soil classification systems categorize soils according to their probable engineering behavior. In the Unified system, soils in which "fines" (silts and clays) do not affect engineering performance are classifed according to grain size, and soils in which fines do control behavior are classified according to their plasticity characteristics. The symbols in the table are defined as follows (Holtz, 1981:52):

SP = Poorly graded sands, gravelly sands, little or no fines
SM = Silty sands, sand-silt mixtures
SC = Clayey sands, sand-clay mixtures
Pt = Peat and other highly organic soils
ML = Inorganic silt, very fine sands, clayey silts
CL = Inorganic clays, gravelly clays, sandy clays
MH = Inorganic silts, fine sand or silty soils, elastic silts
CH = Inorganic clays of high plasticity

The AASHTO system was developed to help determine the relative quality of soils for use in roadway embankments, subgrades, subbases, and bases (Holtz, 1981:65). Soils are classified into eight groups, A-1 to A-8; with several subgroups. A-1 soils are well graded. A-2 soils are granular, but contain silts and clays. A-3 soils are clean, poorlygraded sands. A-4 to A-7 soils are silt-clay materials. A-8 soils are highly organic.

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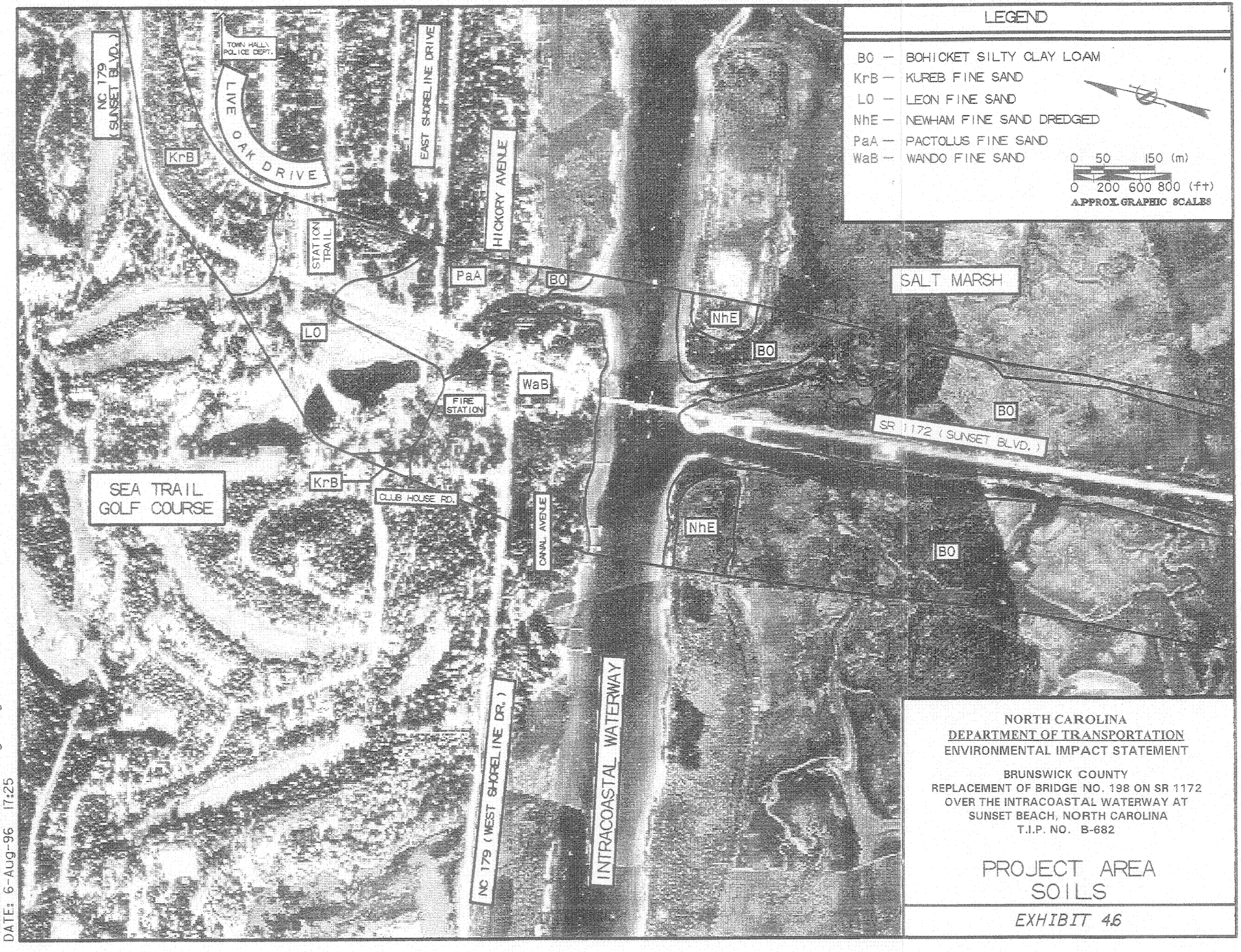

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

PROJECT AREA SOILS

EXHIBIT 4.6

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4.2.3.2 Prime And Important Farmlands

Because the proposed project is located within a municipality (Town of Sunset Beach), the proposed project is exempt from regulation under the Farmland Protection Policy Act. Furthermore, according to the DEHNR Division of Soil and Water Conservation, commercial development has eliminated any unique, prime, or important farmland in the project study area (DEHNR, 1992).

4.2.3.3 Coastal Barrier Resources

Section 5 of the Coastal Barrier Resources Act (COBRA) prohibits new expenditures for highway projects occurring within the boundaries of a designated COBRA unit or for bridges and causeways leading directly to and extending into such units. Under the Federal-aid highway program, funding commitments coincide with the FHWA approval of Plans, Specifications, and Estimates (PS&E) and authorization to proceed with a Federal-aid project.

The project does not occur within the Waties Island Complex parcel (MO1) of the North Carolina Coastal Barrier Resources System, nor do any of the alternatives considered for this project lead directly in or extend into the unit. (See Section 3.1.1.7 for information on Bird Island's CAMA status and local measures that protect this parcel and others from development.) Therefore, all of the build alternatives considered, including the recommended alternative (Alternative W1R), are in compliance with COBRA.

4.2.4 Hazardous Materials

Impacts. A survey was conducted by the Geotechnical Unit of the NCDOT (1992) to identify known and potential hazardous waste/materials sites and underground storage tanks (USTs) within the project study area. The results of the survey are discussed in Section 3.2.4. The survey included a review of state files and a field reconnaissance of the area but did not include detailed subsurface soil or groundwater investigations.

Three sites containing underground or above-ground storage tanks were identified within the study area (see Exhibit 3.4). The sites are located along SR 1172 between the bridge and the SR 1172/NC 179 intersection.

The No-Build and Rehabilitation Alternatives do not include any roadway or bridge improvements on the mainland and, therefore, would not impact any of the three sites containing USTs or above-ground tanks.

Alternative W1R (West High-Level Fixed-Span) would avoid construction on the lots containing the USTs.

Construction of Alternative C1 (Center High-Level Fixed-Span) could impact the USTs on Site 2 (Island Grocery) and the pumps in front of the restaurant on Site 3 (Bill's Seafood) (see Exhibit 3.4).

Construction of Alternative C4 (Center Mid-Level Bascule) could impact the USTs on Sites 1 and 2 and the pumps in front of the restaurant on Site 3 (see Exhibit 3.4).

Mitigation. During the preliminary engineering design phase, additional investigations will be considered for those sites with the potential to be impacted by Alternative W1R's right of way. The scope of these investigations, if necessary, will also be determined by the NCDOT during the preliminary engineering design phase and prior to right-of-way acquisition.

4.2.5 Air Quality

4.2.5.1 Compliance with Clean Air Act

The project is in Brunswick County, which has been determined to be in compliance with National Ambient Air Quality Standards (AAQS). Title 40, Part 51 of the Code of Federal Regulations (CFR), is not applicable because the proposed project is in an attainment area. This project is not anticipated to create an adverse effect on the air quality of this attainment area.

4.2.5.2 Microscale Analysis

Analysis Methodology. In accordance with NCDOT requirements, a microscale analysis was performed to assess the local, direct impact of the proposed project on future-year air quality conditions. The analysis is described in detail in the Air Quality Assessment Report (Greiner, Inc., 1994h), which is appended by reference to this EIS.

Specifically, the microscale analysis examines the generation and transport of carbon monoxide (CO), the most prevalent air emission from motor vehicles. The results indicate whether or not CO emissions associated with the project would cause or contribute to violations of the state and federal AAQS for CO (US Environmental Protection Agency (EPA), 1990). The 1-hour and 8-hour AAQS for CO are 35 parts per million (ppm) and 9 ppm, respectively.

The methodology used to perform the air quality analysis conforms to the methods and procedures contained in 40 CFR Parts 51 and 93, the EPA "Guidelines for Modeling Carbon Monoxide from Roadway Intersections" (EPA, 1992), and NCDOT guidelines. The microscale analysis was conducted using the MOBILE 5a motor vehicle emission factor model and the CAL3QHC line source dispersion model (US EPA, 1990).

The concentrations of CO at a receiver can be divided into two components-local and background. Background CO concentrations represent CO contributions from other sources in the region which are not specifically modeled in the microscale analysis. The DEM guidelines recommend using one-hour and eight-hour background CO concentrations of 1.9 ppm and 1.2 ppm, respectively.

To estimate local CO concentrations, the generation and dispersion of emissions from both free flowing vehicles and vehicles stopped and idling at queues were modeled. Projected conditions were modeled for 1994, the estimated build year 1999, and the design year 2019. Input data concerning vehicle mix, operating mode, ambient air temperature, and other modeling parameters were based on recommendations from the NCDOT and the DEHNR (Division of Environmental Management [DEM]).

The average motor vehicle emission factors used in the CAL3QHC model are shown in Table 4.6. As shown in the table, CO emissions generally decrease with increasing speed. Emissions are also expected to be lower in the future due to older cars leaving the road and improved control technology in newer models.

Receiver locations were chosen to provide complete coverage of the project corridor and include portions of significant secondary routes which would contribute to the CO impacts at receivers. The study area was divided into Air Quality Sensitive Areas (ASAs) having the same boundaries as the Noise Sensitive Areas (NSAs) shown in Exhibit 3.5.

Analysis Results. Receivers were modeled in all four ASAs. The receiver which would experience the worst-case air quality impacts was determined to be a receiver in ASA-2, located about 30.5 meters (100 feet) from the proposed centerline of NC 179. Table 4.7 lists the 1-hour and 8-hour CO concentrations projected for this receiver location under each alternative.

The AAQS for CO are 35 ppm (1-hour) and 9 ppm (8-hour). Comparison of the predicted CO concentrations with the AAQS shows that no violations of the AAQS would occur under any alternative. The highest predicted concentrations, 5.3 ppm (1-hour) and 3.2 (8-hour), would occur in 2019 under Alternative C1 (center high-level fixed-span).

4.2.6 Noise

A preliminary noise analysis was conducted for the proposed project in order to determine existing noise levels, evaluate future noise levels, determine impacted areas, and examine the feasibility of noise mitigation measures in impacted areas. This analysis is fully described in the Noise Impact Assessment Report (Greiner, Inc., 1994i), which is incorporated by reference into this EIS.

TABLE 4.6

MOTOR VEHICLE EMISSION FACTORS USED IN CAL3QHC MODEL

Speed	Carbon Monoxide Emissions (grams/vehicle/mile)		
	1994	1999	2019
48.3 kph (30 mph)	23.75	20.05	16.99
56.3 kph (35mph)	20.97	17.24	13.98
64.4 kph (40 mph)	18.989	15.19	11.75

Source: Greiner, Inc., 1994h

TABLE 4.7

AIR QUALITY MODELING RESULTS

Alternative	1-Hour Carbon Monoxide Concentration (ppm)[1,2]			8-Hour Carbon Monoxide Concentration (ppm)[1,2,3]		
	1994	1999	2019	1994	1999	2019
No-Build/ Rehabilitation Alternatives	3.0	3.3	3.9	1.8	2.0	2.4
W1R - West High Level[4]	--	3.4	3.9	--	2.1	2.4
C1 - Center High Level	--	4.2	5.3	--	2.6	3.2
C4 - Center Mid Level Bascule	--	3.5	3.9	--	2.1	2.4

1. ppm = parts per million. All carbon monoxide concentrations include background concentrations of 1.9 ppm.
2. Projected 1-hour and 8-hour carbon monoxide concentrations do not exceed the NAAQS of 35 ppm (1-hour) and 9 ppm (8-hour).
3. The persistence factor used to calculate the 8-hour concentrations is 0.61.
4. Estimated concentrations based on model results for Alternative W1.

4.2.6.1 Noise Abatement Criteria

Noise level abatement criteria for land uses adjacent to highways are established by the Federal Highway Administration (FHWA, 1982). These criteria are shown in Table 4.8 and are generally applied to the loudest hour in a day, which usually occurs during peak traffic periods. Activity Category B was considered appropriate for determination of future adverse noise exposure in the study area.

When the hourly traffic noise generated by a proposed roadway project is predicted to approach or exceed the criteria established for certain activity categories, noise abatement measures are recommended for consideration. For the purposes of impact evaluation, approach was considered to mean within one decibel of FHWA Noise Abatement Criteria. The NCDOT also considers noise level increases from existing conditions to be substantial when: a) existing noise levels are less than or equal to 50 dBA Leq and predicted noise levels cause an increase of 15 dB or more, or b) existing noise levels are greater than 50 dBA and predicted noise levels cause an increase of 10 dB or more. In these cases, consideration of noise abatement measures is also warranted.

4.2.6.2 Analysis Methodology

Each of the NSAs identified in Exhibit 3.5 was evaluated using the STAMINA 2.0 computer model (FHWA, 1983). Year 1994 and year 2019 noise levels were projected for the No-Build Alternative and Rehabilitation Alternative and Alternatives W1, C1, and C4. Model results for Alternative W1 were evaluated for reasonableness for application to the preferred alternative, Alternative W1R. It was assumed that traffic volumes and patterns would be the same for the No-Build and Rehabilitation Alternatives. The noise prediction model uses the following parameters: number and type of vehicles on roadway, vehicle speed, roadway configuration (alignment and grade), receiver location and height, and barrier location and height (including barriers created by natural features such as hills).

Year 1994 and projected year 2019 summer peak hour traffic volumes were used in this analysis. Traffic mixes for all roads were assumed to be 94 percent cars, four percent medium trucks, and two percent heavy trucks.

4.2.6.3 Noise Impacts

The results from the STAMINA 2.0 noise model are shown in Table 4.9. Exhibit 4.7 shows the locations of the receivers listed in Table 4.9.

TABLE 4.8

FHWA NOISE ABATEMENT CRITERIA

ACTIVITY CATEGORY	ACTIVITY DESCRIPTION	HOURLY Leq (dBA)*
A	Lands on which serenity and quiet are of significance and serve an important public need; and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	57 (exterior)
B	Picnic area, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 (exterior)
C	Developed lands, properties, or activities not included in Categories A or B.	72 (exterior)
D	Undeveloped lands.	no criterion
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.	52 (interior)

Source: Title 23 CFR Part 772.

* Leq (dBA) = average equivalent noise level in A-weighted decibels.

TABLE 4.9

SUMMARY OF PROJECTED TRAFFIC NOISE IMPACTS

NSA	Receiver	1994 Noise Level (Leq)	2019							
			No-Build Alternative (C3) and Rehabilitation Alternative (C3R)		Alternative W1R West High-Level**		Alternative C1 Center High-Level		Alternative C4 Mid-Level Bascule	
			Leq	Increase	Leq	Increase	Leq	Increase	Leq	Increase
1	LV1	56.4	59.9	3.5	62.6	6.2	61.9	5.5	61.0	4.6
	LV2	50.0	54.3	4.3	55.7	5.7	57.9	7.9	55.5	5.5
	LV3	52.8	56.9	4.1	57.7	4.9	64.2	*11.4	58.2	5.4
2	GF1	60.8	61.6	0.8	62.0	1.2	62.6	1.8	62.9	2.1
	GF2	56.4	60.7	4.3	62.0	5.6	60.9	4.5	62.0	5.6
	GF3	52.0	56.4	4.4	62.6	*10.6	57.5	5.5	58.0	6.0
	GF4	56.8	61.4	4.6	64.1	7.3	62.7	5.9	62.7	5.9
3	HI1	55.9	58.9	3.0	59.1	3.2	62.9	7.0	59.3	3.4
	HI2	56.5	59.6	3.1	59.7	3.2	*66.5	*10.0	60.0	3.5
	HI3	51.8	55.7	3.9	56.5	4.7	62.9	*11.1	56.9	5.1
4	CA1	52.6	57.0	4.4	64.4	*11.8	58.8	6.2	59.2	6.6
	CA2	52.4	56.9	4.5	60.4	8.0	58.6	6.2	58.8	6.4
	CA3	51.6	56.2	4.6	58.6	7.0	58.0	6.4	58.1	6.5

* Projected noise level approaches or exceeds the FHWA noise abatement criteria.

**Estimated noise levels based on model results for Alternative W1.

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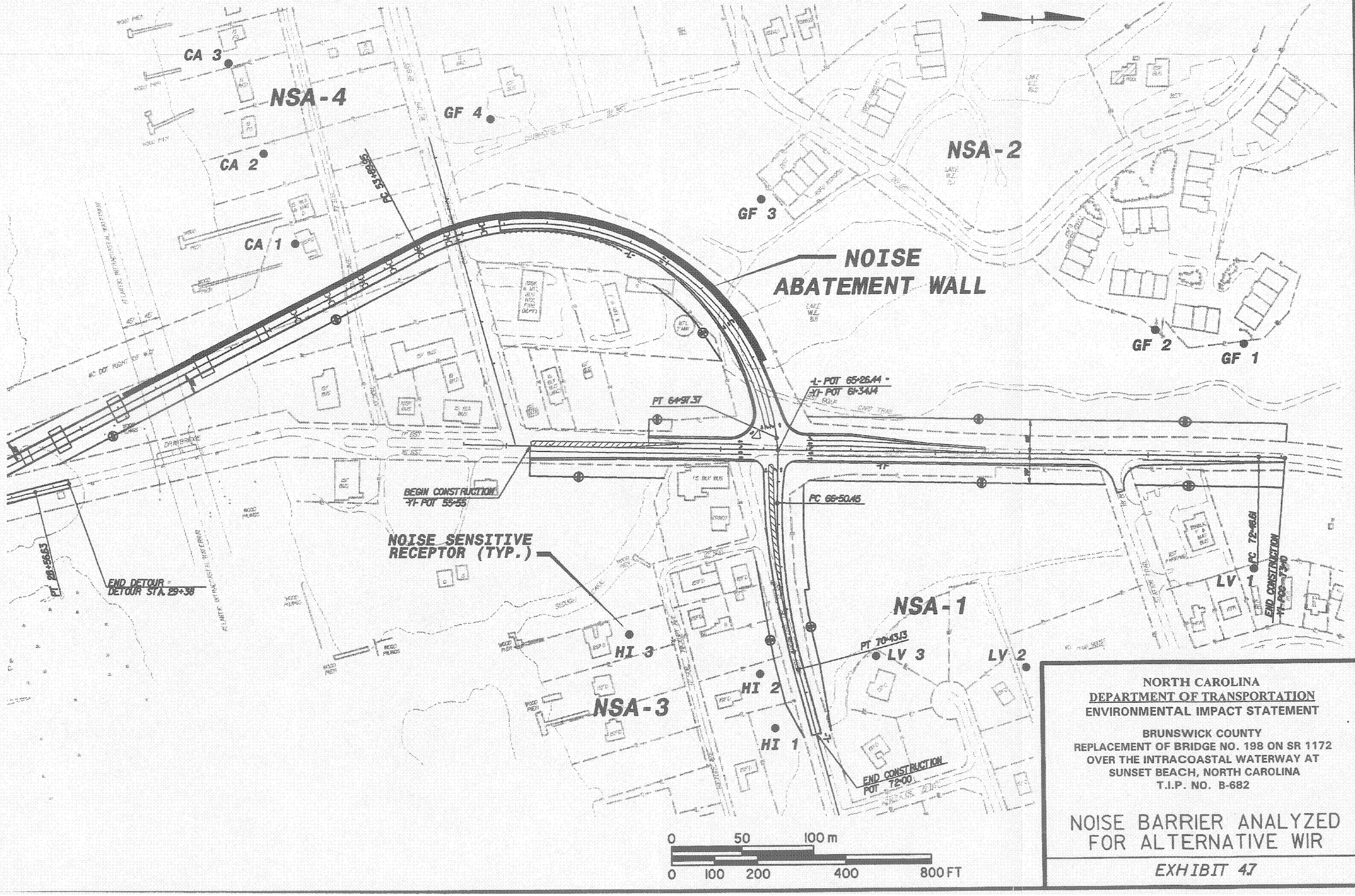

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

NOISE BARRIER ANALYZED FOR ALTERNATIVE WIR

EXHIBIT 4.7

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Under the No-Build or Rehabilitation Alternatives, some sites would experience increases in traffic noise levels due to increases in traffic volumes on currently existing roadways. However, noise levels would not approach or exceed FHWA criteria. Likewise, projected noise levels would not approach or exceed FHWA criteria under Alternative C4 (Mid-Level Bascule). Future noise levels are projected to approach or exceed FHWA criteria at two receiver locations under Alternative W1R and three receiver locations under Alternative C1.

Based on the analysis conducted for Alternative W1, one receiver in NSA-2 (representing two multi-family residential units) would experience a substantial future increase in noise levels (10.6 decibels) over existing noise levels under Alternative W1R. In addition, another receiver in NSA-4 would also experience a substantial future increase in noise levels (11.8 decibels) over existing noise levels.

Under Alternative C1, one receiver in NSA-1 (representing one single-family house) and one receiver in NSA-3 (representing one single-family house) would experience substantial future increases in noise levels (11.4 and 11.1 decibels, respectively) over existing noise levels. Another receiver in NSA-3 (representing one single-family house) would experience noise levels (66.5 dBA Leq) which approach or exceed 67 dBA Leq, the FHWA criterion for residences.

4.2.6.4 Noise Abatement Measures

General Discussion. Noise abatement measures are considered when predicted noise levels approach or exceed the FHWA Noise Abatement Criteria or when predicted noise levels would substantially exceed existing noise levels (see Section 4.2.6.1). Noise abatement measures can include: selection of roadway alignments to minimize noise impacts, implementation of traffic system management measures, and construction of sound barriers.

Roadway alignment selection involves choosing horizontal and vertical orientations in order to minimize noise impacts. The selection of alignments for noise abatement purposes must also consider the balance between noise impacts and other engineering and environmental parameters. The alternatives evaluated in this EIS were chosen based on an analysis of eleven preliminary alternatives. The Preliminary Alternatives Analysis (Greiner, Inc., 1994d) is discussed in Section 2.1.2. Traffic system management alternatives which limit vehicle type, speed, volume, and time of operations are often effective noise abatement measures. However, these types of measures are not considered appropriate for this project due to their effect on the capacity and level of service (LOS) of the proposed alternatives and the fact that they would not meet the purpose and need of the proposed project (see Section 2.1.1). Sound barriers reduce noise levels by blocking the sound path between a roadway and a receiver. Sound barriers are evaluated by considering both the feasibility and the reasonableness of providing the barrier.

Feasibility considers source/receiver relationships and engineering aspects of constructing a barrier at impacted sites. Determination of feasibility includes consideration of whether a minimum of 6 dB of noise reduction can be achieved, whether a barrier can be built on the site topography, and the presence of other noise sources in the area. For a noise barrier to provide sufficient noise reduction, it must be high enough and long enough to shield receivers from substantial segments of roadway. Access openings in the barrier severely reduce the noise reduction provided by the barrier, making the barrier unreasonable to construct.

An evaluation of reasonableness should demonstrate that common sense and good judgement were used in determining the location and effectiveness of a sound barrier. The criteria include sound barrier cost, decibel reduction achieved, public support, the degree of noise impact, required sound barrier height, and consideration of potential safety and/or drainage problems. A "reasonable" barrier must be cost effective. The NCDOT considers a cost-effective barrier as one costing no more than $25,000 per effectively protected site (a site having 4 dB or more of reduction). In general, barriers are not considered reasonable for businesses or isolated residences (NCDOT, 1990). Even though at least 6 dB of reduction are needed for a barrier to be considered feasible, receivers experiencing 4 dB or more reduction are counted when determining the cost-effectiveness of a sound barrier.

It should be noted that the above criteria for determining the feasibility and reasonableness of a sound barrier are only guidelines, and are not all encompassing.

Noise Barrier Analysis. The noise sensitive sites predicted to be directly impacted (i.e., experience noise levels that approach or exceed FHWA criteria or show a substantial increase over existing levels) by Alternative W1R were further evaluated in terms of the feasibility and reasonableness of providing noise barriers. Based upon model results for Alternative W1, the impacted receivers for the preferred alternative, Alternative W1R, were GF3 in NSA-2 (representing two multi-family residential units) and CA1 in NSA-4 (representing one single-family house). A set of cost factors provided by the NCDOT was used in estimating costs for concrete barriers. These factors are provided in an appendix to the Noise Technical Memorandum. The cost factors include the cost of panels, footings, drainage, landscaping, and overhead.

The STAMINA 2.0 model (FHWA, 1983) was used to determine the noise levels which would exist at receivers if barriers were constructed. Exhibit 4.7 shows the noise barrier and sensitive receiver locations estimated for Alternative W1R. The detailed analysis of potential noise barriers incorporated existing natural terrain and designed features such as fill/cut sections, noise barriers, and retaining walls. Barrier heights of 2.4 to 4.9 meters (8-16 feet) were evaluated for the receivers impacted under the original Alternatives of W1, with model results for Alternative W1 applied to the revised alignment under the preferred alternative, Alternative W1R.

Table 4.10 presents the results of the barrier analyses for Alternative W1R. The barrier heights and lengths reported in the table are the heights and lengths needed to provide sufficient noise reduction at the impacted receivers. A barrier 2.4 meters (8 feet) in height and 525.5 meters (1,724 feet) in length would be necessary to provide noise reduction values of 4.1-8.2 decibels at impacted receivers. This barrier, as shown in Exhibit 4.7, would need to be located on top of a fill slope and along a portion of the bridge. Constructing a sound wall on the bridge may not be feasible due to structural and visual considerations.

The final step in the noise abatement analysis is to determine whether the barriers which would provide sufficient noise reduction would also be cost-effective. As discussed previously, a barrier is considered cost-effective if the cost per benefitted residence is $25,000 or less. Based on the cost factors, the 2.4-meter (8-foot) high, 525.5-meter (1,724-foot) long barrier analyzed for Alternative W1R would have a total cost of $137,880. Two residences would benefit from the wall at a cost of $68,940 per benefitted residence.

Based on a review of reasonableness and feasibility criteria, consideration or design of noise mitigation measures for Alternatives W1R would not be warranted during the final design phase.

TABLE 4.10

NOISE ABATEMENT ANALYSIS RESULTS

Alternative[1]	Noise-Sensitive Area	Impacted Receiver	2019 Leq[2]	Abated Leq	NoiseWall Insertion Loss[3]	Wall Height m (ft)	Wall Length m (ft)[4]	Cost per Linear Meter (Foot)[5]	Total Cost	Number of Residences Benefitted[6]	Cost per Benefitted Residence
Alt. W1R[7]	NSA-2	GF3	62.6	58.5	4.1	2.4 (8)	525.5 (1,724)	$262 ($80)	$137,880	2	$68,940
	NSA-4	CA1	64.4	56.2	8.2						

1. Noise levels associated with Alternatives C4, C3, and C3R would not exceed FHWA Noise Abatement Criteria.
2. Leq: 1-hour equivalent noise level (dBA)
3. Insertion loss is the amount of noise reduction achieved by a sound barrier at a receiver.
4. The abatement wall and receiver location for the preferred alternative (Alternative W1R) is shown in Exhibit 4.7.
5. NCDOT, 1990
6. Number of receivers experiencing an insertion loss of 4 dB or more.
7. Noise abatement particulars for Alternative W1R were estimated using the model results for Alternative W1.

4.3 IMPACTS TO THE NATURAL ENVIRONMENT

This section is based on the Natural Resources Technical Memorandum (Greiner, Inc., 1994g) and its addendum (Greiner, Inc., 1996c) prepared for the project, which are incorporated by reference into this Environmental Impact Statement (EIS).

4.3.1 Biotic Communities

4.3.1.1 General Discussion of Direct and Indirect Impacts

Direct impacts will occur due to clearing, dredging, and fill activities. The effects of shading underneath a new bridge are also considered direct impacts. The proposed build alternatives (Alternatives W1R, C1, and C4) and Rehabilitation Alternative will result in direct impacts to biotic communities within the construction limits. Direct impacts would not occur in barrier island natural communities outside the causeway area (beach, dune grass, maritime shrub, and salt marsh) since construction limits would terminate on the causeway. Furthermore, there is no submerged aquatic vegetation (SAV) within the study corridors.

It has been suggested that the project could cause indirect impacts to biotic communities within the project area and on the Sunset Beach barrier island. Indirect impacts include man-induced impacts in the vicinity of the project potentially created by bridge navigational lighting and vehicular noise; however, only minimal low-voltage navigational lighting would be present on the structure, and slight increases in vehicular noise are not anticipated to create any substantial adverse impacts to biotic communities.

Secondary impacts on the island could include increased vehicular traffic to the island, increased development and lighting on the island, and increased pedestrian traffic on the beach. As discussed in detail in Sections 4.1.1.1 (Socio-Demographic Changes in Population) and 4.1.1.3 (Secondary Land Use Impacts), replacing the existing pontoon bridge is not expected to greatly affect the rate and type of development on Sunset Beach, or be a substantial influence on day visitor's choice of beach destination. The island of Sunset Beach is anticipated to build out in accordance with the North Carolina Coastal Area Management Act (CAMA) and local zoning regulations, regardless of the type of bridge access available to the island. Secondary impacts to natural communities on the barrier island would occur as a consequence of build-out of the island in accordance with the CAMA Land Use Plan and would not be effects associated with the project alternatives being considered.

Table 4.11 lists the potential impacts to biotic communities which would occur under each build alternative and the Rehabilitation Alternative. Direct impacts due to shading underneath a new bridge are included, where appropriate, in the table. Impacts to each community type are described

TABLE 4.11

POTENTIAL NATURAL RESOURCE IMPACTS

NATURAL RESOURCE	PREFERRED HABITAT FOR PROTECTED SPECIES	TYPE OF IMPACT[1]	ALT. W1R hectares (acres)[2]	ALT. W1 hectares (acres)[2]	ALT. C1 hectares (acres)[2]	ALT. C4 hectares (acres)[2]	ALT. C3R hectares (acres)[2]
Salt Marsh	peregrine falcon, bald eagle, wood stork	Dredge	perm. 0.02 (0.06)	perm. 0.15 (0.37)	0	0	0
		Fill	perm. 0.14 (0.35) temp. 1.73 (4.28)	perm. 0.08 (0.20) temp. 0.05 (0.11)	perm. 0.16 (0.39) temp. 0.08 (0.20)	perm. 0.27 (0.67)	0
		Shading [3]	perm. 0.09 (0.22)	perm. 0.08 (0.21)	perm. 0.21 (0.51)	perm. 0.03 (0.08)	0
Surface Water	peregrine falcon, bald eagle, wood stork, loggerhead sea turtle, green sea turtle, leatherback sea turtle, Kemp's ridley sea turtle, shortnose sturgeon, West Indian manatee	Dredge	perm. 0.53 (1.30)	perm. 1.01 (2.49)	0	0	perm. 0.10 (0.24)
		Fill	perm. 0.11 (0.26)	perm. 0.21 (0.53)	perm. 0.07 (0.17)	perm. 0.07 (0.17)	0
		Shading [3]	perm. 0.22 (0.54) temp. 0.02 (0.06)	ND	ND	ND	ND
Nonriverine Wet Hardwood Forest		Fill	0	0	0.11 (0.27)	0	0
Coastal Fringe Evergreen Forest	bald eagle	Fill	perm. 0.63 (1.55)	perm. 0.69 (1.70)	perm. 0.64 (1.58)	perm. 0.18 (0.44)	0
		Clearing	perm. 0.34 (0.85)	perm. 0.34 (0.85)	perm. 0.23 (0.56)	perm. 0.02 (0.04)	0
Man-Dominated Area		Fill	perm. 3.30 (8.15)	perm. 2.70 (6.66) temp. 0.10 (0.25)	perm 2.81 (6.95) temp. 0.05 (0.13)	perm. 2.47 (6.10)	0
		Clearing	perm. 0.04 (0.11)	perm. 0.06 (0.16)	perm. 0.21 (0.52)	perm. 0.14 (0.35)	0
		Excavation [4]	perm. 0.66 (1.64)	perm. 0.66 (1.64)	perm. 0.66 (1.64)	0	0
Total Area (including man-dominated)		Dredge	perm. 0.55 (1.36)	perm. 1.16 (2.86)	0	0	perm. 0.10 (0.24)
		Fill	perm. 4.17 (10.31) temp. 1.73 (4.28)	perm. 3.68 (9.09) temp. 0.15 (0.36)	perm. 3.79 (9.36) temp. 0.13 (0.33)	perm. 2.99 (7.38)	0
		Shading [3]	perm. 0.31 (0.76) temp. 0.02 (0.06)	perm. 0.08 (0.21)	perm. 0.21 (0.51)	perm. 0.03 (0.08)	0
		Clearing	perm. 0.39 (0.96)	perm. 0.41 (1.01)	perm. 0.44 (1.08)	perm. 0.16 (0.39)	0
		Excavation [4]	perm. 0.66 (1.64)	perm. 0.66 (1.64)	perm. 0.66 (1.64)	0	0
		TOTAL	**perm. 6.08 (15.03) temp. 1.76 (4.34)**	**perm. 5.99 (14.81) temp. 0.15 (0.36)**	**perm. 5.10 (12.59) temp. 0.13 (0.33)**	**perm. 3.18 (7.85)**	**perm. 0.10 (0.24)**

TABLE 4 (Continued)

POTENTIAL NATURAL RESOURCE IMPACTS

NATURAL RESOURCE	PREFERRED HABITAT FOR PROTECTED SPECIES	TYPE OF IMPACT	ALT. W1R hectares (acres)*	ALT. W1 hectares (acres)*	ALT. C1 hectares (acres)*	ALT. C4 hectares (acres)*	ALT. C3R hectares (acres)*
Total Area (less man-dominated)		Dredge	perm. 0.55 (1.36)	perm. 1.16 (2.86)	0	0	perm. 0.24
		Fill	perm. 0.87 (2.16) temp. 1.73 (4.28)	perm. 0.98 (2.43) temp. 0.04 (0.11)	perm.0.98 (2.41) temp. 0.08 (0.20)	perm. 0.52 (1.28)	0
		Shading [3]	perm. 0.31 (0.76) temp. 0.02 (0.06)	perm. 0.08 (0.21)	perm. 0.21 (0.51)	perm. 0.03 (0.08)	0
		Clearing	perm. 0.34 (0.85)	perm. 0.34 (0.85)	perm. 0.23 (0.56)	perm. 0.02 (0.04)	0
		TOTAL	**perm. 2.08 (5.13) temp. 1.76 (4.34)**	**perm. 2.57 (6.35) temp. 0.04 (0.11)**	**perm. 1.41 (3.48) temp. 0.08 (0.20)**	**perm. 0.56 (1.38)**	**perm. 0.10 (0.24)**

Notes: [1]*Dredge* impacts refer to the areal extent of surface water bottom and wetlands that would be disturbed by clamshell and bucket dredging activities.
Fill impacts refer to the areal extent that would be covered by borrow material necessary to increase the elevation of the land.
Temporary Fill impacts refer to areal extent of fill needed for the temporary staging area and work bridge, and for the temporary detour road for vehicular traffic. Although the area under the temporary work bridge would be impacted only by temporary, driven piles and shading from the structure, this area was assumed to be affected by fill for conservative impact predictions. Temporary fill material would be removed and deposited on upland areas chosen by the contractor after construction is complete.
Shading impacts refer to the areas located directly under the proposed bridge structure that would be affected by shade from the structure but by no other direct (dredge, fill, clearing, or excavation) impacts.
Temporary Shading impacts refer to the areas affected by shade from the temporary work bridge that would be removed upon completion of construction activities outside of the period between. It should be noted that some of the area included in temporary fill would actually be only temporary shading impacts; however, for conservative estimates, it was assumed that this area would be affected by temporary fill.
Clearing impacts refer to the areal extent that would be cleared of trees and brush in preparation for construction and/or necessary access by construction equipment and personnel. Areas within the construction right-of-way and staging areas would be allowed to revegetate naturally after construction is complete. Although not included in the totals, clearing may also be needed for the temporary construction staging areas on the mainland. Because locations of staging areas on the mainland will be chosen during final design by the contractor, no attempts to estimate any necessary clearing acreage for these areas was made.
Excavation applies only to the removal of the existing causeway on the island to allow this area to revert to salt marsh.

[2]Area was calculated based on the typical sections and preliminary plan views for each alternative. Areas calculated for Alternative W1R are based on the September 1996 Wetland Delineation Report for the Proposed Sunset Beach Bridge, Brunswick County; TIP # B-682; State Work # 8.2230101. (NCDOT, 1996c). "ND" denotes that the estimates were not determined.

[3]Shading impacts were calculated based on the width(s) of the proposed bridge alternatives and width of temporary work bridge.

[4]Excavation quantities are based on the area of causeway that may be removed for salt marsh restoration.

in the following two sections. It is assumed that the larger the area of direct impact to a natural community, the greater the impact to the species which inhabit that community (Greiner, Inc., 1994g:49). The No-Build Alternative would not impact biotic communities.

4.3.1.2 Barrier Island Communities

As discussed in the previous section, secondary impacts to barrier island communities would occur as a consequence of build out of the island and would not be effects associated with replacement of the existing bridge. However, some of the secondary and cumulative impacts to natural communities which could occur due to island build-out and increased pedestrian traffic are described below and in Section 4.5.

Research has shown that trampling of vegetation can cause damage over time (Povey and Keough, 1991). This, in turn, could have important indirect effects on the numbers and size distribution of animals, including the endangered peregrine falcon, wood stork, and piping plover, who depend on the vegetation for nesting, foraging, and/or cover. Vegetation also serves as a natural barrier against erosion. Increased development may also inhibit the nesting activities of the leatherback, loggerhead, and/or green sea turtle on the upper beach. Associated night lighting may disorient sea turtle hatchlings, ultimately reducing nesting success.

However, because of the importance of the barrier island natural communities, there are federal, state, and local laws which provide policies, rules, and regulations to prevent such secondary and cumulative negative impacts to the natural environment caused by unmanaged growth. The Federal Coastal Zone Management Act of 1972, CAMA, and North Carolina Executive Order 15 mandate that a consistency review be performed prior to any impact. Acquisition, use, and disposition of land must be consistent with the North Carolina Coastal Management Plan and the CAMA Land Use Plan for Sunset Beach (Greiner, Inc., 1994g:44).

A local zoning ordinance regulates the use of land within the town's corporate limits and extraterritorial area (ETA). Special provisions for protecting the barrier island dunes are included in the Town's Building Code. Provisions which prohibit vehicular traffic on the beach are included in the Traffic Code. Beach access points have been designated at the end of most streets on the island. These access points provide crosswalks over the dunes and have been lined with fences. It is illegal to walk, play in, or alter the dunes (Greiner, Inc., 1994g:44).

4.3.1.3 Upland Natural Systems

Upland natural systems within the project area are comprised of coastal fringe evergreen forest. This community type is listed by the North Carolina Natural Heritage Program (NHP) with a state rank of S1, meaning the community is critically imperiled in the state because of extreme rarity or is

otherwise very vulnerable to extinction. Protected species associated with this habitat include the state- and federally- endangered bald eagle.

A reduction of the coastal fringe evergreen forest due to construction of a replacement bridge and related new alignment could reduce the remaining habitat value of this natural community. The habitat may be further impacted by removal of forested species and by additional habitat fragmentation. However, due to past and continued clearing by local development, it is anticipated that the proposed project's direct impacts to the coastal fringe evergreen forest would be minimal (Greiner, Inc., 1994g:32).

Impacts to coastal fringe evergreen forest (CFEF) calculated for the Draft EIS and the preliminary Final EIS assumed that clearing would only be required at the bridge pier footings. In a review by NCDOT and Greiner completed to determine if impacts to CFEF could be avoided to any further extent, the impact calculations were revised to assume that all area under the bridge would be cleared, and all area 50 feet to one side of the bridge (west side) would be cleared for construction access. Calculations were then revised for all alternatives in accordance with these new assumptions. Clearing impacts to CFEF increased from 0.01 hectares (0.03 acres) to 0.34 hectares (0.85 acres). Impacts related to fill in CFEF remained the same with the revised assumptions. These new impact acreages are included in detail in Table 4.11 and Table 1 of the Mitigation Plan (Appendix H). Total permanent impacts for Alternative W1R are also be revised in the Summary of Impact Tables (Tables S-1 and 4-12 of the Final EIS).

Most animals in the upland areas are expected to be capable of avoiding any adverse stimuli. The only increase in lighting from the preferred alternative would be from the minimal low-voltage navigational lights that would be on the structure; therefore, associated indirect impacts to animal species within this community are not anticipated. Likewise, slight increases in vehicular noise due to the height of the proposed structure and location over this community along the proposed bridge should not cause any substantial adverse impacts to animal species found therein.

4.3.1.4 Wetland Communities

Impacts. There are three wetland communities within the project area: surface water, salt marsh, and nonriverine wet hardwood forest. Construction of any of the build alternatives would result in unavoidable direct impacts to portions of these wetland communities through filling, dredging, and/or shading.

The Rehabilitation Alternative would impact surface water and a small area of benthic habitat with the driving of new piles. The No-Build Alternative would avoid impacts to natural communities.

Table 4.11 displays the impacts that would occur to the three wetland communities (salt marsh, surface water, and nonriverine wet hardwood forest) under each build alternative, by type of impact

(dredge, fill, or shading), and by duration (permanent or temporary). Although the area under the temporary work bridge for Alternative W1R would be impacted only by temporary, driven piles and shading from the structure, this area was assumed to be affected by fill for conservative impact predictions.

Overall, Alternative W1R would impact (both permanent and temporary) the largest wetland area (2.86 hectares [7.07 acres]), primarily comprised of temporary fill in salt marsh (1.73 hectares [4.28 acres]) and of impacts to surface waters (0.87 hectare [2.16 acres]). Alternative C1 would impact 0.62 hectare (1.54 acres), and Alternative C4 would impact 0.37 hectare (0.92 acre) of wetlands.

Salt Marsh. Total impacts to salt marsh (both permanent and temporary) would be greatest under the Alternative W1R (1.99 hectares [4.91 acres]); however, most (1.73 hectares [4.28 acres]) of the impacts are associated with temporary fill for the construction duration. Alternative C1 would impact the second greatest amount of salt marsh (0.45 hectare [1.10 acres]), and Alternative C4 would impact the least amount of salt marsh (0.30 hectare [0.75 acre]). Salt marsh habitat is associated with the state- and federally-endangered bald eagle, wood stork, and peregrine falcon.

The salt marsh impact estimates for Alternative C1 assumed that a top-down or a similar construction method would be used for the segments of the bridge in the island salt marsh habitat. If top-down construction or a similar method is not assumed for estimates, a new 9.1-meter (30-foot) wide channel would need to be dredged in the salt marsh east of the island causeway (SR 1172) so that barge-mounted construction equipment could be used to build the piers and bridge superstructure for Alternative C1. A 9.1-meter (30-foot) wide channel dredged from the Intracoastal Waterway to where the bridge would intersect the causeway would be about 335.3 meters (1,100 feet) long and would impact approximately 0.30 additional hectare (0.76 additional acre) of salt marsh.

Because average speeds of boats traveling through the area could increase with the construction of the high-level preferred alternative (Alternative W1R), wave action and subsequent erosion and siltation could increase in the immediate vicinity of the bridge. At the present time, however, commercial waterway traffic is unrestricted, and there would be no change to shoreline conditions with this class of watercraft. For pleasure craft, boat speeds would only change in the immediate vicinity (several hundred feet in each direction) of the existing bridge. Additionally, no definitive correlations between vessel speeds and shoreline erosion rates were observed for the Ocean Isle Beach or Holden Beach high-level bridges (Greiner, Inc., 1996a). Therefore, erosional impacts to waterway shorelines effected by increased travel speeds associated with a high-level bridge are anticipated to be insignificant.

Surface Water. Impacts to surface waters (both permanent and temporary) would be greatest under Alternative W1R (0.87 hectare [2.16 acres]). Both Alternatives C1 and C4 would each impact 0.07 hectare (0.17 acre) of surface water, and the Rehabilitation Alternative would impact about 0.10

hectare (0.24 acre). Surface water habitat is associated with the state- and federally endangered bald eagle, wood stork, peregrine falcon, shortnose sturgeon, Kemp's ridley sea turtle, and leatherback sea turtle. The state- and federally-threatened loggerhead sea turtle and green sea turtle are also associated with this habitat type.

The Rehabilitation Alternative would impact surface waters because new piles would be needed in the Intracoastal Waterway. These piles would be installed by barge-mounted equipment. An area approximately 9.1 meters (30 feet) wide adjacent to the length of the existing bridge would be dredged so that the barge-mounted equipment could operate from the water.

Nonriverine Wet Hardwood Forest. Alternative C1 is the only build alternative which would directly impact nonriverine wet hardwood forest (0.11 hectare [0.27 acre]).

Mitigation. Executive Order 11990 requires action be taken to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Under this order, if there is no practicable alternative to construction in wetlands and all practicable measures to minimize harm have been provided, compensation of wetland impacts is required.

The NCDOT will provide wetland mitigation in accordance with the "Memorandum of Agreement (MOA) Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines." This MOA requires the applicant to follow a sequencing process for mitigation which include, in order: (1) avoidance of impacts, (2) minimization of impacts, and finally (3) compensation for unavoidable impacts.

The North Carolina Department of Transportation (NCDOT), in consultation with the US Army Corps of Engineers (COE) and other environmental review agencies, will incorporate measures into the design of the preferred alternative (Alternative W1R), which will minimize impacts to wetlands and other areas of environmental concern. NCDOT Best Management Practices (BMPs) as described in Section 4.4 will be implemented as practicable, and temporary fill will be deposited in upland areas after use. The Mitigation Plan detailing the measures that will be implemented to compensate for unavoidable wetlands impacts along the Alternative W1R corridor is provided in Appendix H of this document. Through a joint application process, permits will be obtained from the COE pursuant to Section 404 of the Clean Water Act (33 Code of Federal Regulations (CFR) Part 323) and Section 10 of the River and Harbor Act, and from the NC Division of Coastal Management pursuant to the CAMA.

The NCDOT has, in coordination with the COE, delineated the wetlands along the preferred alternative's corridor (Alternative W1R) in accordance with the COE's wetland delineation procedures. Under consultation with the COE, mitigation requirements for impacted delineated wetlands will be determined and included as conditions of Section 404 permit approval.

Additionally, mitigation requirements are decided on a site-by-site basis. Mitigation measures may include creation of new wetlands, enhancement of existing wetlands, erosion control, and acquisition of land for preservation purposes.

Present mitigation policies call for in-kind replacement within the project area (Greiner, Inc., 1994g:42). Potential mitigation sites within the project area for the preferred alternative include the segment of the island causeway between the start of the new bridge approach and the Intracoastal Waterway. This segment of the causeway would no longer be traveled if Alternative W1R is constructed because vehicles would be routed onto the new approach and new bridge. Accordingly, the portion of this segment of the causeway within NCDOT right of way will be restored to salt marsh. NCDOT will attempt to acquire and restore the portion of the causeway that is privately owned. Details of the Mitigation Plan are contained in Appendix H.

Compensation efforts necessary to minimize net impacts to wetland values will be decided based on the importance of the wetlands affected. Specific mitigation requirements will be determined by the COE during the Section 404 permitting process and will be included as conditions of permit approval.

Wetlands Finding. Executive Order 11990, "Protection of Wetlands," established a policy to avoid, to the extent possible, adverse impacts on wetlands and to avoid direct or indirect support of new construction wherever there is a practicable alternative. Because the project is the replacement of an existing bridge on the Intracoastal Waterway, complete avoidance of wetland areas is not practicable. Furthermore, as discussed in Section 2.2.3.6, the final consensus among agency representatives was that when the cost, safety, traffic, aesthetic, and overall environmental effects were compared among alternatives, the least environmentally damaging practicable alternative to address the deficiencies of the Sunset Beach Bridge is Alternative W1R. Specifically, revisions to the alignment of Alternative W1, resulting in the preferred alternative (Alternative W1R) reduced the impacts to wetlands substantially by the avoiding the dredging of the Big Narrows channel.

In total, Alternative W1R would unavoidably impact 2.9 hectares (7.07 acres) of wetlands and surface water. However, of this total, only 0.17 hectare (0.41 acre) of salt marsh and 0.63 hectare (1.56 acres) of surface waters would be permanently impacted from dredge and fill operations (NCDOT, 1996c). The majority of the impacts would be temporary fill impacts to salt mash (1.73 hectares [4.28 acres]), with an additional 0.31 hectare (0.76 acre) of permanent shading impacts and 0.02 hectare (0.06 acre) of temporary shading impacts to salt marsh and surface waters (NCDOT, 1996c).

A Mitigation Plan (Appendix H) has been developed to include all practicable measures to minimize harm to these wetlands. Impacts on wetlands will be further minimized by the implementation of BMPs during the design and construction phase of the project. A list of relevant NCDOT BMPs is displayed in Section 4.4.

Based upon the above consideration, it is determined that there is no practicable alternative to the proposed new construction in wetlands, and the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

4.3.2 Fisheries Resources

Impacts. The Intracoastal Waterway supports a variety of commercial fisheries resources and is designated a Primary Nursery Area (PNA) for economically important seafood species. The build alternatives (Alternatives W1R, C1 and C4) and the Rehabilitation Alternative (C3R) would have some impact to fisheries due to increased turbidity and siltation during bridge construction/rehabilitation. Potential impacts associated with the construction of a replacement bridge in Sunset Beach, North Carolina, include the permanent loss of wetlands and aquatic areas due to dredge and fill operations, temporary impacts due to increases in turbidity as a result of construction operations, and impacts associated with using barges and/or temporary work bridges during construction.

Permanent Wetland Losses. The permanent loss of wetlands and aquatic areas due to dredge and fill operations may have an impact to commercial fisheries and the federal listed endangered species, the Atlantic shortnose sturgeon. The preferred alternative, Alternate W1R, would impact (dredge, fill, and shading) the largest acreage of saltwater areas (0.9 hectare [2.1 acres]), and Alternative C4 would impact the largest acreage of salt marsh (0.27 hectare [0.67 acre]), excluding shading impacts (0.03 hectare [0.08 acre]). These activities and the subsequent loss of habitat may ultimately result in adverse impacts to the commercial fisheries that may utilize these areas for feeding, spawning, or nursery grounds. Impacting salt marsh areas would be more severe in the long term, due to the complete loss of habitat. Excluding shading impacts, the permanent saltmarsh impacts by alternative are: 0.17 hectare (0.41 acre) for Alternative W1R; 0.16 hectare (0.39 acre) for Alternative C1; and 0.27 hectare (0.67 acre) for Alternative C4. There is less habitat loss in open water areas, and there is potential for establishment of fouling communities along bridge pilings. Establishment of fouling communities would increase the diversity, abundance and distribution of organisms in the marine environment. The organisms that would be expected to establish include barnacles, bryozoans, hydrozoans, bivalves and ascidians. These colonizers should also attract other animals, such as fish and crustaceans. Therefore, the proposed bridge pilings should add a community of organisms not presently found in the area, thereby increasing the overall diversity of the saltwater areas.

Secondary Turbidity. Temporary impacts associated with increases in turbidity as a result of construction operations may have an impact to commercial fisheries and the shortnose sturgeon. Turbidity produces a silt layer which may cause an impact to benthic populations and ultimately reduce species diversity. Also, fragile benthic species may become damaged by the abrasive action of the turbid waters. Fish and invertebrate gills may become clogged with excessive silt in the water. Larvae and juveniles may also be suffocated by silt in nursery areas.

Disturbance of waterway bottom sediment would be greatest for Alternative C4, which would require the placement of four piers in the waterway. (Please see Section 4.2.2.1 for details of water quality impacts.) The preferred alternative (Alternative W1R) and Alternative C1 would each require three piers in waterways. Dredging in the Intracoastal Waterway would also be necessary under the Rehabilitation Alternative to replace the old support piles.

Barges and/or Temporary Work Bridges. The use of barges or temporary work bridges during construction would result in 1) a temporary loss of bottom habitat at each pier piling (for the temporary work bridge technique) or within the footprint of the sunken barge location (if sunken barges are employed), 2) an increase in turbidity, and 3) possible dredge impacts. The use of floating work barges may require that the Intracoastal Waterway be dredged in shallow water areas during their use to maintain access to the construction areas. One floating barge would be used to place materials on and one would serve as a working platform for construction equipment, anchored with driven piles or cables. When the pier construction is complete, the stationary barge would be moved and anchored at the next pier construction site. This method of construction would create turbidity temporarily and may ultimately result in impacts to the commercial fishery species as discussed above in *secondary turbidity*. Also, if sunken, the platform barge would cause a temporary loss of bottom habitat from its sitting on the bottom of the channel. This temporary loss of habitat may result in a short-term adverse affect on populations of finfish and shellfish that utilize these areas.

Sunken construction barges used outside of the navigable portion of the Intracoastal Waterway in shallow waters could result in the temporary loss of bottom habitat. Populations of finfish and shellfish that utilize these areas may be adversely affected by the short term loss of the habitat.

A temporary work bridge used outside of the navigable portion of the Intracoastal Waterway in shallow waters would also result in the loss of bottom habitat due to the addition of temporary foundations. As discussed previously, the loss of habitat would adversely affect populations of finfish and shellfish that utilize these areas during feeding, spawning, or as nursery grounds for juveniles.

Specific impact areas associated with the use of barges and/or temporary work bridges cannot be determined at this time. Once construction plans are prepared, impacts to specific habitats can be determined.

Mitigation. A variety of measures would be incorporated into the preferred alternative (Alternative W1R) in order to minimize water quality impacts which, in turn, would minimize direct and indirect impacts to fisheries resources. The NCDOT's BMPs, implemented on all projects, are designed to minimize sedimentation and erosion impacts. (A list of relevant NCDOT BMPs is displayed in Section 4.4.) In addition, the NCDOT will prepare a sedimentation and erosion control plan during the final engineering design phase which will detail measures specific to Alternative W1R and will

meet the standards for discharge to High Quality Waters (HQW) (see Section 4.2.2.1). Prior to construction of the project, the NCDOT will obtain water quality certification. In order to minimize adverse turbidity impacts to fisheries resources (including the federally endangered shortnose sturgeon), turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method. Additionally, the restoration of the existing causeway to salt marsh as discussed in Sections S-9, 4.3.1.4, and in the Mitigation Plan (Appendix H) will help ameliorate potential impacts from necessary benthic disturbance by allowing the former causeway to regain its wetland functions, which will be beneficial to the PNAs of the Intracoastal Waterway.

4.3.3 Protected Species

Eleven species listed in Table 3.13 have the potential to occur within the study area or on the Sunset Beach barrier island. The direct and indirect impacts to these species due to the proposed project are described below. Section 4.3.1.1 includes a discussion of the different types of impacts.

4.3.3.1 Federally-Protected Species

Consultations with the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act have been completed as part of the preparation of this Final EIS (please see letters from the NMFS and USFWS in Appendix F-III: 43-47; Appendix F-IV: 6-11). However, the USFWS and the NMFS will continue their monitoring of the Alternative W1R studies through the Section 404 permitting process.

Plants. As discussed in Section 3.3.3.1, the sea beach amaranth (*Amaranthus pumilis*) has been observed in the eastern portion of the Sunset Beach barrier island.

Since this plant is found on the barrier island, outside the project's construction limits, dredge and fill activities would not directly impact the seabeach amaranth. Any secondary impacts which may occur to the sea beach amaranth would be due to build out of the island and would not be directly attributable to the proposed project (see Section 4.1.1.1 and 4.5).

Biological Conclusion. The proposed project will have **no effect** on the seabeach amaranth.

Fish. Although preferred habitat for the endangered shortnose sturgeon (*Acipenser brevirostrum*) occurs within the project area, no information is currently available on how the project area is utilized by the shortnose sturgeon. Although it is very unlikely that the waters in the Sunset Beach

area are utilized by young of the year juveniles or by adults for spawning, the area could be used by sub-adults and adults as a feeding area (Greiner, Inc., 1996b). Accordingly, the spring and summer months between April and August are the most likely times for potential construction, dredge, and fill associated impacts to the shortnose sturgeon. With the implementation of High Quality Water erosion control standards, the potential feeding substrate for the shortnose sturgeon should not be adversely affected by excessive sedimentation. Turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method. No adverse secondary impacts are anticipated to fisheries resources with the implementation of the preferred alternative.

Biological Conclusion. NCDOT commits to following the provisions noted above. Accordingly, it can be concluded that the project construction will have **no effect** on the shortnose sturgeon (NCDOT, 1996d).

Amphibians and Invertebrates. There are no federally-protected amphibians or invertebrates likely to occur in the study area.

Reptiles. Four species of threatened and/or endangered sea turtles could occur in the project area: leatherback sea turtle (*Dermochelys coriacea*), Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), and green sea turtle (*Chelonia mydas*). The leatherback and Kemp's ridley sea turtles are listed as endangered, and the loggerhead and green sea turtles are listed as threatened.

Dredge and fill activities in the Intracoastal Waterway and other surface water areas may directly impact suitable habitat for these four turtles. The leatherback, Kemp's ridley, and green sea turtles may also be temporarily affected during construction due to direct habitat disturbance and to sedimentation and turbidity. However, BMPs would reduce and/or eliminate any direct and indirect impacts to these species. A list of relevant NCDOT BMPs is displayed in Section 4.4.

Secondary impacts which could adversely affect the leatherback, loggerhead, and green sea turtle are increases in human use of the upper beach area on the barrier island. These three sea turtle species use upper beach habitat for nesting. Furthermore, an increase in lighting that may accompany island development could result in disorientation of sea turtle hatchlings, thereby reducing nesting success. However, these secondary impacts to barrier island upper beach habitat are associated with build out of the island and are not related to the project alternatives being considered (see Sections 4.1.1.1 and 4.5).

Biological Conclusion. The proposed project is **not likely to adversely affect** the four sea turtle species listed above.

Birds. Four threatened and/or endangered bird species occur within natural community types in the study area and barrier island (see Table 3.13). These birds are: threatened piping plover (*Charadrius melodus*), endangered peregrine falcon (*Falco peregrinus*), endangered bald eagle (*Haliaectus leucocephalus*), and endangered wood stork (*Mycteria americana*). The piping plover is found in habitats similar to those on the barrier island, outside the project limits. The peregrine falcon, bald eagle, and wood stork are found in habitats within the project area. Table 3.13 lists the habitat types preferred by each species.

Table 4.11 lists the areas impacted under each build alternative and the Rehabilitation Alternative. Dredge and fill activities within the coastal fringe evergreen forest, salt shrub, salt marsh, and surface water areas may result in direct loss of suitable habitat for the peregrine falcon (salt marsh, surface water), bald eagle (coastal fringe evergreen forest, salt marsh, surface water), and wood stork (salt marsh, surface water). However, construction activities should not adversely affect individuals of these species since large amounts of similar habitat are available in the project vicinity (Greiner, Inc., 1994g:42).

Any increases in vehicular noise due to the height of the proposed structure and the minimal low-level navigational lighting along a replacement bridge are not anticipated to create adverse indirect effects on these four federally-protected bird species.

Potential secondary impacts to these bird species associated with increased development and pedestrian traffic on the island would not be directly attributable to the proposed project (see Section 4.1.1.1).

Biological Conclusion. The proposed project is **not likely to adversely affect** the protected bird species listed above.

Mammals. One endangered mammal, the West Indian manatee (*Trichechus manatus*), could be encountered within the surface waters of the project area. A seasonal inhabitant, manatees are most likely encountered during the warmer months and can be found in freshwater, brackish, and marine habitats in waters between one and two meters (three and seven feet) deep. Dredge and fill activities in the Intracoastal Waterway may temporarily impact the habitat available to the manatee. However, any direct or indirect impacts are anticipated to be minor. (A list of relevant NCDOT BMPs is displayed in Section 4.4.) Practices, as described in Section 4.2.2.1, would reduce and/or eliminate any potential impacts to this species (Greiner, Inc., 1994g:43). Additionally, the USFWS prefers that in-water construction (construction activities below the waterline) be accomplished during the seven month period, November through May, so that potential encounters during the manatee's annual migration through North Carolina waters from June through October (USFWS, 1996b) are

minimized. The following USFWS precautions will be implemented throughout the year to minimize the potential for adverse manatee encounters:

1. Construction personnel will be trained to identify manatees, their habitat, and their seasonal migration patterns; the need to avoid harm to manatees; and the general responsibility of all construction personnel for observing water-related activities for manatees.

2. Construction personnel will be informed that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected by the Marine Mammal Protection Act of 1972 and the Endangered Species Act;

3. All moving equipment will be shut down immediately if a manatee comes within 15.2 meters (50 feet) of the operational area of the equipment, with activities suspended until the manatee departs project area on its own volition. Other appropriate precautions will also be taken if a manatee be sited within 91.4 meters (100 yards) of the active construction/dredging operation or vessel movement.

4. Any collision with and/or injury to a manatee will be reported immediately to the USFWS manatee coordinator in Jacksonville, Florida, the Raleigh Office and the North Carolina Wildlife Resources Commission (WRC).

5. All watercraft associated with the project will have posted placards with a USFWS approved statement of caution regarding the potential for manatee encounters.[5]

6. The construction contractor will maintain a log of sightings, collisions, or injuries to manatees during the project construction, which will be summarized in a report and submitted to the USFWS Raleigh Office and the NCWRC at project end (USFWS, 1996b).

Other measures that must be taken during the manatees' seasonal migration through North Carolina waters between June and October include:

1. All vessels associated with the project are to follow deep water routes where possible and will be operated at "no wake/idle" speeds at all times where draft of vessel provides less than a four-foot clearance from the bottom.

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[5]The sign will read, "CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of operating equipment. A collision with and/or injury to a manatee will be reported immediately to U.S. Fish and Wildlife Service at 919-856-4520 and the North Carolina Wildlife Resources Commission at 919-224-1288."

2. Where necessary, siltation barriers must be made of a material in which manatees cannot become entangled and secured in a manner that they cannot break free and entangle manatees. These barriers will be regularly monitored to ensure that manatees have not become entangled. Furthermore, barriers will be placed in a manner to allow manatees entry to or exit from essential habitat (USFWS, 1996b).

Biological Conclusion. NCDOT commits to the implementation of the USFWS precautionary measures noted above; therefore, in-water construction activities of the preferred alternative (Alternative W1R) will have **no effect** to the manatee (USFWS, 1996b). However, if in the event that a manatee is observed during construction, a **may affect** scenario would apply and Section 7 Consultation with the USFWS would be initiated to resolve concerns over the species (NCDOT, 1996d).

4.3.3.2 Federal Candidate and State-Listed Species

Appendix E, Part III lists the federal candidate and state-listed species potentially occurring in the study area and whether preferred habitat is available.

Table 4.11 lists the areas of natural communities impacts under each build alternative (Alternatives W1R, C1, and C4) and the Rehabilitation Alternative. Direct impacts to salt marsh would occur under all build alternatives (Alternatives W1R, C1, and C4), although the areas of impact would vary. Impacts to salt marsh could affect suitable habitat for the two-spotted skipper (*Euphyes bimacula*), Dukes' skipper (*Euphyes dukesi*), marked goby (*Gobionellus stigmaticus*), rare skipper (*Problema bulenta*), Byssus skipper (*Problema byssus*), silverling (*Baccharis glomerulifora*), toothed flatsedge (*Cypress dentatus*), beaked spikerush (*Eleocharis rostellata*), Carolina grasswort (*Lilaeopsis carolinensis*), winged seedbox (*Ludwigia alata*), lanceleaf seedbox (*Ludwigia lanceolata*), and the moundlily yucca (*Yucca gloriosa*). Appendix E, Part III lists the federal and state status of these species, as well as the probability of their occurrence in the project area.

Direct impacts to surface waters (see Table 4.11) due to construction of any of the build alternatives or the Rehabilitation Alternative could affect the anhinga (*Anhinga anhinga*), American alligator (*Alligator mississippiensis*), spinycheek sleeper (*Eleotris pisonis*), marked goby (*Gobionellus stigmaticus*), black-necked stilt (Himantopus mexicanus), freckled benny (Hypsoblennius ionthas), broadtail madtom (*Noturus* sp. 2), brown pelican (*Pelecanus occidentalis*), Carolina crawfish frog (*Rana areolata capito*), and black skimmer (*Rynchops niger*). Appendix E, Part III lists the federal and state status of these species, as well as the probability of their occurrence in the project area.

Direct impacts to nonriverine wet hardwood forests due to construction of Alternative C1 (see Table 4.11) could affect star-nosed mole (*Condylura cristata* pop 1), purple gallinule (*Porphyrula martinica*), Carolina gopher frog (*Rano capito capito*), reversed roadside skipper (*Amblyscirtes reversa*), two-spotted skipper *(Euphyes bimacula)*, honeycomb head (*Balduina atropurpurea*),

Chapman's sedge (*Carex chapmannii*), Venus flytrap (*Dionaea muscipula*), pondspice (*Litsea aestivalis*), Florida adder's mouth (*Malaxis spicata*), lace-lip ladies'-tresses (*Spiranthes laciniata*), shortleaf yellow-eyed-grass (*Xyris brevifolia*), Elliott's yellow-eyed-grass (*Xyris elliottii*), and *Plagiochila ludoviciana*. Appendix E, Part III lists the federal and state status of these species, as well as the probability of their occurrence in the project area.

Direct impacts to coastal fringe evergreen forests due to construction of any of the build alternatives (see Table 4.11) could affect the Bachman's sparrow (*Aimophila aestivalis*), eastern dimondback rattlesnake (*Crotalus adamanteus*), little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), southern hognose snake (*Heterodon simus*), eastern coral snake (*Microphis fulvius*), eastern woodrat (*Nemotoma floridana floridana*), mimic glass lizard (*Ophisaurus mimicus*), northern pine snake (*Pituophis melanoleucus melanoleucus*), glossy ibis (*Plegadis falcinellus*), least Florida skipper (*Amblyscirtes alternata*), Arogos skipper (*Atrytone arogos arogos*), little metalmark (*Calephelis viginiensis*), mottled dusky wing (*Erynnis martialis*), southern hairstreak (*Fixsenia favonius favonius*), dotted skipper (*Hesperia attalus slossonae*), frosted elfin (*Incisalia irus*), giant swallowtail (*Papilio cresphontes*), scale-leaf gerardia (*Agalinis aphylla*), Georgia calamint (*Calamintha georgiana*), warty sedge (*Carex verrucosa*), four-angled flatsedge (*Cyperus tetragonus*), Venus flytrap (*Dionaea muscipula*), threadleaf sundew (*Drosera filiformis*), coralbean (*Erythrina herbacea*), Harper's fimbry (*Fimbristylis perpusilla*), soft milk-pea (*Galactia molis*), pinebarren sunrose (*Helianthemum corymbosum*), Georgia sunrose (*Helianthum georgianum*), Carolina St. John's wort (*Hypericu nitidum*), southern bogbutton (*Lachnocaulon beyrichianum*), Torrey's pineweed (*Lechea torreyi*), cabbage palm (*Sabal palmetto*), tough bumelia (*Sideroxylon tenax*), Carolina goldenrod (*Solidago pulchra*), twisted-leaf flowering goldenrod (*Solidago torifolia*), Carolina asphodel (*Tofieldia glabra*), dune bluecurls (*Trichostema* sp. 1), Carolina triodia (*Tridens carolinianus*), Carolina atamasco lily (*Zephyranthes* sp.1), savanna campylopus (*Sampylopus carolinae*), *Cheilolejeunea rigidula*, and Cuban schliessmund (*Syrrhopodon incompletus*). Appendix E, Part III lists the federal and state status of these species, as well as the probability of their occurrence in the project area.

The NCDOT will keep the North Carolina Natural Heritage Program (NHP), the North Carolina Botanical Gardens, and the North Carolina Wildlife Resources Commission (WRC), and other interested agencies informed regarding the status of the proposed project. NCDOT will encourage these agencies to conduct field surveys during project design to determine whether state-listed species are present. If any of these species are found within the project area, the NCDOT will coordinate with these agencies to facilitate the transplantation of affected state-listed communities to suitable relocation sites.

4.4 CONSTRUCTION IMPACTS

Construction of bridge segments over water associated with the build alternatives and the Rehabilitation Alternative would likely be performed using barge-mounted equipment. Standard ground-based construction methods would likely be used to build the bridge approaches, the bridge segments over land, and the improvements/relocations of existing roadways. Detailed construction plans, including specification of construction methods, will be prepared during final design. Section 2.2.3.5 describes different types of potential construction methods. However, because of the limitations of the methods discussed in Section 2.2.3.5, a combination of a temporary work bridge, floating barge, and construction barges in a dredged channel would likely be employed for the construction of the preferred alternative (Alternative W1R). If used, the temporary work bridge would be located west of the existing causeway and is preliminarily estimated to extend 320.0 meters (1,050 feet) northward to its terminus, approximately 15.2 meters (50 feet) from the southernmost main span pier in the AIWW. Located outside of the AIWW's main channel, the temporary work bridge would be in little danger of vessel impacts from AIWW traffic. The temporary work bridge would be expanded between pier construction sites with bridge extensions called "fingers." If used, a channel for the construction barges would extend northward from the northern end of this work bridge to a barge loading platform located on the northern side of the AIWW. This barge channel would be maintained with bucket/clam shell dredging, where necessary. Final selection of the construction techniques will be accomplished during final design and evaluated formally through the Section 404 and Section 10 permitting processes.

For the temporary work bridge construction method, the work bridge would be removed upon completion of the permanent bridge; however, removal of in-water piles will be accomplished outside of the period between and inclusive of March and August. Impacts to the waterway bottom under this construction method would be considered minimal due to temporary piles.

For the floating barge construction method, barges would likely be anchored with driven piles or cables. When the pier construction is complete, the anchored barges would be moved and anchored near the next pier construction site. Removal of the driven piles that may be used anchor this platform barge adjacent to the construction site is not to occur between and inclusive of March and August.

For the construction barges method of construction, the bottom of the waterway may require dredging at locations where the water depth is about three meters (ten feet) or less. To minimize turbidity, the bucket/clam shell dredging technique will be employed where dredging is necessary.

The construction activities associated with replacing or rehabilitating the existing Sunset Beach pontoon bridge along any alternative alignment would create environmental impacts. These impacts,

generally short-term in nature, can generally be controlled, minimized, or mitigated through conformance with Best Management Practices (BMPs) and standard NCDOT procedures. A list of relevant NCDOT BMPs is displayed below.

- Adverse impacts on waters on the United States will be avoided whenever practicable; minimized and mitigated when avoidance cannot be achieved.

- During the development of the required environmental or planning documents, all locations where roadway runoff or other non-point source pollution may have an adverse impact on sensitive water resources will be identified. All potential impacts of each alternative and proposed mitigation measures will be described.

- Discharge of dredged or fill material into waters of the United States shall be avoided or minimized through the use of other practical alternatives.

- On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation, will be identified and receive special attention during the project design phase.

- Avoid realignments of existing channels and streams. If unavoidable, minimize the extent of realignment. The geometry of new channel shall be comparable to that of the existing channel.

- Maintain a vegetated buffer or berm between a drainage channel and highway embankment where practicable.

- Investigate stability of channels and drainage ditches, and provide adequate linings to prevent erosion.

- Avoid ditching and channelization through wetlands.

- The discharge of dredged or fill material will not occur in the proximity of a public water supply intake.

- Temporary and permanent erosion control measures will be indicated on the final plans. These features will include, but are not limited to, silt ditches, silt basin, rock structures, silt fencing, coffer dams, temporary drainage easements, and temporary seeding and mulching. The need for additional erosion control measures may become evident during construction.

- Temporary erosion control plan sheets will be included in the construction plans. These plans identify and address distinct phasing of temporary erosion control measures and devices at specific phases of construction (clearing, grading, and completion).

- Designs and design criteria that are consistent with minimum standards promulgated by the Department of Environment, Health, and Natural Resources will be utilized.

- Design erosion and sedimentation control devices to accommodate the runoff associated with a ten (10) year frequency storm.

- Erosion and sedimentation control measures, structures, and devices within High Quality Water zones shall be designed to provide protection from the runoff of the 25-year frequency storm.

- Sediment basins within High Quality Water Zones shall be designed to have a settling efficiency of at least 70 percent for the 40 micron size soil particle transported into the basin by the runoff of the two (2) year frequency storm.

- Provide adequate right of way or easements to install and maintain erosion control measures.

- The angle for graded slopes and fills shall be no greater than the angle which can be retained by vegetative cover or other adequate erosion control devices or structures.

- Newly constructed open channels in High Quality Water zones shall be designed and constructed with side slopes no steeper than two (2) to one (1) if a vegetative cover is used for stabilization, unless soil conditions permit a steeper slope or where the slopes are stabilized by using mechanical devices.

- Promote infiltration and filtration of pavement runoff by directing sheet flow over grassed shoulder slopes and shallow flat slope ditches.

- Promote infiltration by utilizing stone lined ditches in lieu of rigid concrete pavement.

- Detention and retention storage will be utilized where deemed necessary and practicable to mitigate the impact of roadway runoff into sensitive receiving waters.

- Hazardous Spill Basins are provided in new highway construction and major improvement projects at identified strategic location along the system highways.

- Maintain sheet flow in wetlands by using drainage structures under highway fills.

- Discharge flow from highway drainage systems at the edge of wetlands or floodplains to promote filtration of discharge prior to its entering the stream.

- Construction operations in rivers, streams, and water impoundments shall be restricted to those areas where channel changes are shown on the plans and to areas which must be entered for the construction or removal of temporary or permanent structures.

- Excavated materials shall not be deposited, nor shall earth dikes or other temporary earth structures be constructed in rivers, streams, or impoundments.

- Any discharge of dredged or fill material shall consist of suitable material free from toxic pollutants.

- Any material excavated for footings in or near a lake or water course will be removed from the immediate vicinity of the water to prevent rainfall from transporting the material into the water course.

- Frequent fording of live streams with construction equipment is not permitted. Temporary bridges or other structures shall be used wherever frequent stream crossings are necessary.

- All temporary fills shall be removed in their entirety.

- The contractor must comply with all laws, ordinances, regulations, orders and decrees, by local, state and federal agencies which would include storage, use and disposal of toxic and hazardous materials.

- The contractor shall exercise every reasonable precaution throughout the life of the project to prevent pollution of rivers, streams, and water impoundments.

- Each borrow operation shall not be allowed to accumulate exposed, erodible slope area in excess of one (1) acre at any time without beginning permanent seeding and mulching of the borrow sources, or implementation of other approved erosion control measures.

- Topsoil shall be removed from borrow sources and stockpiled. Once all borrow material has been removed from the source of portion thereof, the stockpiled topsoil shall be spread uniformly over the source.

- Except where borrow material is to be obtained from a commercial source, a development, use and reclamation plan shall be prepared and approved by the Resident Engineer.

- A development, use and reclamation plan shall be approved for each area utilized for the disposal of waste and debris, other than active public waste or disposal areas.

- Waste or disposal areas shall be shaped to drain so that no water will collect or stand. A functioning drainage system shall be provided.

- Whatever measures necessary shall be taken to minimize soil erosion and siltation, water pollution and air pollution caused by operations.

- Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage and other harmful waste shall not be discharged into or alongside rivers, streams or impoundments, or into natural or man-made channels leading thereto.

- If excavated bridge footing areas are pumped out, the resulting effluent shall not be discharged directly into the waterway without first utilizing an approved filtering technique.

- Temporary erosion control measures shall be coordinated with permanent erosion control measures and all other work on the project to assure economical, effective, and continuous erosion control through-out the construction and post construction period.

- Borrow sources shall be graded to drain so that no water will collect or stand. A functioning drainage system shall be provided. If drainage is not practical and the sources is to serve as a pong, the minimum average depth below the water table shall be four (4) feet or the source will be graded to create wetlands, as appropriate.

- Measures shall be taken to prevent live or fresh concrete from coming into contract with any waters of the state.

- Every reasonable precaution shall be taken to prevent the eroding of soil and the silting or rivers, streams, lakes, reservoirs, other water impoundments, ground water, or other property.

- Following completion of any construction phase or operation, on any area greater than one acre, the Contractor shall provide ground cover sufficient to restrain erosion within 30 calendar days. When construction is within a high quality water zone, ground cover sufficient to restrain erosion shall be provided within 15 calendar days.

- The following techniques shall be used during the construction of embankments to prevent excessive soil erosion: temporary and permanent earth berms shall be constructed along the outer edges of the top surface of embankments, temporary ditches shall be constructed, embankment surfaces will be shaped to provide for the drainage of surface runoff along and throughout the length of the embankment, and other methods used as necessary. Where appropriate, brush dikes shall be constructed and/or temporary or permanent slope drains or other drainage features shall be constructed to assist in controlling erosion.

- The Resident Engineer will appoint an employee responsible for inspection of permanent erosion control measures. All devices will be inspected periodically, and after every significant rainfall.

- Temporary and permanent erosion control measures shall be provided as shown on the plans or as directed.

- Temporary and/or permanent erosion control measures shall be employed during the use of borrow sources and as an element of reclamation. Staged permanent seeding and mulching shall be employed on a continual basis while the source is in use. Immediate total reclamation will occur when the sources is no longer needed.

- Earth surfaces of all areas utilized for the disposal of waste and debris shall be maintained both during the work and after the completion of all seeding and mulching or other erosion control measures, in a manner that will effectively control erosion and siltation.

- Temporary erosion control measures shall include, but are not limited to the use of temporary berms, dikes, dams, drainage ditches, silt basins, silt ditches, slope drains, rock structures inlet

protection devices, vegetation, mulches, mats, netting, gravel, or any other method or device which may be necessary.

- Temporary and/or permanent erosion control measures shall be employed during the use of waste and disposal areas and during reclamation. Where practical, stages permanent seeding and mulching shall be employed on a continual basis during the use of the site. Immediate total reclamation of the site will occur upon completion.

- Temporary sediment control devices will be cleaned on a frequent and periodic basis. Devices should not achieve more than fifty percent (50%) of their possible accumulation capacity.

- Clearing and grubbing shall be performed in a manner which will cause minimal soil erosion. The work shall be coordinated with other operations so that, unless otherwise authorized, no more than seventeen (17) acres of exposed, erodible surface area will be accumulated at any one time.

- Grading operations will not be allowed to accumulate exposed, erodible slope areas in excess of seventeen (17) acres at any one time without beginning permanent seeding and mulching or other erosion control measures.

- Intercept ditches should be constructed across the roadway in both cut and fill sections at the close of each day's operations to direct the runoff to controlled drainage ways and outlets.

- If grading operations are suspended for any reason, partially completed cut and fill slopes shall be brought to the required slope and the work of seeding and mulching, or other required erosion control operations, shall be performed.

- A self monitoring program will be performed to ensure compliance with the Sediment and Erosion Control Program Requirements, and to evaluate and rate levels of field implementation of the program.

For each build alternative, there are potential construction staging areas near the project site. A temporary work and construction staging area and would be constructed on the island portion of the project. The proposed site for the island staging area for Alternative W1R would be west and adjacent to the existing causeway in the southern extreme of the proposed area of fill for the temporary work bridge. This staging area would require only a portion (0.5 hectare [1.3 acres]) of the fill required for the temporary work bridge (1.1 hectares [2.82 acres]).

On the mainland side of the project study area, potential staging areas for construction of Alternative W1R are the property on Canal Avenue currently owned by the NCDOT and the portion of the Sea Trail Plantation Golf Course which will be needed to construct Alternative W1R. Additional staging area will be located in upland areas in the vicinity of the project site. The final location of these staging areas will be evaluated during final design on the basis of logistics and economic

practicability. A total estimated area of approximately 1.2 hectares (three acres) of mainland staging area would be required for the preferred alternative.

Potential mainland staging areas for Alternative C1 include the existing section of NC 179 which would be replaced by a new alignment. This area could be used once traffic is rerouted to the new NC 179 alignment. The restaurant property on the west side of Secondary Road (SR) 1172 near the existing pontoon bridge would be directly impacted by Alternatives C1 and C4. This restaurant property could be used as a staging area for either Alternative C1 or C4.

Potential sources of borrow material are the COE dredge spoil piles located on the island side of the AIWW to the west and east of the existing bridge. These piles were formed during dredging of the AIWW. It is the responsibility of the Contractor to locate and obtain all necessary borrow material and to conform with all applicable rules and regulations. If the contractor obtains materials from a remote source, it would likely be barged to the site. Additional dredging may be necessary to enable the barge to off-load this material. If additional dredging is needed to deliver borrow material to the site, bucket/clam shell dredging will be employed and all required permits will be obtained by a modification of the project permits by the NCDOT for the contractor.

4.4.1 Water Quality and Drainage

As discussed in Section 4.2.2.1, the proposed build alternatives (W1R, C1, and C4) and the Rehabilitation Alternative (C3R) have the potential to temporarily degrade water quality in the AIWW, Slough Canal, Big Narrows channel, and surrounding salt marsh as a result of sedimentation and soil erosion during construction. An increase in the turbidity of surface waters due to sedimentation may be detrimental to aquatic life since it may block light transmission and slow biochemical and natural purification processes. Under the No-Build Alternative (C3), temporary direct and indirect water quality impacts associated with construction activities would be avoided.

Disturbance of waterway bottom sediment would similar among all alternatives. Alternative C4 would require four piers in waterways, and Alternatives W1R and C1 would each require three piers. The Rehabilitation Alternative (C3R) would require replacement of the existing bridge piles, which would also disturb the waterway bottom.

The NCDOT will incorporate measures into the design of the preferred alternative (Alternative W1R) to control non-point source water quality impacts as described in the NCDOT's "Best Management Practices for Protection of Surface Waters" (NCDOT, 1991). (Please see a list of relevant NCDOT BMPs above.) These measures will be incorporated into the final engineering design of the Alternative W1R and will be detailed in an erosion and sedimentation control plan. This plan will be prepared in accordance with the guidelines and requirements of the NC Sedimentation Pollution Control Act (15A North Carolina Administrative Code (NCAC) 4B.0001-0027). Selection and implementation of the BMPs will be consistent with the NCDOT's statewide

National Pollutant Discharge Elimination System (NPDES) permit and will reflect coordination with North Carolina DWQ, formerly a part of North Carolina Division of Environmental Management (DEM), as discussed in Section 4.2.2.1 of this document.

Alternative W1R will be designed to comply with state water quality standards. Water quality certification from the North Carolina Division of Water Quality (DWQ) will be obtained prior to construction, in accordance with the 1982 amendments of the Clean Water Act. This certification will be coordinated through the federal Clean Water Act Section 404 dredge and fill permitting process for wetlands and through the North Carolina Coastal Area Management Act (CAMA) permitting process for major developments.

4.4.2 Air Quality

Construction activities could have a short-term impact on air quality, primarily during site preparation. Particulate matter (dust) is the pollutant of primary concern during the construction period. Dust will be generated during earth moving activities and handling of cement, asphalt, or aggregate. Wind erosion of exposed areas and material stockpiles will also generate particulate matter. The amount of dust generated would vary, depending on the construction activity and local weather conditions. Where excess dust is anticipated to be a problem, effective dust control measures will be implemented in accordance with standard NCDOT procedures. Dust control will be the responsibility of the contractor and could include the following:

- Minimizing exposed earth surface
- Temporary and permanent seeding and mulching
- Watering working and haul areas during dry periods
- Covering, shielding, or stabilizing material stockpiles
- Using covered haul trucks

Emissions from construction equipment are regulated by federal standards. Any burning of cleared materials will be conducted in accordance with applicable state and local laws, regulations, and ordinances. Specifically, a Burning Permit from the North Carolina Division of Forest Resources will be obtained for any burning within woodlands or within 152.4 meters (500 feet) of woodlands under the protection of the Division of Forest Resources.

4.4.3 Noise

Construction of the build alternatives (W1R, C1, and C4) or the Rehabilitation Alternative (C3R) will result in temporary increases in noise levels within the vicinity of the project. Noise would be generated primarily from heavy equipment used to transport materials and to construct the roadway and bridge and from pile drivers used to construct the bridge piers. Sensitive receivers (residences)

located close the construction activities may temporarily experience increased noise levels.

Construction noise can be controlled by regulating the hours of construction and equipping machinery with noise reduction devices. Certain construction activities could also be limited during the evening, weekends, and holidays. Storage and staging areas will be located as far from noise sensitive areas (NSAs) as practicable. If warranted, NCDOT may require that the contractor limit noise levels to 80 A-weighted decibels (dBA) average sound level equivalent (Leq) in noise-sensitive areas adjacent to the project. The NCDOT also reserves the right to monitor construction noise and to require noise abatement where limits are exceeded and can limit work that produces objectionable noise during normal sleeping hours.

4.4.4 Biotic Communities

Construction, staging, and stockpiling operations could result in the disruption of the resident wildlife population. The clearing of habitats, human activity, and noise from construction operations would result in the displacement of mobile wildlife species. Non-mobile species will be lost as habitat is converted to construction areas.

As discussed at the beginning of this chapter, there are possible construction staging areas for each build alternative within the project study area. These areas are roadbeds or developed properties. which have minimal value as natural habitat. Any additional off-site staging and stockpiling areas which may be needed will be located to minimize, as much as possible, the impact to natural habitat.

4.4.5 Construction Waste

All construction waste material generated on-site during clearing and other construction phases will be removed and burned or disposed of by the contractor in accordance with state and local regulations. Litter and other general trash will be collected and disposed of at local landfill locations.

4.4.6 Detours and Accessibility

Build Alternatives. During construction of any of the build alternatives, access across the existing pontoon bridge will be maintained. Under Alternative C1, a minor temporary detour on the island causeway will be created to route traffic around the area where the new bridge approach would join the existing causeway. This detour would be a 9.1- to 12.2-meter (30- to 40-foot) shift in the roadway around the bridge approach area, which would only be necessary during construction of the approach segment. Because the alignment of Alternative W1R follows the present alignment of NC 179 for approximately 548.6 meters (1,800 feet) on the southern side of the Sunset Beach Bridge, a (640-meter [2,100-foot]) temporary detour would be necessary for Alternative W1R. As with the

detour for Alternative C1, this detour would comprise an approximate 9.1- to 12.2-meter (30- to 40 foot) shift in the roadway, east of the construction area and would require approximately 0.6 hectare (1.5 acres) of temporary fill.

The island causeway elevation would be raised as part of Alternatives W1R, C1, and C4. During work on the existing causeway alignment, traffic would need to occasionally be routed to one lane, with traffic control, while the other lane is being modified. Similar temporary lane closures would also be necessary on the mainland side while the roadways associated with any of the build alternatives are being worked on.

Rehabilitation Alter

native. Rehabilitation of the pontoon bridge is estimated to require at least nine months to complete, mainly for rehabilitation of the approach spans (NCDOT, 1994b). Assumptions include a 10- to 12-hour workday.

The approach spans would be rehabilitated section by section, and the bridge would be closed to vehicular traffic during the portion of the day (or night) work is occurring. Holes would be drilled in the existing decking and new piles would be driven into the waterway bottom. When work is done for the day (or night), a cap would be placed on the holes so that traffic could cross the bridge. The next day (or night), the existing span section would be removed and a new approach span would be installed in its place.

No-Build Alternative. Under the No-Build Alternative, the bridge would be closed to vehicular and waterway traffic as needed for repairs.

4.5 CUMULATIVE IMPACTS

Cumulative effects are impacts which result from the incremental consequences of an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 Code of Federal Regulations (CFR) 1508.7). The cumulative effects of an action may be insignificant when evaluated in an individual context, but these effects can add to other disturbances which eventually lead to a measurable environmental change. By evaluating the impacts of the proposed action with the effects of other actions, the relative contribution of the proposed action to a projected cumulative impact can be estimated.

Past actions on the island include: development of existing residences, vacation homes, and limited commercial facilities; provision of public parking; and improvement of public access to the oceanside beach. This development has occurred in accordance with the Town's CAMA Land Use Plan and with the existing pontoon bridge in place.

Foreseeable future actions on the island include build-out of the island in accordance with the CAMA Land Use Plan and the possible provision of a centralized sewer system. The issue of centralized sewer is currently under study, and state officials have approved funding for the project. Other possible future actions which could affect the island, such as a repeal of the island's 10.7-meter (35-foot) building height restriction or changes in zoning regulations, were not considered reasonably foreseeable since the Town's past and current plans and ordinances have continued to emphasize the Town's strong desire to remain a quiet, family-oriented area.

Therefore, an evaluation of the cumulative impacts of the proposed action on the island's human and natural environments should consider the incremental environmental effects of the proposed action in relation to the impacts due to existing development, provision of centralized sewer, build-out consistent with the CAMA Land Use Plan, and overall population growth in Brunswick County.

Cumulative impacts to the human environment could include an increase in population and housing densities, increased noise, and increased traffic volumes. Impacts to natural communities and wildlife include encroachment in natural habitat, increased pedestrian traffic across natural habitats, and increased noise and night-lighting which may disorient wildlife species, including federally-protected species.

Build-out of the island in accordance with the CAMA Land Use Plan will, by definition, increase the number of houses on the island since about 40 percent of the island's platted lots are currently undeveloped. Most of these undeveloped lots contain soils which can not support septic systems. A centralized sewer system could facilitate development of the vacant lots on the island which have soils unsuitable for septic systems. Projected population growth throughout Brunswick County will likely correspond to an increase in the number of day visitors traveling to all Brunswick County beaches.

The proposed bridge replacement would not measurably contribute to cumulative impacts to the human or natural environments on the island. The proposed action would not provide new access to a previously unaccessible area, nor would the proposed action expand the parking capacity on the island.

A replacement bridge would not directly encroach upon the developed areas of the barrier island or the beach. As discussed in Sections 3.1.2, 4.1.1, and 4.1.2, based on case studies in Ocean Isle and Holden Beach, replacement of the existing bridge would not change the rate and type of development on the island of Sunset Beach. The number of day visitors is not expected to increase due to the project (see Sections 3.1.1.2 and 4.1.1.1). Traffic volume projections would generally be the same under any project alternative (see Section 1.5.1.3).

4.6 SECTION 106, 6(f), AND 4(f) RESOURCES

4.6.1 Section 106 Resources

Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to consider the effects of their undertakings on historic properties. Historic properties protected under Section 106 include prehistoric or historic districts, sites, buildings, structures, or objects included in or eligible for inclusion in the National Register of Historic Places. Section 110(f) of the Act specifically requires federal agencies to undertake "planning and actions...to minimize harm" from undertakings which would have an adverse effect on National Register properties. As discussed in Sections 3.1.5 and 4.1.5, there are no historic properties within the project study area eligible for listing in the National Register; therefore, Section 106 does not apply.

4.6.2 Section 6(f) Resources

Section 6(f) properties are governed by the Land and Water Conservation Fund Act of 1965. These lands are open space and recreation areas purchased or improved with federal Land and Water Conservation Funds.

There are no facilities in the project vicinity that would be subject to Section 6(f) (North Carolina Division of Parks and Recreation, 1995). The nearest Section 6(f) property is Shallotte Park on US 17 in Shallotte, North Carolina (Brunswick County Parks and Recreation Dept., 1995b). This park is over 40.2 kilometers (25 miles) from the project study area.

4.6.3 Section 4(f) Resources

Section 4(f) of the US Department of Transportation Act provides protection for special properties. Resources protected by Section 4(f) include significant publicly owned parks and recreation areas, wildlife and waterfowl refuges, or any significant historic sites.

A review of the Section 4(f) issues related to the project, including both the resources in the project area, as well as the information contained in the court's records, was undertaken in order to determine the applicability of Section 4(f) to the proposed action. Efforts were made to determine whether or not resources protected by Section 4(f) were located within the project area, as well as to identify publicly owned lands which are designated by those having jurisdiction over these lands

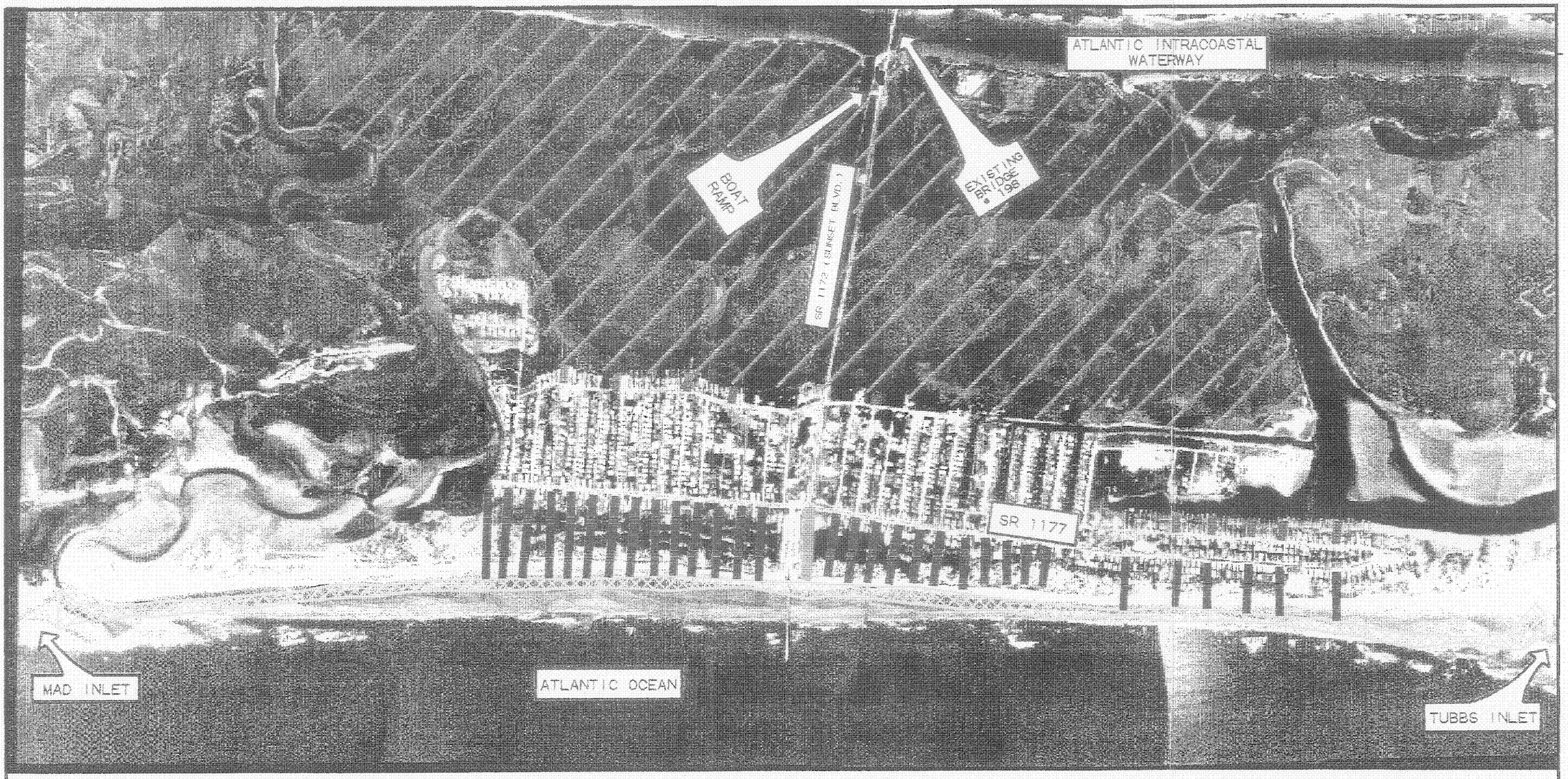
as public parks, recreational areas, or wildlife and waterfowl refuges. No publicly owned properties were identified which are designated or managed as wildlife and/or waterfowl refuges, and the State Historic Preservation Officer (SHPO) has concurred with the Federal Highway Administration (FHWA) and NCDOT findings that there are no resources of historical significance in the project area.

However, three distinct areas were identified in the court's Memorandum Opinion with regard to Section 4(f) (756 F. Supp. 904 (E.D.N.C. 1990)). These include the wetlands, the boat ramp on the causeway along SR 1172 south of the bridge, and the beach (see Exhibit 4.8). Furthermore, in addition to the beach area identified by the court, the NCDOT determined that the Town of Sunset Beach parking lot, gazebo, town-owned beach area, and public access areas to the beach are publicly-owned recreational areas.

As discussed below, the ocean beach below mean high tide and the parking lot, gazebo and beach area owned by the Town of Sunset Beach were determined to be Section 4(f) resources. The Town-owned estuary easements, wetlands, and the causeway boat ramp were determined by the court not to be resources protected under Section 4(f). Section 4.7 contains the Section 4(f) Evaluation for those properties determined to be protected under Section 4(f).

Estuary Easements. There are ten (10) Town-owned drainage easements leading to the estuary. Three (3) of these easements are also footpaths. The footpaths are identified in the Town of Sunset Beach's Land Use Plan under the recreation policy; however, the Land Use Plan also states, "the Town of Sunset Beach does not have a formal recreational policy or operate parks, public boat accesses, or similar public recreational facilities." The Town indicates that these accesses to the estuary are unimproved, not designated by signs for use by the public, and may be hazardous for use by the public in their current state. Therefore, the Town of Sunset Beach does not consider these access areas significant recreational resources, and they are not formally designated by the Town of Sunset Beach for recreational use at this time (Town of Sunset Beach, 1995d). It should also be noted that these access points lead to the estuary, which is privately owned property and deeded on tax maps to non-public entities. For the above reasons, no further action regarding Section 4(f) applicability is required with regard to the accesses to the estuary.

Wetlands. In the prior litigation the plaintiffs claimed that NCDOT failed to comply with Section 4(f) of the Transportation Act of 1966 in that NCDOT and FHWA failed to make an appropriate analysis and findings as to impacts on the tidal marsh wetlands on Sunset Beach Island. An investigation of tax maps indicates that certain of the wetlands referred to may be privately owned. Tidal marsh wetlands, whether privately owned or completely submerged, may be subject to state public trust ownership or easement. The federal court concluded, however, that as a matter of law these tidal marsh wetlands, even if public trust property, were not subject to Section 4(f) requirements. In reliance on this judicial determination, no further analysis under Section 4(f) has been undertaken in regard to tidal marsh wetlands.



LEGEND

- * BEACH AREA
- * SUNSET-BEACH OWNED BEACH AREAS, PARKING LOT AND GAZEBO
- * PUBLIC BEACH ACCESS EASEMENTS
- WETLAND/MARSH
- BOAT RAMP
- DRAINAGE EASEMENTS

NOTE : * = RESOURCE PROTECTED UNDER SECTION 4(f)

0 100 300 (m)
0 400 800 1200 (ft)
APPROX. GRAPHIC SCALES

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY
AT SUNSET BEACH NORTH CAROLINA
T.I.P NO. B-682

RESOURCES EVALUATED
FOR SECTION 4(f) APPLICABILITY

EXHIBIT 4.8

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DATE: 6-Jun-97 11:06

Boat Ramp. A boat ramp (or landing) is located on the west side of existing SR 1172 just south of Bridge No. 198. A portion of the boat ramp is located on NCDOT right of way and the remainder is privately owned, deeded property. That portion within the NCDOT right of way is publicly owned. A review of the tax maps verified this claim; however, the primary designated use for this public-owned highway right of way by the NCDOT is for vehicular transportation and not recreational purposes. The use of this boat ramp has been an allowed trespass but has never been officially recognized or maintained as a recreational facility by any entity or agency. In that the boat ramp is neither designated nor administered for a purpose identified in Section 4(f), no further action regarding Section 4(f) applicability is required. It should be noted that the court held that Section 4(f) does not apply to the boat landing (756 F. Supp. 904 (E.D.N.C. 1990)). Efforts are underway to relocate this boat ramp. Three potentially suitable alternate ramp sites have been identified in the vicinity of the Sunset Beach area. The NCDOT is presently evaluating these sites for feasibility in coordination with other state and federal agencies.

Beach. The beach in the project area extends along the southern side of the island in the Town of Sunset Beach. In the State of North Carolina, the portion of the beach from the mean high water mark seaward is held in public trust and, as such, is publicly owned and potentially a resource protected by Section 4(f). Land on the beach above the mean high water mark can be privately owned and as privately-owned property, would not be a resource protected by Section 4(f).

The Town's CAMA Land Use Plan states that, "The beaches provide most of the area's recreational opportunities." The North Carolina Department of Environment, Health, and Natural Resources - Division of Coastal Management has jurisdiction over this public trust area and cites recreation as one of its management objectives. Since recreation is a management objective of the two entities who have jurisdiction over the beach, it can be concluded that the beach below the mean high water mark is a publicly owned recreation area protected by Section 4(f).

The proposed action would not require any right of way or direct use of this resource protected by Section 4(f).

Town of Sunset Beach - Parking Lot, Gazebo, Beach Area. The Town of Sunset Beach owns a parcel of beachfront property on the island. This publicly owned property is located on the south side of SR 1177 (Main Street) and almost immediately adjacent to the Main Street/SR 1172 intersection (see Exhibit 4.8). A private pier and parking facility are located immediately west of this property.

This property is used primarily for visitation and access to the beach. The facilities provided on this property include a parking lot, a wooden gazebo, an access to the beach, and a beach area above the mean high tide line. This recreation area is included in the Town of Sunset Beach's current Land Use Plan under the discussion of the recreational policy. The beaches are cited as the area's most

predominant recreational opportunity, and this parking lot is one of the 33 access points available on the island.

This property is a publicly owned recreation area protected by Section 4(f).

Public Beach Access Areas. The Town of Sunset Beach also owns 32 public beach access areas. These access points are located at the ends of north-south oriented streets on the island (see Exhibit 4.8). The access points, which are three meters (10 feet) wide, extend from NCDOT SR 1177 right of way (Main Street) to the mean high water line. Wooden walkways over the dunes to the beach area are provided at most of the access points. These access points are included in the Town of Sunset Beach's Land Use Plan.

Since public access to the state-owned beach would be difficult without these designated access points, they could be construed as resources protected by Section 4(f).

The proposed action will not require the direct taking or alteration of any of the aforementioned properties. Project studies have determined that the rate and type of growth and development will conform to current and projected zoning and land use restrictions and that the proposed action will not substantially affect development trends on the island. Similarly, the proposed action will not result in an increased number of day visitors to the island. Access to the beach is currently limited to the availability of parking spaces (283 public and 150 private paid spaces) within reasonable walking distance of the beach and to the residents (both permanent and seasonal) on the island.

4.6.4 Impact as Defined by Section 4(f)

In general, there are two ways in which a project could impact a property subject to protection under Section 4(f). A project could require a direct taking or it could require a "constructive use" of all or part of the resource protected by Section 4(f). A "constructive use" occurs when a project creates environmental impacts to a resource protected by Section 4(f), but does not directly take part or all of the property.

Constructive use occurs when the transportation project does not incorporate land from a Section 4(f) land, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected

activities, features, or attributes of the resource are substantially diminished. Constructive use occurs when (49 USC 303, § 771.135):

1. The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f);

2. The proximity of the proposed project substantially impairs aesthetic features or attributes of a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource;

3. The project results in a restriction on access which substantially diminishes the utility of a significant publicly owned park, recreation area, or a historic site;

4. The vibration impact from operation of the project substantially impairs the use of a Section 4(f) resource;

5. The ecological intrusion of the project substantially diminishes the value of wildlife habitat in a wildlife or waterfowl refuge adjacent to the project or substantially interferes with the access to a wildlife or waterfowl refuge, when such access is necessary for established wildlife migration or critical life cycle processes.

4.6.5 U.S. District Court Order to Conduct a Section 4(f) Evaluation

In accordance with the November 19, 1990, Memorandum of Opinion by the U.S. District Court on *Mullin v. Skinner*, in which Mullin *et al.* brought action challenging the NCDOT's proposed construction of a high-rise bridge at Sunset Beach, the NCDOT has evaluated the impact of the proposed action on applicable Section 4(f) resources as presented in Section 4.7. In summary, the Court concluded the following:

> Viewing the beach at Sunset Beach as Section 4(f) property, the only question left for this court to consider is whether the bridge-replacement project requires "use " of the beach. 49 U.S.C. § 303(c). The word "use" in Section 4(f) is to be construed broadly and is not limited to a physical taking; even off-site activities are included if they could create sufficiently serious impacts that would substantially impair the value of the site in terms of its prior significance and enjoyment. *Adler v. Lewis*, 675 F. 2d 1085, 1092 (9th Cir. 1982). The off-site activities of the proposed project must "impair substantially the value of the site in terms of its environmental, ecological, or historic significance." *Citizen Advocates*, 770 F.2d at 441. Indirect impacts sufficient to constitute such a constructive use include noise pollution, general unsightliness, and reduced access to an area. *Coalition Against a Raised Expressway, Inc. v. Dole*, 835 F.2d 803, 810 (11th Cir. 1988). In fact, the determination as to what constitutes a "use under Section 4(f) is essentially the same as the determination as to what constitutes a "significant impact" under NEPA. *Adler*, 675 F.2d at 1092.

The court concludes that the beach at Sunset Beach will be "used" ["constructive use"] by the bridge-replacement project in the same manner that the project will significantly affect the quality of the human environment under NEPA and SEPA. . . . As such the Secretary of the USDOT was required to make section 4(f) findings before approving the project. Because he did not, his decision was "not in accordance with law." . . .The project must therefore be enjoined and may not proceed further until the appropriate Section 4(f) findings are made. (756 F. Supp. 904 (E.D.N.C. 1990):925).

4.7 SECTION 4(F) EVALUATION

4.7.1 Proposed Action

The proposed action is the replacement of Bridge No. 198 on SR 1172 in Sunset Beach, Brunswick County, North Carolina. Bridge No. 198 spans the AIWW and connects the island and mainland portions of the Town of Sunset Beach.

This bridge replacement project is identified as Project Number B-682 in the North Carolina Department of Transportation's (NCDOT) *1997-2003 Transportation Improvement Program* (TIP) (NCDOT, 1996g, [noted in the Draft Environmental Impact Statement (DEIS) as NCDOT {1995a}]). Project B-682 is programmed in the TIP only for planning and environmental studies. A schedule for design, right of way, and construction is not included in the TIP since Project B-682 is currently the subject of a US District Court case.

The purpose of the project is to replace the structurally deficient and functionally obsolete existing bridge. In general, functionally obsolete bridges are those which are narrow, have inadequate under clearances, have insufficient load carrying capacity, or are poorly aligned with the roadway and can no longer adequately service current traffic. Structurally deficient bridges are those which are in relatively poor condition or have insufficient load carrying capacity which may be due to original design or to deterioration.

The existing Sunset Beach bridge is a single-lane, floating steel-barge, swing-span draw bridge, with fixed wooden approach spans, which is often referred to as a pontoon bridge. Since the bridge provides only a few feet of vertical clearance under the approach spans, virtually all waterway traffic (except small john boats) is blocked when the bridge is closed to allow roadway traffic to cross. In May 1996, the existing bridge was inspected, determined to be in poor condition, and given a sufficiency rating of 7.3 on a scale of 0 to 100, with 100 being perfect condition (NCDOT, 1996a).

Replacement of this pontoon bridge with a new structure would provide a reliable means of transportation between the island and the mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures. Furthermore, the new facility would enhance both vehicular operation on SR 1172 and watercraft operations on the AIWW.

4.7.2 Section 4(f) Properties

The publicly-owned recreational areas that have been identified as resources protected by Section 4(f), and might be affected by the proposed action include: the beach below mean high water,

parking lot, gazebo, Town beach area and public beach access areas. These are depicted on Exhibit 4.8.

4.7.2.1 Beach

The beach in the project area extends along the southern side of the island in the Town of Sunset Beach. The southern side of the island is approximately 5.6 kilometers (3.5 miles) long. In the State of North Carolina, the portion of the beach from the mean high water mark seaward is held in public trust and, as such, is publicly-owned and potentially a resource protected by Section 4(f). Both the NC Division of Coastal Management and the Town of Sunset Beach have jurisdiction over the beach below the mean high water mark. Land on the beach above the mean high water mark can be privately owned and as privately-owned property, would not be a resource protected by Section 4(f).

The beach area from the mean high water mark seaward can be reached from public roadways on the island through public beach access easements owned by the Town. There are currently no features or restrictions which would block travel on the publicly-owned beach from one end of the island to the other.

On peak days, it is estimated that about 2,800 beach-going day visitors come to Sunset Beach (Hayes and Associates, 1994a:7). The beach is also used by people staying at the homes located on the island. Recreational opportunities on the beach include swimming, sunbathing, birdwatching, walking, surf fishing, and other activities normally associated with ocean beaches.

There are other ocean beaches located both up and down the coast from Sunset Beach. The nearest beach located down the coast is Cherry Grove Beach, South Carolina. Ocean Isle Beach is the next developed beach up the coast. These beaches provide recreational opportunities similar to those at Sunset Beach.

The Town's CAMA Land Use Plan states that, "The beaches provide most of the area's recreational opportunities." The North Carolina Department of Environment, Health, and Natural Resources - Division of Coastal Management has jurisdiction over this public trust area and cites recreation as one of its management objectives.

Since recreation is a management objective of the two entities who have jurisdiction over the beach, it can be concluded that the beach below the mean high water mark is a publicly-owned recreation area protected by Section 4(f).

4.7.2.2 Town of Sunset Beach - Parking Lot, Gazebo, and Beach Area

The Town of Sunset Beach owns a parcel of beachfront property on the island. This property has approximately 30.5 meters (100 feet) of frontage along the south side SR 1177 (Main Street) and is

about 0.13 hectare (one-third acre) in size. It is almost immediately adjacent to the Main Street/SR 1172 intersection (see Exhibit 4.8). A private pier and parking facility are located immediately west of this property.

This property is used primarily for visitation and access to the beach. The facilities provided on this property include a parking lot next to the roadway, a bicycle rack, a wooden gazebo, an access to the beach, and a beach area above the mean high-tide line. There are no additional facilities planned for this parcel (Town of Sunset Beach, 1995a). This recreation area is included in the Town of Sunset Beach's current Land Use Plan under discussion of the recreational policy. The beaches are cited as the area's most predominant recreational opportunity, and the Town-owned parcel provides one of the 33 beach access points available on the island.

The parking lot provides a bicycle rack and a total of 45 parking spaces, including four (4) handicapped spaces. Although actually a city street, the parking lot is evaluated as a Section 4(f) resource because it is the primary location for visitors to park and access the beach. The parking lot is accessible from an entrance off of Main Street. Parking is also provided along designated side streets on the island, and visitors access the beach at designated public beach access points.

The gazebo is located between the parking lot and the beach. The gazebo is used by individuals to rest and/or enjoy a view of the ocean. From the gazebo looking north toward the existing bridge, the landscape is dominated by buildings and roof tops.

The dunes and sandy beach area owned by the Town of Sunset Beach comprise the southernmost edge of this property. The flat beach area is used for recreational purposes such as sunbathing, walking, birdwatching and other activities associated with ocean beaches.

This Town-owned property is a publicly owned recreation area protected by Section 4(f).

4.7.2.3 Public Beach Access Areas

The Town of Sunset Beach owns 32 public beach access areas in addition to the parcel described above. These access points are located at the ends of north-south oriented streets on the island (see Exhibit 4.8). The access points, which are three meters (10 feet) wide, extend from NCDOT right of way for SR 1177 (Main Street) to the mean high water line. Wooden walkways over the dunes to the beach area are provided at most of the access points. These access points are included in the Town of Sunset Beach's Land Use Plan.

Since public access to the state-owned beach area would be difficult without these designated access points, they could be construed as resources protected by Section 4(f).

4.7.3 Impacts to the Section 4(f) Property

As explained in Section 4.6.4, there are two ways in which a project could impact a property subject to protection under Section 4(f): 1) a direct taking; or 2) a "constructive use."

The proposed action will not permanently or temporarily incorporate any publicly held land or properties identified as resources protected by Section 4(f).

Several factors were evaluated in order to determine how the proposed action would cause substantial impacts to the resources protected by Section 4(f), resulting in the "constructive use" determination by the court. Factors considered include: increased traffic on the new facility; increased traffic and construction noise on the island as a result of growth and development on the island; and an increase in the number of beach visitors resulting in an increase in traffic and human-generated noise (e.g., talk, laughter, radios, etc.). Factors which were evaluated in terms of their potential to increase general unsightliness on the beach included: an increased amount of litter and other human-generated debris as a result of an increase in the number of beach visitors, and visual impacts generated by new construction in response to anticipated growth and development trends on the island.

Average daily traffic (ADT) volumes were projected for the year 2019 based upon current land use trends and patterns projected and identified in the Town of Sunset Beach's Land Use Plan. Year 2019 traffic volumes are projected to be the same for all of the build alternatives as well as the no-build alternative. However, during summer peak periods, ADT volumes may be reduced by 10 to 15 percent with the No-Build and Rehabilitation Alternatives due to delays experienced with trips across the existing pontoon bridge and reduced numbers of discretionary trips between the island and the mainland (NCDOT, 1995c). Discretionary trips are non-essential trips which can be cancelled, such as trips to restaurants or entertainment facilities, or convenience trips to the store. As described in Section 1.5.1.3 of this Final EIS, substantial delays due to increased traffic volumes and bridge opening events are anticipated in the design year. However, it has also been concluded that the existing pontoon bridge will allow projected summer peak traffic volumes to pass between the island and mainland portions of the Town of Sunset Beach.

An increase in noise levels on the Section 4(f) protected resources will not occur as a result of the proposed action. Furthermore, no noise-sensitive facilities have been identified within the resources protected by Section 4(f). The proposed project is not expected to have a substantial effect on future traffic volumes. It is possible that with the No-Build or Rehabilitation Alternatives, summer peak period traffic volumes could be 10-15 percent lower than under the build alternatives because less discretionary trips may occur due to delays at the bridge. However, a 10-15 percent change in traffic volumes would change average traffic noise levels by less than one decibel, which would not be a significant difference.

No visual intrusion of the landscape will be created under any of the build alternatives. The primary vista is up and down the beach and toward the ocean, and the proposed build alternatives are located a minimum of 1.2 kilometers (0.75 mile) away from the resources protected by Section 4(f). From any vantage point within the protected resources, there are other structural elements which would appear to be higher and more dominant in the landscape than any of the proposed build alternatives; therefore, the visual impact, is considered to be minimal.

As noted by the Court, "[i]ndirect impacts sufficient to constitute a constructive use include noise pollution, general unsightliness, and reduced access to an area" (756 F. Supp. 904 (E.D.N.C. 1990):925). Factors that could produce secondary impacts such as these include an increase in the rate and type of development in the vicinity of the resource, an increase in the number of visitors to the resource or areas surrounding the resource, and the implementation of incompatible policies or projects that diminish the access to the resource.

Development. Project studies have determined that the rate and type of growth and development will conform to current and projected zoning and land use restrictions and that the proposed action will not substantially affect development trends on the island. Projected growth on the island is anticipated to occur consistent with the Town's CAMA Land Use Plan regardless of the bridge is in place. Therefore, project-attributable noise pollution from traffic on the island and new construction on the island will not be recognizable. Likewise, the proposed project will not contribute to any increased unsightliness from new construction.

Increased Day-Visitors. The project will not result in a substantial increase in the number of day visitors to the island. The numbers of day visitors will increase due to population growth in coastal counties and mainland communities. Therefore, noise pollution from human activity resulting from an increase in day visitors to the island will not change recognizably. Likewise, the proposed project will not contribute to any increased unsightliness through an increase in the number of day visitors at or around the resource.

Incompatible Projects and/or Policies. With regard to access to the area, it may be concluded that the proposed action will not reduce access to the resources protected by Section 4(f), but to the contrary, may improve access to these resources by providing a more reliable transportation facility from the mainland to the island of Sunset Beach. Although access would become more reliable, the number of access points to the beach would not increase. Additionally, the number of people and/or the type of activities on the beach would not substantially increase as a result of the project.

Visitors using the resources protected by Section 4(f) are presently limited by the availability of parking for day visitors and the availability of housing for temporary and permanent residents on the island. Increases to the parking facilities and number of residential units on the island will conform to the Town's zoning and land use restrictions and the Town of Sunset Beach's Land Use Plan; and are not related to the proximity of the proposed project to the resources protected by Section 4(f).

Increased access to the beach area and the use thereof may occur with construction of additional parking or new housing.

Construction (or Build) Alternatives - Alternatives W1R, C1 and C4. All of the build alternatives involve the replacement of the existing pontoon bridge with a new structure. Alternatives W1R and C1 include new high-level (19.8-meter [65-foot] minimum vertical clearance over the main AIWW channel) fixed-span bridges. Alternative C4 involves a mid-level (9.1-meter [30-foot] minimum vertical clearance over the main AIWW channel) bascule bridge (drawbridge).

Improvements to the existing roadway network will occur with all of the build alternatives, but vary to some degree among them. Section 2.2.3 of this Final EIS provides detailed descriptions of each of the construction (or build) alternatives associated with the proposed project.

With regard to Section 4(f) applicability, all three of the build alternatives (Alternatives W1R, C1 and C4) avoid temporarily or permanently incorporating (or taking) land or resources protected by Section 4(f). All of the build alternatives will provide a more reliable transportation facility between the mainland and island portions of the Town of Sunset Beach, which would not diminish access to the resources in the project area protected by Section 4(f), (i.e., the public beach, parking lot, gazebo, Town beach area, and public beach access areas).

4.7.4 Avoidance Alternatives

No-Build Alternative - (Alternative C3). Under the No-Build Alternative, the existing structure would not be replaced or improved. Periodic maintenance and/or replacement of parts of the structure and its mechanical components would continue as in the past. Most repairs and maintenance may require temporary closure of the bridge. No alteration to the existing roadway system would occur as a result of this scenario. (See also Section 2.2.1 of this Final EIS.)

The No-Build Alternative will not result in any direct, indirect or secondary impacts to the project area and will not temporarily or permanently incorporate (or take) land or resources protected by Section 4(f). Under this scenario, land use development and growth trends are expected to continue as they have in the past and in conformity with the Town's zoning and land use restrictions and Land Use Plan.

Project studies indicate that the No-Build Alternative will not contribute to increased traffic volumes in the design year (2019), but may, in fact, result in a 10 to 15 percent reduction in ADT volumes during the summer peak season in the design year (2019) due to a decrease in the number of discretionary (non-essential) trips.

Rehabilitation Alternative - (Alternative C3R). The Rehabilitation Alternative includes improvements to the existing structure. The pontoon, deck, and all of the mechanical components

would be replaced under this alternative. It should be noted, however, that the nature of the single-lane pontoon bridge is such that it can not be rehabilitated to federally acceptable standards. An exception would be necessary in order to obtain federal funding for this alternative. No other roadway improvements would be undertaken with this alternative, and no alteration to current traffic patterns would occur. (See also Section 2.2.2 of this Final EIS.)

The Rehabilitation Alternative will result in impacts associated with the replacement of the existing bridge's structural components, including driving new piles for the bridge approach spans. As with the No-Build Alternative, the Rehabilitation Alternative will not temporarily or permanently incorporate (or take) land or resources protected by Section 4(f). Land use development and growth trends are expected to continue as they have in the past and in conformity with the Town's zoning and land use restrictions and Land Use Plan.

As with the No-Build Alternative, project studies indicate that the Rehabilitation Alternative will not contribute to increased traffic volumes in the design year (2019), but may, in fact, result in a 10 to 15 percent reduction in ADT volumes during the summer peak season in the design year (2019) due to a decrease in discretionary (non-essential) trips.

4.7.5 Measures to Minimize Harm

All possible planning to minimize harm to the resources protected by Section 4(f) have been incorporated and performed as an integral part of this project. These measures include the avoidance of direct impacts to Section 4(f) protected resources and the development of alternatives in accordance with the Town of Sunset Beach's Land Use Plan.

The build alternatives (Alternatives W1R, C1, and C4) propose two lanes across the bridge, which is the minimum number needed under NCDOT standards for safety and traffic flow purposes. Based on current design standards, the proposed facility is the minimum facility (two-lanes), which meets the intended purpose and need of the project. Practicable mitigation measures are limited due to the location of the project in relation to protected resources, and by the type of impact. Indirect impacts to aesthetic resources and to the utility of beach-use are associated with degree of utilization by users. Accordingly, any mitigative responses to indirect development impacts would limit access to these resources, which would preclude them as practicable mitigation measures. For example, noise walls separating the resource from the proposed alignment of Alternative W1R would be costly and may create a greater negative aesthetic impact than the positive mitigative effects on anticipated noise impacts.

4.7.6 Coordination

This project has been and will continue to be coordinated with the North Carolina Department of Environment, Health, and Natural Resources, Division of Coastal Management and the Town of Sunset Beach, the two entities with jurisdiction over the resources in the project area protected by Section 4(f).

4.7.7 Section 4(f) Evaluation Conclusion

Because of the coastal location and nature of the project, no reasonable and feasible alternative exists that both meets the minimum design standards of the bridge (two-lanes) and avoids the use of Section 4(f) resources. Therefore, it is concluded that there are no feasible and prudent alternatives to the use of the Section 4(f) land.

The preferred alternative has been designed to meet minimum design standards and is, therefore, not built in a way to accommodate excessive growth rates above those presently projected without the proposed bridge (No-Build Alternative). Additionally, there are no alternatives that avoid the use of Section 4(f) lands that also meet these planning criteria. Therefore, it is concluded that the proposed action includes all possible planning to minimize harm to the Section 4(f) resources.

As noted by the US DOI in comments received on the Draft EIS (Appendix F-III, 14) and on the preliminary Final EIS (Appendix F-IV:6): the project should not have significant primary or secondary impacts on areas protected by Section 4(f) of the Department of Transportation Act of 1966. Comments relating to Section 4(f) resources comprised concerns of increased development and visitation to the public beaches on Sunset Beach. These concerns were addressed in Section 4.7.3 of this report, where it is explained that the rate and type of growth and development will conform to current and projected zoning and land use restrictions and that the proposed action will not substantially affect development trends on the island. Likewise, this section summarizes that the number of day visitors will increase due to population growth in coastal counties and mainland communities. No other issues or concerns regarding applicable Section 4(f) lands (parking lot, gazebo, beach area, and public access points) were expressed by State agencies or the public.

Based upon the above considerations, there is no prudent and feasible alternative to the constructive use of the public beach at Sunset Beach as defined in the November 19, 1990, Memorandum of Opinion by the U.S. District Court on Mullin v. Skinner, and the project incorporates all possible planning to minimize harm.

4.8 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

As with any new bridge project, construction of the proposed build alternatives or the Rehabilitation Alternative will require certain irreversible and irretrievable commitments of natural resources, manpower, materials, and fiscal resources. Lands within the right of way would be converted from their present use to transportation use. Use of these lands is considered an irreversible commitment during the time period that the land is used for a transportation facility. However, if a greater need arises for use of the land, or if the transportation facility is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway and bridge construction materials such as steel, cement, aggregate, and bituminous material would be expended to complete the project. Additionally, large amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect on the availability of these resources. Any construction will also require a substantial one-time expenditure of state and federal funds which are not retrievable.

The irretrievable commitment of resources caused by any of the build alternatives would be balanced by the anticipated beneficial effects. Replacing the existing bridge with a new structure would provide a reliable means of transportation between the island and mainland areas of Sunset Beach and would offer a greater degree of public safety. A new facility will also enhance watercraft operations on the AIWW. Other benefits include reduced travel time and reductions in fuel consumption.

Although the Rehabilitation Alternative would require a lesser irretrievable commitment of resources than the build alternatives (W1R, C1, or C4), this commitment would not be balanced by a corresponding level of anticipated beneficial effects. Many of the same safety and reliability problems experienced by the existing pontoon bridge would continue to occur with a rehabilitated bridge. The ability of the rehabilitated bridge to allow vehicular traffic to travel across the AIWW will still be influenced by extreme high and low tides. Vessel navigation through the bridge will continue to be difficult, and the potential for accidents such as the barge collisions in 1985 and 1995 (see Section 1.6.1) will be greater than under the high-level or bascule bridge alternatives. Bridge closures due to repairs are expected to be more frequent for a rehabilitated pontoon bridge than they would be for any of the build alternatives.

4.9 RELATIONSHIP BETWEEN SHORT-TERM IMPACTS AND LONG-TERM BENEFITS

The local, short-term impacts and use of resources by the proposed build alternatives would be consistent with the maintenance and enhancement of long-term productivity for Sunset Beach, Brunswick County, and the State of North Carolina. Replacing the existing Sunset Beach bridge would be consistent with local, county, regional, and state transportation plans.

Long-term benefits of any of the build alternatives include safer and more reliable access to and from Sunset Beach island. A replacement bridge (Alternatives W1R, C1, or C4) would not be as vulnerable to changes in natural conditions, such as excessively high tides or extreme weather. Emergency services would be better able to respond to calls from the island, and evacuation procedures could be conducted more efficiently.

Commercial- and pleasure-craft operations would also be enhanced on the AIWW, providing a long-term benefit to both types of waterway users.

The relationship between the short-term impacts and long-term service of the Rehabilitation Alternative would not be as beneficial as the build alternatives. As discussed in Section 4.7, many of the safety and reliability issues associated with the existing pontoon bridge would continue to apply to a rehabilitated bridge.

4.10 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Estimated environmental impacts and costs associated with the five alternatives are summarized in Table 4.12. The Summary section, beginning on page S-1 also provides a synopsis of the environmental effects of the proposed action.

Some of the projected effects of the project could not be quantified with a single number for inclusion in Table 4.12. These impacts are briefly described below.

Socio-Demographic Changes in Population

Year-Round and Seasonal Residents. There are no consistent historical data for Sunset Beach, Ocean Isle, and Holden Beach concerning population composition or seasonal versus permanent residency. Consequently, the demographic impacts of replacing the existing bridge can not be forecasted.

Day Visitors. Based on the survey of day visitors conducted at Ocean Isle and Sunset Beach on July 30 and August 2, 1994, a new bridge at Sunset Beach (Alternatives W1R, C1, or C4) would only have a minor influence on choice of beach destination.

The number of day visitors to all beaches along the North Carolina coast, including Sunset Beach, will continue to increase as the population of coastal counties and mainland communities continues to grow (Hayes and Associates, 1994c:3).

Secondary Land Use Impacts

Replacement of the existing bridge with a more reliable two-lane structure is not expected to substantially affect the rate and type of development in Sunset Beach.

Examination of building trend data, current land use, and interviews with local officials and residents reveals that the secondary impacts of the high-level bridge has been relatively minor at both Ocean Isle and Holden Beach. Comparison of data reveal that Sunset Beach actually had an overall greater residential growth rate than either Holden Beach or Ocean Isle during most of the period 1982-1992.

Other factors are important to the rate and type of development on all three islands: sewage treatment capacity, pattern of ownership of platted undeveloped land, and zoning regulations.

TABLE 4.12

SUMMARY OF IMPACTS

IMPACT	Alternative W1R (West High-Level, Revised)	Alternative W1 (West High-Level)	Alternative C1 (Center High-Level)	Alternative C4 (Center Bascule)	Alternative C3R (Rehabilitation)
Approximate Roadway Length m (ft)	1,263 (4,143)	1,318 (4,325)	1,594 (5,230)	1,567 (5,140)	0
Intracoastal Waterway Bridge Length m (ft)	723 (2,372)	737 (2,418)	826 (2,710)	347 (1,140)	168 (550)
Slough Canal Bridge Length m (ft)	--	--	27 (90)	--	--
Total Length m (ft)	1,986 (6,517)	2,055 (6,743)	2,448 (8,030)	1,914 (6,280)	168 (550)
Construction Costs	$12,200,000	$12,700,000	$13,800,000	$12,800,000	$1,359,950
Right-of-Way Costs	$1,378,000	$1,378,000	$3,700,000	$2,155,500	--
Operations/Maintenance Costs*	$1,564,700	$1,587,400	$1,781,100	$3,650,750	$2,447,630
Total Costs	$15,142,700	$15,665,400	$19,281,100	$18,606,250	$3,807,580
Navigable Waterway Crossings	1	2	2	1	1
Residential Relocations	0	0	3	0	0
Business Relocations	0	0	3	3	0
Community Facilities Impacted	0	0	0	0	0
Section 4(f) Resources Evaluated for Constructive Use	3	3	3	3	3
Section 4(f) Resources Directly Impacted	0	0	0	0	0
Visual Impact Rating (Rating < -2.0 is adverse)	-2.124	-2.124	-2.0	-1.625	--
Prehistoric Sites Impacted	0	0	0	0	0

TABLE 4.12 (Continued)

SUMMARY OF IMPACTS

IMPACT	Alternative W1R (West High-Level, Revised)	Alternative W1 (West High-Level)	Alternative C1 (Center High-Level)	Alternative C4 (Center Bascule)	Alternative C3R (Rehabilitation)
Sites on National Register of Historic Places	0	0	0	0	0
Hazardous Materials Sites	0	0	2	3	0
Projected Exceedances of Carbon Monoxide Standards	0	0	0	0	0
Sensitive Receptors Impacted by Noise	2	2	3	0	0
Hectares (Acres) of Permanent Salt Marsh Impacts [dredge, fill, shading]	0.26 (0.63)	0.32 (0.78)	0.36 (0.90)	0.30 (0.75)	0.00
Hectares (Acres) of Permanent Surface Water Impacts [dredge, fill, shading]	0.85 (2.10)	1.22 (3.02)	0.07 (0.17)	0.07 (0.17)	0.10 (0.24)
Hectares (Acres) of Permanent Nonriverine Wet Hardwood Forest Impacts [fill]	0.00	0.00	0.11 (0.27)	0.00	0.00
Hectares (Acres) of Permanent Coastal Fringe Evergreen Forest Impacts [fill and clearing]	0.97 (2.40)	1.03(2.55)	0.87 (2.14)	0.19 (0.48)	0.00

* Operations and maintenance costs are amortized over a 40-year period.

It is possible that the influence of Sea Trail Plantation on future development in Sunset Beach has been greater than the influence the high-level bridges have had on future development in Holden Beach and Ocean Isle. Replacement of the existing Sunset Beach pontoon bridge with a high-level bridge (Alternatives W1R and C1) or a bascule bridge (Alternative C4) may not greatly influence the rate and type of development. The community's attitude towards growth, the national economy, and the demand for resort housing may affect resort development more than the type of bridge access provided (Hayes and Associates, 1994c:20).

Land Use Planning

Alternatives W1R, C1, and C4 would be consistent with the Sunset Beach CAMA Land Use Plan policy, which states that more reliable bridge access between the mainland and island is supported by the Town. However, the low-level bridge over Slough Canal associated with Alternative C1 appears to be inconsistent with the CAMA Land Use Plan policy, which states that public access to navigable waters should not be restricted.

On February 6, 1995, the Sunset Beach Town Council officially endorsed by resolution a 19.8 meter (65-foot) high-level bridge between the island and mainland portions of the town (Town of Sunset Beach, 1995a), and on June 4, 1996, the Town of Sunset Beach passed an ordinance requesting that NCDOT give the Sunset Beach Bridge replacement project priority (Town of Sunset Beach, 1996 [Appendix F-III: 50]).

Pedestrian and Bicycle Considerations

The proposed configurations of all three build alternatives (Alternatives W1R, C1, and C4) would provide for safer bicycle/pedestrian travel over the AIWW and along the causeway portion of SR 1172. Alternative C4 would provide more convenient access for pedestrians and bicyclists than Alternatives W1R and C1 since the mid-level bridge would not be as high, and would require a shorter climb/descent over the bridge.

Other Community Issues

The existing Sunset Beach pontoon bridge and its possible replacement are a continuing subject of community debate. As of December 1996, there had not been a scientific survey conducted to determine current public opinion concerning whether the existing bridge should be replaced.

A major concern expressed by several Sunset Beach residents was that high-level bridges in Ocean Isle and Holden Beach caused crime to increase because criminals now had a better and more reliable access to the islands. Discussions with police officials at Holden Beach and Ocean Isle revealed that in their opinion, police access to the island became more reliable and crime was actually deterred by the high-level bridges.

Economic Impacts

Reduced uncertainty and travel delay associated with the build alternatives could stimulate island-to-mainland discretionary trips and generate an increase in purchases from mainland stores, restaurants, and entertainment facilities by island residents and vacationers.

The economic effects of replacing the existing bridge on mainland development are likely to be marginal since the primary driving forces for mainland development are essentially independent of the ease or difficulty of access to the island of Sunset Beach.

Any increases in day visitors are likely to have a minimal direct economic impact since day visitors spend very little on Sunset Beach, Holden Beach, and Ocean Isle.

The proposed bridge replacement is unlikely to affect the rate and type of residential or commercial development on the island. Although some feel a new bridge could accelerate the rate of build-out of platted lots, there is no evidence from Holden Beach or Ocean Isle to support such a hypothesis. Thus, there are not likely to be significant economic effects attributable to bridge-induced development on Sunset Beach island. Property value data do not support the hypothesis that new bridges at Holden Beach and Ocean Isle spurred an increase in the value of island property.

Water Quality

The proposed build alternatives (W1R, C1, and C4) have the potential to temporarily degrade water quality in the AIWW, Slough Canal, Big Narrows channel, and surrounding salt marsh as a result of sedimentation and soil erosion during construction. The Rehabilitation Alternative (C3R) also has the potential to temporarily degrade water quality in the AIWW due to installation of new piles.

Stormwater runoff would increase under any of the build alternatives (W1R, C1, and C4) due to the increase in impervious roadway surface area over existing conditions. This is an unavoidable, long-term impact.

4.11 REQUIRED PERMITS AND ACTIONS

Replacement or rehabilitation of the existing Sunset Beach pontoon bridge will result in several actions requiring environmental regulatory permits from state and federal agencies. A list of these permits, organized by issuing agency, is provided below. The NCDOT will obtain all necessary permits prior to construction.

Many of the environmental issues and mitigation measures discussed in this Final EIS will be further quantified and evaluated as preliminary and final engineering designs are completed. The actions that will occur after completion of the Final EIS are described below. Section S9 and Chapter 4 provide more detailed discussions of environmental commitments and recommendations.

4.11.1 Permits and Consultations

North Carolina Division of Coastal Management

Coastal Area Management Act (CAMA) Major Development Permit. CAMA requires permits for major land disturbing activities within designated areas of environmental concern, which include: marshlands, tidelands, estuaries, and fragile natural and cultural resource areas.

Authority. North Carolina General Statute (GS) 113A, Article 7, Subsection 118. Regulations promulgated in 15A NCAC 7.

Federal Consistency Determination. The NC Division of Coastal Management determines the consistency of a proposed action with the applicable local CAMA Land Use Plan. This determination is required for federal agency activities and activities requiring federal permits, such as Section 404 permits from the COE.

Authority. North Carolina GS 113A-100 *et seq* and Section 307 of the Federal Coastal Zone Management Act of 1972, as amended.

State Dredge and Fill Permit. A permit is required for any project involving excavation and/or filling activities in estuarine waters, tidelands, or marshlands. A joint application may be filed if the project also requires a CAMA Major Development Permit, COE Section 10 and 404 Permits, or a Section 401 Water Quality Certification.

Authority. North Carolina GS 113-229. Regulations promulgated in 15A NCAC 7J permit procedures.

North Carolina Division of Water Quality (DWQ [formerly a part of DEM])

Section 401 Certification. Any activity which may result in discharge to navigable waters and which requires a federal permit must obtain a certification that such discharge will be in compliance with applicable state water quality standards. An application for a COE Section 404 Permit is considered an application for a water quality certification.

Authority. North Carolina GS 143, Article 21, Part 1. Regulations promulgated in 15A NCAC 2H and 2B.

National Pollutant Discharge Elimination System (NPDES) Permit. A permit is required for projects involving sewer systems, treatment works, disposal systems, and certain stormwater runoff that would result in a discharge to surface waters. The state has the authority to administer the national NPDES program for projects in North Carolina. The proposed project will comply with this program through the NCDOT's statewide NPDES permit. An individual permit is not needed.

Authority. North Carolina GS 143, Article 21, Part 1. Regulations promulgated in 15A NCAC 2H.0100.

Stormwater Certification. Development in a coastal county that requires a CAMA Major Development Permit or a sedimentation and erosion control plan also requires stormwater certification. Requirements vary and are affected by the classifications of the water to which the project would drain. The DWQ Regional Office provides site specific requirements.

Authority. North Carolina GS 143, Article 21, Part 1. Regulations promulgated in 15A NCAC 2H.1000 and 2B.0200.

North Carolina Division of Forest Resources

Burning Permit. A permit is required to start a fire in woodlands or within 152.4 meters (500 feet) of woodlands under the protection of the Division of Forest Resources. Thirty-day permits can be issued for highway construction.

Authority. North Carolina GS 113, Article 4C, Subsection 60.21-60.31. Regulations promulgated in 14 NCAC 9C.0200-.0203.

United State Army Corps of Engineers

Section 404 Permit. A permit from the COE is required for any activity in water or wetlands which would discharge dredged or fill materials into waters of the United States and adjacent wetlands. To obtain permit approval, it must first be demonstrated that all measures will be taken to avoid wetland impacts, and then demonstrated that unavoidable wetland impacts will be both minimized and mitigated in accordance with the "Memorandum of Agreement (MOA) Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines" (February, 1990).

Authority. Federal Water Pollution Control Act Amendments of 1972 and Section 404 of the Clean Water Act of 1977. Regulations promulgated in 33 CFR Part 323.

Section 10 Permit. A permit is required for construction of structures, such as piers and jetties, and excavation and placement of fill material in or affecting navigable waterways, such as the Atlantic AIWW.

Authority. River and Harbor Act of 1899, Section 10.

United States Coast Guard

Section 9 Permit. A permit must be obtained for any new bridge over navigable waterways, such as the AIWW. Bridge clearances are reviewed under this permit.

Authority. River and Harbor Act of 1899, Section 9.

United States Fish and Wildlife Service and the National Marine Fisheries Service

Section 404 and Section 10 Permit Review. The US Fish and Wildlife Service's (USFWS) and the National Marine Fisheries Service's (NMFS) responsibilities include review of Section 10 and Section 404 Permits to determine a project's impact on public fish and wildlife resources. The USFWS and NMFS, as appropriate, provide recommendations to the COE on how the proposed project could avoid or minimize impacts to existing fish and wildlife resources and their habitats, including wetlands.

Authority. Fish and Wildlife Coordination Act, as amended.

Section 7 Consultation. Consultation with the NMFS and USFWS, as appropriate, is required for any project which may impact endangered or threatened species and their Designated Critical Habitat.

Authority. Endangered Species Act of 1973, Section 7.

4.11.2 Subsequent Actions

The project development process will continue after the Final EIS is completed. The following is a description of the actions underway, events which will occur, and studies which will be completed prior to project construction. Coordination with resource agencies will continue throughout the entire process.

This Final EIS will be circulated for public and agency review. Prior to the Design Public Hearing and final engineering design, the Final EIS and Record of Decision (ROD) will be submitted to the US District Court for resolution of the case associated with Project B-682. After resolution by the US District Court, a Design Public Hearing will be held to receive public comments on the preliminary plans.

After circulation of this Final EIS for public review and consideration of all comments received, the Board of Transportation will initiate the preliminary design of the preferred alternative for construction, Alternative W1R. As part of the preliminary engineering design phase, the following studies will also be conducted:

- **Drainage and hydrological studies** for preliminary design of major drainage structures. Additional hydraulic modeling will be completed. Among other things, results of these studies will provide information on whether or not the Big Narrows channel will maintain its current self-flushing capabilities. Results of these studies will be incorporated into the mitigation plan as appropriate.

- **Boat launch relocation study** for the identification and evaluation of suitable sites for the relocation of the informal boat launch that would be displaced under the preferred alternative.

The final engineering design plans will be developed, taking into consideration all public comments received on the preliminary design plans and the Final EIS. The following studies will be prepared as part of the final design:

- **Drainage and hydrological studies** to identify and design minor drainage structures, including the evaluation of controlling bridge stormwater runoff.

- **Scour analysis** for main span of bridge across the AIWW.

- Design of a **traffic control plan** to provide access during the construction phase.

- **Geotechnical investigation** to recommend techniques and materials to overcome any soil limitations along Alternative W1R that are identified during the investigation.

- Finalization of **right-of-way limits.**

Other actions which must be completed prior to the start of project construction include, but are not limited to, the following:

- Preparation of an erosion control plan which incorporates BMPs

- Coordination with utilities for relocation/reconfiguration of systems

- Implementation of the Relocation Assistance Program

- Approval of all required permits and certifications

During project construction, the NCDOT will implement BMPs and will comply with all permit conditions. A listing of relevant BMPs is displayed in Section 4.4. Any additional measures to minimize environmental impacts that have been agreed upon during the ongoing consultations with resource agencies will also be implemented.

CHAPTER 5

5.0 REFERENCES CITED

Apogee Research, Inc.

1994 Sunset Beach Bridge Replacement: Economic Impact Analysis. July 15.

Brunswick County

1993 Brunswick County, North Carolina, Land Use Plan 1993 Update. September 24.

1995a Loggerhead Turtle Nest Counts for Sunset Beach. Telephone Conversation between Ms. Melissa Cluchey, Special Populations Coordinator, Parks and Recreation Department, and Jill Gurak, Greiner. July 6.

1995b Properties purchased or improved with federal Land and Water Conservation Funds. Telephone Conversation between Mr. Robert Jones, Director, Brunswick County Parks and Recreation Department, and Jill Gurak, Greiner. March 27.

Brunswick Electric Membership Cooperative (Brunswick EMC)

1997 Electrical Distribution Lines. Telephone conversation between Bobby Gore and Scott Hoffeld of Greiner, Inc. April 14.

Cowardin, *et.al.*

1979 Classification of Wetlands and Deepwater Habitats of the United States. Prepared for the U.S. Fish and Wildlife Service, Office of Biological Services. Report Number FWS/OBS-79131.

Federal Highway Administration (FHWA)

1973 Fundamentals and Abatement of Highway Traffic Noise. Prepared by Bolt, Beranek, and Newman, Inc. for the FHWA. FHWA Report No. PB-222-703. June.

1981 Sound Procedures for Measuring Highway Noise. FHWA Report No. FHWA-DP-45-1.

1982 Federal Aid Highway Program Manual, Transmittal 348. August 9.

1983 Noise Barrier Cost Reduction Procedure, STAMINA 2.0/OPTIMA User's Guide.

1987 Guidance for Preparing and Processing Environmental and Section 4(f) Documents. FHWA Technical Advisory T6640.8A. October 30.

1992 Position Paper: Secondary and Cumulative Impact Assessment in the Highway Project Development Process. Prepared by the Project Development Branch, HEP-31. April.

1994 Letter from W. Williams, FHWA, to Greiner, Inc., regarding review of Ship Impact Analysis Report. June 28.

Federal Register

1994 Executive Order 12898. *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.* February 19. 59 FR 7629.

1995 *Department of Transportation Final Environmental Justice Strategy.* June 29. 60 FR 125.

Federal Supplement (F. Supp.)

1990 Memorandum Opinion regarding Mullen et at vs. Skinner, U.S. District Court, Eastern District of North Carolina. Number 90-547-CIV-5-BR. F. Supp. 904 (E.D.N.C. 1990) November 19.

Greiner, Inc.

1992 Sunset Beach Bridge Replacement Study Scoping Report, Comments Summary, and Working Paper. Bridge No. 189 on SR 1172 Over Atlantic Intracoastal Waterway. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. December.

1993 Public Involvement Plan for the Sunset Beach Bridge Replacement, Brunswick County. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. October.

1994a Traffic Capacity Analysis for the Sunset Beach Bridge Replacement, Brunswick County. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. September.

1994b Queuing Analysis for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. October.

1994c Vessel Height and Traffic Report for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. February.

1994d Preliminary Alternatives Report Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. April.

1994e Cost Effectiveness Analysis for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. November.

Greiner, Inc. (continued)

1994f Water Quality and Sewer Service Technical Memorandum for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. July 15.

1994g Natural Resources Technical Memorandum for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. December.

1994h Air Quality Assessment Report for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. September.

1994i Noise Impact Assessment Report for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. September.

1994j Visual Impact Assessment Report for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. August.

1994k Ship Impact Analysis for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. May.

1996a Memorandum to project file from David Griffin, C.E.P., regarding Erosion Along Atlantic Intracoastal Waterway. April 18. Approved by NCDOT Hydraulics for incorporation into draft on June 15, 1996 via telephone communication with Julie Hunkins, P.E., project manager, NCDOT.

1996b Section 7 Endangered Species Consultation, Record of Meeting. June 25.

1996c Natural Resources Technical Memorandum Addendum for Replacement of Bridge No. 198 on SR 1172 Over Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. Federal Aid Project No. BRS-1813(1), TIP No. B-682, and State Project No. 8.2230101. October.

1996d Cost summary update completed for the Alternative W1R, Sunset Beach Bridge Replacement project. Project file.

Hayes and Associates

1994a Sunset Beach Bridge Replacement Land Use Impact Report. September.

1994b Sunset Beach Bridge Replacement Social Impact Report. September.

1994c The Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC. September.

Hayes and Associates (continued)

1996 Response to FHWA Comments: Town of Sunset Beach Development Local Ordinances Concerning Wetlands and Endangered Species. November 6.

Holden Beach, Town of

1984 CAMA Land Use Plan Update.

1990 CAMA Land Use Plan Update.

North Carolina Department of Cultural Resources

1992 Replace Bridge No. 198 at Sunset Beach, Brunswick County, B-682. Memorandum from David Brook, Deputy State Historic Preservation Officer, to L. J. Ward, P.E., Manager of NCDOT Planning and Environmental Branch. October 20.

1993 Replacement of Bridge No. 198 at Sunset Beach, Brunswick County, B-682. Memorandum from David Brook, Deputy State Historic Preservation Officer, to Nicholas Graf, Division Administrator, Federal Highway Administration. October 15.

North Carolina Department of Environment, Health, and Natural Resources (DEHNR)

1992 Replacement of Sunset Beach Bridge on SR 1172 in Brunswick County. Memorandum from David Harrison, Division of Soil and Water Conservation to Melba McGee, NCDOT. October 8.

1994 EPA Aerometric Information Retrieval System, Air Quality Subsystem, Quick Look Report for North Carolina for 1993. June 16.

1995 Stormwater Best Management Practices. Division of Environmental Management, Water Quality Section. November 1995.

North Carolina Department of Transportation (NCDOT)

1980 Archaeological Survey, Bridge No. 198 Over Intracoastal Waterway at Sunset Beach, Brunswick County, B-682. Memorandum from Thomas Padgett, Archaeologist, NCDOT Environmental Unit, to Cameron Lee, NCDOT Special Projects. October 21.

1985 Archaeological Test Excavations of Site 31Bw65, Sunset Beach, Brunswick County, Project No. B-682. Prepared by Thomas Padgett and Loretta Lautzenheiser, NCDOT. September.

1987 Investigation of Flooding Conditions on South Bridge Approach. Memorandum from A. L. Hankins, Jr., P.E., State Hydraulics Engineer, to W. A. Wilson, Jr., State Roadway Design Engineer. August 27.

1990 Noise Abatement Guidelines. Memorandum from L. J. Ward, P.E., Manager of Planning and Research Branch, to W. Marley, Jr., P.E., Deputy State Highway Administrator. May 30.

1991 Best Management Practices for Protection of Surface Waters. June.

NCDOT (continued)

1992 Geological Environmental Impact Study for SR 1172, Bridge #198. Prepared by the Geotechnical Unit. October 26.

1993a Documentation Report: Bridge No. 198 on SR 1172 over Atlantic Intracoastal Waterway at Sunset Beach in Brunswick County, North Carolina. Prepared by Kitty Houston, Architectural Historian, NCDOT Planning and Environmental Branch. August.

1993b Traffic Accident Rates by Road Types and Systems for 1992 and 1990-1992. Memorandum from Fred Rosendahl, NCDOT Traffic Safety Systems Engineer to NCDOT Area Traffic Engineers and Unit Heads. March 3.

1993c Accident Reports for SR 1172 and NC 179 in Sunset Beach, North Carolina. Transmittal from Julie Hunkins, P.E., to Greiner, Inc. October 4.

1994a Bridge Inspection Report and National Bridge Inventory Structure Inventory and Appraisal for Bridge Number 198. Transmittal from Julie Hunkins, P.E., to Greiner, Inc. November 18.

1994b Estimate for Rehabilitation of the Existing Sunset Beach Bridge. Memorandum to George Phillips, NCDOT, from Jack Edgerton, NCDOT. January 3.

1994c Preliminary Cost Estimates for Alternatives W1, C1, and C4. December 1.

1995a Transportation Improvement Program. 1996-2002. (Updated with NCDOT [1996g].)

1995b Archaeological Studies, Bridge over Sunset Beach, Brunswick County, TIP No. B-682. Memorandum from Thomas Padgett, Archaeology Supervisor, to Julie Hunkins, NCDOT Project Planning Unit Head. January.

1995c Statement on Probable Decrease in Vehicle Crossings on Existing Bridge Due to Traffic Constraints. Memorandum from Wayne Davis, Unit Head, NCDOT Traffic Forecast Unit B, to Julie Hunkins, P.E., NCDOT Project Manager. June 2.

1995d Relocation Reports. February 10.

1995e Bicycle and Pedestrian Issues for Replacement of Bridge Number 198 on SR 1172. Letter from Curtis Yates, Director of Office of Bicycle and Pedestrian Transportation to H. Franklin Vick, Manager of Planning and Environmental Branch. February 11.

1995f Hydraulic Issues for Replacement of Bridge Number 198 on SR 1172. Letter from Julie Hunkins, P.E., NCDOT Project Manager to Greiner, Inc. April 4.

1996a Sunset Beach Sufficiency Rating. Memorandum from Jimmy Lee, NCDOT Bridge Maintenance to Julie Hunkins, P.E., NCDOT Project Manager. August 19.

1996b Telephone conversation between Julie Hunkins, NCDOT Project Manager, and David Griffin, Greiner Project Manager. October 2.

1996c Wetland Delineation Report for the Proposed Sunset Beach Bridge, Brunswick County; TIP # B-682; State Work # 8.2230101. September 24.

1996d Biological Assessment for Shortnose Sturgeon and Manatee for Replacement of Sunset Beach Bridge on SR 1172 over Intracoastal Waterway at Sunset Beach Bridge, Brunswick County; TIP # B-682. September 23.

NCDOT (continued)

1996e Relocation of Informal Boat Launch Coordination. Letter from H. Franklin Vick, Manager of Planning and Environmental Branch to Mr. Bob Stroud, District Manager, NC DEHNR, Division of Coastal Management. July 1.

1996f Relocation of Informal Boat Launch Coordination. Letter from H. Franklin Vick, Manager of Planning and Environmental Branch to Mr. David Cox, NC DEHNR, Wildlife Resources Commission. July 1.

1996g Transportation Improvement Program. 1997-2003.

North Carolina Division of Parks and Recreation

1995 State-Owned Properties Purchased or Improved with Federal Land and Water Conservation Funds. Telephone Conversation between Mr. John Poole and David Griffin, Greiner. March 28.

North Carolina Natural Heritage Program (NC Natural Heritage Program)

1990 Classification of the Natural Communities of North Carolina, Third Approximation. Compiled by M. Schafale and A. Weakley. North Carolina Natural Heritage Program, Division of Parks and Recreation: Raleigh, N.C.

1995a Natural Heritage Program List of the Rare Animal Species of North Carolina. Compiled by H. LeGrand, Jr. and S. Hall. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation: Raleigh, N.C.

1995b Natural Heritage Program List of the Rare Plant Species of North Carolina. Compiled by J. Amoroso and A. Weakley. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation: Raleigh, N.C.

1996 Natural Heritage Program Element List. July 9.

Ocean Isle Beach, Town of

1990 CAMA Land Use Plan Update.

Powell Associates of NMB, Inc.

1993 Demonstration of Impact or Non-Impact of Septic Tanks on Groundwater and Surface Water Quality on and Around the Island of Sunset Beach. April.

Resources Development Commission

1991 Statistical Abstract of Brunswick County, North Carolina.

Smardon, R. C., J. F. Palmer, Alfred Knopf, Kate Grind, J. E. Henderson, and L Peyman-Dive

1988 Visual Resources Assessment Procedure for U.S. Army Corps of Engineers. Instruction Report Number EL-88-1. Prepared by State University of New York, Syracuse, for U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Sunset Beach Taxpayer's Association (SBTA)

1994 Letter from Cletus Waldmiller, SBTA President, to D. Griffin, Greiner, Inc., submitting a book of comments gathered at the Island Market, Sunset Beach, NC. October 11.

1995 Comments on North Carolina Department of Transportation Draft Environmental Impact Statement for Replacement of Bridge No. 198 on SR 1172 Over Intercoastal Waterway in Sunset Beach, Brunswick County. TIP No. B-682. October 3.

1996 Position Statement. Letter from Barry Lentz, SBTA President, to Garland Garrett, Secretary of Transportation, State of North Carolina. June 17.

Sunset Beach, Town of

1992 CAMA Land Use Plan.

1995a Resolution Supporting High Rise Bridge Concept. Resolution adopted by Town Council. February 6.

1995b Centralized sewer system status. Telephone Conservation between Ms. Linda Fluegel, Planning Director, and Jill Gurak, Greiner, Inc. June 2.

1995c Status of Town-owned beach front parcel. Telephone Conservation between Ms. Linda Fluegel, Planning Director, and Jill Gurak, Greiner, Inc. July 6.

1995d Section 4(f) status of Drainage Easements on Sunset Beach. Telephone conversation between Ms. Linda Fluegel, Planning Director, and Ms. Julie Hunkins, NCDOT Project Manager. January.

1996 Ordinance Requesting D.O.T. to Give Priority to Sunset Beach Bridge. June 4.

Transportation Research Board

1985 Highway Capacity Manual. Special Report 209.

United States Army Corps of Engineers (COE)

1987 Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi. January.

1992 Letter from the Wilmington District of the COE to Mr. L.J. Ward, P.E., NCDOT Planning and Environmental Branch. October 19.

United States Coast Guard (U.S. Coast Guard)

1996a Pontoon Bridge Maintenance and Reliability. Telephone conversation between Mr. Roger Wiebusch, 8th District in St. Louis, Missouri and Mr. David Griffin, Greiner. July 31.

1996b Pontoon Bridge Maintenance and Reliability. Telephone conversation between Mr. John Wachter, 7th District in New Orleans, Louisiana and Mr. David Griffin, Greiner. August 8.

United States Department of Agriculture

1986 Soil Survey of Brunswick County, North Carolina. Published by the National Cooperative Soil Survey. November.

United States Department of the Interior, Fish and Wildlife Service (USFWS)

1994 Coastal Barrier Resources System Photographic Atlas of North Carolina. Volume 10, Part II.

1996a Endangered, Threatened, and Candidate species and Federal Species of Concern by County in North Carolina. August 23.

1996b Precautions for General Construction in Areas which may be used by the West Indian Manatee in North Carolina. July 2. Attached to letter from John Hefner of USFWS to Frank Vick of NCDOT, Planning and Environmental, regarding the Sunset Beach Bridge replacement project. July 3.

United States Environmental Protection Agency (EPA)

1990 User's Guide to CAL3QHC, A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections. September.

1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections. EPA Report No. EPA-454/R-92-005.

United State Geological Survey (USGS)

1987 Magnitude and Frequency of Floods in Rural and Urban Basins of North Carolina. Water Resources Investigations Report No. 87-4096.

Westinghouse Environmental and Geotechnical Services, Inc.

1990 Report of Subsurface Investigation for Bridge on SR 1172 over Intracoastal Waterway in Brunswick County, North Carolina. May.

CHAPTER 6

6.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT

Federal Agencies

Department of Agriculture - Natural Resources Conservation Service
Raleigh, North Carolina

Department of Commerce
Washington, D.C.

Department of Health and Human Service, Office of Environmental Affairs
Atlanta, Georgia

Department of the Interior
Washington, D.C.

Environmental Protection Agency
Atlanta, Georgia

Federal Emergency Management Administration
Atlanta, Georgia

Federal Energy Regulatory Commission
Atlanta, Georgia

Geological Survey
Raleigh, North Carolina

National Marine Fisheries Service
Beaufort, North Carolina, and St. Petersburg, Florida

U.S. Army Corps of Engineers
Wilmington, North Carolina

U.S. Coast Guard (5th District)
Portsmouth, Virginia

U.S. Department of Transportation - Office of the Secretary
Washington, D.C.

Federal Agencies (continued)

U.S. Fish and Wildlife Service
Raleigh, North Carolina, and Atlanta, Georgia

State Agencies

North Carolina Department of Administration, State Clearinghouse
Raleigh, North Carolina

North Carolina Department of Cultural Resources, Division of Archives and History
Raleigh, North Carolina

North Carolina Department of Economic and Community Development
Raleigh, North Carolina

North Carolina Department of Environment, Health & Natural Resources
Raleigh, North Carolina

North Carolina Department of Public Instruction
Raleigh, North Carolina

North Carolina Wildlife Resources Commission
Raleigh, North Carolina

Local Governments and Agencies

Chairman, Brunswick County Board of Commissioners
County Manager, Brunswick County
Planning Department, Brunswick County
Brunswick County E.M.S.
Mayor, Town of Sunset Beach
Town Administrator, Town of Sunset Beach

Public Review Locations

Third Highway Division Office
North Carolina Department of Transportation
124 Division Drive
Wilmington, North Carolina 28401

Town of Sunset Beach
220 Shoreline Drive West
Sunset Beach, North Carolina 28468

Brunswick County Public Library
5068 Main Street
Shallotte, North Carolina 28470

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CHAPTER 7

7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

This section of the Environmental Impact Statement (EIS) provides a summary of the agency coordination effort and public involvement process which were carried out as an integral part of the Sunset Beach Bridge Replacement Study. Also included in this section is a summary of comments made at the February 1, 1994 and December 6, 1994, citizens informational meetings, as well as a summary of the public hearing comments. The complete Public Hearing transcript has been included in Appendix G, Part IV of this document.

7.1 AGENCY COORDINATION

7.1.1 Scoping Letter/Meeting

On September 16, 1992, an advance notification package was mailed to federal and state review agencies, local government, and the Federal District Court (see Appendix A of *Scoping Report, Comments Summary, Working Paper,* Greiner, Inc., December 1992). The Federal District Court was included since, in 1990, it had enjoined the North Carolina Department of Transportation (NCDOT) and the Federal Highway Administration (FHWA) from financing or constructing the project until an adequate EIS is prepared and circulated. The court retains jurisdiction in this case. See Section 1.3.2 for a history of the project prior to 1990.

A formal scoping meeting was held on October 28, and 29, 1992, at the Sunset Beach Fire Station in Brunswick County, North Carolina. The two-day meeting consisted of a morning agency review field visit and afternoon formal presentation and comment meeting on October 28, and an afternoon and evening Citizens Informational Workshop on October 29. The purpose of the meeting(s) was to initiate coordination with the federal and state agencies and solicit comments from both the agencies and the public early in the study process. Input from the scoping letter, the scoping meeting, and the workshop were used to finalize the alternatives and issues to be considered in the Draft EIS. This information is summarized and contained in a *Scoping Report, Comments Summary, Working Paper* prepared by Greiner, Inc., dated December 1992.

7.1.2 Notice of Intent

In accordance with the implementation procedures of the National Environmental Policy Act (NEPA) and the NCDOT policy of early coordination, a Notice of Intent letter was distributed on November 10, 1993, for inclusion in the *Federal Register*. Appendix F, Part I contains a copy of the Notice of Intent.

7.1.3 Agency Comments and Responses to the Study

Government agencies and organizations were contacted during the study and the preparation of the EIS. They are listed below by study issue:

- Development of Alternatives
  - U.S. Army Corps of Engineers
  - U.S. Coast Guard
  - North Carolina Division of Coastal Management
  - North Carolina Division of Environmental Management
- Bridge Design and Configuration
  - U.S. Coast Guard
  - U.S. Army Corps of Engineers
  - National Marine Fisheries Service
  - North Carolina Wildlife Resources Commission
- Wetland Impacts and Mitigation
  - U.S. Army Corps of Engineers
  - National Marine Fisheries Service
  - North Carolina Division of Environmental Management
  - North Carolina Division of Soil and Water Conservation
  - North Carolina Wildlife Resources Commission
- Protected Species
  - U.S. Fish and Wildlife Service
  - National Marine Fisheries Service
  - North Carolina Natural Heritage Program
- Water Quality
  - North Carolina Division of Environmental Management
  - Town of Sunset Beach
- Cultural Resources
  - Advisory Council on Historic Preservation
  - North Carolina Department of Cultural Resources

- Air Quality
  - North Carolina Division of Environmental Management
  - North Carolina Division of Soil and Water Conservation
- Secondary Impacts
  - U.S. Fish and Wildlife Service
  - National Marine Fisheries Service
  - North Carolina Wildlife Resources Commission
  - Town of Sunset Beach
- Boat Ramps/Access
  - North Carolina Division of Coastal Management
  - North Carolina Wildlife Resources Commission
- Socioeconomic/Land Use
  - Brunswick County Emergency Management Agency
  - Town of Calabash
  - Town of Holden Beach
  - Town of Ocean Isle
  - Town of Sunset Beach
  - Calabash Volunteer EMS.
  - Sunset Beach Police Department
  - Sunset Beach Volunteer Fire Department
  - Carolina Power & Light Company
  - Brunswick County Electric Membership Coop
- Stormwater Management
  - North Carolina Division of Environmental Management
  - Town of Sunset Beach
- Permitting
  - U.S. Army Corps of Engineers
  - U.S. Coast Guard
  - North Carolina Division of Coastal Management

In addition to informal contacts with the agencies listed above, an agency coordination meeting was held in Raleigh on January 20, 1993, to discuss permitting and environmental documentation issues.

Representatives from the following agencies attended the agency coordination meeting:

- U.S. Army Corps of Engineers
- U.S. Fish & Wildlife Service
- National Marine Fisheries
- FHWA
- North Carolina Division of Environmental Management, Water Quality
- North Carolina Wildlife Resources Commission
- NCDOT
  - Design Services Unit
  - Hydraulics Unit
  - Planning & Environmental Branch
  - Planning & Programming Branch
  - Roadway Design Unit
  - Traffic Engineering Branch

Agency comments received through the initial coordination process are summarized in Table 7.1, and agency response letters are included in Appendix F, Part II.

Following the Draft EIS review and comment period, another agency coordination meeting was held in Raleigh on June 19, 1996, to discuss the alternatives, comments received, and project issues.

Representatives from the following agencies attended the agency coordination meeting:

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Coast Guard
- U.S. Fish & Wildlife Service
- National Marine Fisheries
- FHWA
- North Carolina Attorney General's Office - Transportation Section
- North Carolina Department of Environment, Health, and Natural Resources
  - Division of Coastal Management
  - Division of Environmental Management
  - Division of Parks and Recreation
  - Division of Water Quality
  - Wildlife Resources Commission
- NCDOT
  - Planning & Environmental Branch
  - Bridge Maintenance Unit

7.1.4 Steering Committee

In order to promote cooperation and coordination during the study process, a Steering Committee was established at the outset of the project under the leadership of the NCDOT. Committee members provided information and review of the project process to ensure compatibility with local, state, and federal planning projects and policies. Committee members met regularly throughout the study process and represented the following agencies:

- FHWA
- NCDOT
  - Bridge Maintenance Unit
  - Planning & Environmental Branch
  - Roadway Design Unit
  - Structures Design Unit
  - Third Highway Division
- Town of Sunset Beach

TABLE 7.1
SUMMARY OF AGENCY COMMENTS RECEIVED
INITIAL COORDINATION

The following is a summary of all written comments received prior to the interagency scoping meeting and during the two week comment period following the October 28, 1992 meeting.

Agency/Date Comment Received	Comments
Advisory Council on Historic Preservation October 22, 1992	...may have effect on properties eligible for inclusion in the National Register of Historic Places. Pursuant to Section 106, FHWA investigate applicability of Council's regulations in this matter and notify of their findings.
Department of Defense, U.S. Army Corps of Engineers, Planning Division October 19, 1992	Intracoastal Waterway navigational project. Channel is 12' deep and 90' wide. Sunset Beach is included in Federal Flood Insurance Program. 100-year flood is 15' above mean sea level. Bridge is within 100-year floodplain and velocity zone. Section 404 permit will be required.
Department of Defense, U.S. Army Corps of Engineers, Regulatory Branch November 4, 1992	Recommend new bridge on current alignment. Wetland mitigation involves replacement of coastal tidal marsh. Investigate removal of dredge spoil islands if abandoned by COE. Recommend bascule have sufficient clearance to minimize openings for waterway traffic.
Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Services October 8, 1992	Describe alternative bridge alignments and designs considered. Describe location and acreage of wetlands including open water potentially impacted. Include wetland vegetation species. Describe fishery resources found in the project area and assessment of impacts on these resources. Address the impact on fisheries habitat of any temporary construction related wetlands losses. Alternatives analysis and Section 404(b)(1) Guidelines compliance section should demonstrate selection of least damaging alternative. New bridge likely to stimulate additional growth in Sunset Beach, address secondary impacts on water and wetlands surrounding Sunset Beach. Wetlands should be avoided and minimized, unavoidable losses should have mitigation plan to address compensation for losses.
U.S. Department of Transportation, U.S. Coast Guard October 26, 1992	1989 permit is no longer valid (3-year time limit).[1] Clearance for Atlantic Intracoastal Waterway is 65' vertical and 90' horizontal. EIS should address type and size of vessels using waterway. Commercial industry dependent on waterway and adjacent property owners should be identified. Identify impacts and mitigation measures caused by construction of the project.

[1] The court order voided permits, therefore, no extension was requested by NCDOT.

TABLE 7.1 (continued)
SUMMARY OF AGENCY COMMENTS RECEIVED
INITIAL COORDINATION

U.S. Department of the Interior, Fish and Wildlife Service November 9, 1992	Wetland (primary saline marsh) along both sides of SR 1172 have high fish and wildlife habitat value. Unavoidable impacts should be compensated by suitable habitat value mitigation. Primary and induced secondary impacts on Threatened and Endangered species should be coordinated with this office. Wood storks, sea turtles, shortnose sturgeon and piping plover are most likely species. Turtles and sturgeon in the water are under the jurisdiction of the National Marine Fisheries Services under Section 7 of the Endangered Species Act. Prefer C3, C2 next, avoid bisecting woods across from fire station. Expect bascule to have less fill than high rise. Bridge is located between two spoil disposal areas which have openings of 900' and 400' respectively on either side of SR 1172. This is a relatively narrow tidal connection and should not be decreased. Attenuated tidal exchange will impact the value of salt marsh.
Department of Health and Natural Resources, Parks and Recreation, Natural Heritage Program October 12, 1992	A number of rare species are located in the vicinity of Sunset Beach. Expect few to be directly impacted. Many would experience secondary impacts due to increased traffic and people using the beaches (proper) on the island. The wood stork (endangered) forages in the vicinity of the marshes near the bridge. Construction and increased traffic could drive this species away from Sunset Beach. It is estimated that about 30 wood storks arrive in June and depart in September each year. Loggerhead turtles (endangered) nest on the beach each summer. The piping plover (threatened) nested on sand flats in the 1980s and may still do so on occasion. This species is present on island flats in migration and may over winter on the island. The peregrine falcon (threatened) is present mainly as a fall migratory bird. Seabeach amaranth (proposed threatened) is present on the upper beaches and sand flats at both east and west ends of the island. Sunset Beach is usually host to breeding colonies of nesting waterbirds, gull-billed tern (state threatened) and black skimmer (state special concern) often bred in the colony, common ground-dove (significantly rare) is often seen on the island and this is the northernmost site on the Atlantic Coast. The American alligator (state threatened, federally threatened due to similarity of appearance) is present in lakes on the mainland and may occur in the Intracoastal Waterway on occasions.

TABLE 7.1 (continued)
SUMMARY OF AGENCY COMMENTS RECEIVED
INITIAL COORDINATION

Division of Environmental Management October 12, 1992	If COE 404 permit is required, the 401 water quality certification will be needed. Will borrow locations be in wetlands? Identify streams and use current water quality classifications. Identify linear feet of channelization/relocation and revegetate banks. Identify number of stream crossings. Identify stormwater controls (permanent and temporary) to be employed. Ensure that sediment and erosion controls are not placed in wetlands. Wetlands impacts: identify federal manual used, avoid as much as possible, minimize impacts, mitigation measures to compensate for habitat losses, impacts by plant communities, total impacts, list 401 certification numbers.
Division of Soil and Water Conservation October 8, 1992	Commercial development has eliminated any unique, prime or important farmland in the area. Evaluate wetlands and minimize impacts. Open burning must be in compliance with 15ANCACZD.0520. Erosion and sedimentation control plan will be required.
N.C. Division of Land Resources September 29, 1992	Will not impact any geodetic survey markers. EIS document must be submitted as part of erosion and sedimentation control plan. If project is located within high quality water zone (HQW), increased design standards for sediment and erosion control will apply. Erosion and sedimentation control plan should be prepared by NCDOT under program delegation.
N.C. Wildlife Resources Commission October 20, 1992	Impacts may be minimized under "no build" or existing location alternatives. New location may result in significant impacts to fish and wildlife. Include complete inventories of wildlife and fisheries resources potentially affected. Identify state and federal listed species. Include borrow sites and construction easements to the extent practicable. Map cover type for upland and wetland habitat and include fragmentation effects. Address mitigation for direct and indirect degradation of habitat quality as well as quantitative losses.
N.C. Wildlife Resources Commission November 12, 1992	Recognize that lack of detour presents challenge, however, center alignment should be fully evaluated. Vertical clearances for bascule bridge should maximize continuous boating access. The net wetland loss would likely be minimized using center alignment. Preliminary plans for mitigation of wetland loss should be included in the EIS. If boat ramp(s) on causeway is eliminated an alternate boat launch area should be identified in the EIS. Secondary development impacts, particularly on nesting sea turtles should be carefully examined in cooperation with appropriate environmental review agencies.

TABLE 7.1 (continued)
SUMMARY OF AGENCY COMMENTS RECEIVED
INITIAL COORDINATION

N.C. Department of Cultural Resources October 20, 1992	No structures of historical or architectural importance are located in the planning area. Would like updated information on Bridge No. 198 so that a determination of structure eligibility for National Register can be made. No known National Register eligible archaeological sites within the proposed project area. Recommend no archaeological investigation. Recommend investigation of various designs and modes of transportation for crossing the waterway under ISTEA.
NCDOT Public Transportation and Rail Division Undated	Does not effect a railroad or rail corridor.
NCDOT Geology October 26, 1992	Project is in Tidewater Region of Coastal Plain. Topography is relatively flat to gently sloping, elevations typically in the 20 to 25 foot range. Soils consisting of sandy silts and clays in the Quaternary Surficial deposits and the tertiary Waccamaw formations. Soils are mostly moderately to well drained. Ground water on the mainland lies at 8 to 13 feet below existing ground surfaces and 0 to 3 feet on the island. Three underground storage tank sites have been identified in the project area. No dumps or potentially contaminated sites are known to exist in the project area.
N.C. Division of Coastal Management October 14, 1992	CAMA permit is required.

7.1.5. Comments Received on the Draft Environmental Impact Statement and Responses

The following paragraphs present the comments made by agencies and organizations to whom copies of the Draft EIS were sent, as listed in Section 7.2.1 of this report. The letters containing these comments are included in Appendix F, Part III.

7.1.5.1 Federal Departments and Agencies

Federal Emergency Management Agency, Region IV, August 7, 1995

1. Comment: Brunswick County, North Carolina is participating in the regular phase of the National Flood Insurance Program (NFIP). The County has 10-year floodplains delineated associated with coastal flooding and therefore, any development in the floodplain must be in compliance with NFIP regulations.

   Response: Flood zones are shown in Exhibit 3.3 of the Draft EIS. It is stated on page 4-36 of the Draft EIS that all new bridges will be designed to meet federal, state, and local regulations related to flooding, floodplains, and scour protection.

2. Comment: The agency in charge must ensure compliance with the floodplain management measures as enacted by the State of North Carolina. In this regard, it is imperative the agency coordinate closely with the appropriate staff in the Floodplain Management Section of the Division of Emergency Management.

   Response: As stated on page 4-36 of the Draft EIS, the NCDOT will prepare a systematic hydrological and flood study which will be incorporated into the final design of the preferred alternative (Alternative W1R). The Division of Emergency Management will be contacted as part of the study process.

U.S. Army Corps of Engineers, Wilmington District, June 29, 1995

1. Comment: This is in response to your letter of June 7, 1995, requesting our comments on the "Replacement of Bridge No. 198 . . .. Our comments involve impacts to flood plains and jurisdictional resources, which include waters, wetlands, and U.S. Army Corps of Engineers projects. Enclosed are our comments on flood plains and Corps projects. Comments on waters and wetlands will be provided to you under separate cover by our regulatory branch. The point of contact in that office is Mr. Scott McLendon, who can be reached at (910) 251-4725.

   Response: Comment noted.

2. Comment: Our comments on flood plains were provided to your office by letter dated October 19, 1992. . . From a review of Section 3.2.1.2. of the [Preliminary Draft Environmental Impact Statement] PDEIS, it appears that flood plain issues are discussed in reasonable detail. This includes reference to inadequacy of the present bridge for emergency access during major storm events.

Response: Comment noted.

3. Comment: The most recent revision to Panel 1 of the Sunset Beach Flood Insurance Rate Map (FIRM), which covers the bridge crossing, is August 1992 rather than April 1991, as stated in the last paragraph on page 3-30 of the PDEIS.

Response: The August 1992 date for Panel 1 was inadvertently not reported in the Preliminary Draft EIS distributed to cooperating agencies. A correction was made in the Draft EIS released for public review. The text in Section 3.2.1.2 of the Draft EIS (page 3-30) reports that the most recent revisions to flood insurance rate maps in the area is August 18, 1992. In addition, the Panel Numbers and corresponding revision dates are shown on Exhibit 3.3 in the Draft EIS.

4. Comment: Also, when comparing Exhibit 3.3 with the FIRM, there appears to be inconsistencies in the delineation and designation of the flood zones. We hope that these comments will be helpful in preparing the next phase of the document.

Response: The flood zones shown in Exhibit 3.3 of the Preliminary Draft EIS were drawn incorrectly. The Draft EIS released for public review included a corrected Exhibit 3.3.

5. Comment: We do not have further comments beyond those provided in our letter dated October 19, 1992.

Response: The October 19, 1992, letter is included in Appendix F of the Draft EIS. Concerns raised in this letter have been addressed in the Draft EIS.

U.S. Army Corps of Engineers, Wilmington District, August 7, 1995

Based on information provided in the document, construction of Alternative C-1 along the current alignment of the existing bridge should be least damaging, practicable alternative, however, the following information should also be addressed prior to the selection of a preferred alternative.

1. Comment: Please reference your letter dated June 9, 1995, requesting comments on the preliminary Draft Environmental Impact Statement (DEIS) and Natural Systems Technical Memorandum for the above referenced project. The following comments should be considered in addition to those provided in our letter dated November 4, 1992. . . . According to the DEIS, Alternatives C-1, W-1, and C-4 would impact 1.54, 3.91 and 0.92 acres of waters and wetlands, respectively. Fill and dredging in surface waters associated with Alternative W-1 total 2.75 acres and 0.17 acres with Alternatives C-1 and C-4.

Response: The November 4, 1992, letter is included in Appendix F of the Draft EIS. Concerns raised in this letter have been addressed in the Draft EIS.

2. Comment: NCDOT should assess impacts to the public access of the upper end of the Slough Canal due to the relocation of NC 179.

Response: During the preliminary review process, the NCDOT coordinated with the US Coast Guard regarding public access to the upper end of Slough Canal. Please see the US Coast Guard letter dated June 29, 1995, included later in these responses. Also, it is stated in Section 4.1.1.2 (page 4-4) of the Draft EIS that if Alternative C1 is constructed, access to the upper end of Slough Canal would be blocked and could not be restored. NCDOT would pay fair market value for elimination of waterway access to properties located along Slough Canal.

3. Comment: A thorough assessment of construction related impacts should be provided. Specifically, impacts to wetlands associated with the installation of bridge bents and footings should be determined.

Response: Wetland impacts reported in Section 4.3.1.4 of the Draft EIS for each build alternative were calculated based on preliminary designs for the bridge structures and footings. Section 2.2.3.5 of the Draft EIS includes a discussion of potential construction methods and their relative effects. The Final EIS includes wetland impact acreage estimates from the Wetland Findings Report (NCDOT, 1996c) in Section 4.3.1.4, and additional information regarding sedimentation and turbidity effects on fisheries resources from the construction of Alternative W1R in Section 4.3.2.

4. Comment: A more detailed identification of suitable wetland restoration, enhancement, or creation sites in the vicinity of the project should be provided.

Response: A Wetland Mitigation Plan has been prepared by the NCDOT for submittal to the US Army Corps of Engineers (COE). It is displayed in Appendix H of the Final EIS for this project.

5. Comments: More specific information regarding shading impacts and how they were determined should be provided.

Response: Shading impacts were assumed to occur in an area equal to the width of each proposed bridge alternative multiplied by the length of the habitat type the proposed bridge alternative traverses. Furthermore, the bridge would be oriented generally north-south, resulting in shading impacts to affected areas for only porions of the day.

U.S. Army Corps of Engineers, Wilmington District, September 29, 1995

1. Comment: Please reference our letter dated August 7, 1995, in which we offered comments relative to North Carolinda Department of Transportation's (DOT) proposal to replace Bridge 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach. We understand that DOT is in the process of completing the final Environmental Impact Statement (EIS) for this project. Although we have no further comments to offer at this time, we would expect that our earlier comments would be fully addressed in the final EIS. Questions may be addressed to Scott McLendon, Wilmington Field Office, Regulatory Branch, telephone (910) 251-4725.

   Response: Please see responses to comments in the August 7, 1995, COE letter included above.

U.S. Department of Commerce, National Marine Fisheries Service, July 21, 1995

1. Comment: General Comments: . . .Discussions of fishery resources and the impacts of the project on these resources are extremely brief.

   Response: Discussions have been expanded in Sections 3.3.2.3 and 4.3.2 in the Final EIS for this project.

2. Comment: General Comments. Fishery resources: statements are made in both the DEIS and the NSTM that " It is likely that the small creeks and sounds provide foraging and spawning habitat for a number of commercially important finfish.". As is noted elsewhere in the document, the waters of the project area have been designated as "Primary Nursery Area" by the state of North Carolina. More detailed discussions of the commercial fisheries species that depend on the project area for foraging, spawning, and nursery habitat should be incorporated. Those species include summer flounder (Paralichthys dentatus), spotted seatrout (Cynoscion nebulosus), spot (Leiostomus xanthurus), shrimp (Penaeus sp.), and blue crab (Callinectes sapidus).

   Response: Discussions have been expanded in Sections 3.3.2.3 and 4.3.2 in the Final EIS for this project.

3. Comment: General Comments. Impacts on fishery resources: the NSTM does not address impacts of project activities on fishery resources except the endangered shortnose sturgeon (Acipenser brevirostrum). Impacts of the proposed project on fishery resources that require analysis include: the impacts of permanent loss of wetlands and aquatic areas due to dredging and fill activities, the impacts of temporary increases in turbidity as a result of construction operations, and the impacts of re-aligning the channel of Big Narrows. An analysis of fishery resources impacts should take into consideration seasonal variations in fish populations (e.g. estuarine-dependent species) in the project area. The only statement concerning fishery resource impacts in the DEIS is: "The build alternatives . . .would have some impact to fisheries due to increased turbidity and siltation during bridge construction/rehabilitation.". This statement is not an adequate characterization of the impacts of the proposed project on fishery resources. The DEIS should also give some

indication of the severity of fishery impacts and compare the impacts of the three alternatives, identifying which alternative will have the greatest and least impact.

Response: Alternative W1 has been revised (Alternative W1R) to avoid realignment of Big Narrows channel. However, discussions regarding the impacts to fisheries have been expanded in Sections 4.3.2 and 4.3.3.1 in the Final EIS for this project.

4. Comment: Protected Species: . . .We agree that the shortnose sturgeon is a likely inhabitant in the intracoastal waterway in the vicinity of the Sunset Beach Bridge. Due to the presence of this federally-protected species and in accordance with the Endangered Species Act of 1973, as amended, consultation with our Protected Species Management Branch at the letterhead address must be initiated. Staff in the Protected Species Management Branch are responsible for reviewing the document's biological conclusions regarding shortnose sturgeon. If it is determined that these activities may adversely affect any species listed as endangered or threatened, then formal consultation may be required.

Response: NCDOT commits to following the provisions noted in Section 4.3.3.1 of the Final EIS for this project. Specifically, turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removals (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges, NCDOT commits to the use of the bucket/clam shell dredge method. Accordingly, it can be concluded that the project construction will have no effect on the shortnose sturgeon (NCDOT, 1996d).

5. Comment: Specific Comments, Alternatives Considered for Further Analysis, Page 2-15, paragraph 1. It is stated here and elsewhere in the document that because constructing the bridge piers using barge equipment would require extensive dredging, the piers would "most likely" be constructed using a top-down method. If there is a possibility that the piers could not be constructed using the top-down method, the DEIS should address the impacts associated with the extensive dredging that will be required if construction using barges is necessary.

Response: Discussions have been expanded in Section 4.3.2 in the Final EIS for this project.

6. Comment: Traffic Operations and Cost Estimates, Page 2-40, Table 2.9. The calculations on cost estimates do not include the costs associated with compensatory mitigation for the wetland impacts of each of the alternatives. Although precise estimates cannot be made until a mitigation plan is approved by the Corps of Engineers, a rough estimate should be possible based on the area of wetlands impacted and the cost of compensatory mitigation for similar impacts in North Carolina. Based on acreage impacted, the cost of compensatory mitigation would appear to be highest for Alternative W1 and least for Alternative C4.

Response: Wetland mitigation costs estimates are provided in the Mitigation Plan located in Appendix H of the Final EIS for this project.

7. Comment: Please note that the NMFS also review these [Section 10 and Section 404 permits] permits and provides recommendations on minimizing impacts to living marine resources.

Response: The Final EIS for this project includes reference to this fact.

8. Comment: Specific Comments - NSTM [Natural Systems Technical Memorandum], Environmental Consequences, Page 37, paragraph 2. Alternative W1 would require filling part of the current channel for Big Narrows and dredging a new channel alignment. The document discusses the possibility that the new channel might not be self-maintaining (as is the current channel) and the likelihood that if the channel migrates back to its original location, the drainage of the adjoining salt marsh and upland areas would be affected. In addition, sediment transport balances could be altered in the Atlantic Intracoastal Waterway itself. The document concludes that an estuary model and scour evaluation may be necessary to fully evaluate the impacts of this alternative. NMFS strongly concurs that hydrologic modeling of the proposed re-alignment of Big Narrows is essential to an adequate evaluation of the environmental consequences of Alternative W1. The results of the modeling should be used to assess probable impacts on fishery resources that utilize Big Narrows and the adjacent salt marsh, and should be incorporated in any environmental document.

Response: Although the original alignment of Alternative W1 has been revised to avoid the Big Narrows channel (Alternative W1R) to avoid this dredging, additional modeling will be performed on this alternative in order to insure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained after construction.

U.S. Department of Commerce, National Marine Fisheries Service, September 6, 1995

1. Comment: Our overall continuing concern is the document's lack of analysis of impacts on fishery resources from the dredging, wetland fill, channel re-alignment, and other activities associated with the proposed alternatives. Without such analysis, NMFS does not consider the document adequate in terms of meeting the requirements of the National Environmental Policy Act (NEPA) (Public Law 91-190).

Response: Please see responses to the July 21, 1995 letter above.

2. Comment: Alternatives: Page 2-15, last paragraph. The document states that construction methods would be determined after an alternative is selected. The available construction methods range from top-down construction to use of construction barges in a dredged channel. The former construction method would have the least impact on the aquatic environment while the latter method would have a greater impact. Because the construction method will have a significant effect on the overall environmental impacts of

each alternative, the document should explicitly state the construction method assumptions that were used in the analysis of each alternative.

Response: Discussions have been clarified in Section 4.3.2 of the Final EIS for this project.

3. Comment: Traffic Operations and Cost Estimates: Page 2-42, Table 2.9. The calculations on cost estimates do not include the costs associated with compensatory mitigation for the wetland impacts of each of the alternatives. Although precise estimates cannot be made until a mitigation plan is approved by the Corps of Engineers, a rough estimate should be possible based on the area of wetlands impacted and the cost of compensatory mitigation for similar impacts in North Carolina.

Response: Preliminary wetland mitigation costs have been developed but will refined during final design for this project.

4. Comment: Existing Natural Environment. Page 3-55, paragraph 3. The document states that, "it is likely that the small creeks and sounds provide foraging and spawning habitat for a number of commercially important finfish." As is noted elsewhere in the document, the waters of the project area have been designated as a "Primary Nursery Area" by the State of North Carolina. More detailed discussions of the commercial and recreational fisheries species that depend on the project area for foraging, spawning, and nursery habitat should be incorporated. The impact of the work on the area's primary nursery function also should be addressed.

Response: Discussions have been expanded in Sections 3.3.2.3 and 4.3.2 in the Final EIS for this project.

5. Comment: Impacts to the Physical Environment: Page 4-35, paragraph 6. The second sentence of this paragraph states that the U.S. Fish and Wildlife Service reviews Section 10 and Section 404 permits. Please note that the NMFS also reviews these permits and provides recommendations on minimizing impacts to fisheries resources.

Response: The Final EIS for this project includes reference to this fact.

6. Comment: Impacts to the Natural Environment. Page 4-61, paragraph 6. The only statement concerning fishery resource impacts in the DEIS is: "The build alternatives . . . would have some impact to fisheries due to increased turbidity and siltation during bridge construction/rehabilitation." This statement is not an adequate characterization of the impacts of the proposed project on fishery resources. Impacts of the proposed project on fishery resources that require analysis include: the impacts of permanent loss of wetlands and aquatic area due to dredging and fill activities; the impacts of temporary increases in turbidity as a result of construction operations; and the impacts of re-aligning the channel of Big Narrows. An analysis of fishery resource impacts should take into

consideration seasonal variations in fish populations (e.g., estuarine-dependent species) in the project area.

Response: Discussions have been expanded in Section 4.3.2 in the Final EIS for this project.

7. Comment: Impacts to the Natural Environment. Page 4-61, paragraph 6. The DEIS also should give some indication of the severity of fishery impacts and compare impacts of the three alternatives, identifying which alternative will have the greatest impact on fishery resources.

Response: Discussions have been expanded in Section 4.3.2 in the Final EIS for this project.

U.S. Department of the Interior, October 20, 1995
Section 4(f) Evaluation Comments:

1. Comment: Based on the information provided in the Draft Environmental Impact Statement (DEIS) and Section 4(f) Evaluation, we agree with the determination that the Atlantic Ocean Beach, a public parking lot which includes a gazebo and provides public beach access, and the other many public access easements in the vicinity of the proposed highway bridge fall under the protection of Section 4(f) of the Department of Transportation Act, as amended.

Response: Comment noted.

2. Comment: Information presented in the DEIS and Section 4(f) Evaluation indicate that none of the bridge construction alternatives, including the rehabilitation of the existing bridge should have significant primary or direct impacts on the Section 4(f) areas. Based on the information presented in the DEIS and Section 4(f) Evaluation, we would concur that the project would have no impacts on any Section 4(f) areas.

Response: Comment noted.

Environmental Statement Comments

3. Comment: General Comments: The U.S. Fish and Wildlife Service (FWS) believes the range of alternatives considered for this project is adequate. . . . Based on the information given in the DEIS, the upgrade alternative would have the least environmental impact, and the FWS recommends that the NCDOT carefully consider this option.

Response: Although this alternative has the least environmental impacts among the alternatives in the Draft EIS, Alternative C3R (Rehabilitation) does not address the public safety and transportation objectives of the project. Therefore, this alternative was not selected as the preferred alternative for construction.

4. Comment: Additionally, the FWS believes that each of the three build alternatives would adversely impact important fish and wildlife habitat. Adverse impacts common to all build alternatives include placement of fill in a small amount of ecologically significant estuarine salt marsh and the clearing and filling of coastal fringe evergreen forest, a critically imperiled community located in North Carolina. The FWS believes that these adverse impacts can be avoided or minimized by design features and construction techniques. To address these impacts, the FWS recommends bridging of salt marshes and the redesign of connecting roads on the mainland in the northern part of the project area.

Response: Impacts to natural resources under the various alternatives have been minimized to the extent practicable, which includes a major revision in the Alternative W1 alignment that avoids the Big Narrows channel (Alternative W1R). Fill in salt marshes will be minimized in both duration and physical extent, and temporary work bridges will be utilized where practicable. Permanent and temporary impacts to wetland areas are discussed in greater detail in the Final EIS for this project.

5. Comment: Adverse impacts to the West Indian manatee (Trichechus manatus) could be minimized by limited in-water work from October through May.

Response: NCDOT commits to the implementation of the USFWS precautionary measures noted in the USFWS paper titled, "Precautions for General Construction in Areas which may be used by the West Indian Manatee in North Carolina"; therefore, in-water construction activities of the preferred alternative (Alternative W1R) will have no effect to the manatee (USFWS, 1996b). However, if in the event that a manatee is observed during construction, a may affect scenario would apply and Section 7 Consultation with the USFWS would be initiated to resolve concerns over the species (NCDOT, 1996d). This information is summarized in the Section 4.3.3.1 in the Final EIS for this project.

6. Comment: Upland Communities: Table 4.11 (page 4-57) of the DEIS states that each of the build alternatives would impact areas of coastal fringe evergreen forest. This is an upland community dominated by loblolly pine (Pinus taeda), live oak (Quercus virginiana), and laural oak (Quercus laurifolia). The North Carolina Natural Heritage Program has designated this community as S1, critically imperiled in the State because of extreme rarity or otherwise vulnerable to extinction. Impacts, both clearing and filling, to this community for Alternatives W1, C1, C4 and C3R are 1.95, 1.63, 0.46 and 0 acres, respectively. It is shown in Exhibit 3.6 that this community is only found in patches north of the Atlantic Intracoastal Waterway (AIWW) where the NCDOT has proposed connector roads in a new location. The FWS is opposed to any loss of this unique habitat. Therefore, the FWS recommends that either Alternative C3R be selected or the new construction north of the actual bridge be realigned to avoid this community.

Response: The rehabilitation alternative (C3R) does not address the public safety and transportation objectives of the project. The preferred alternative for construction (Alternative W1R) comprises a new alignment that avoids the Big Narrows channel and reduces the impacts to coastal fringe evergreen forest area from 0.79 hectare to 0.64 hectare

(1.95 acres to 1.58 acres). Furthermore, due to past and continued clearing by local development, it is anticipated that the proposed project's direct impacts to the coastal fringe evergreen forest would be minimal.

7. Comment: Wetland Losses and Mitigation: The FWS's primary concerns about this project involve the direct loss of estuarine wetlands and the secondary adverse impacts which could occur if natural hydrological patterns are disrupted. . . .The FWS agrees with the assessment in the DEIS (page 3-53) which states that a salt marsh" . . .is a highly productive system which provides feeding area, cover, and nursery for a variety of animals." Permanent losses of salt marsh, due to filling or dredging, for Alternatives W1, C1, C4, and C3R would be 0.68, 0.59, 0.67, and 0, respectively. The FWS does not consider areas which would be shaded by a new bridge to be permanent losses.

Response: Comment noted. Wetland acreage impacts in the Draft EIS did not differentiate between permanent and temporary wetland losses associated with construction activities. The Final EIS clearly presents these differences. Permanent losses of salt marsh, due to filling or dredging, for Alternatives W1R, C1, C4, and C3R would be 0.17, 0.16, 0.27, and 0 hectares (0.41, 0.39, 0.67, and 0 acres), respectively. Impacts associated with these losses are addressed in the Final EIS for this project, with mitigation measures summarized in the Wetland Mitigation Plan in Appendix H of this document.

8. Comment: Wetland Losses and Mitigation: The DEIS notes that salt marsh losses for Alternative C1 are based on the use of a top-down or similar bridge construction method. If such methods are not used, a work channel approximately 30 feet wide and 1,100 feet long would be dredged. This channel would impact 0.75 acres of salt marsh. The FWS recommends that all losses of salt marsh habitat be avoided. Avoidance would involve the selection of Alternative C3R or use of bridging in all marsh areas. Construction should not require the dredging of work channels. If losses cannot be totally avoided, the NCDOT should use all available design feature and construction techniques to minimize losses.

Response: Comment noted. Alternative C3R does not address the public safety and transportation objectives of the project. The revised alignment of Alternative W1 (W1R) avoids the substantial dredging for the relocation of Big Narrows channel and has been adopted as the preferred alternative. It minimizes total salt marsh impacts to 0.17 hectare (0.41 acre) of permanent dredge and fill impacts and 0.09 hectare (0.22 acre) of permanent shading impacts. Temporary impacts to salt marsh from this alternative include 1.73 hectares (4.28 acres) of fill. Construction techniques that minimize impacts to natural resources will be utilized where practicable.

9. Comment: Wetland Losses and Mitigation: Salt marsh losses among the new bridge alternatives are similar. However, the extent to which additional bridging would reduce these losses is unclear. . . . The FWS recommends that Alternative W1 be redesigned in such a manner that the new bridge would pass high enough over the Big Narrows Channel that small boat traffic could use the existing channel.

Response: Alternative W1 has been revised (Alternative W1R) to avoid the substantial dredging of the Big Narrows channel. Therefore, access to Big Narrows channel by small boat traffic will not be affected.

10. Comment: Wetland Losses and Mitigation: The only alternative which impacts nonriverine wet hardwood forests is C1. Based on Exhibit 3.6 this 0.27 acre loss, is associated with the realignment of roads on the mainland side of the bridge. The FWS recommends that the NCDOT realign this connecting road in order to avoid impacting this wetland.

Response: Alternative W1R has been selected as the preferred alternative for construction. Consequently, further refinement of Alternative C1 was not undertaken.

11. Comment: Wetland Losses and Mitigation: The proposed project may create an opportunity for restoring some salt marsh areas which are currently part of the SR 1172 causeway. If the NCDOT selects one of the new bridge options, bridging to elevate the roadway south of the AIWW may begin over 1,000 feet from the open water. Part of this area is currently used as the causeway for the existing bridge. The selection of a new bridge alternative would allow this causeway to the removed and restored to salt marsh. The restoration of this salt marsh would have a positive impact on natural hydrologic patterns in the project area. In its comments on this project to the U.S. Coast Guard on September 22, 1988, the FWS recommended that 2.6 acres of causeway could be removed and restored as compensation for unavoidable wetland losses. The FWS still strongly supports the restoration of salt marsh habitat.

Response: This option is discussed more fully in the Mitigation Plan in Appendix H of the Final EIS for this project.

Endangered Species Act Comments:

12. Comment: The FWS stated that any risk to [West Indian manatee (*Trichechus manatus*)] this federally-endangered mammal could be sufficiently minimized by limiting in-water construction activities to October through May. If work must occur during the period from June through September, the NCDOT should insure that manatee observers are present on the work site with the authority to take immediate precautionary measures if manatees are observed in the construction zone.

Response: Please see response to Comment #5 of this letter.

Summary Comments:

13. Comment: The Department of Interior concurs with the determination by the Federal Highway Administration that Section 4(f) does not apply to the alternatives presented.

Response: Comment noted.

14. Comment: As to project impacts on fish and wildlife resources, the FWS is concerned that the proposed project will adversely impact wetlands of high value to these resources. Based on the data provided in the DEIS, the rehabilitation of the existing bridge would result in the least environmental impacts. However, the FWS believes that NCDOT has the opportunity to redesign the new bridge alternatives in order to avoid or minimize adverse impacts to important coastal habitats. Furthermore, the construction of a new bridge provides an excellent opportunity to restore salt marsh presently lost to the causeway of the existing bridge. In order to mitigate these losses, the FWS recommends the use of all feasible design and construction techniques and the implementation of a comprehensive plan of compensatory mitigation for unavoidable wetland losses.

Response: Alternative W1 has been revised (Alternative W1R) to avoid the Big Narrows channel, greatly reducing the amount of salt marsh and surface water dredge impacts from its former alignment under Alternative W1. Marsh restoration is discussed more fully in the Mitigation Plan in Appendix H of the Final EIS for this project. Construction techniques that minimize impacts to natural resources will be utilized where practicable.

U.S. Department of Transportation, Coast Guard, June 29, 1995

1. Comment: This is in response to your letter dated June 7, 1995, requesting our review of the Draft Environmental Impact Statement (DEIS) for the proposed project across the Atlantic Intracoastal Waterway (AICW) at Sunset Beach, North Carolina. The DEIS has been reviewed by my Bridge Staff. It appears all of the alternatives provide for the reasonable needs of navigation that transit the Atlantic Intracoastal Waterway

Response: Comment noted.

2. Comment: At this time, the Coast Guard cannot endorse Alternate C1. We are concerned with the navigational clearance proposed for the new bridge across Slough Creek that will offer a vertical clearance of 4 feet at mean high water. We feel this will prohibit recreational boaters who currently transit this creek from traveling the last 200 feet to obtain supplies and visit the seafood restaurants. Also of concern, is the economic impact the proposed low clearance would have on the two restaurants located at the end of Slough Creek and the shrimp and fishing vessels that presently make seafood deliveries to these restaurants.

Response: Comment noted. Alternative W1R has been selected as the preferred alternative for construction; therefore, further refinement of C1 has not been undertaken. Moreover, due to land use and design constraints, a bridge can not be constructed over Slough Canal that would provide more than 1.2 meters (four feet) of vertical clearance without causing a major change in the overall traffic patterns at the SR 1172/NC 179 intersection. The impacts to businesses located at the end of the canal are discussed in Section 4.1.1.2. Section 4.2.1.1 of the Draft EIS discusses impacts to navigable waterways, including the Slough Canal under Alternative C1, and states that a permit from the U.S. Coast Guard will be needed prior to constructing any bridge over the AIWW, Slough Canal, or Big Narrows.

3. Comment: Even though at this time we find Alternative C unacceptable, positive public opinion from affected waterway users could alter our decision. Please keep in mind that the Coast Guard is the only federal agency that ensures bridges across navigable waters of the United States do not impede waterway traffic. We are especially sensitive to the commercial waterway operators who use these waterways as part of their livelihood.

Response: Comment noted.

4. Comment: In response to your invitation to hold a joint public hearing, we do not feel a need to participate at this time.

Response: Comment noted.

U.S. Department of Transportation, Coast Guard, September 28, 1995

Comment: This is in response to your letter dated July 25, 1995 requesting our review of the Draft Environmental Impact Statement (DEIS) for the proposed project across the Atlantic Intracoastal Waterway (AICW) at Sunset Beach, North Carolina. The comments that were provided . . . June 29, 1995, on the Preliminary DEIS and Alternate C1 remain the same. . . . However, if we receive additional information that vessel operators and businesses directly affected by this proposal have no objection to Alternate C1, we will withdraw our tentative objection to the proposed crossing of Slough Creek.

Response: Please see responses to comments in the June 29, 1995, letter from the US Coast Guard included above.

U.S. Environmental Protection Agency, Region 4, September 19, 1995

1. Comment: The document presents valid safety reasons for improving the bridge access to Sunset Beach, although EPA questions the appropriateness of providing federal assistance which would benefit and promote habitation on a storm-prone barrier island. Notwithstanding this question, EPA favors Alternative C4.

Response: Comment noted.

2. Comment: Purpose and Need: It is likely, however, the accident rate and accident severity would increase with a new bridge due to increased speeds. This might be mitigated somewhat by imposing a very slow speed limit on the bridge and approaches.

Responses: The rate and severity of accidents which may occur on a roadway segment is influenced by a number of factors, including speed limits, traffic volumes, roadway geometry, lane design, and traffic control devices. Because a number of these factors would change with implementation of a build alternative or the Rehabilitation Alternative, the rate and severity of roadway accidents which may occur can not be estimated. The proposed build alternatives would provide for wider lanes and shoulders across the AIWW and along the causeway. These wider lanes and shoulders and the bicycle-safe railings will provide a safer area for pedestrians and bicyclists traveling to and from the island and will also provide a larger area in which out-of-control vehicles can recover and disabled

vehicles can temporarily park. Speed limits on roadways and bridges are established by the NCDOT based on the roadway design and safety considerations. In addition, each build alternative and the Rehabilitation Alternative will have traffic signals on one or both sides of the AIWW to control traffic movement, but only the high-level, fixed-span alternatives would allow free-flow travel without a "stop" condition as under the existing bridge, the rehabilitation and Alternative C4.

3. Comment: Water Quality: Alternative C4 is superior to the other build alternatives. Requiring the least upland area (4.6 acres) disturbance, C4 would lessen the erosion and sedimentation impact to these waters which are designated High Quality Waters (HQW) and also a Primary Estuarine Nursery Area (PNA). The project area is also designated for shellfishing (SA) and subject to state anti-degradation policies. Alternative C4 would avoid disturbance to Big Narrows and the adjacent salt marsh thus preserving the present hydrology of this channel that is utilized for water recreation and potential shellfishing.

Response: Comment noted. The facts noted in this paragraph are included in the Draft EIS.

4. Comment: Water Quality: Alternative W1 . . . presents significantly greater aquatic impacts than other alternatives, by relocating Big Narrows and disturbing adjacent wetlands. Alternative C1. . .presents additional water quality and aquatic impacts by requiring the bridging of Slough Canal, a creek at the mainland.

Response: Comment noted. The facts noted in this paragraph are included in the Draft EIS. It should be noted, however, that the alignment of Alternative W1 has been revised to avoid the Big Narrows channel and minimize dredging for the project. This revised alternative (Alternative W1R) has subsequently been adopted as the preferred alternative.

5. Comment: Water Quality: While construction impacts will lessen with time, the long-term operational impacts to the surface waters and wetlands that dominate the project area present a problem for effective mitigation and project implementation. . . . These [ORW/PNA/SA] waters are currently closed to shellfishing.

Response: Since the preferred alternative (W1R) would cross over Tidal Salt (SA) waters designated as Primary Nursery Areas (PNA) (see Section 3.2.2.1), the practicability of providing hazardous spill catch basins will be further investigated in accordance with NCDOT's Best Management Practices (BMPs). (A list of relevant NCDOT BMPs is displayed in Section 4.4.). For the same reasons and because the length and the percent grade of the proposed structure allow consideration for such measures, the routing of stormwater from the bridge to dispersion areas on the mainland or island instead of the use of scupper holes will be evaluated for practicability. Suitable areas for stormwater detention or flow dispersal are located in the vicinity of the proposed structure and, therefore, enable this measure to be considered for effectiveness and feasibility. Preliminary evaluation suggests that runoff from the bridge during the design storm could be channeled to a detention or flow dispersal area to avoid direct runoff into the SA PNA

waters of the AIWW. This type measure will be further evaluated for effectiveness and feasibility during the final design phase of the project and prior to application for a North Carolina Stormwater Certification. Furthermore, the restoration of a portion of the existing causeway to salt marsh would provide additional, in-kind and local wetland areas to help mitigate any long-term perturbations. Details of the mitigation proposed for this project are contained in the Mitigation Plan in Appendix H of the Final EIS for this project.

6. Comment: Water Quality: Without pollution abatement, full attainment with designated uses is not likely. Accordingly, we request that the Final EIS address in detail all NPS treatment alternatives including measures which would have only partial treatment capacity, and to also address off-site compensatory abatement of NPS presently impacting these waters.

Response: As discussed on page 3-32 of the Draft EIS, a report prepared by Powell Associates of NMB, Inc. (1993) addressed the existing impacts of residential septic tanks on water quality in the Sunset Beach area. The Powell Associates report concludes that water quality degradation around the island of Sunset Beach is the result of pollution originating on the island and from distant sources such as the Little River and Calabash Creek. The centralized sewer system proposed for the south Brunswick County area, including the island of Sunset Beach, will most likely improve water quality around the island. The Powell Associates report supports this statement.

Although not reported in the Draft EIS, it should also be noted that under the build alternatives, particularly the high-level alternatives, the numbers of boats idling in the waters around the bridge will decrease, thereby reducing the amount of pollutants entering the area through runoff and leakage from boats.

Also, please see the response to Comment #5 above.

7. Comment: Water Quality: Watersheds with these formal designations require stringent controls on pollutants. Because it is anticipated that greater traffic loads [from 3,400 ADT in 1994 to 6,400 ADT in 2019] would result in greater pollutant runoff to these waters, it is uncertain whether any project to handle greater traffic is consistent with state water quality criteria without complete avoidance or compensation of the adverse impacts.

Response: As discussed in Section 1.7 of the Draft EIS, the purpose of the proposed project is to improve safety, not to handle increased traffic. Future traffic volumes are projected to increase in the region, regardless of the type of bridge access to the island. With one exception, future traffic volumes to and from the island are projected to be approximately the same no matter which bridge alternative is implemented. During summer peak hours, the NCDOT projects that traffic volumes would be 10-15 percent lower across the No-Build Alternative and the Rehabilitation Alternative because some convenience trips to and from the island would be postponed until off-peak periods (See Section 2.3.1.1) of the Draft EIS.

It is stated on page 4-37 of the Draft EIS that stormwater runoff would increase under any of the build alternatives due to the increase in impervious roadway surface area as compared to existing conditions. These impervious conditions are the result of the construction of a transportation facility that meets current design and safety standards. However, it should also be noted that the amount of pollutants entering the AIWW and surrounding salt marsh may not necessarily increase under the build alternatives since there would be less idling and queuing by boats and roadway vehicles. Potential mitigation measures for control of non-point source water quality impacts are discussed on page 4-37 of the Draft EIS and in Section 4.2.2.1. of the Final EIS for this project.

Also, please see the response to Comment #5 above.

8. Comment: Water Quality: The document did not present an adequate conceptual plan for mitigating wetland losses. . . .We think converting a portion of Big Narrows to salt marsh . . . is inappropriate since it is not likely to be done on a large enough scale to make it a measurable benefit to the environment or be practical to manage long-term.

Response: A Wetland Mitigation Plan has been prepared by the NCDOT for submittal to the COE and is included as Appendix H of the Final EIS for this project.

9. Comment: Bridge Construction Methods: Alternative C4, other than the rehabilitation alternative, would result in less disturbance of wetlands since it is nearly on the present footprint of SR 1172. Likewise, C1 is on this same alignment but would require temporary parallel work access roads over land and aquatic areas. Compared to the other two build alternatives, W1 would adversely impact far greater areas for accessing the construction. C4 has the further benefit of requiring less fill and fewer piers; and these new piers would only be on land and in the ICW. We suggest avoiding any technique involving dredging channels or canals to access construction.

Response: Comment noted.

10. Comment: Bridge Construction Methods: For a bridge project in planning since 1979, the construction techniques are quite vague and in one case misleading. The top-down technique, an environmentally sound but more costly technique, is identified as possible but limited to spans between 50 and 70-feet. The proposed 90-feet spans between supports requires an even costlier modified technique. We question whether this technique is really under consideration and therefore suggest shorter spans in the design to make top-down technique practical.

Response: The top-down construction technique was evaluated and found to be feasible only for Alternative C1. The preferred alternative will utilize a combination of a temporary work bridge and barge construction techniques. Anticipated impacts of these techniques are addressed in the Final EIS for this project.

11. Comment: [T]he differences between alternatives in the amount of excavated material to be disposed of and the quantity of fill required should have been presented.

Response: Area by type of impact is displayed in Table 4.11 of the Final EIS for this project.

12. Comment: Land Use: We note the continuing public debate about the possible socio-economic changes a new bridge may cause to the island community which is estimated to be 60% developed. We applaud the effort to study the changes in development patterns on nearby Holden and Ocean Isle barrier island communities before and after high-rise bridge construction.

Response: Comment noted.

13. Comment: Land Use: The EIS concludes that the impacts, including changes in the rate and character of future development of the island of Sunset Beach, would be marginal. Nevertheless, improving access is likely to produce greater traffic volumes on and to the island thereby altering present vehicular movement and the character of island life.

Response: Please see response to Comment #7 from this letter.

14. Comment: Land Use: Alternative C4 would be more compatible to bike and pedestrian traffic by the bridge's reduced slope and better access. Since the Town of Sunset Beach occupies both sides of the ICW, this may be an important feature to the community.

Response: Alternative C4 would have the same slope (5 percent) at the proposed high-level bridge alternatives. However, Alternative C4 would require a vertical climb of 9.1 meters (30 feet), whereas the high-level bridges would require a vertical climb of 19.8 meters (65 feet). Therefore, the length of climb to reach 9.1 meters (30 feet) is less than the length of climb to 19.8 meters (65 feet). That the Town of Sunset Beach occupies both sides of the ICW is noted.

15. Comment: Noise Impacts: . . . While anticipated noise levels of Alternatives C1 and W1 approach or exceed FHWA criteria for multiple sensitive receptors, Alternative C4 would avoid such impacts. The impacts of C1 and W1 were found to exceed the cost-effectiveness criterion for instituting abatement measures, meaning no mitigation would be implemented. The mid-level bridge (Alternative C4) is preferred for these reasons.

Response: Comment noted.

16. Comment: Summary of Comments: EPA is assigning a numeric rating of "2" to this Draft EIS, meaning additional information is needed to fully define the anticipated impacts to water quality and wetlands long-term. There needs to be a more complete assessment of NPS abatement measures as well as a mitigation plan for anticipated wetlands losses.

Response: Please see response to Comment #5 from this letter..

17. Comment: Summary of Comments: . . . We believe Alternative C4 is superior to the other new-bridge alternatives and it appears to meet the criteria of Clean Water Act Section 404(b)(1). . . .Alternative C4 also would result in the least water quality, noise, land disturbance and socio-economic impacts. Accordingly, we are rating this alternative "EC" meaning that we have environmental concerns that can be mitigated satisfactorily. We are assigning a rating of "EO" (Environmental Objections) to Alternatives C1 and W1 because these options present unnecessarily greater impacts to the coastal environment, and should be avoided due to the high quality criteria designations of the aquatic resources of the project area. Alternative C3, rehabilitation of the present pontoon bridge, is assigned a rating of "LO." We do not have any reservations about the environmental acceptability of this alternative.

Response: Comment noted.

7.1.5.2 State and Local Departments and Agencies

North Carolina Department of Cultural Resources, August 28, 1995

1. Comment: The DEIS makes the recommendation that if Alternative W1 is selected as the route for the bridge replacement, additional archaeological testing be conducted at archaeological site 31BW65. In addition, the DEIS states that whereas site 31BW65 warrants additional investigation it will not require preservation in place. After review of the DEIS, we concur with the recommendations concerning site 31BW65.

   Response: A second phase of investigations was completed in September 1996. The phase II archeological investigation undertaken by NCDOT within the portion of prehistoric site 31Bw65 as it relates to Alternative W1R failed to discover any intact cultural features or locally and/or regionally significant archaeological deposits. In addition, it is unlikely that site 31Bw65 possesses the quality of significance to warrant preservation in place as defined by Section 4(f) of the USDOT act of 1966.

2. Comment: We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area.

   Response: Comment noted.

North Carolina, Department of Environment, Health and Natural Resources, October 2, 1995

Comment: The comments from our agencies cover a number of concerns that should be addressed prior to the issuance of the final document. In order to avoid possible delays, please coordinate with our agencies to adequately address their concerns prior to the final document.

Response: Comment noted.

North Carolina Division of Coastal Management, August 22, 1995

Comment: A CAMA Permit is required for all or part of this project proposal. Applicant should contact Bob Stroud in Wilmington, phone # 910-395-3900, for information.

Response: As stated in Section 4.1.1.4, a CAMA Major Development Permit will be obtained prior to construction of the preferred alternative (Alternative W1R).

North Carolina Division of Coastal Management, District Planner, August 17, 1995

1. Comment: see response below.

   Response: The text in this letter under the headings Resource Protection, Capacity of Existing Facilities and Local Commitment to Providing Services for Development, Bicycle Traffic Improvements, and Storm Hazard Mitigation includes statements regarding existing Sunset Beach land use policies and does not address the adequacy of the Draft EIS. Accordingly, no response is necessary.

2. Comment: Consistency Opinion: The Town of Sunset Beach 1995 Land Use Plan Update supports improved access to the island. The text of the plan describes local controversy about the preferred form of improved access. In 1992, the town was equally divided in preference for maintenance vs. new construction. Plan policy supports protection of coastal wetlands. When wetlands must be crossed by roads, mitigation is required. Navigable public trust waters may not be obstructed. The inclusion of bicycle lanes in road improvements and/or new construction is encouraged.

   Response: Comments noted.

This comment letter further notes that, "This project will be consistent with the Plan if the following conditions are met":

3. Comment: Mitigation provisions will be made for coastal wetlands lost or damaged by construction of the bridge and/or approach roads.

   Response: Impacts to wetlands under any project alternative will be mitigated as determined through the COE' Section 404 permit process.

4. Comment: The navigable waters of Slough Creek will not be obstructed.

   Response: The preferred alternative (Alternative W1R) and C4 would not affect the navigability of Slough Canal. Alternative C1 would not be consistent with the Sunset Beach Land Use Plan.

5. Comment: Bridge improvement and/or replacement will include bicycle lanes for safety and to encourage alternate transportation use.

Response: For Alternatives W1R, C1, and C4, additional lateral clearances will be provided across the proposed bridge and on the causeway to improve safety for bicyclists and pedestrians over existing conditions. In addition, bicycle-safe railings will be installed on the proposed new bridge structures. However, it should be noted that the 1.2- to 1.5-meter (4- to 5-foot) shoulders will not be marked as designated bicycle lanes. Furthermore, neither the Rehabilitation Alternative nor the maintenance of the existing facility (no-action) alternative would enhance bicycle safety along this roadway.

6. Comment: Applicable requirements of local ordinance will be met.

Response: It is NCDOT policy that project construction will conform with all local ordinances.

North Carolina Division of Environmental Health, August 22, 1995

Comment: If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Environmental Health, Public Water Supply Section, Plan Review Branch, 1330 St. Mary's Street, Raleigh, North Carolina, (919) 733-2460.

Response: Comment noted. Any needs to relocate water lines will be determined by the NCDOT during the final design of the preferred alternative (Alternative W1R). Plans to relocate water lines will be coordinated with the Division of Environmental Health, Supply Section, Plan Review Branch.

North Carolina Division of Environmental Management, September 28, 1995

1. Comment: The Division of Environmental Management is responsible for the issuance of the Section 401 Water Quality Certification for activities which impact waters of the state including wetlands. The subject project as proposed would impact up to 3.91 acres of wetlands.

   Response: The NCDOT will obtain a Section 401 Water Quality Certification prior to construction of Alternative W1R, the preferred alternative.

2. Comment: Alternative W1 would require a partial relocation of Big Narrows Channel. The document states that the hydrology and sediment transport may be adversely effected. From a water quality perspective, this alternative is not acceptable.

   Response: Alternative W1 has been revised to avoid the Big Narrows channel and has been adopted as the preferred alternative, Alternative W1R. However, additional modeling will be completed in order to insure that the hydraulic conveyance and navigational characteristics of the Big Narrows channel are maintained after the construction of Alternative W1R. Also, Best Management Practices will be incorporated into the design of the preferred alternative (Alternative W1R) to minimize water quality impacts. These measures will be detailed in an erosion and sedimentation control plan to be prepared prior to construction. These documents will be available during the Section 401 permit review process.

3. Comment: Any of the C alternatives are conditionally acceptable to DEM but our preference (in order) is C3R, C4, and lastly C1. The conditions are: 1) impacts to wetlands and waters must be minimized to the extent practicable (Staging areas should not be in wetlands.), 2) there are no lateral roadside ditches in wetlands, 3) an acceptable wetland mitigation plan is developed and implemented, 4) that high quality sediment and erosion control measures are used, and 5) construction techniques that minimize environmental impacts are used. (Dredging in salt marsh communities is not acceptable).

Response: Impacts to wetlands and water will be minimized as required to obtain a permit from the COE under Section 404 of the Clean Water Act. Lateral roadside ditches will not be necessary along the causeway for any of the proposed alternatives although they will be used on the mainland (northern) portion of the project. A Wetland Mitigation Plan will be developed as part of the Section 404 Permit application. Sediment and erosion control measures will be incorporated into the design of the preferred alternative (Alternative W1R) and will be detailed in an Erosion and Sedimentation Control Plan to be prepared by the NCDOT. Although construction techniques that minimize environmental impacts (e.g., turbidity curtains for in-water activities and silt fences at the toe of fill in wetland areas) will be utilized where practicable during the construction of the Alternative W1R, these methods will be chosen during the final design phase.

4. Comment: Stormwater issues should be more fully discussed in the FEIS. Please contact Mr. Bradley Bennett at 733-5088 to ensure that the appropriate level of documentation occurs.

Response: The Final EIS incorporates additional information resulting from coordination with the Division of Water Quality in Section 4.2.2.1. Specifically, since the preferred alternative (W1R) would cross over SA waters designated as Primary Nursery Areas (PNA) (see Section 3.2.2.1), the practicability of providing hazardous spill catch basins will be further investigated in accordance with NCDOT's BMPs. (A list of relevant NCDOT BMPs is displayed in Section 4.4.) For the same reasons and because the length and the percent grade of the proposed structure allow consideration for such measures, the routing of stormwater from the bridge to dispersion areas on the mainland or island instead of the use of scupper holes will be evaluated for practicability. Suitable areas for stormwater detention or flow dispersal are located in the vicinity of the proposed structure and, therefore, enable this measure to be considered for effectiveness and feasibility. Preliminary evaluation suggests that runoff from the bridge during the design storm could be channeled to a detention or flow dispersal area to avoid direct runoff into the SA PNA waters of the AIWW. This measure will be further evaluated during the final design phase of the project.

5. Comment: Please be advised DEM may deny the 401 Certification upon application if wetland or water impacts have not been avoided and minimized to the maximum extent

practicable. Questions regarding the 401 Certification should be directed to Eric Galamb in DEM's Environmental Sciences Branch at 733-1786.

Response Comment noted.

North Carolina Division of Marine Fisheries, September 26, 1995

The Division of Marine Fisheries does not object to this project as long as the following conditions are met:

1. Comment: In Alternative C1, use top-down construction to avoid dredging a new channel. The area is a Prime Nursery Area and the Division is opposed to new dredging in these areas.

   Response: Alternative W1R, the revised alignment of Alternative W1 that avoids the Big Narrows channel, has been selected as the preferred alternative. Consequently, Alternative C1 will not be constructed. It should be noted, however, that a limited amount of dredging in the PNA waters of the AIWW will be unavoidable under the preferred alternative, but would be conducted only for construction. Mitigation of this dredging as it applies to fisheries resources is discussed in Sections 4.3.2 and 4.3.3.1.

2. Comment: Mitigate the loss of wetlands.

   Response: In accordance with Section 404 of the Clean Water Act, the NCDOT has prepared a Mitigation Plan as part of their permit application to the COE. Appropriate mitigation will be determined by the COE during the Section 404 permit review process. The Mitigation Plan for this project is displayed in Appendix H of the Final EIS for this project.

3. Comment: Find a replacement for the private boat ramp now being used by many people, including Division personnel.

   Response: The NCDOT requested aid in its attempt to identify suitable relocation sites for the referenced boat launch from the North Carolina Department of Coastal Management and the North Carolina Wildlife Resource Commission in letters dated July 1, 1996 (NCDOT, 1996e; and NCDOT, 1996f). Efforts are underway to relocate this boat ramp. Three potentially suitable alternate ramp sites have been identified in the vicinity of the Sunset Beach area. The NCDOT is presently evaluating these sites for feasibility in coordination with other state and federal agencies.

4. Comment: Use the best practices possible to minimize sedimentation and erosion impacts to the surface waters.

   Response: As stated on page 4-37 of the Draft EIS, Best Management Practices (High Quality Waters erosion control standards) will be incorporated into the design of the preferred alternative (Alternative W1R) to minimize water quality impacts. These

measures will be detailed in an erosion and sedimentation control plan to be prepared prior to construction.

North Carolina Division of Parks and Recreation, September 8, 1995

1. Comment: The document adequately addresses the proposed impacts to known, or possibly occurring, endangered, threatened, and rare species. Few, if any, of these species will be directly impacted by the construction of a new bridge to Sunset Beach.

   Response: Comment noted.

2. Comment: On the other hand, secondary impacts to some species, such as loggerhead turtle (Caretta caretta) and seabeach amaranth (Amaranthus pumilus) are likely to increase after the new bridge is constructed, as a result of greater human usage of the beaches and increased construction because of better access to the island.

   Response: Based on the case studies of Holden Beach and Ocean Isle discussed in Section 4.1.1.3, replacing the bridge at Sunset Beach is not expected to greatly affect the rate and type of development on the Sunset Beach mainland or island. Future increased traffic to and from the island and increased numbers of day visitors are expected to occur independent of the type of bridge to the island as the population of coastal counties and mainland communities continues to grow.

3. Comment: Alternative W1 is expected to impact 1.95 acres of Coastal Fringe Evergreen Forest, and C1 is expected to impact 1.63 acres of this community (Table S.1). On the other hand, C4 is predicted to impact only 0.46 acres of Coastal Fringe Evergreen Forest. This is a critically imperilled community in North Carolina. It is likely that the presently non-impacted Coastal Fringe Evergreen Forest lying just west of the mainland end of the bridge will be developed in the near future. Nonetheless, the Division supports alternatives that spare as much of this imperilled natural community as possible, in hopes that this site or others can be given long-term protection. Another critically imperilled community - - the Nonriverine Wet Hardwood Forest -- would be slightly impacted by Alternative C1 but not by C4.

   Response: Comment noted. The preferred alternative, Alternative W1R, impacts 0.64 hectare (1.58 acres) of this community, which represents a 0.15 hectare (0.37 acre) decrease from the former alignment of Alternative W1.

4. Comment: Based on the data presented on Table S.1., the Division believes that Alternative C4 (Center Bascule) would have less impact on critically imperilled natural communities than would the other "build" alternatives (W1 and C1).

   Response: Comment noted.

North Carolina Wildlife Resources Commission, September 25, 1995

1. Comment: We recommend Alternative C1 as the preferred build alternative. The C1 alignment closely parallels the existing fill causeway which reduces wildlife habitat fragmentation. However, this alternative does have greater impacts to the Coastal Fringe Evergreen Forest. These impacts are due to the realignment of roads on the mainland. NCDOT should further explain the need for this additional roadway work.

   Response: Comment noted. The alignment of Alternative W1 has been revised to avoid the Big Narrows Channel and has subsequently been adopted as the preferred alternative for construction (Alternative W1R). However, as discussed on page 2-13 of the Draft EIS, a 487.7-meter (1,600-foot) eastward relocation of NC 179 would be necessary for Alternative C1 to provide a proper connection with relocated SR 1172, and to provide for through traffic on NC 179. As shown in Exhibit 2.5 of the Draft EIS, constraints on the placement of SR 1172 include the need to provide adequate vertical clearance over NC 179 (Shoreline Drive). After this clearance is provided, the elevation of the SR 1172 roadway needs to drop back to ground level to meet NC 179. At this point, NC 179 must be realigned to provide the proper angle under current design standards at the NC 179/SR 1172 intersection. The remaining part of the realignment is constrained by minimum allowable radii for curves.

2. Comment: If it is impossible to totally avoid the Coastal Fringe Evergreen Forest impacts, NCDOT should propose mitigation in the form of preservation or creation of this habitat type.

   Response: The NCDOT will coordinate with the Wildlife Resources Commission during preparation of a Mitigation Plan. Impacted Coastal Fringe Evergreen Forest will be addressed in the Mitigation Plan.

3. Comment: We feel that the western alignment (W1) would be unacceptable. The WI alternative will require some realignment of the Big Narrows channel which could effect the flushing characteristics of the channel and the surrounding marsh. It is impossible to predict the long-term impacts that hydraulic alternations will have on navigability and on the salt marshes adjacent to the Big Narrows channel.

   Response: Alternative W1 has been revised to avoid the Big Narrows channel; however, additional modeling will be performed on this alternative in order to insure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained after construction.

Town of Sunset Beach, October 3, 1995

1. Comment: On February 6, 1995, the Council of the Town of Sunset Beach endorsed the concept of a high rise bridge . . . in response to the accident of January 20, 1995, when a 196 foot barge struck the present bridge, tearing away a pontoon section. . . At the time of the accident five D.O.T. employees, as well as the bridge tender, were on the pontoon in a precarious situation. The island was inaccessible to all traffic for over twenty-four

(24) hours. Boat traffic was stopped for four and one half days. The court ruled the accident unavoidable because of high winds, tides, and treacherous currents. . . .The Council expressed the view that a wider opening for boats would be safer for both the boating traffic and the structural integrity of the bridge. The E.I.S. reports on the various lengths of horizontal openings of the different bridge designs and was cited by the Council in making a decision for the high rise bridge with a 180 foot opening as opposed to the bascule bridge with 105 foot opening. It [the Council] concurs with the findings that a high level, fixed-span bridge is the best design for safety. It is also the most economical. . . . In September a family rushed a young boy into the Town Hall to await the arrival of an ambulance. He was a leukemia victim and had been suddenly taken ill. They were afraid to wait on the island for emergency services because they feared the bridge might hinder them. . . . Several summers ago, a young boy was slashed across the abdomen by a surf board. Men, at the pier, put him into a car and rushed him across the bridge and awaited the arrival of emergency services at the mainland bridge approach. They too were fearful the bridge would be down. . . .These are just two of the "minor" emergencies that have been complicated by the bridge that I have the personal knowledge of. They never made the newspapers and, as far as I know, there is no official report on them. They illustrate the basic fear our people live with when an emergency happens. The bridge is the island's lifeline. When it is unavailable to emergency vehicles and personnel, it becomes a threat to life and property. There is no way to predict when it will be impassable because of weather conditions, mechanical failure or the normal openings for boats. The safety of our children must be given priority, to do less is unconscionable. We concur with the E.I.S. findings that a high rise bridge is the safest and most economical. The western high rise should be proceeded with immediately.

Response: Comments noted.

7.1.6. Comments Received on the Preliminary Final Environmental Impact Statement and Responses

The following paragraphs present the comments made by agencies to which copies of the preliminary Final EIS were sent for review. The letters containing these comments are included in Appendix F, Part IV.

7.1.6.1 Federal Departments and Agencies

U.S. Army Corps of Engineers, Special Sudies and Flood Plain Services Section, Wilmington District, January 27, 1997

1. Comment: We wish to commend your agency on the detailed discussion of flood plains contained in Sections 3.2.1.2 and 4.2.1.2 of the document.

Response: Comment noted.

2. Comment: We agree that the proposed high-rise bridge alternative would not substantially impact flood heights, flood limits, or flood risks. In addition, it appears that inconsistencies in the delineation and designation of the flood zones, as referred to in our earlier letter, have been addressed in this latest version.

Response: Comment noted.

3. Comment: The proposed bridge should be constructed so as to not interfere with the operation and maintenance of the navigation channel in the Atlantic Intracoastal Waterway. To accomplish this, we request that a minimum of a 120-foot wide navigation opening be provided, 60 feet from the channel centerline on either side. To assure this clearance, please contact this office to obtain the channel centerline coordinates prior to design and construction of the bridge.

Response: Comment noted. NCDOT will coordinate with the COE to insure a minimum 120-foot navigational clearance will be incorporated into the final design of Alternative W1R.

U.S. Army Corps of Engineers, Regulatory Branch, Wilmington District, January 22, 1997

1. Comment: While we concur with the stated purpose and need for this project, our permit program requires that we make a complete, thorough, and unbiased review of all factors associated with a proposed project within jurisdictional waters of the United States.

Response: Comment noted.

2. Comment: [I]t is inappropriate for the Wilmington District to make any binding commitment concerning the selection of a single preferred alternative or comment on the likelihood of issuance or denial or a permit prior to going through the review process required by our regulations.

Response: Comment noted.

3. Comment: As a result of ongoing coordination on this project, we continue to support the selection of the preferred alternative (W1R) for this project, subject to the conditions and comments from the State and Federal commenting agencies.

Response: Comment noted.

4. Comment:. We would expect NCDOT to utilize all practicable measures to reduce the amount of temporary fill necessary; to employ construction techniques, including simultaneous construction on both sides of the project, that will minimize the time the fill is in place, and finally, commit to the successful restoration of this site to pre-project conditions.

Response: NCDOT will incorporate appropriate BMPs as noted in Section 4.4 in the construction activities associated with Alternative W1R. Temporary fill will be minimized in amount and duration to the extent practicable, and measures will be taken to restore temporary fill areas to pre-project conditions as noted in the Mitigation Plan in Appendix H.

5. Comment: We are encouraged that you have included a conceptual mitigation plan in the FEIS that identifies 1.64 acres of causeway fill that may be appropriate for salt marsh restoration. Subject to approval from other state and Federal resource agencies, we feel that this is an appropriate approach to the mitigation of unavoidable wetland impacts.

Response: Comment noted.

6. Comment: Page 2-7. Were any of the 8 preliminary alternatives dropped from consideration for reasons other than traffic constraints?

Response: As discussed in greater detail in Section 2.1.2, costs and environmental impacts were the factors that precluded Alternative F1 (ferry alternative) and Alternative T1 (tunnel alternative). Please refer to this section for additional details of the reasons the eight preliminary build alternatives were excluded from further consideration.

7. Comment: Page 2-17. Were permanent impacts to salt marsh from construction of piers considered in the impact table?

Response: The wetland impacts discussed in Section 4.3.1.4 and in Table 4.11 include the impacts to salt marsh from the construction of piers. The Potential Natural Resources Impact table (Table 4.11 in the Final EIS and Table 1 in the Mitigation Plan in Appendix H) has been annotated to clarify what each impact discussion includes.

8. Comment: Page 13 of Appendix H. Section A states that "Impacts to the salt marsh community adjacent to the causeway will occur as a result of the temporary placement of fill for the staging area/haul road. Approximately 1.73 hectares (4.28 acres) of salt marsh will be impacted." It is our understanding that this 4.28 acres of temporary impact was associated with the temporary detour for automobile traffic, not for construction purposes. Please explain the discrepancy.

Response: The temporary detour for automobile traffic is needed to maintain traffic to and from the island of Sunset Beach during construction of the replacement bridge. The temporary detour would be approximately 640 meters (2,100 feet) in length, which is the minimum distance needed to safely detour traffic around construction where the new bridge will tie into the existing causeway. Based on a probable construction scenario, it is estimated the temporary fill for the detour would be in place for approximately two years; this estimated time for the fill to be in place is subject to change during final design and finalization of the construction staging and method. A total impact of 0.59 hectare (1.5 acres) in salt marsh is associated specifically with this temporary detour. The impacts

associated with temporary fill are listed with other construction impacts in the cumulative total of temporary impacts in the salt marsh community in Table 4.11 of the Final EIS and Table 1 of the Mitigation Plan (Appendix H). As noted in the response to Comment # 7 above, the Potential Natural Resources Impact table has been annotated to clarify what each impact discussion includes.

A breakdown of the acreage of temporary fill in salt marsh areas is provided below for informational purposes. While these estimates are based on a probable construction scenario, the estimated impacts are subject to change during final design and finalization of the construction staging and methodology.

Temporary Detour to Maintain Traffic During Construction	East and immediately adjacent to existing causeway	0.59 hectare (1.46 acre)
Haul Road/Construction Staging on Island Portion of Project	Immediately west and adjacent to existing causeway south of AIWW	0.51 hectare (1.27 acre)
Temporary Work Bridge used for Construction	Immediately west and adjacent to existing causeway and north of haul road/construction staging area on island	0.63 hectare (1.55 acre)

9. Comment: Page 4-78. "The staging area would require approximately 0.5 hectare (1.3 acres) of temporary work bridge fill." Will this temporary fill be placed in wetlands or on high ground?

Response: As outlined in the response to Comment # 8, fill for the haul road/staging area would require 0.5 hectare (1.3 acres) of impact to salt marsh immediately west and adjacent to the existing causeway. Since the causeway is so narrow, construction of the project will require temporary widening of the causeway near the southern bridge abutment of the proposed structure; this temporary widening will extend from the upland area on the causeway into the salt marsh on the western fringe of the causeway. The construction staging area will be used as the transition area from the temporary work bridge (located immediately south of the AIWW and west of the existing causeway) to the construction staging area; in addition, this area will provide a platform for the mobilization and temporary storage of equipment and materials needed to construct the southern portion of the new bride. Since construction access to the south side of the AIWW is limited due to the posting limits on the existing bridge, the majority of the equipment and materials will be carried from the mainland to the island causeway via barge, off-loaded onto the temporary work bridge, and then transported to the construction staging area. Due to the contractor's need to have access to the southern portion of the project during construction, it is anticipated that the temporary fill for the construction staging area and the temporary work bridge will be in place for the duration of the construction period (about 3 years).

10. Comment: Page 4-107. "To obtain permit approval, . . .Clean Water Act Section 404(b)(1) Guidelines" (February 1990)." This statement should be revised to reflect that wetland impacts should first be avoided, then impacts further minimized, and then finally mitigation will be considered for the unavoidable wetland impacts.

Response: This text has been revised to make this clarification.

11. Comment: Section 4.3 Impacts to the Natural Environment. Impacts associated with the temporary detour should be discussed in detail. It is unclear as to the location and need for the 4.28 acres of temporary fill in wetlands.

Response: Please see response to Comment # 8.

Untied States Department of the Interior, January 17, 1997

1. Comment: The modification of the alignment W1 to create W1R reduces impacts to the coastal fringe evergreen forest from 1.95 to 1.58 acres. Therefore, the Service believes that this analysis and material related to the selection of W1R as the preferred alternative are adequate.

Response: Impacts to coastal fringe evergreen forest (CFEF) calculated for the Draft EIS and the preliminary Final EIS assumed that clearing would only be required at the bridge pier footings. In a review by NCDOT and Greiner completed to determine if impacts to CFEF could be avoided to any further extent, the impact calculations were revised to assume that all area under the bridge would be cleared, and all area 50 feet to one side of the bridge (west side) would be cleared for construction access. Calculations were then revised in accordance with these new assumptions. Clearing impacts to CFEF increased from 0.01 hectares (0.03 acres) to 0.34 hectares (0.85 acres). These new impact acreages are included in detail in Table 4.11 of the Final EIS and Table 1 of the Mitigation Plan in Appendix H of the Final EIS. Total permanent impacts for Alternative W1R is also revised in the Summary of Impact Tables (Tables S-1 and 4-12 of the Final EIS), accordingly.

2. Comment: While we believe that the final environmental document should include specific plans to protect water quality, the Service strongly encourages the NCDOT to incorporate all feasible measures to ensure water quality into the final project design.

Response: As discussed in Section 4.2.2.1 in the Final EIS, NCDOT is currently evaluating the routing of stormwater from the bridge to dispersion areas in an effort to avoid the direct outfall of stormwater into the AIWW, as would occur with the use of scupper holes. Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practicable and feasible. The practicability of routing stormwater from the bridge's crest northward to the mainland is still under investigation. These mitigation measures will be evaluated fully during final design. Furthermore, best management practices for in-water construction will be implemented to insure water quality.

3. Comment: The Service is pleased that the preferred alternative avoids the loss of any forested wetlands and dredging for the relocation of Big Narrows channel. . . The removal of the old causeway should also restore the hydrological connection between the salt marsh communities which are currently separated. The Service strongly supports this conceptual mitigation plan. This effort is an excellent example of on-site, in-kind compensation which is necessary to prevent significant adverse impacts to important fish and wildlife resources in coastal areas. We recommend that the final plan contain a specific success criteria for revegetating the area and a multi-year monitoring plan to ensure that success is achieved. We also request that the plan indicate the disposal location of the material removed from the abandoned causeway.

Response: The Mitigation Plan in Appendix H of this final EIS has been expanded to include additional details of the mitigation activities planned for this project. These details include the establishment of reference plots in existing, adjacent salt marsh communities to determine vegetative diversity and density. The purpose of these plots will be to determine baseline conditions against which mitigation success can be measured. As suggested, success criteria and other details of the three-year monitoring program are also discussed, as are commitments by NCDOT that excavated temporary fill will be deposited in upland sites only.

4. Comment: The Service is pleased that the NCDOT has incorporated our recommendations for protecting manatees in project plans. Based on the information supplied by NCDOT and the assumption that stringent water quality and erosion control procedures will be employed during construction, the Service concurs that this project is not likely to adversely affect any federally-listed endangered and threatened species under our jurisdiction, their formally designated critical habitat, or species currently proposed for Federal listing under the ESA, as amended. We believe that the requirements of Section 7 of the ESA have been satisfied. We remind you that the obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Response: Comment noted.

5. Comment: The DOI stated in comments on the Draft EIS that the project should not have significant primary or secondary impacts on areas protected by Section 4(f) of the Department of Transportation Act of 1966. We have reviewed that material in Section 4.7 of the PFEIS which addresses this issue, and found no reason to change our previous position on Section 4(f) areas.

Response: Comment noted.

6. Comment: Please continue to advise us of the progress made in the planning process, including your official determination of the impacts of this project.

Response: Comment noted.

U. S. Department of Commerce, National Marine Fisheries Service, January 15, 1997

Comment: We have reviewed the BA [transmitted October 4, 1996] and the new protective measures included in your December 9 letter and have determined that populations of endangered or threatened species under our purview would not be adversely affected by the proposed project. This determination agrees with our November 5, 1996, consultation on this project and is based upon the protective measures the FHWA has agreed to. This concludes consultation responsibilities under Section 7 of the ESA. However consultation should be reinitiated if new information reveals impacts of the identified activity that may affect listed species or their critical habitat, a new species is listed, the identified activity is subsequently modified, or critical habitat is determined that may be affected by the proposed activity.

Response: Comment noted.

U.S. Department of Transportation, Coast Guard, January 10, 1997

1. Comment: The Coast Guard concurs with the North Carolina Department of Transportation's (NCDOT) selection of Alternative W1R for replacement of the existing pontoon bridge across the ICW at Sunset Beach. Our concurrence is based on Alternative W1R not encroaching on Slough Canal or the Big Narrows channel which were some of the issues we were concerned with, especially Slough Canal since Alternative C1 would have involved crossing it with a 4-foot vertical clearance restricting recreational and commercial vessels access to the last 200 feet where two restaurants are located.

Response: Comment noted.

2. Comment: Further review of the Preliminary FEIS reveals that Alternate W1R will not displace residences or businesses on the mainland or the island. The other alternatives . . . would have resulted in displacement.

Response: Comment noted.

3, Comment: The realignment of Alternative W1 (renamed W1R) reduced wetland impact by avoiding the dredging of Big Narrows channel relocating the navigational channel. The proposed vertical clearance of 65 feet at mean high water for Alternative W1R will meet the reasonable needs of navigation that transit the ICW.

Response: Comment noted.

4. Comment: With the aging of existing bridges on the ICW, replacing them with new structures is becoming necessary due to the continued maintenance problems and deterioration these bridges are experiencing. Since 1986, 12 of the 19 drawbridges crossing the North Carolina Cut of the Atlantic Intracoastal Waterway have been replaced with 65-foot high fixed highway bridges eliminating the need to maintain draw machinery that can break down and close the ICW not only to recreational boaters, but to commercial waterway users such as tugboat companies who depend on waterways for their livelihood.

   Response: Comment noted.

5. Comment: The Coast Guard is the regulatory agency responsible for ensuring that the regulations that govern the operation of drawbridges across navigable waters of the United States create an even balance between vessel and highway traffic. . . [F]ixed high bridges are becoming the theme of the future eliminating highway traffic congestion and allowing for the free uninterrupted movement of navigation.

   Response: The Coast Guard's position on providing a balance between highway and waterway traffic has been inserted into Section 1.5.1.2.

6. Comment: Also one other point that should be kept in mind in respect to fixed bridges is the delay of emergency vehicles is considerably reduced allowing them quicker response time which in the end saves lives.

   Response: Comment noted.

U.S. Environmental Protection Agency, February 13, 1997

1. Comment: A modification to the center (C1) and west W1 high-level fixed span bridge alternatives was developed and is called W1R. . . The effort to develop Alternative W1R indicates responsiveness to those [salt marsh and aquatic impacts] concerns. Alternatives other than the high-level fixed span and mid-level bascule (C4) options are addressed in the subject document, which is important according to NEPA. In summary, we consider this present document a good alternatives analysis

   Response: Comment noted.

2. Comment: The early analysis for the Draft EIS of the potential for secondary development, inappropriate land use changes, social and economic impacts to the island as a result of a high capacity fixed span were important since these were strongly voiced local concerns. Conclusions regarding these impacts were based at least in part on comparative analysis of developmental trends on Sunset Beach, Holden Beach and Ocean Isle Beach. . .These analyses are acknowledged to be imprecise, nevertheless they are appropriate for the EIS. However, it would be good to clarify whether the historical property value data are local government derived assessed values or actual property sales.

Response: Comments noted. Historical property value data were obtained from local governments and are assessed values rather than actual property values or market values.

3. Comment: Regarding land use changes, we agree with the conclusion that primary control of changes in use/density rests with local government policies and regulations. It is also true that any infrastructure upgrade whether transportation, water, sewer, etc., provides developers with a stronger position to challenge low density and other land use restrictions.

Response: Comment noted.

4. Comment: There is a good logic for improved safety by lessening emergency vehicle response times. However, there are many examples of coastal and other island destinations where people elect to visit or live which are distant or inaccessible to such services. . . [W]e consider the entire town of Sunset Beach as a coastal destination, where DOT queuing and level of service guidelines need not necessarily be met for state participation in a transportation improvement project.

Response: It is acknowledged that transportation planning for a vacation destination such as the Town of Sunset Beach need not necessarily weigh the value of time saved from the avoidance of delays as heavily as should planning for a community that would use a bridge primarily for non-recreational activities. However, it should be emphasized that the purpose and need for this project is safety and transportation reliability, and that the FHWA and NCDOT have the obligation of designing and constructing transportation facilities that best meet these objectives. Analysis in the Draft and Final EIS supports the conclusion that Alternative W1R is the best alternative to fulfill these objectives.

5. Comment: We believe the present pontoon bridge provides a unique feature for the coastal community. We continue to favor the mid-level bascule for balancing the needs of this community.

Response: Comments noted.

6. Comment: Another issue is the potential loss of recreational use of Big Narrows channel. There is a boat launch area which receives heavy use that would be lost by W1R, C1, and C4 alternatives. We understand the DOT and other officials are considering three other places in this area to locate a new boat ramp, and that will be established.

Response: Navigational access to Big Narrows would be maintained during construction and would not be eliminated as part of Alternative W1R. As noted, NCDOT continues to coordinate the boat ramp relocation evaluation with the NCDCM and the NCWRC. NCDOT is presently evaluating these sites for feasibility in coordination with these and other interested agencies.

7. Comment: It is mentioned that Bird Island, adjacent to Sunset Beach, is a unit covered by the Coastal Barrier Resources Act (COBRA), and is therefore precluded from the

Federal Flood Insurance Program. This document should clearly state that any federal support, including transportation or other action which would promote development of this undeveloped barrier island, would be a violation of COBRA. For that matter, the Status of Sunset Beach relative to COBRA, should be stated.

Response: Section 3.2.3.3 has been revised to clarify that the COBRA parcel MO1 extends from the westernmost portion of Sunset Beach further west into the Bird Island parcel. Additionally, as noted in this section, the exclusion of this parcel from the Federal Flood Insurance Program has been added to clarify this noted point. Section 4.2.3.3 has been revised to clarify that federal support promoting development of this parcel would be in violation of COBRA.

8. Comment: The project is in waters designated for shellfishing and primary nursery area (SA/PNA). Despite close proximity east and west to inlet passes for water exchange to the Atlantic Ocean, these confined waters are currently closed to shellfishing due to excessive bacterial contamination. We note that other bridges have scupper drains for runoff directly to the ICW, and the proposed bridge would have scupper drains [sic]. There should be a determination now whether design plans will have bridge runoff directed away from surface water. . .. EPA recommends this BMP be installed as it could prove valuable in the event of an accident and spill.

Response: NCDOT concurs that the PNA waters of the AIWW are an important resource. Accordingly, NCDOT is currently evaluating the routing of stormwater from the bridge to dispersion areas in an effort to avoid the direct outfall of stormwater into the AIWW, as would occur with the use of scupper holes. Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practicable and feasible. The practicability of routing stormwater from the bridge's crest northward to the mainland is still under investigation. These mitigation measures will be evaluated fully during final design. Of particular concern is the availability of a dispersion site which will of be sufficient size to process all stormwater runoff.

9. Comment: Since the development of the W1R alternative, the restoration of salt marsh within the present SR 1172 causeway from the ICW to the point of a new bridge alignment is a viable on-site mitigation for 0.63 acre of permanent wetland loss. Accordingly, this document corrects a major deficiency of the Draft EIS and comment by EPA with the inclusion of the appended Conceptual Mitigation Plan for wetland losses. We note a comparative lack of detail about accomplishing the restoration of the temporarily impacted wetlands (p.13). The same approach as for the SR 1172 causeway should be utilized. The plan must also define the disposal area(s) of the removed fill.

Response: Comments noted. The Mitigation Plan in Appendix H of this final EIS has been expanded to include details of the ameliorative efforts to ensure that temporarily impacts areas restore to salt marsh successfully. A monitoring plan will be developed for these areas that coordinates such activities for the restoration and mitigation sites. Details include the establishment of reference plots, annual monitoring for three growing seasons,

and the remediation of intrusion by undesirable species, if needed. Also included in the Mitigation Plan are commitments by NCDOT that excavated temporary fill will be deposited in upland sites only.

10. Comment: In summary, we consider the preliminary document adequate for an environmental analysis according to NEPA. We are reserving our final opinion on the preferred project (Alternative W1R) until we formally review the Final EIS.

Response: Comment noted.

7.1.6.2 State and Local Departments and Agencies

North Carolina Department of Environment, Health, and Natural Resources, January 27, 1997

1. Comment: The preliminary Final EIS acknowledges our concerns with this alternative [Alternative W1], and includes a revised version (Alternative W1R) with significantly reduced environmental effects.

Response: Comment noted.

2. Comment: DWQ commends NCDOT for addressing the problems associated with Alternative W1, and for investigating design features which have made Alternative W1R acceptable from our perspective. Based on the thorough discussion of environmental effects and mitigation measures, DWQ can now agree that the selection of Alternative W1R is justified.

Response: Comment noted.

3. Comment: The preliminary Final EIS states that there will be no stream modifications involved with this project. If this detail changes during the design phase of this project, stream mitigation may be required in accordance with current DWQ Wetland Rules which were not in effect at the time the EIS was prepared. Please be aware that issuance of a 401 Water Quality Certification will be contingent upon evidence of avoidance and minimization of wetland and stream impacts to the extent practical. DWQ appreciates the quality of the Final EIS prepared for this project, and the opportunity to provide comments. DOT is reminded that issuance of a 401 Water Quality Certification requires satisfaction of water quality concerns, to ensure that water quality standards are met and no wetland or stream uses are lost.

Response: There will be no stream modifications with the implementation of Alternative W1R; however, should changes during final design require such modifications, consultation with the NCDWQ would be initiated as required. NCDOT will incorporate best management practices, as noted in Section 4.4, that will help minimize unavoidable wetland impacts and help insure navigational access and water quality in the vicinity of the project.

North Carolina Division of Coastal Management, January 31, 1997

1. Comment: The high-level fixed span bridge, located west of the existing bridge location continues to be the preferred alternative to accomplish the NCDOT and FHWA project goals of public safety and transportation efficiency.

   Response: Comment noted.

2. Comment: Although the bridge alignment has been shifted eastward to avoid the adverse impacts that would be associated with the relocation of Big Narrows Channel, this alternative proposed the largest impact and loss to coastal wetland resources. The wetland mitigation plan (Appendix H) will need further development prior to permit application. Details of the proposed procedures for site preparation, species make-up, planting schedules, monitoring, and follow-up evaluation will need to be presented. Similar information with respect to the restoration of temporarily impacted wetland areas will also be required.

   Response: Comment noted.

3. Comment: Placement of temporary fill material on geotextile fabric has worked well in similar projects and has reduced compaction impacts and helped preserve the substrate's natural seed bank during restoration. The inference to the possible need for re-planting Smooth Cordgrass (Spartina alterniflora) into these areas, should be considered as part of required restoration.

   Response: Comment noted.

4. Comment: The incorporation/loss of the tradition[al] boat launch area along the west side of the existing causeway continues to be a primary concern of the Division. Referred to as "allowed trespass" in the text, the EIS proposed to study the feasibility and practicability of replacing or relocating the informal boat ramp in S-31 and Section 4.11.2 of the document. This area is primarily used by area resident dependent upon commercial fishing for a substantial portion of their livelihood. DCM recommends that a higher priority be given toward the commitment to ensuring the continuation of an estuarine boating access within or near the project area.

   Response: Efforts are presently underway to evaluate the suitability of three sites in the project vicinity that may be appropriate for the relocation of the boat launch. NCDOT will continue to coordinate efforts to relocate the boat ramp with appropriate state and federal agencies, and the evaluation of the practicability of the boat ramp relocation will be determined during final design.

North Carolina Wildlife Resources Commission, January 28, 1997

1. Comment: Although W1R will result in slightly higher impacts to some natural communities when compared to other alternatives, we feel that the avoidance of the Big

Narrows channel will result in fewer long term water quality and natural community changes.

Response: Comment noted.

2. Comment: We remain concerned over possible impact to the Coastal Fringe Evergreen Forest community. We recognize that NCDOT has no legal or statutory obligation to avoid or mitigate for impacts to this habitat type. . . Therefore, we continue to recommend that NCDOT design this project to avoid the Coastal Fringe Evergreen Forest to the maximum extent practicable. NCDOT should identify areas within the right of way which could be preserved (not cleared) and areas that could be restored (existing bridge approaches, property remnants) to offset the effects of this project. We recognize that this habitat type is vulnerable to private development pressure but that is not justification for state agencies to further destroy this rare habitat type.

Response: Comments noted. NCDOT will discourage the contractor from unnecessary clearing of Coastal Fringe Evergreen Forest (CFEF) within NCDOT right-of-way. Best management practices will be implemented during construction activities to insure that unavoidable impacts to this community are minimized to the extent practicable. It should be noted that clearing impacts to CFEF were revised between the printing of the preliminary Final EIS and the Final EIS. Using revised assumptions based on the probable construction methodology, impacts to these areas increased from 0.01 hectares (0.03 acres) to 0.34 hectares (0.85 acres). These new impact acreages are included in detail in Table 4.11 of the Final EIS and Table 1 of the Mitigation Plan in Appendix H of the Final EIS. Total permanent impacts for Alternative W1R will also be revised in the Summary of Impact Tables (Tables S-1 and 4-12 of the Final EIS), accordingly.

3. Comment: We feel the western alignment revised (W1R) would be acceptable with the environmental commitments described int the document.

Response: Comment noted.

4. Comment: We request that NCDOT continue to coordinate the replacement of the community boating access area with our agency. At this time, we concur with the FEIS for this project.

Response: Comment noted. NCDOT will continue to coordinate efforts to relocate the boat ramp with appropriate state and federal agencies.

Town of Sunset Beach, January 17, 1997

Comments: I note the following from the study [preliminary Final EIS] and concur that: 1) the beach, parking lot, gazebo, and public access pints are the only applicable Section 4(f) resources in the project area; 2) Alternative W1R would not cause a "constructive use" of these resources; and 3) all practicable measures to minimize harm to these resources will be "incorporated and performed as an integral part of this project." Given that all measures

to minimize harm to these resources will be taken, on behalf of the majority of the Town Council of Sunset Beach, I concur with these findings and the selection of Alternative W1R as the preferred alternative.

Response: Comments noted.

7.2 PUBLIC INVOLVEMENT

In October 1993, a *Public Involvement Plan* was developed to ensure maximum public participation in the Sunset Beach Bridge Replacement Study. The major components identified in the plan were as follows:

- Computerized Mailing List
- Newsletters (See Appendix G, Part I)
- Hotline Toll-Free Telephone Contact
- Small Group Informational Meetings
- Citizens Informational Workshops (See Section 7.2.5 and Appendix G, Part II)
- Elected Officials Informational Meetings
- Public Hearing (See Section 7.2.7 and Appendix G, Part IV)
- Media Contacts/Coverage
- Steering Committee (See Section 7.1)
- Agency Coordination (See Section 7.1)

7.2.1 Mailing List

A computerized mailing list consisting of elected officials, civic and business groups, local governmental agencies, and interested persons was compiled at the beginning of the study and continually updated throughout the study process. The mailing list, as well as announcements in local papers, was used to notify the public of the study's initiation, progress and proposals as well as dates, times and locations of the citizens informational meetings. At the time of the Draft EIS preparation, the list contained 502 names. The list contained 539 names at the time of the Final EIS preparation.

7.2.2 Newsletters

Four newsletters were prepared and mailed to interested parties during the course of the study. In addition to containing information about the study, the newsletters included a form for persons interested in making comments or adding their names to the mailing list. Copies of the four newsletters are contained in Appendix G, Part I.

7.2.3 Telephone Hotline

A toll-free telephone number was published in each newsletter and made available to local organizations and agencies in order to provide immediate response to public concerns and comments. Responses from knowledgeable staff were provided either immediately or within one business day.

7.2.4 Small Group Informational Meetings

Staff was available throughout the study process for presentations to neighborhood organizations, civic groups, and local organizations. During the Draft EIS preparation phase, there were no requests from the public for a small group meeting. However, several informal meetings were held with individual property owners, at their request, during the course of the study.

7.2.5 Citizens Informational Workshops

Two Citizens Informational Workshops were held prior to the Draft EIS preparation. A summary of the meetings is provided as follows:

The **initial Citizens Informational Workshop** was held on Tuesday, February 1, 1994, from 4:00 to 8:00 p.m. in the Jones/Byrd Pavilion at Sea Trail Plantation in Sunset Beach, North Carolina. The meeting was held in an "open house" format. Four Greiner project team members and two NCDOT project team members were available to answer questions and provide information to those in attendance.

Workshop exhibits included four (4) 1 centimeter = 24 meters (1" = 200') aerial photographs depicting the eleven (11) preliminary alternatives, tables outlining the impacts associated with each of the preliminary alternatives, 1 centimeter = 60 meters (1" = 500') infra-red photograph of the project area, board-mounted project schedule, a CADD-generated drawing depicting natural community types, and a board-mounted listing of key issues.

A total of 137 citizens registered at the workshop, 40 of whom completed comment sheets. An additional 187 comments were subsequently received by mail and telephone. Comments are summarized as follows:

- 123 of those commenting were in favor of building a new bridge
- 26 of those commenting preferred the no-build alternative
- 65 of those commenting expressed opposition to a high-rise bridge
- 2 of those commenting expressed opposition to a high-rise bridge on the western corridor
- 11 of those commenting expressed opposition to the eastern alternatives
- 36 of those commenting expressed a preference for a high-rise bridge
- 37 of those commenting expressed a preference for a low-level bridge
- 29 of those commenting expressed a preference for a low- or mid-level bridge
- 1 of those commenting expressed a preference for a mid-level or high-rise bridge
- 52 of those commenting expressed a preference for the center corridor alternatives
- 13 of those commenting expressed a preference for the western corridor alternatives
- 2 of those commenting expressed a preference for the eastern corridor alternatives
- 6 of those commenting expressed a preference for either the center or eastern corridor alternatives
- 1 of those commenting expressed a preference for the western or eastern corridor alternatives
- 7 of those commenting expressed a preference for Alternative W1

- 4 of those commenting expressed a preference for Alternative W2
- 2 of those commenting expressed a preference for Alternative W3
- 3 of those commenting expressed a preference for Alternative C1
- 27 of those commenting expressed a preference for Alternative C2
- 22 of those commenting expressed a preference for Alternative C4
- 2 of those commenting expressed a preference for Alternative E1
- 4 of those commenting expressed a preference for Alternative E2
- 4 of those commenting expressed a preference for Alternative E3
- 10 of those commenting expressed a desire to see the project expedited
- 6 of those commenting expressed a desire for bicycle/pedestrian lanes (2 of the 6 wanted lanes all the way to the beach)
- 11 of those commenting commended the study team

Other concerns and issues expressed in the responses included: watercraft safety, emergency (fire, police, and rescue) response, Coast Guard response, woodstork feeding habitat in the vicinity of the eastern corridor, and project cost. (See Appendix G, Part II for detailed summary table.)

Ninety-four persons have requested to have their names added to the mailing list through the workshop sign-in sheets, mail-in forms, and toll-free telephone calls.

The **second Citizens Informational Workshop** was held on Tuesday, December 6, 1994, from 4:00 to 8:00 p.m. in the Jones/Byrd Pavilion at Sea Trail Plantation in Sunset Beach, North Carolina. The meeting was held in an "open house" format. Seven Greiner project team members and one NCDOT project team member were available to answer questions and provide information to those in attendance.

Workshop exhibits included: renderings of the three build alternatives from four viewpoints (30"x40" enlargements from each view, as well as panels depicting each alternative from each of the four views); an existing land use map; aerial photographs and typical section drawings for each of the build alternatives; biotics map and projected impacts; project schedule; comparative analysis of impacts table including costs; infra-red aerial photograph; and a poster describing the existing bridge.

A total of 124 citizens registered at the workshop, 51 of whom completed comment sheets. An additional 38 comments were subsequently received by mail or telephone. Comments are summarized as follows:

- 24 of those commenting expressed a preference for Alternative W1
- 25 of those commenting expressed a preference for Alternative C1
- 21 of those commenting expressed a preference for Alternative C4
- 10 of those commenting expressed a preference for the rehabilitation option
- 5 of those commenting expressed opposition to C1 and cited the use of Slough Canal as the reason
- 5 of those commenting expressed opposition to a high rise

- 2 of those commenting expressed a desire for bicycle/pedestrian lanes
- 3 of those commenting commended the study team

Other concerns and issues expressed in the responses included: safety, emergency (fire, police, and rescue) response, project cost, traffic, development, environmental concerns, and high unemployment rate in Brunswick County. (See Appendix G, Part II for detailed summary table.)

Twenty-four persons requested to have their names added to the mailing list through the workshop sign-in sheets, mail-in forms, and toll-free telephone calls.

7.2.6 Elected Officials Meeting

The **initial Elected Officials Meeting** was held on Tuesday, February 1, 1994, from 3:30 to 4:00 p.m. in the Jones/Byrd Pavilion at Sea Trail Plantation in Sunset Beach, North Carolina. Eight public officials were in attendance. NCDOT and Greiner study team members were introduced. The displays and handout for the Citizens Informational Workshop were reviewed.

The **second Elected Officials Meeting** was held on Tuesday, December 6, 1994, from 2:00 to 3:00 p.m. in the Jones/Byrd Pavilion at Sea Trail Plantation in Sunset Beach, North Carolina. Ten public officials were in attendance. NCDOT and Greiner study team members were introduced. The displays and handout for the Citizens Informational Workshop were reviewed.

7.2.7 Public Hearing

The public hearing for the Sunset Beach Bridge Replacement Draft EIS followed its formal July submittal and public availability of the document as required under NEPA. In order to maximize public participation at the hearing, the hearing date was scheduled for the Tuesday following Labor Day in 1995. Held on the evening of Tuesday, September 5, 1995 in the Jones-Byrd Clubhouse at the Sea Trails Plantation, the hearing was attended by more than 500 persons. The transcript of the meeting and public comments from the hearing are displayed in Appendix G, Part IV of this document. Notice of availability of the Draft EIS was published in the *Federal Register* on August 4, 1995 (Appendix G, Part III). The notice of the public hearing was published in the August 10, 1995, and the August 24, 1995, editions of *The Brunswick Beacon* (Appendix G, Part III). In addition to these formal announcements, several related articles published in area newspapers also publicized the time and location of the hearing. Several of these articles are provided as exhibits in the public hearing transcript (Appendix G, Part IV).

The following is a summary of the 177 public comments received at the hearing:

<u>No-Build Comments (6)</u>

- 2 of the 6 had no comment
- 1 of the 6 said if the bridge must be replaced, C4 would be preferred
- 3 of the 6 had concerns with preserving the history/uniqueness/rate and type of development of the island

Build Comments Without Alternative Identified (17)

- 1 of the 17 had no comment
- 11 of the 17 expressed concerns with safety, expedition of the project, expressed anger/frustration with the opponents of the build alternatives
- 1 of the 17 wanted a low bridge with three lanes and 20' in height
- 3 of the 17 wanted a bridge with two lanes (did not use the word pontoon)
- 1 of the 17 asked that whatever alternative was chosen to please consider the approaches

Comments on Alternatives W1 and C1 (13)

- 10 of the 13 expressed concerns with safety, delays, and expedition of the project
- 2 of the 13 felt that building anything other than a high-rise bridge was not economically prudent
- 1 of the 13 stated that growth on the island could be controlled with zoning and expressed anger/frustration with the opponents of the build alternatives

Comments on Alternative W1 Only (32)

- 7 of the 27 had no comment
- 11 of the 27 expressed concerns with safety, traffic, and expedition of the project
- 1 of the 27 enclosed a newspaper editorial
- 6 of the 27 felt the high rise was the most economically prudent alternative
- 3 of the 27 expressed anger/frustration with the opponents of the build alternatives
- 1 of the 27 stated they would also be happy with C1 or C4 - just wanted a new bridge
- 2 of the 27 voiced opposition to C1
- 1 of the 27 stated that rehabilitation of the existing bridge should only occur if a new bridge is built

Comments on Alternative C1 Only (4)

- 4 commenting expressed concerns with safety, traffic, and expedition of the project

Comments on Alternative C4 Only (36)

- 3 of the 36 voiced opposition to W1 and C1
- 10 of the 36 had no comment
- 21 of the 36 expressed concerns with safety; crime/vandalism rate; rate and type of development, and size of the island; aesthetics; and accommodation of bicycle/pedestrian lanes
- 2 of the 36 felt C4 was less environmentally disruptive

Comments on Alternative C3R Only (32)

- 21 of the 32 expressed concerns with increased traffic; crime/vandalism; rate, character/size of the island; quaintness of the bridge
- 4 of the 32 said if the bridge must be replaced, Alternative C4 or a two-lane bridge
- 1 of the 32 voiced anger with developers
- 1 of the 32 felt EMS/Fire Station should be located on the island
- 2 of the 32 voiced opposition to a high-rise bridge
- 2 of the 32 had no comment
- 1 of the 32 expressed concern with visual and environmental impacts of a new bridge

Comments Without Alternative Choice (37)

- 3 of the 37 expressed concerns about the character/size of the island, traffic, and visual impacts
- 1 of the 37 wanted bicycles and pedestrians to be accommodated
- 1 of the 37 simply wanted to be placed on the project mailing list
- 1 of the 37 felt the bridge should be made a toll facility (tired of taxpayers paying for rich to use the bridge)
- 8 of the 37 were opposed to a high-rise bridge and wanted compromise
- 16 of the 37 wanted a two-lane pontoon bridge
- 1 of the 37 wanted the existing bridge widened, but no increase in height
- 1 of the 37 wanted the existing bridge rehabilitated to two lanes with bicycle/pedestrian accommodation
- 1 of the 37 stated that if the existing bridge is kept, opening restrictions should be removed
- 1 of the 37 stated that if the bridge had to be replaced, C4 was an acceptable alternative
- 1 of the 37 stated that the Draft EIS is flawed and did not adequately deal with the secondary social impacts
- 1 of the 37 felt Emergency Medical Service should be placed on the island and the bridge should be made a toll facility
- 1 of the 37 (28 signature letter) wanted Alternative W1 removed from consideration

In general, the comments can be distributed, by issue, into the following categories that are referenced to the corresponding Final EIS Sections that address these issues:

- safety of the bridge and traffic (Sections 1.5 and 1.6)
- history and rural nature of the area (Sections 3.1 and 4.1)
- economics of the project (Section 2.3)
- aesthetics of a new bridge (Sections 3.1.4 and 4.2.4)
- two-lane pontoon bridge (Section 2.2.3.6)
- impacts associated with secondary development (Section 4.1.1.3)
- general support or opposition of a particular alternative

The most comprehensive public response was that from the Sunset Beach Taxpayers Association (SBTA) in their letter to the NCDOT dated October 3, 1995 (Sunset Beach Taxpayer Association,

1995 [Appendix G, Part IV]). NCDOT responses to the specific comments were submitted on April 23, 1996, and are displayed in Appendix G, Part V.

7.2.8 Other Issues/Comments

During the summer of 1994, the owners of the Island Market placed a notebook on display in their store on the island at Sunset Beach for the purpose of obtaining comments from patrons. The persons making comments in the notebook were responding to the following statement:

> "The State plans on replacing our bridge with a fixed concrete high rise. How do you feel? Please write your comments and tell us where you are from."

A copy of the comment book was forwarded to NCDOT by the SBTA in October 1994. A summary of the comments contained in the book is included in Appendix G, Part II.

7.2.9 Unresolved Issues

Several issues will be resolved during design and the COE dredge and fill permitting process, when the level of design needed to resolve these issues will become available. These issues are:

- Informal boat ramp relocation
- Stormwater management for runoff from proposed bridge
- Wetland Mitigation Plan finalization
- Contract specifications for construction techniques.

CHAPTER 8

8.0 LIST OF PREPARERS

Federal Highway Administration

Name	*Education/Experience*	*Project Responsibility*
Vincent P. Barone, P.E. Area Engineer (Formerly)	B.S. Civil Engineering. 5 years experience in transportation.	Engineer responsible for administration of Federal-Aid Highway Program in Brunswick County.
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URS Greiner, Inc.

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Brenda Crumpler Public Involvement Specialist	33 years experience in business administration and coordination of public involvement activities.	Coordination and organization of public involvement activities.
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Apogee Research, Inc.

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CHAPTER 9

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9.2 ACRONYMS

AAQS	Ambient Air Quality Standards
AASHTO	American Association of State Highway and Transportation Officials
ADT	Average daily traffic
AEC	Area of Environmental Concern
AIWW	Atlantic Intracoastal Waterway
APE	Area of Potential Effect
ASA	Air Quality Sensitive Areas
BMPs	Best Management Practices
CAMA	Coastal Area Management Act
CEQ	Council on Environmental Quality
CFEF	Coastal Fringe Evergreen Forest
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COE	US Army Corps of Engineers
CP&L	Carolina Power and Light
dBA	A-weighted decibels
DEHNR	North Carolina Department of Environment, Health, and Natural Resources (restructured as DENR)
DEIS	Draft Environmental Impact Statement
DEM	North Carolina Division of Environmental Management
DWQ	North Carolina Division of Water Quality
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMC	Electric Membership Cooperative
EPA	US Environmental Protection Agency
ETA	Extraterritorial area
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FPPA	Farm Protection Policy Act
Greiner, Inc.	URS Greiner, Inc. (formerly Greiner, Inc.)
GS	General Statute
HQW	High Quality Waters
IL	Insertion loss
kV	Kilovolt
Leq	Average sound level equivalent
LOS	Level of service
MOA	Memorandum of Agreement
MSL	Mean sea level
MVM	Million vehicle miles
NC	North Carolina
NCAC	NC Administrative Code
NCDMF	NC Division of Marine Fisheries
NCDOT	North Carolina Department of Transportation
NCDWR	North Carolina Division of Water Resources
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act
NHP	North Carolina Natural Heritage Program
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NSA	Noise sensitive area
NWI	National Wetland Inventory
O_3	Ozone
OSA	Office of State Archaeology
Pb	Lead
PM10	Particulates (<10 microns)
PNA	Primary Nursery Area
ppm	Parts per million
ROD	Record of Decision
SA	Tidal Salt Waters
SAV	Submerged Aquatic Vegetation
SBTA	Sunset Beach Taxpayers Association
SEPA	State (NC) Environmental Policy Act
SHPO	State Historic Preservation Office
SO_2	Sulphur dioxide
SPL	Sound pressure level
SR	Secondary Road
TIP	Transportation Improvement Program
TSM	Transportation System Management
USC	United States Code
USCG	United States Coast Guard
USDA	US Department of Agriculture

USDOT	US Department of Transportation
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
UST	Underground storage tank
VIA	Visual Impact Assessment

FHWA-NC-EIS-95-02-F

VOLUME II
APPENDICES

ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT AND FINAL SECTION 4(f) EVALUATION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Brunswick County
Replacement of Bridge No. 198 on SR 1172
Over the Intracoastal Waterway at Sunset Beach, North Carolina

Federal-Aid Project No. BRS-1813(1)
State Project No. 8.2230101
TIP No. B-682

Cooperating Agencies

U.S. Coast Guard
U.S. Army Corps of Engineers

Submitted Pursuant to the National Environmental Policy Act 42 U.S.C. 4332(2)(c):

H. Franklin Vick 10/27/97

H. Franklin Vick, P.E. Date
Manager
Planning and Environmental Branch
North Carolina Department of Transportation

Roy C Sheldon 10/30/97

FOR Nicholas L. Graf, P.E. Date
Division Administrator
Federal Highway Administration

and Section 4(f) 49 U.S.C. 303:

for [signature] 10/24/97

Leon Larson, P.E. Date
Regional Administrator
Federal Highway Administration

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Raleigh, North Carolina 27601
(919) 856-4346

The report presents the documented needs for the replacement of the Sunset Beach Bridge over the Intracoastal Waterway. The existing conditions of the study area are described and the alternatives are assessed in terms of environmental impacts, compatibility with local planning goals, relative cost-effectiveness and public opinion.

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT SUNSET BEACH, NORTH CAROLINA

Federal Aid-Project No. BRS-1813(1)
State Project No. 8.2230101
TIP No. B-682

ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT
AND
FINAL SECTION 4(f) EVALUATION

October 1997

VOLUME II
APPENDICES

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT SUNSET BEACH, NORTH CAROLINA

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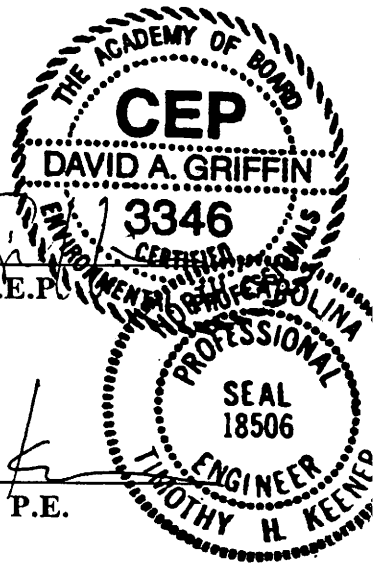
ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT
AND
FINAL SECTION 4(f) EVALUATION

October 1997

Documentation Prepared By:

URS GREINER, INC.



10/20/97
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Project Coordinator

For the:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

10/20/97
Date

Julie A. Hunkins, P.E.
Project Manager

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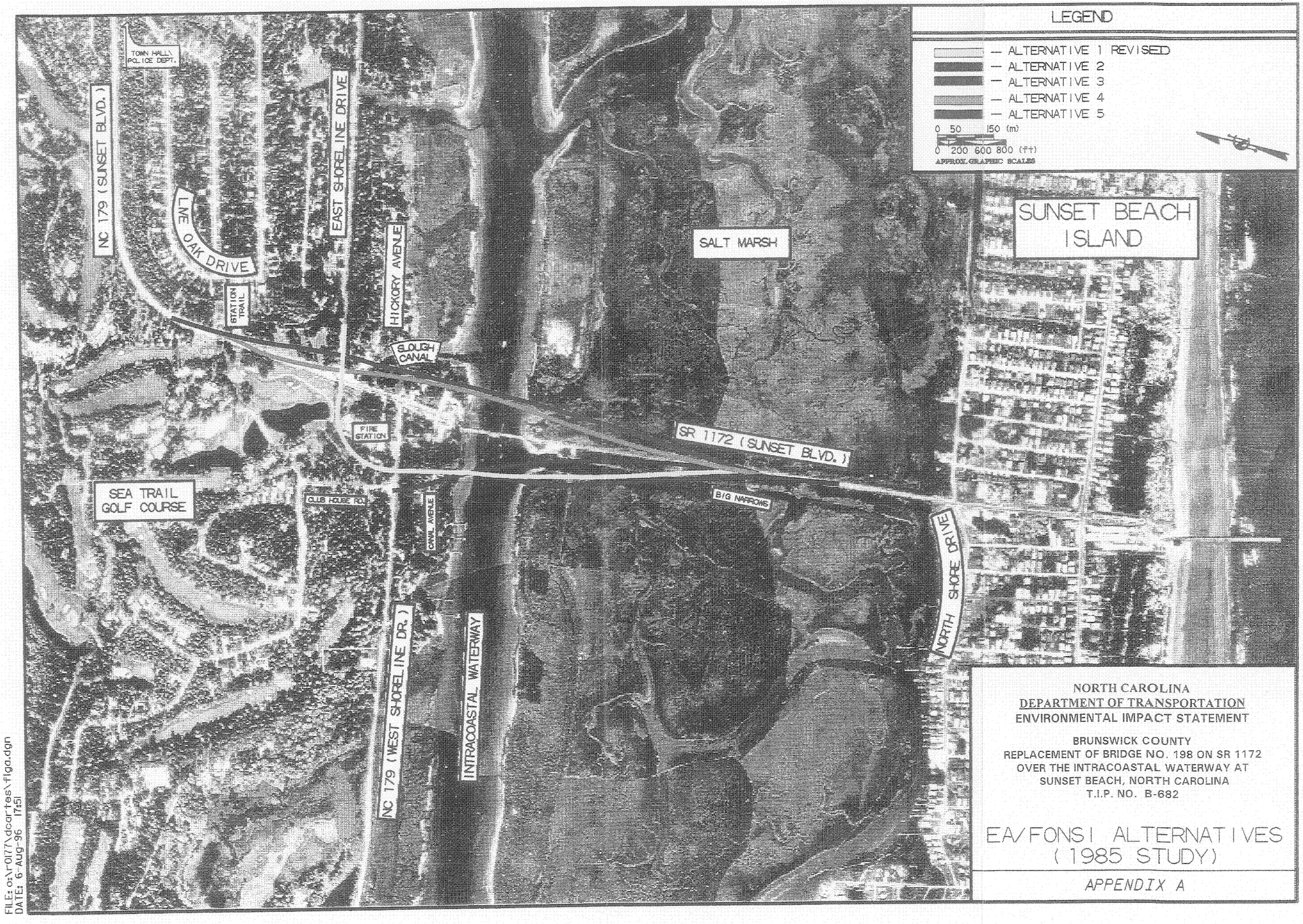
APPENDIX A

APPENDIX A

ALTERNATIVES EVALUATED IN THE 1985 EA/FONSI STUDY



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

EA/FONSI ALTERNATIVES (1985 STUDY)

APPENDIX A

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APPENDIX B

APPENDIX B

PRELIMINARY ALTERNATIVE ALIGNMENTS

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

PRELIMINARY HIGH LEVEL ALTERNATIVES

APPENDIX B.1

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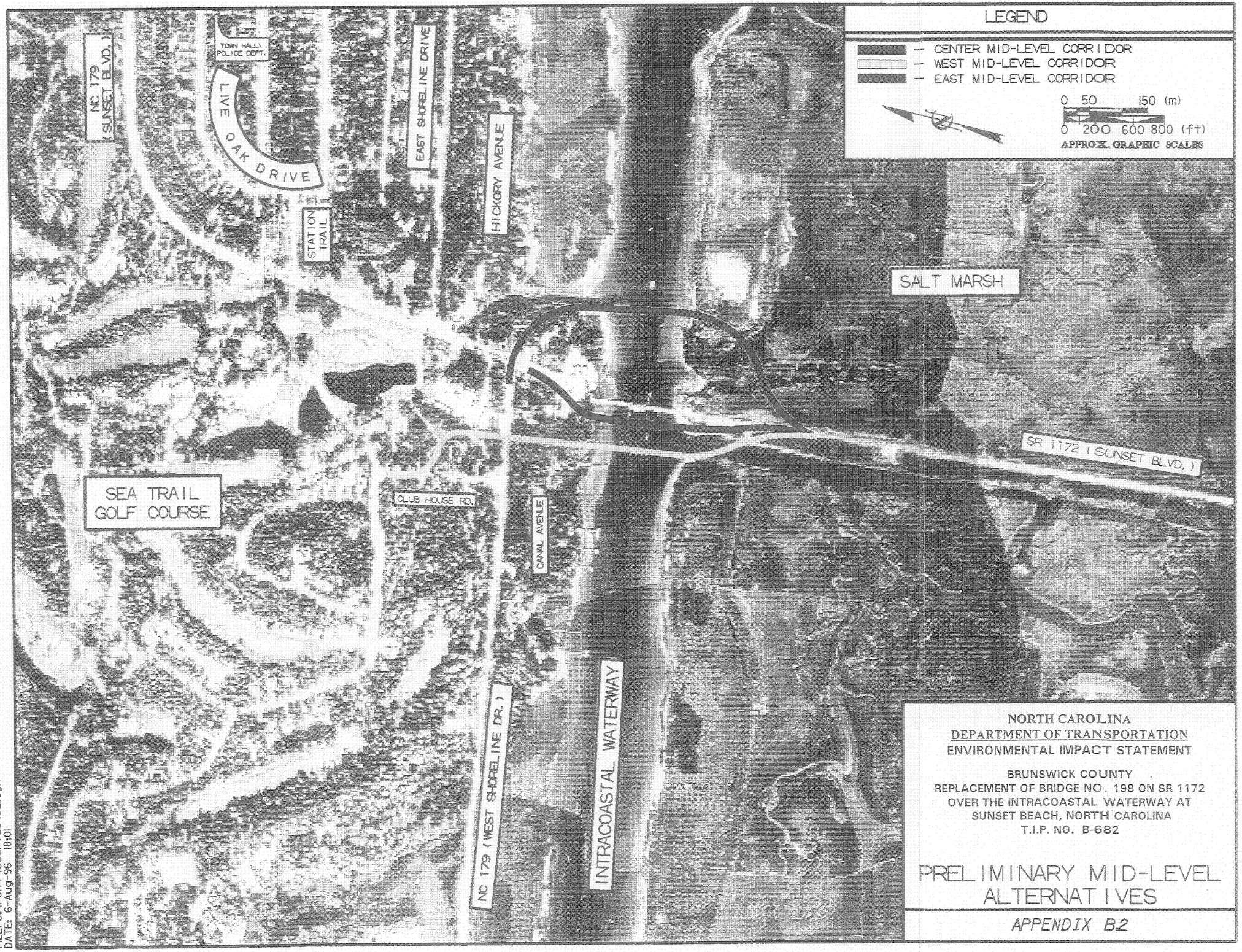

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

PRELIMINARY MID-LEVEL ALTERNATIVES

APPENDIX B.2

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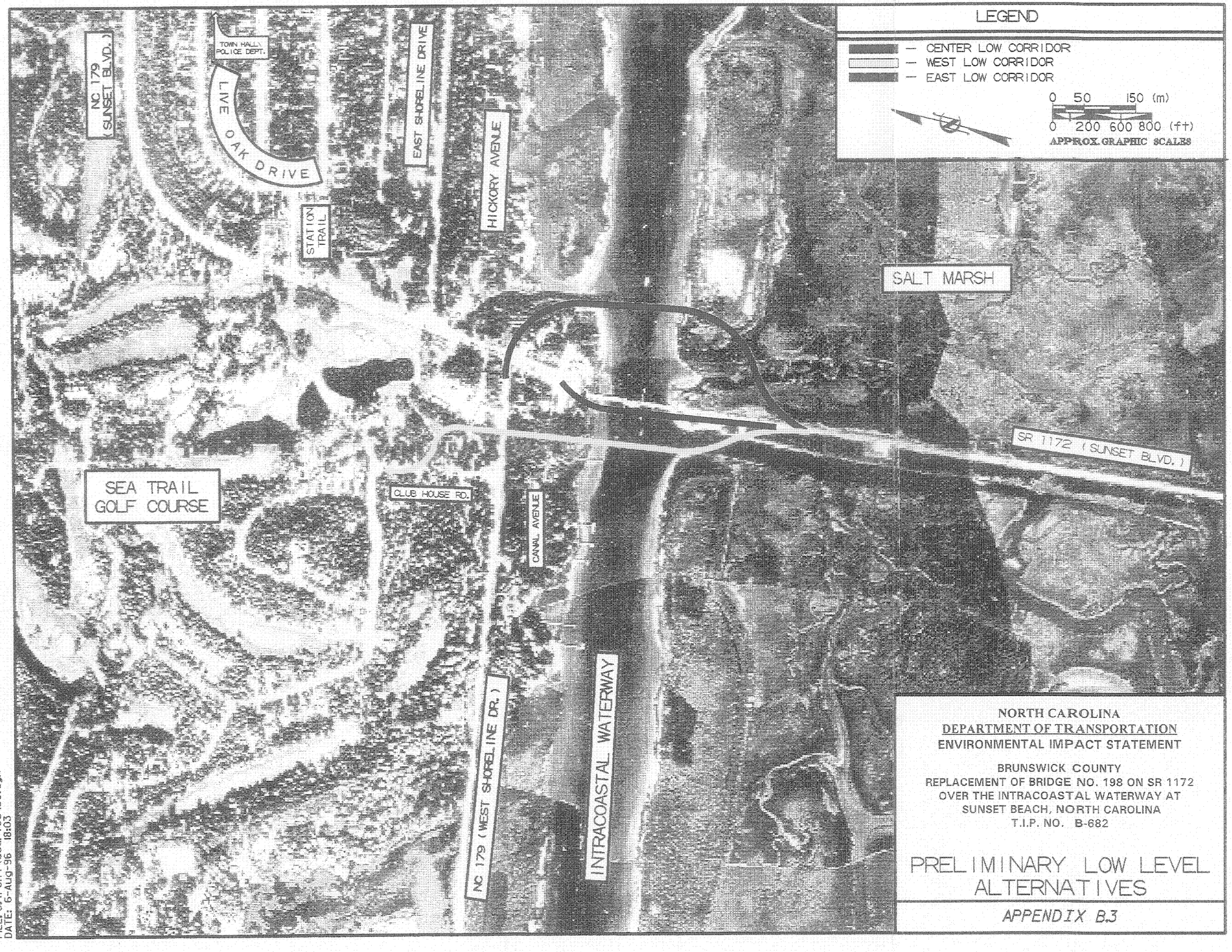

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

PRELIMINARY LOW LEVEL ALTERNATIVES

APPENDIX B.3

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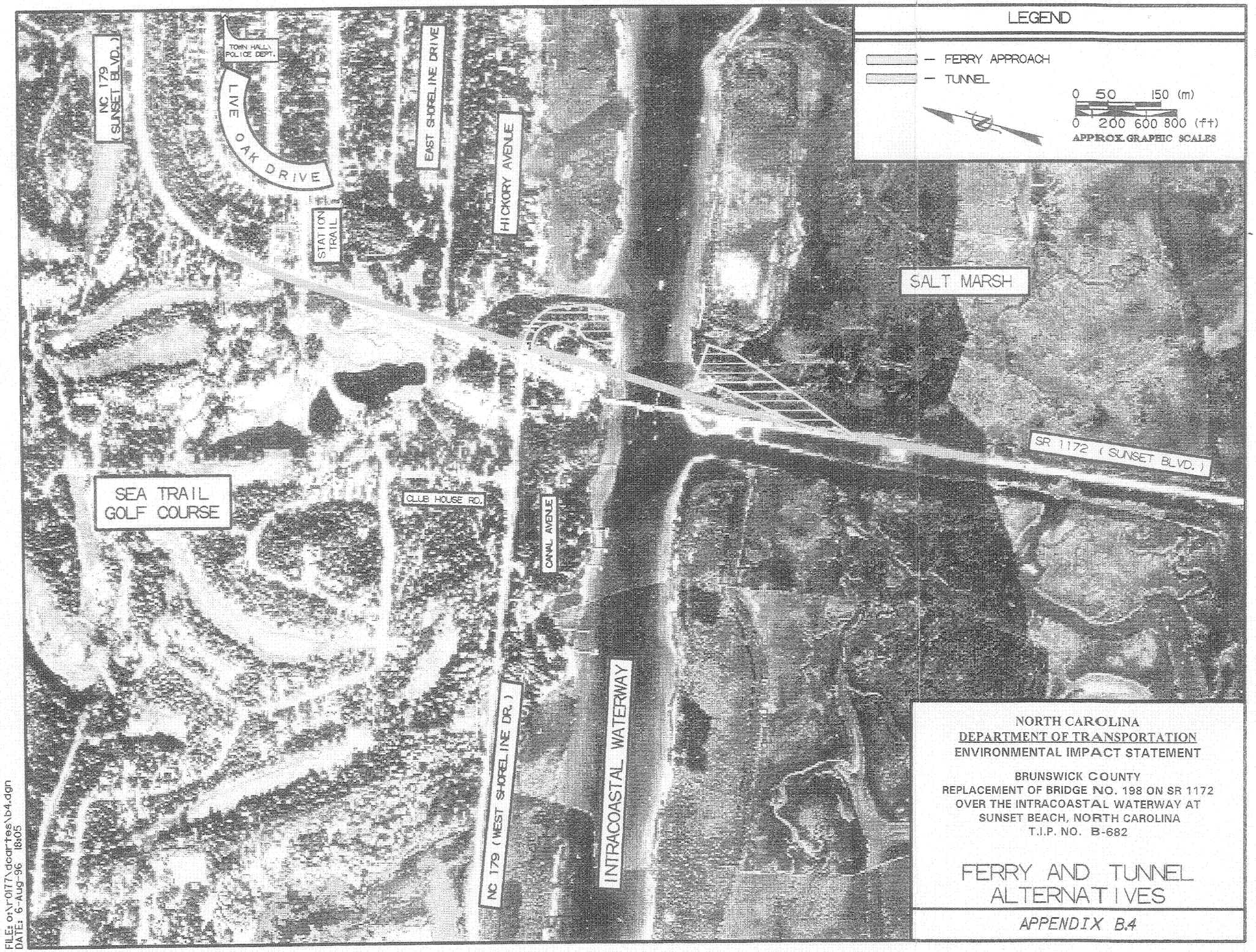

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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

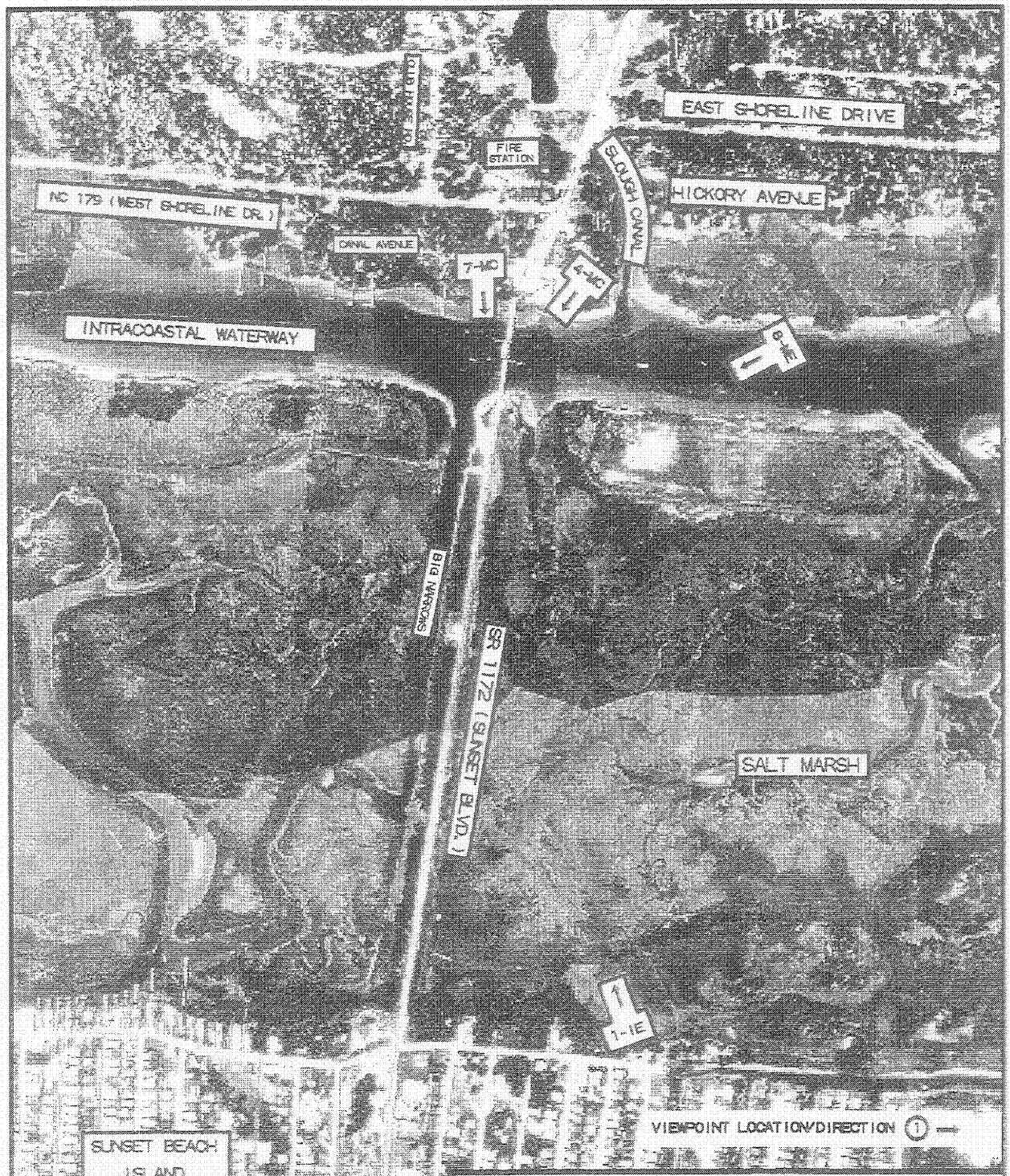
FERRY AND TUNNEL ALTERNATIVES

APPENDIX B.4

APPENDIX C

APPENDIX C

COMPUTER ENHANCED VIEWS OF ALTERNATIVES W1, C1, AND C4



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

VIEWPOINT ORIENTATIONS FOR COMPUTER-ENHANCED VIEWS

APPENDIX C

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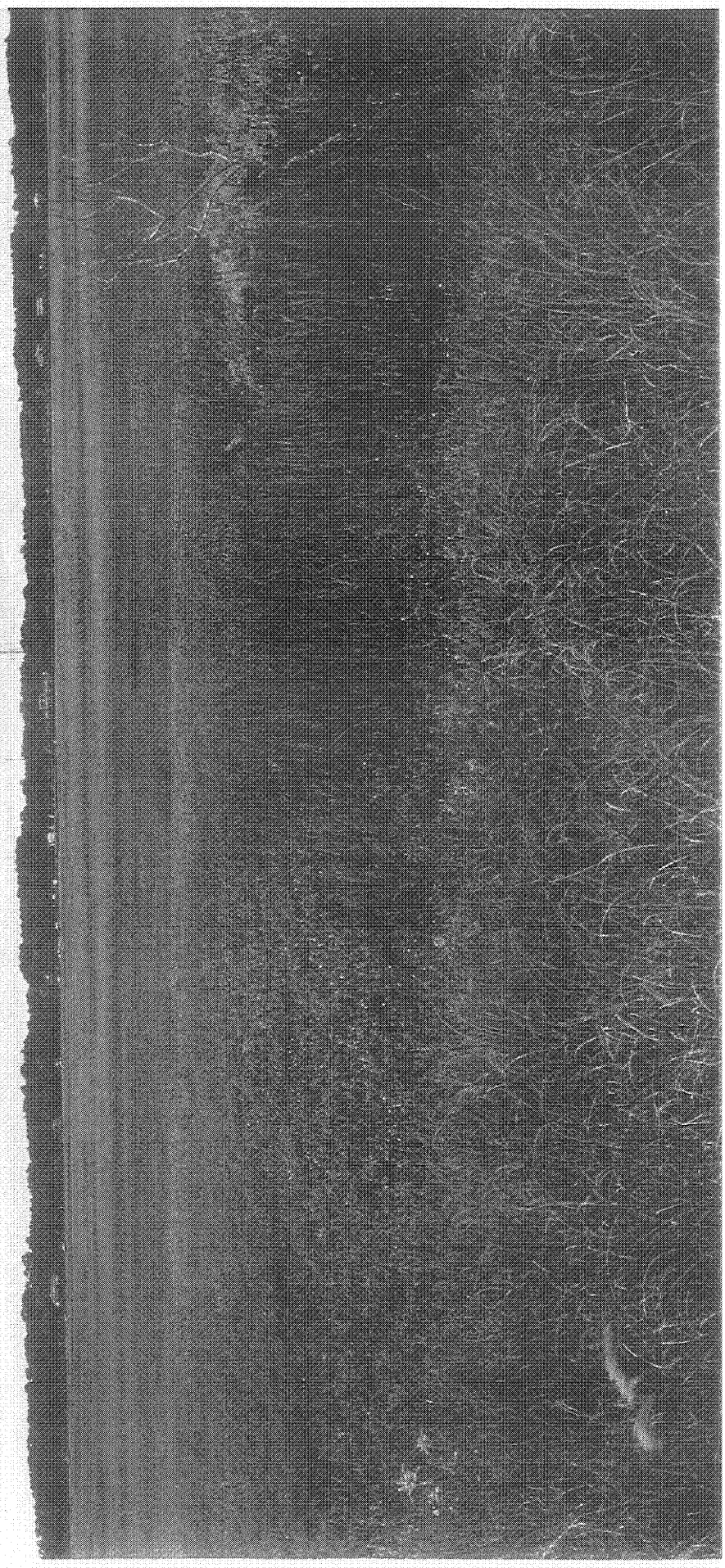

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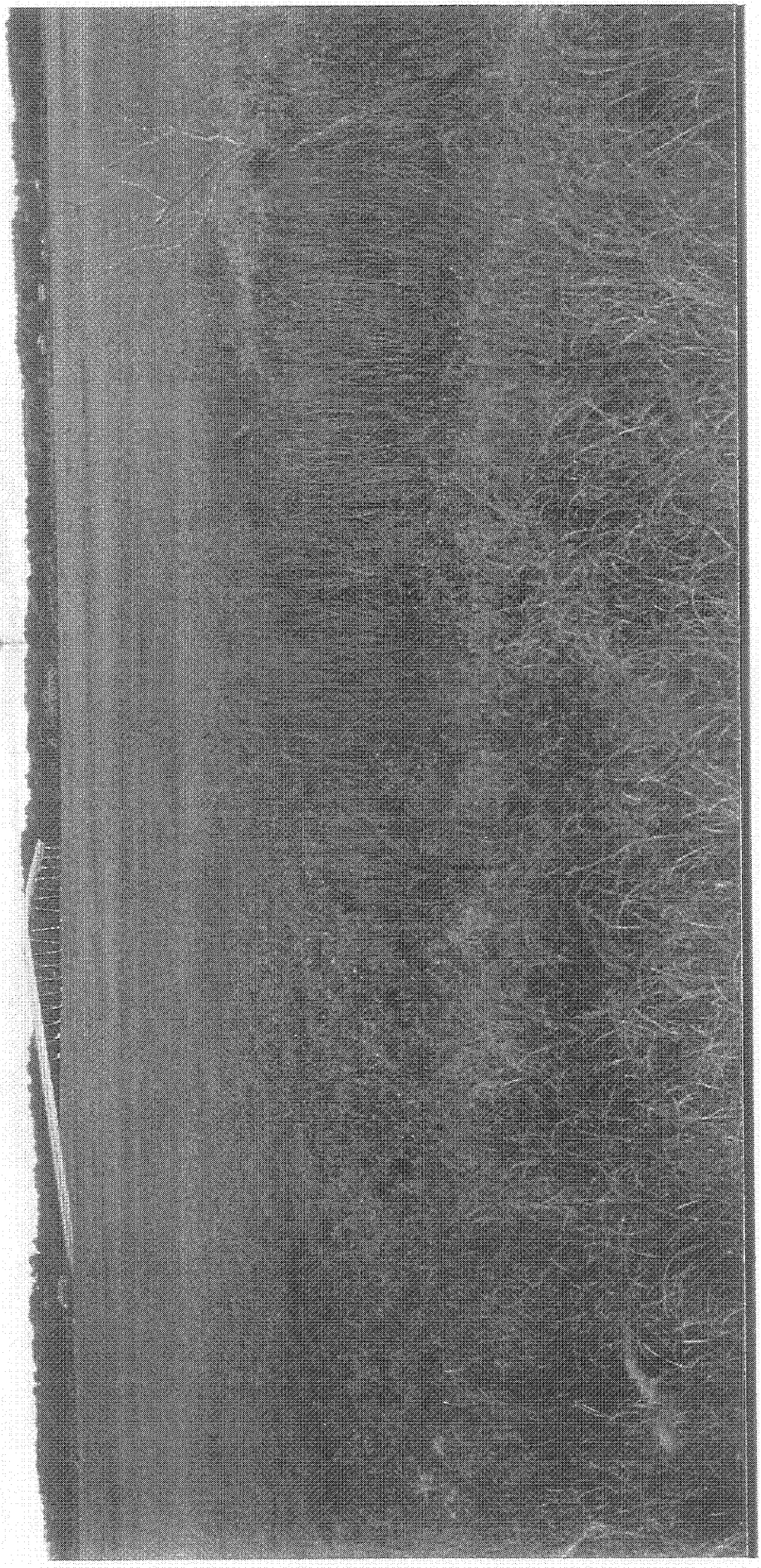

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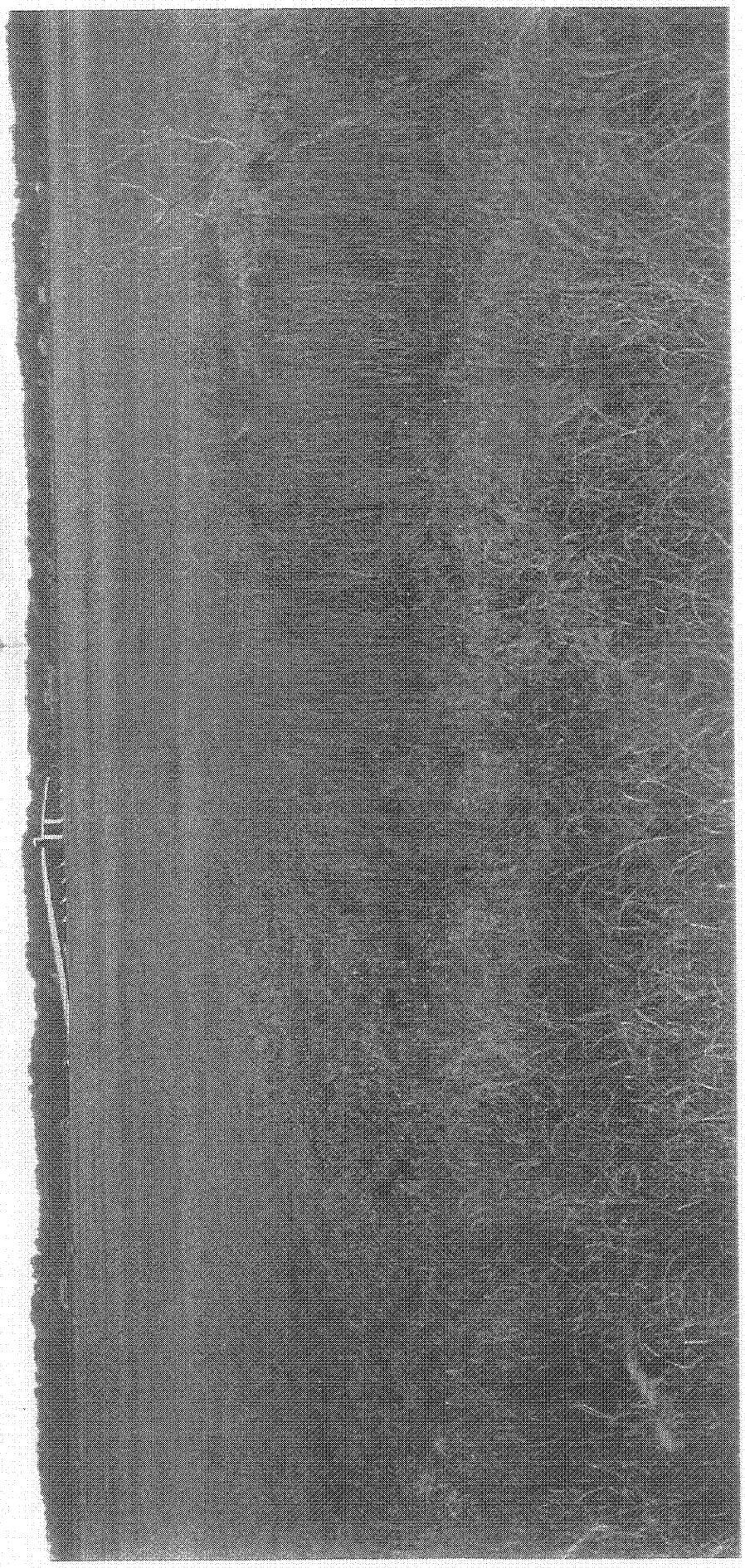

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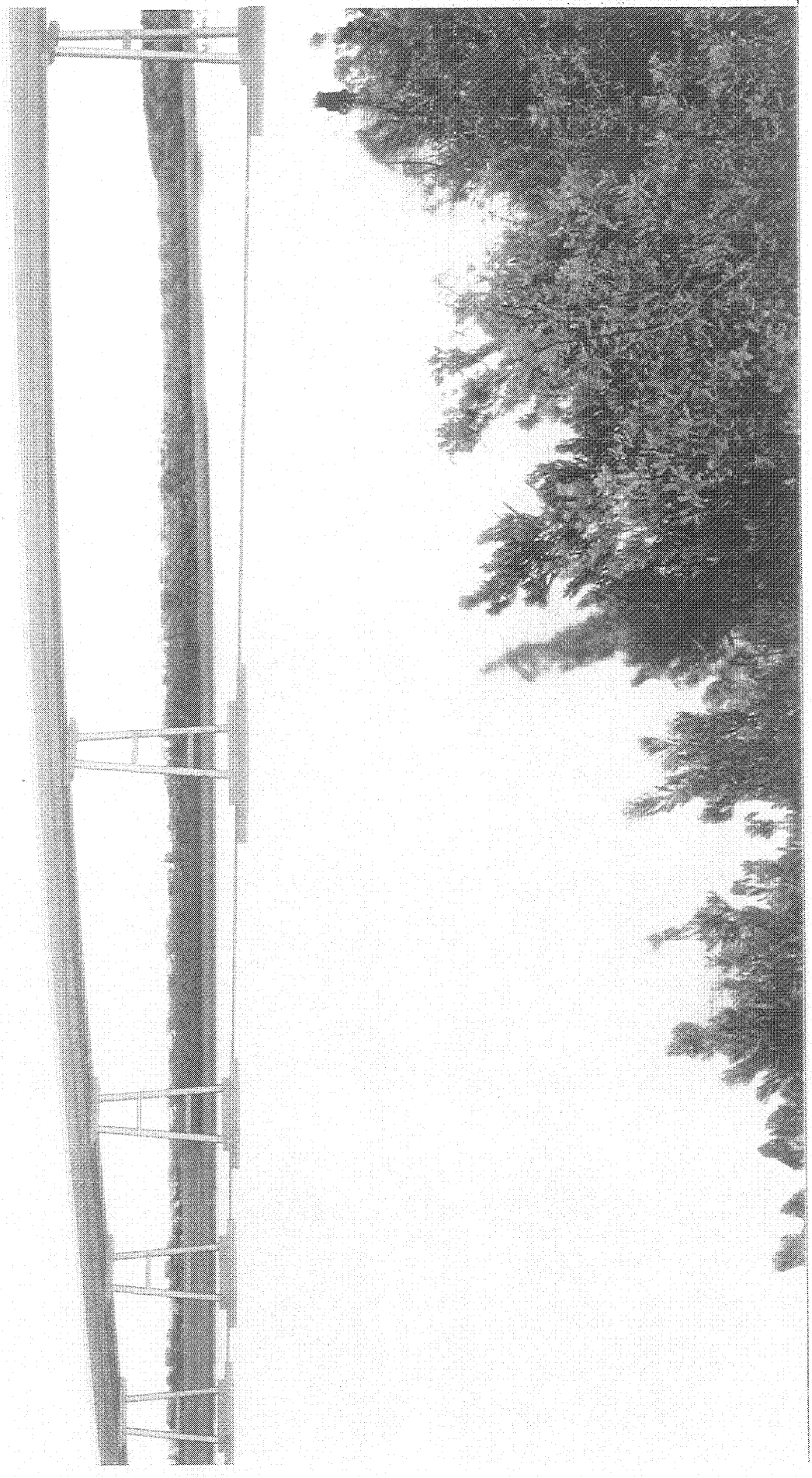

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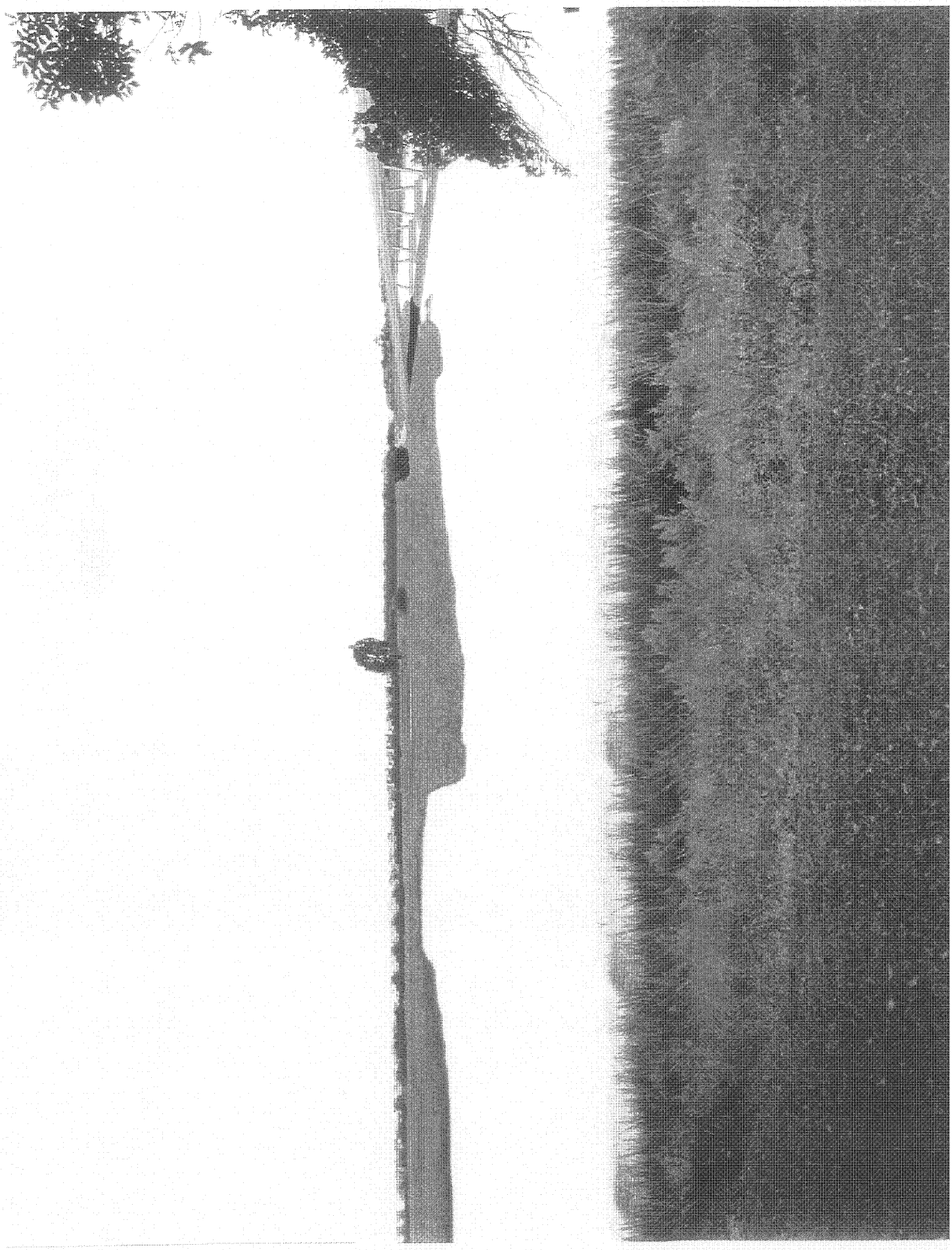

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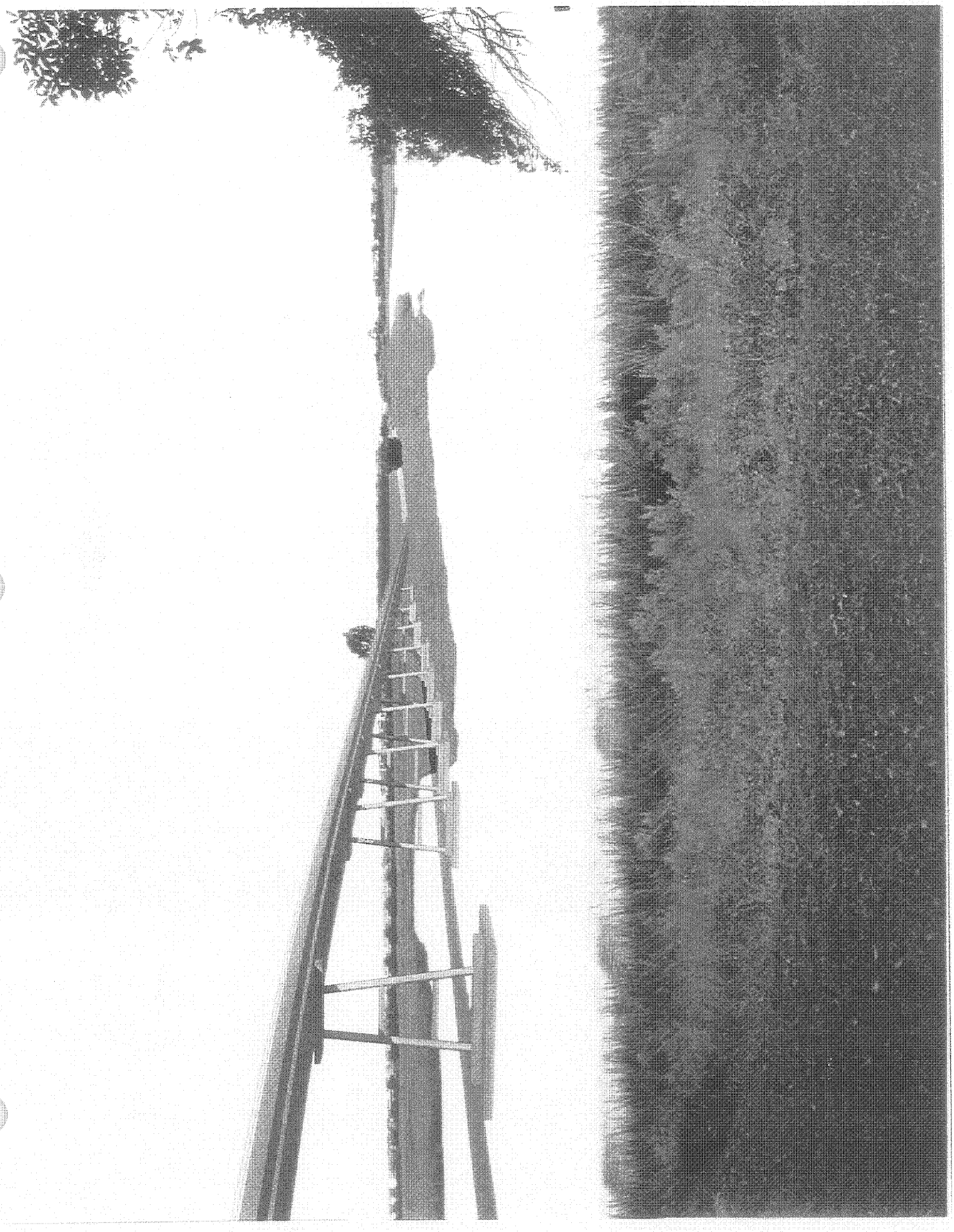

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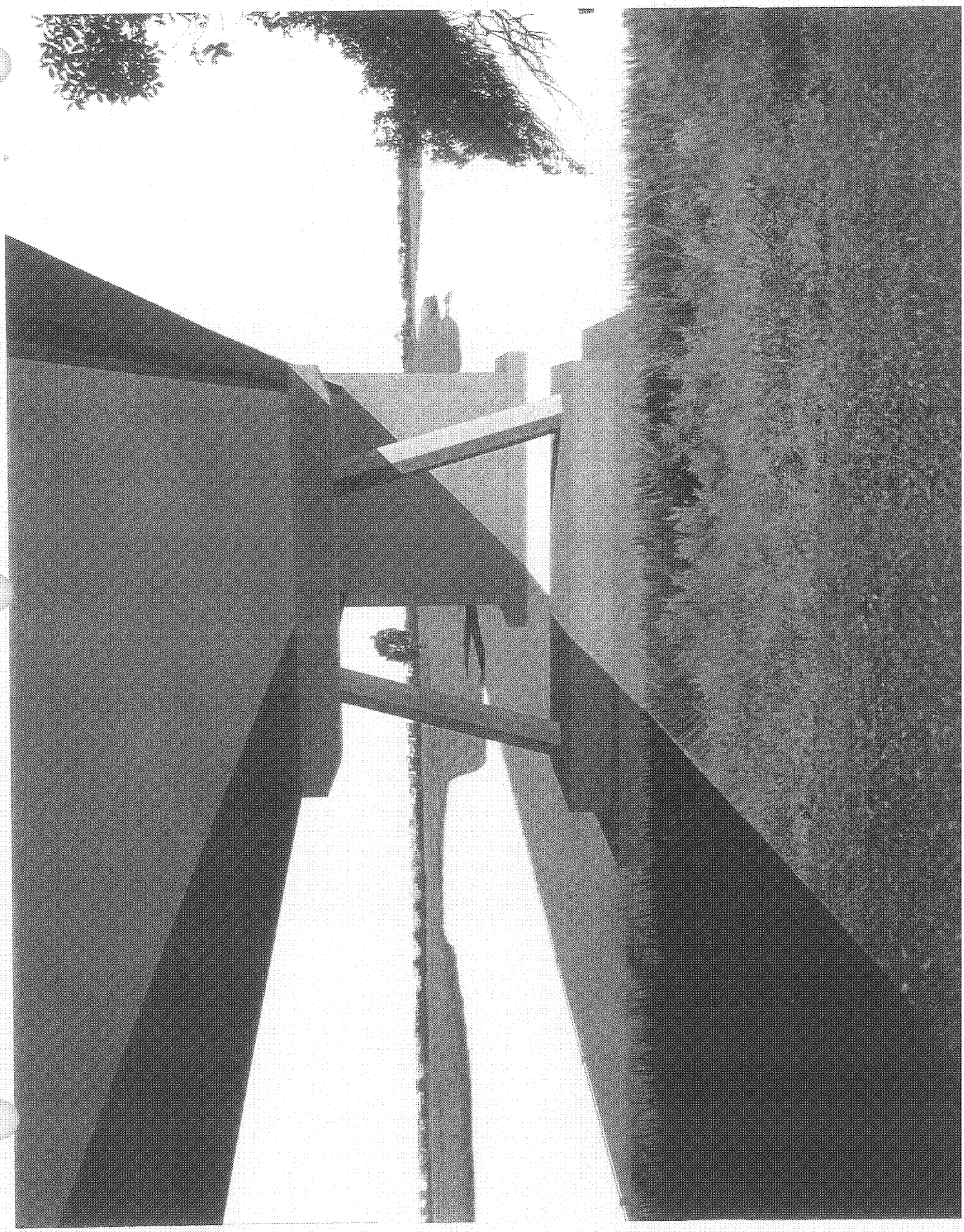

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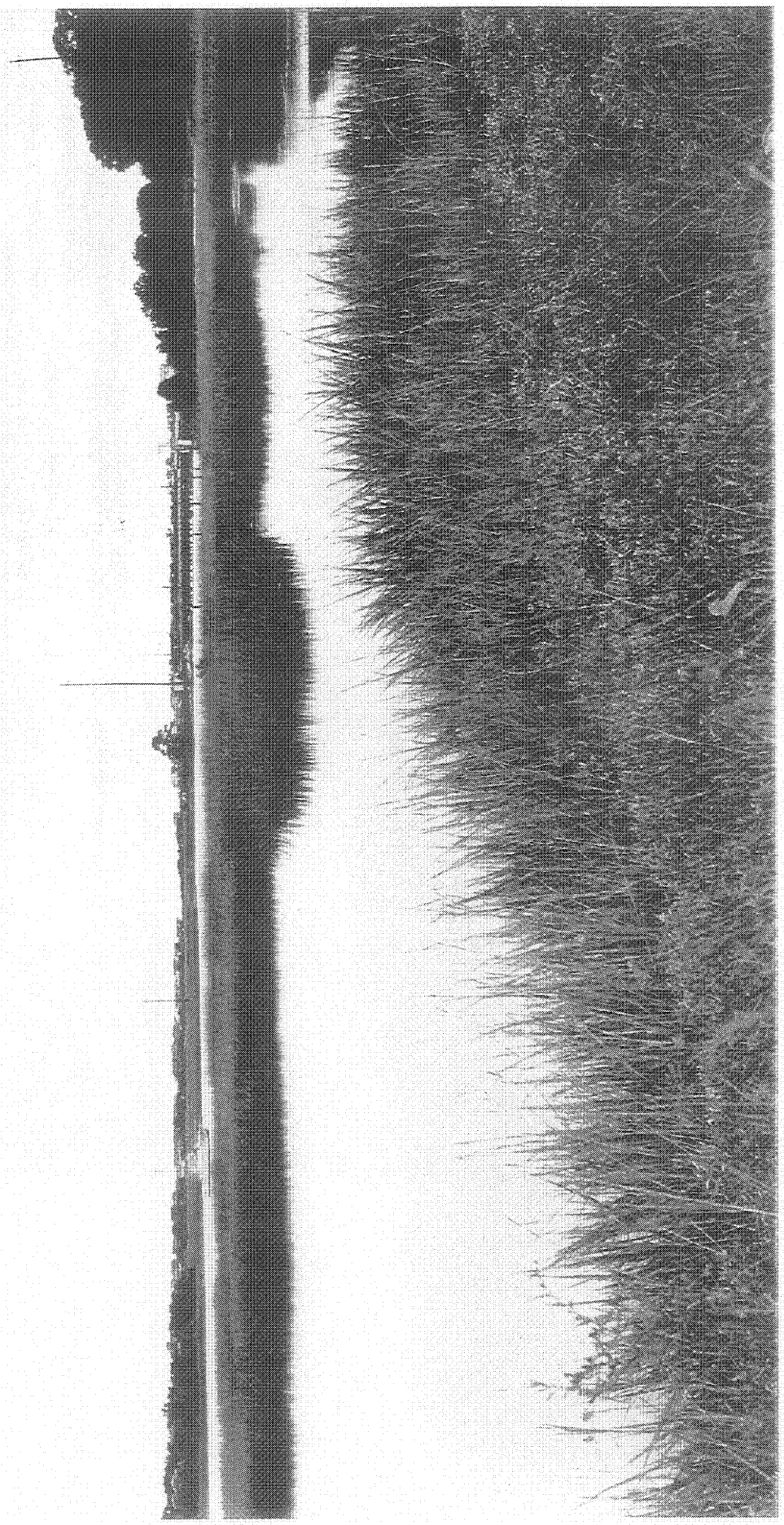

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LOCATION: 8-ME VIEWPOINT/WITH PLAN ALTERNATIVE C1

LOCATION: 8-ME VIEWPOINT/WITH PLAN ALTERNATIVE C4

APPENDIX D

APPENDIX D

NCDOT RELOCATION REPORTS

RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE

_X_ E.I.S. ___ CORRIDOR ___ DESIGN

PROJECT: 8.2230101 COUNTY: BRUNSWICK Alternate W1/W1R

I.D. NO.: B-682 F.A. PROJECT: BRS-1813 (1)

DESCRIPTION OF PROJECT: PROPOSED REPLACEMENT OF SUNSET BEACH BRIDGE (BRIDGE #198) ON SR 1172 OVER ATLANTIC INTRACOASTAL WATERWAY

ESTIMATED DISPLACEES

Type of Displacee	Owners	Tenants	Total	Minorities
Individuals				
Families				
Businesses				
Farms				
Non-Profit				

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP

VALUE OF DWELLING				DSS DWELLINGS AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M		$ 0-150		0-20M		$ 0-150	
20-40M		150-250		20-40M		150-250	
40-70M		250-400		40-70M		250-400	
70-100		400-600		70-100		400-600	
100 UP		600 UP		100 UP		600 UP	
TOTAL							

YES	NO	ANSWER ALL QUESTIONS EXPLAIN ALL "YES" ANSWERS
		1. Will special relocation services be necessary
		2. Will schools or churches be affected by displacement
		3. Will business services still be available after project
		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.
		5. Will relocation cause a housing shortage
		6. Source for available housing (list)
		7. Will additional housing programs be needed
		8. Should Last Resort Housing be considered
		9. Are there large, disabled, elderly, etc. families
		ANSWER THESE ALSO FOR DESIGN
		10. Will public housing be needed for project
		11. Is public housing available
		12. Is it felt there will be adequate DDS housing available during relocation period
		13. Will there be a problem of housing within financial means
		14. Are suitable business sites available (list source)
		15. Number months estimated to complete RELOCATION ____

REMARKS (Respond by Number)

No relocation on this section.

THIS IS A NEGATIVE REPORT.

Kimberly Shinn-Simpson 02/08/95
Relocation Agent Date

Approved 2-10-95
Date

RP-15.4 Revised 5/90

Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE

X E.I.S. ___ CORRIDOR ___ DESIGN

OJECT: 8.2230101 COUNTY: BRUNSWICK Alternate C4

.D. .: B-682 F.A. PROJECT: BRS-1813 (1)

SCRIPTION OF PROJECT: PROPOSED REPLACEMENT OF SUNSET BEACH BRIDGE (BRIDGE #198) ON SR 1172 OVER ATLANTIC INTRACOASTAL WATERWAY

ESTIMATED DISPLACEES				
pe of splacee	Owners	Tenants	Total	Minorities
viduals				
ilies			0	
inesses	2	1	3	0
s				
n-Profit				

INCOME LEVEL				
0-15M	15-25M	25-35M	35-50M	50 UP

VALUE OF DWELLING			
Owners		Tenants	
0-20M		$ 0-150	
20-40M		150-250	
40-70M		250-400	
70-100		400-600	
100 UP		600 UP	
TOTAL	0		0

DSS DWELLINGS AVAILABLE			
For Sale		For Rent	
0-20M	-	$ 0-150	-
20-40M	1	150-250	-
40-70M	9	250-400	6
70-100	11	400-600	3
100 UP	12	600 UP	1
	33		10

S	NO	ANSWER ALL QUESTIONS EXPLAIN ALL "YES" ANSWERS
	X	1. Will special relocation services be necessary
	X	2. Will schools or churches be affected by displacement
		3. Will business services still be available after project
		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage
		6. Source for available housing (list)
	X	7. Will additional housing programs be needed
		8. Should Last Resort Housing be considered
	X	9. Are there large, disabled, elderly, etc. families
		ANSWER THESE ALSO FOR DESIGN
		10. Will public housing be needed for project
		11. Is public housing available
		12. Is it felt there will be adequate DDS housing available during relocation period
		13. Will there be a problem of housing within financial means
		14. Are suitable business sites available (list source)
		15. Number months estimated to complete RELOCATION ____

REMARKS (Respond by Number)
All residential displacees counted as families.

3. Business services will still be available after the project since there are similar businesses in the area unaffected by this project.

4. a) The Italian Fisherman Restaurant - medium - 15 employees.
   b) Island Grill and Grocery - restaurant and convenient store - small - 4 employees.
   c) Sloane Realty - real estate office - small - 3 employees.

14. Local Realtors and Classified Ads.

NOTE: There is one (1) one-story brick business which is currently vacant.

erly Shinn-Simpson 02/08/95
Relocation Agent Date

Approved 2-10-95
Date

n 15.4 Revised 5/90

Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

APPENDIX E

APPENDIX E

PART I

LIST OF IDENTIFIED FLORA

APPENDIX E

PART I

IDENTIFIED FLORA IN STUDY AREA

SCIENTIFIC NAME	COMMON NAME
Acer rubrum	Red maple
Amaranthus pumilus	Sea beach amaranth
Ambrosia artemisiifolia	Common ragweed
Andropogon sp.	Broom-sedge
Asclepias sp.	Milkweed
Baccharis angustifolia	False willow
Baccharis halimifolia	Groundsel tree
Borrichia frutescens	Seaside oxeye
Carex sp.	Sedges
Carya glabra	Pignut hickory
Cenchrus tribuloides	Sandspur
Cyperus sp.	Sedge
Eupatorium sp.	Dog fennel
Hydrocotyle bonariensis	Longleaf pennywort
Ilex vomitoria	Yaupon
Ipomoea imperati	Beach morning glory
Iva frutescens	Marsh elder
Iva imbricata	Seashore elder
Juniperus virginiana	Red cedar
Liquidambar styraciflua	Sweetgum
Liriodendron tulipifera	Tulip poplar
Magnolia virginiana	Sweetbay
Myrica cerifera	Wax myrtle

SCIENTIFIC NAME	COMMON NAME
Panicum amarum	Bitter panicum
Paspulum distichum	Seashore paspulum
Persea borbonia	Red bay
Pinus palustris	Longleaf pine
Pinus taeda	Loblolly pine
Poa spp.	Grasses
Quercus falcata	Southern red oak
Quercus laurifolia	Laurel oak
Quercus nigra	Water oak
Quercus virginiana	Live oak
Salix caroliniana	Carolina willow
Sambucus canadensis	Elderberry
Sassafras albidum	Sassafras
Setaria magna	Foxtail grass
Sesuvium portulacastrum	Seashore purslane
Smilax sp.	Greenbriar
Solidago sp.	Goldenrod
Spartina alterniflora	Smooth cordgrass
Spartina patens	Saltmeadow cordgrass
Typha latifolia	Cattail
Uniola paniculata	Sea oats
Vitis spp.	Wild grape

APPENDIX E

PART II

LIST OF IDENTIFIED AND POTENTIALLY OCCURRING FAUNA

APPENDIX E

PART II
LIST OF IDENTIFIED AND POTENTIALLY OCCURRING FAUNA

SCIENTIFIC NAME	COMMON NAME
BIRDS	
Actitis macularia	Spotted sandpiper
Aimophila aestivalis	Bachman's sparrow
Ammodramus henslowii	Henslow's sparrow
Ammospiza caudacuta	Short-tailed sparrow
Ammospiza maritima	Seaside sparrow
Anhinga anhinga	American anhinga
Ardea herodias	Great blue heron
Asio flammeus	Short-eared owl
Botaurus lentiginosus	American bittern
Butorides striatus	Green heron
Cardinalis cardinalis	Northern cardinal
Casmerodius albus	Great egret
Cathartes aura	Turkey vulture
Charadrius melodus	Piping plover
Charadrius vociferus	Killdeer
Circus cyaneus	Northern harrier
Cistothorus palustris	Long-billed marsh wren
Cistothorus platensis	Sedge wren
Coragyps atratus	Black vulture
Corvus brachyrhynchos	American crow
Dendroica discolor	Prairie warbler
Dendroica dominica	Yellow-throated warbler
Dendroica pinus	Pine warbler
Dendroica virens	Black-throated greenwarbler
Dryocopus pileatus	Pileated woodpecker*
Egretta thula	Snowy egret
Falco peregrinus tundrius	Arctic peregrine falcon
Fulica americana	American coot
Gallinago gallinago	Common snipe
Geothlypis trichas	Common yellowthroat
Haliaeetus leucocephalus	Bald eagle
Hirundo rustica	Barn swallow
Hylocichla mustelina	Wood thrush
Ixobrychus exilis	Least bittern
Larus delawarensis	Ring-billed gull
Larus philadelphia	Bonaparte's gull
Laterallus jamaicensis	Black rail
Megaceryle alcyon	Belted kingfisher
Melospiza melodia	Song sparrow
Mycteria americana	Wood stork
Nycticorax nycticorax	Black-crowned night-heron
Nycticorax violaceus	Yellow-crowned night-heron
Otus asio	Eastern screech owl
Pandion haliaetus	Osprey
Parus bicolor	Tufted titmouse
Parus carolinensis	Carolina chickadee
Passer domesticus	House sparrow
Passerculus sandwichensis	Savannah sparrow
Pelecanus occidentalis	Brown pelican
Phalacrocorax auritus	Double-crested cormorant

SCIENTIFIC NAME	COMMON NAME
BIRDS	
Plegadis falcinellus	Glossy ibis
Podilymbus podiceps	Pied-billed grebe
Quiscalus major	Boat-tailed grackle
Rallus elegans	King rail
Rallus limicola	Virginia rail
Rallus longirostris	Clapper rail
Rynchops niger	Black skimmer
Turdus migratorius	American robin
Zenaida macroura	Mourning dove
MAMMALS	
Blarina brevicauda	Northern short-tailed shrew
Blarina carolinensis	Southern short-tailed shrew
Cryptotis parva	Least shrew
Felis concolor concolor	Eastern cougar
Mus musculus	House mouse
Mustela frenata	Longtail weasel
Mustela vison	Mink
Nycticeius humeralis	Evening bat
Ochrotomys nuttalli	Golden mouse
Ondatra zibethica	Muskrat
Oryzomys palustris	Marsh rice rat
Procyon lotor	Raccoon
Reithrodontomys humulis	Eastern harvest mouse
Scalopus aquaticus	Eastern mole
Sciurus carolinensis	Eastern gray squirrel
Sciurus niger	Fox squirrel
Sorex longirostris	Southeastern shrew
Sylvilagus floridanus	Eastern cottontail
Sylvilagus palustris	Marsh rabbit
Trichechus manatus	West Indian manatee
Vulpes vulpes	Red fox
REPTILES	
Alligator mississippiensis	American alligator
Caretta caretta	Loggerhead turtle
Chelonia mydas	Green sea turtle
Clemmys guttata	Spotted turtle
Cnemidophorus sexlineatus sexlineatus	Six-lined racerunner
Deirochelys reticularia	Florida chicken turtle
Dermochelys coriaca	Leatherback sea turtle
Lepidochelys kempii	Kemp's ridley sea turtle
Rhadinaea flavilata	Pine woods snake
Sceloporus undulatus	Fence lizard
Storeria dekayi	Brown snake
Terrapene carolina carolina	Eastern box turtle
Thamnophis sirtalis	Eastern garter snake

PART II (Continued)
LIST OF IDENTIFIED AND POTENTIALLY OCCURRING FAUNA

SCIENTIFIC NAME	COMMON NAME
AMPHIBIANS	
Acris gryllus	Southern cricket frog
Hyla crucifer	Southern spring peeper
Notopthalmus virdescens	Central newt
Pseudacris brimleyi	Brimley's chorus frog
Pseudacris nigrita	Southern chorus frog
Rana sphenocephala	Southern leopard frog
INVERTEBRATES	
Acetes spp.	Acetes shrimp
Agrotis buchholzi	Pyxie moth
Busycon carica	Knobbed whelk
Callinectes sapidus	Blue crab
Callinectes similis	Lesser blue crab
Cancer irroratus	Rock crab
Crassostrea virginica	Oyster
Order Decapoda	Ornate crab
Eurypanopeus depressus	Common mud crab
Loligo pealei	Squid
Mercenaria mercenaria	Hard clam
Neomysis sp.	Neomysis shrimp
Octopus vulgaris	Octopus
Ophiopholis aculeata	Brittle star
Pagurus spp.	Hermit crab
Palaemonetes spp.	Palaemonetes shrimp
Penaeus aztecus	Brown shrimp
Penaeus duorarum	Pink shrimp
Penaeus setiferus	White shrimp
Portunus spp.	Portunus crab
Squilla empusa	Mantis shrimp
Trachypenaeus spp.	Trachypenaeus shrimp
FISH	
Acanthocybium solandri	Wahoo
Alosa sp.	Shad
Aluterus scheopfi	Orange filefish
Anchova mitchilli	Bay anchovy
Anchova hepsetus	Striped anchovy
Ancylopsetta quadrocellata	Ocellated flounder
Anguilla rostrata	American eel
Archosargus probatocephalus	Sheepshead
Arius felis	Hardhead catfish
Bairdeilla chrysura	Silver perch
Balistes carolinensis	Triggerfish
Brevoortia tyrannus	Atlantic menhaden
Caranx bartholomaei	Yellow jack
Caranx hippos	Crevalle jack
Centropristes philadelphicus	Rock sea bass
Chilo mycterus	Striped burrfish
Citharichthys spilopterus	Bay whiff
Conger oceanicus	Conger eel
Coryphaena hippurus	Dolphinfish
Cynoscion nebulosus	Spotted seatrout
Cynoscion regalis	Weakfish
Dasyatis spp.	Bluntnose stingray

SCIENTIFIC NAME	COMMON NAME
FISH	
Diapterus olisthostomus	Irish pampano
Etropus crossotus	Fringed flounder
Eucinostomus argenteus	Spotfin mojarra
Eucinostomus gula	Silver jenny
Gobionellus boehlkei	Marked goby
Gobionellus boleosoma	Darter goby
Gobiosoma bosci	Naked goby
Lachnolaimus maximos	Hogfish
Lagodon rhomboides	Pinfish
Order Lamniformes	Sharks
Orthopristis Chrysoptera	Pigfish
Leiostomus xanthrus	Spot
Lopholatilus chamaeleonticeps	Tilefish
Lutjanus griseus	Gray snapper
Menidia beryllina	Inland silverside
Menidia menidia	Atlantic silverside
Menticirrhus spp.	Kingfishes
Micropogon undulatus	Atlantic croaker
Monocanthus hispidus	Planehead filefish
Mugil cephalus	Striped mullet
Mugil curema	White mullet
Mycteroperea microlepsis	Gag grouper
Opsanus tau	Oyster toadfish
Pagonias cromis	Black drum
Paralichthys dentatus	Summer flounder
Paralichthys lethostigma	Southern flounder
Peprilus alepidotus	Harvest fish
Polyprion americanus	Wreckfish
Family Pomadasyidae	Grunts
Pomatomus saltatrix	Bluefish
Prionotus evolans	Striped searobin
Prionotus sp.	Big searobin
Rachycentron canadum	Cobia
Sarda sp.	Bonito
Sciaenops ocellata	Red drum
Scomberomorus cavalla	King mackerel
Scomberomorus maculatus	Spanish mackerel
Scophthalmus aguosus	Windowpane
Selene vomer	Lookdown
Seriola dumerili	Amberjacks
Snyodus foetens	Inshore lizardfish
Family Sparidae	Porgies
Symphurus plagiusa	Balckcheck tonguefish
Thunnus spp.	Tuna
Trinectes maculatus	Hogchoker
Urophycis regius	Spotted hake
Urophycis sp.	Southern hake
Xiphias gladius	Swordfish

APPENDIX E

PART III

LIST OF FEDERAL CANDIDATE AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA AND LIST OF NATURAL HERITAGE PROGRAM IDENTIFIED PRIORITY AREAS

APPENDIX E, PART III

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
VERTEBRATES							
Aimophila aestivalis Bachman's sparrow	SC	FSC	S3B,S2	G3	open longleaf pine forests, old fields	Low: Single community type present within study area.	coastal fringe evergreen forest
Alligator mississippiensis American alligator	T	T(S/A)	S3	G5	fresh to slightly brackish lakes, ponds, rivers, and marshes	Low: Single community type present within study area.	surface water
Ammodramus henslowii Henslow's sparrow	SR	FSC	S2B,S11	G3/G4	clearcut pocosins and other damp weedy areas	Marginal: Preferred habitat not present within study area.	--
Anhinga anhinga Anhinga	SR	--	S2B,SZ	G5	wooded lakes or ponds, or open swamps (for nesting)	Low: Single community type present within study area.	surface water
Columbina passerina common ground-dove	SR	--	SHB,SZ	G5	dunes, sandy fields, margins of maritime woods and thickets	Moderate: Multiple community types in study area.	upper beach, dune grass, and salt shrub
Condylura cristata pop 1 star-nosed mole (E. N.C. Pop.)	SC	--	S2	G5T2Q	moist meadows, bogs, swamps, bottomlands	Low: Single community type present within study area.	non-riverine wet hardwood forest
Crotalus adamanteus eastern dimondback rattlesnake	SR	--	S1	G5	pine flatwoods, savannas, pine-oak sandhills	Low: Single community type present within study area.	coastal fringe evergreen forest
Egretta caerulea little blue heron	SC	--	S3B,S3	G5	forests or thickets on maritime islands (breeding sites only)	High: Present within study area.	coastal fringe evergreen forest, salt shrub
Egretta thula snowy egret	SC	--	S3B,S3	G5	forests or thickets on maritime islands (breeding sites only)	High: Present within study area.	coastal fringe evergreen forest, salt shrub

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Egretta tricolor tricolored heron	SC	--	S3B,S3	G5	forests or thickets on maritime islands (breeding sites only)	High: Present within study area.	coastal fringe evergreen forest, salt shrub
Elassoma boehlkei Carolina pygmy sunfish	T	FSC	S1,S2	G2	freshwater streams and canals in Waccamaw drainage	Marginal: Preferred habitat not present within study area.	--
Eleotris pisonis spinycheek sleeper	SR	--	S2	G5	fresh to brackish ponds, river mouthes and estuaries	Low: Single community type present within study area.	surface water
Gobionellus stigmaticus marked goby	SR	--	S2	G?	shallow salt or brackish water	Moderate: Multiple community types present in study area.	surface water
Heterodon simus southern hognose snake	SR	FSC	S3	G4G5	sandy woods, particularly pine-oak sandhills	Low: Single community type present within study area.	coastal fringe evergreen forest
Himantopus mexicanus black-necked stilt	SR	--	S2B	G5	fresh or brackish ponds and impoundments	Low: Single community type present within study area.	surface water
Hypsoblennius ionthas freckled blenny	SR	--	S2	GU	shallow bays, estuaries, tidal creeks	Moderate: Multiple community types in study area.	surface water
Lanius ludovicianus ludovicianus loggerhead shrike	SC	--	S3B,S3	G5T5	fields and pastures	Marginal: Preferred habitat is not present within study area.	--
Microphis brachyurus opossum pipefish	SR	--	S1	G5	warm fresh to brackish water	Marginal: Preferred habitat not present within study area.	--
Microphis fulvius eastern coral snake	SR	--	SI	G5	pine-oak sandhills, sandy flatwoods, maritime forests	Moderate: Multiple community types in study area.	coastal fringe evergreen forest

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Nemotoma floridana floridana eastern woodrat	T	--	S1	G5T5	forests, maintly in moist areas	Low: Single community type present within study area.	coastal fringe evergreen forest
Noturus sp. 2 broadtail madtom	SC	--	S2	G2	Cape Fear, Waccamaw, and Lumber drainages	Low: Freshwater areas in project area is limited.	surface water
Ophisaurus mimicus mimic glass lizard	SC	FSC	S2	G3	pine flatwoods, savannas, pine/oak sandhills	Low: Single community type present within study area.	coastal fringe evergreen forest
Passerina ciris ciris eastern painted bunting	SR	FSC	S3B,SZ	G5TU	maritime shrub thickets and forest edges	Moderate: Multiple community types in study area.	salt shrub and coastal fringe evergreen forest
Pelecanus occidentalis brown pelican	SC	--	S3B,S4	G4	maritime islands	High: Present in study area.	surface water
Pituophis melanoleucus melanoleucus northern pine snake	SC	FSC	S3	G5T4	dry and sandy woods, mainly in pine/oak sandhills	Moderate: Multiple community types in study area.	coastal fringe evergreen forest
Plegadis falcinellus glossy ibis	SC	--	S2B,S1	G5	forests or thickets on maritime islands (breeding sites only)	Moderate: Multiple community types in study area.	coastal fringe evergreen forest, salt shrub
Porphyrula martinica purple gallinule	SR	--	SHB	G5	freshwater ponds with floating vegitation (breeding sites only)	Low: Single community type present within study area.	non-riverine wet hardwood forest
Rana capito capito Carolina gopher frog	SC	FSC	S2	G4T3	breeds in temporary fish-free pools; forages in sandy woods, especially in pine/oak sandhills	Moderate: Multiple community types present in study area.	non-riverine wet hardwood forest
Rynchops niger black skimmer	SC	--	S3B,S3	G5	sand flats on maritime islands (breeding sites only)	Moderate: Preferred habitat present within study area.	surface water

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Sterna nilotica gull-billed tern	T	--	S3B,SZ	G5	sand flats on maritime islands (breeding sites only)	Moderate: Preferred habitat present within study area.	lower beach
Ursus americanus black bear	SR	--	S3	G5	extensive montane forests; pocosins, swamps	Marginal: Preferred habitat is not located in the study area.	--
INVERTEBRATES							
Agrotis buchholzi Buchholz's dart moth	SR	FSC	S2S3	G2G3	flatwoods, with Pixie Moss	Marginal: Preferred habitat is not located in the study area.	--
Amblyscirtes alternata least Florida skipper	SR	--	S2?	G3G4	open pine woods, savannas; host plants unknown, but presumably grasses	Low: Single community type present within study area.	coastal fringe evergreen forest, salt shrub
Amblyscirtes reversa reversed roadside skipper	SR	--	S3?	G4	swamps, wet woods, or pocosin borders, near cane; host plant cane (*Arundinaria*)	Low: Single community type present within study area.	non-riverine wet hardwood forest
Atrytone arogos arogos Arogos skipper	SR	FSC	S1	G4T1T2	savannas, open pinewoods, and other relatively undisturbed grasslands; host plants - grasses, mainly broomsedge (*Adropogon*)	Low: Single community type present within study area.	coastal fringe evergreen forest
Atrytonopsis loammi Loammi skipper	SR	--	S1?	G2G4Q	grassy areas; host plants presumed to be *Adropogon* grasses	Marginal: Preferred habitat is not located in the study area.	--
Calephelis viginiensis little metalmark	SR	--	S3?	G4	savannas, flatwoods, other open pinewoods; host plant thistle (*Cirsium horridulum*)	Low: Single community type present within study area.	coastal fringe evergreen forest

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Elliptio folliculata pod lance	SC	--	S2	G3	lower Coastal Plain, mainly in Lake Waccamaw	Marginal: Preferred habitat is not located in the study area.	--
Elliptio waccamawensis Waccamaw spike	T	FSC	S1	G1G2Q	Lake Waccamaw and vicinity (endemic to North Carolina; possibly in adjacent South Carolina)	Marginal: Preferred habitat is not located in the study area.	--
Erynnis martialis mottled dusky wing	SR	--	S3?	G4	upland woods and wooded edges; host plant New Jersey tea (*Ceanothus americanus*)	Low: Single community type present within study area.	coastal fringe evergreen forest
Euagrotis lubricans slippery dart moth	SR	--	S3?	G4	savannas and flatwoods	Marginal: Preferred habitat is not located in the study area.	--
Euphyes bimacula two-spotted skipper	SR	--	S2?	G4	marshes, wet savannas, sedgy areas near wet woods; host plants sedges (*Carex*)	Moderate: Multiple community types present in study area.	salt marsh and non-riverine wet hardwood forest
Euphyes dukesi Dukes' skipper	SR	--	S2?	G3	ecotones of brackish or fresh marshes with swamps; host plants sedges (*Carex*)	Low: Single community type present within study area.	salt marsh
Fixsenia favonius favonius southern hairstreak	SR	--	S2S3	G4T4	maritime forests; host plant oaks, especially live oak *(Quercus virginiana)*	Moderate: Host plants present within study area.	coastal fringe evergreen forest
Helisoma eucosmium Greenfield ramshorn snail	SR	--	S1	G1?	Greenfield Lake (formerly), creek in Brunswick County (endemic to North Carolina)	Marginal: Preferred habitat is not located in the study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Hesperia attalus slossonae dotted skipper	SR	--	S2S3	G4T3	pine/oak sandhills, flatwoods, savannas; host plants grasses	Low: Single community type present within study area.	coastal fringe evergreen forest
Incisalia irus frosted elfin	SR	--	S3?	G4	open woods and borders, usually in dry situations; host plants lupines (*Lupinus*) and wild indigos (*Baptisia*)	Low: Single community type present within study area.	coastal fringe evergreen forest
Ligumia nasuta eastern pondmussel	SC	--	S2	G4	Chowan, Roanoke, and Pamlico systems	Marginal: Preferred habitat is not located in the study area.	--
Metarranthis lateritiaria (of Guenee) inchworm moth	SR	--	S1S3	G3G4	flatwoods and pocosins	Marginal: Preferred habitat is not located in the study area.	--
Mitoura hesseli Hessel's hairstreak	SR	--	S2?	G3G4	Atlantic white cedar swamps; host plant white cedar (*Chamaecyparis thyoides*)	Marginal: Preferred habitat is not located in the study area.	--
Papilio cresphontes giant swallowtail	SR	--	S2?	G5	primarily coastal in maritime forests or thickets; host plants prickly ash (*Zanthoxylum*), hoptree (*Ptelea*)	Moderate: Multiple community types in study area.	coastal fringe evergreen forest and salt shrub
Phyciodes phaon Phaon crescent	SR	--	S2?	G5	open, often dry areas, mainly on barrier islands; host plants fogfruit (*Lippia*)	Moderate: Preferred habitat present within study area.	upper beach and dune grass

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Planorbella magnifica magnificent rams-horn	E	FSC	S1	G1	Orton Pond and pond on Sand Hill Creek; formerly Green field Lake (endemic to North Carolina)	Marginal: Preferred habitat is not located in the study area.	--
Problema bulenta rare skipper	SR	FSC	S1?	G2G3	fresh to brackish marshes with tall grasses in Wilmington area; host plant southern wild rice (*Zizaniopsis miliacea*), probably other tall grasses	Low: Single community type present in study area.	salt marsh
Ploblema byssus Byssus skipper	SR	--	S2?	G3G4	savannas, marshes, and other high-quality grassy areas; host plants grasses	Low: Single community type present in study area.	salt marsh
Satyrium kingi King's hairstreak	SR	--	S2S3	G3G4	forests, often moist, usually near sweetleaf; host plant sweetleaf (*Symplocos*)	Marginal: Preferred habitat is not located in the study area.	--
Triodopsis soelneri Cape Fear threetooth	T	FSC	S2	G2	swampy habitats in the extreme southeastern corner of the state (endemic to North Carolina)	Marginal: Preferred habitat is not located in the study area.	--
Villosa delumbis eastern creekshell	SR	--	S3?	G3G4	most Atlantic drainages, freshwater	Marginal: Preferred habitat is not located in the study area.	--
VASCULAR PLANTS							
Agalinis aphylla scale-leaf gerardia	C	--	S2	G3G4	wet savannas and sandhill/pocosin ecotones	Low: Single community type present within study area.	coastal fringe evergreen forest

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Agalinis linifolia flaxleaf gerardia	SR	--	S3	G4?	savannas, clay-based Carolina bays, depression ponds, and other wet, open habitats	Marginal: Preferred habitat is not located in the study area.	--
Agalinis virgata branched gerardia	SR	--	S2	G3G4	savannas	Marginal: Preferred habitat is not located in the study area.	--
Allium sp 1 savanna onion	C	--	S1	G1	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Amorpha georgianan var. *confusa* savanna indigo-bush (Carolina leadplant)	T	FSC	S2	G3T2	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Andropogon mohrii bog bluestem	C	--	S1	G4?	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Arnoglossum ovatum savanna Indian-plaintain	SR	--	S1	G4G5	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Asclepias pedicellata savanna milkweed	C	--	S2	G3?	dry savannas and moist flatwoods	Marginal: Preferred habitat is not located in the study area.	--
Baccharis glomeruliflora silverliing	C	--	S1	G4	shrubby areas on margins of brakish marshes	Low: Single community type present within study area.	--
Balduina atropurpurea honeycomb head	C	FSC	SH	G2G3	savannas, edge of bottomland woods	Low: Single community type present within study area.	non-riverine wet hardwood forest

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Bulbostylis warei Ware's hairsedge	C	--	SH	G3G4	open sites	Marginal: Preferred habitat is not located in the study area.	--
Calamintha georgiana Georgia calamint	SR	--	S1	G5	sandhills	Moderate: Preferred habitat present within study area.	coastal fringe evergreen forest
Carex decomposita cypress knee sedge	SR	--	S1	G4	blackwater swamp forests	Marginal: Preferred habitat is not located in the study area.	--
Carex verrucosa warty sedge	SR	--	S1	G3G4	savannas and pinelands	Low: Single community type present within study area.	coastal fringe evergreen forest
Cypress dentatus toothed flatsedge	C	--	SH	G4	marshes	Moderate: Preferred habitat present within study area.	salt marsh
Cyperus lecontei Leconte's flatsedge	SR	--	S1	G4?	limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Cyperus tetragonus four-angled flatsedge	SR	--	S2	G4?	maritime forests and barrier island grasslands	Moderate: Multiple community types in study area.	coastal fringe evergreen forest and dune grasses
Dichanthelium neuranthum nerve-flowered witch grass	C	--	S1	G5?	maritime wet grasslands	Moderate: Preferred habitat present within study area.	wet back dune grasslands
Dionaea muscipula Venus flytrap	C-SC	FSC	S3	G3	savannas, seepage bogs, pocosin edges	Moderate: Multiple community types in study area.	coastal fringe evergreen forests and non-riverine wet hardwood forest
Drosera filiformis threadleaf sundew	SR	--	S1	G5	clay-based Carolina bays, wet savannas, ditches	Low: Single community type present within study area.	coastal fringe evergreen forests

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Echinodorus parvulus dwarf burhead	C	FSC	S1	G3	drawdown zones of clay-based Carolina bays and blackwater rivers	Marginal: Preferred habitat is not located in the study area.	--
Eleocharis elongata Florida spikerush	C	--	S1	G5?	limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Eleocharis robbinsii Robbin's spikerush	C	--	S2	G4G5	limesink ponds, clay-based Carolina bys, peat-burn lakes, millponds, beaver ponds, artifical lakes	Marginal: Preferred habitat is not located in the study area.	--
Eleocharis rostellata beaked spikerush	SR	--	S2	G5	brackish marshes, limesink ponds	Low: Single community type present within study area.	salt marsh
Eriocaulon aquaticum seven-angled pipewort	SR	--	SI	G5	blackwater creeks, natural lakes, tidal freshwater marshes	Marginal: Preferred habitat is not located in the study area.	--
Erythrina herbacea coralbean	SR	--	S1	G5	maritime forests, open sandy woods	Moderate: Multiple community types in study area.	coastal fringe evergreen forest, maritime shrub
Eupatorium leptophyllum limesink dog-fennel	C	--	S1	G4G5	limesink ponds and clay-based Carolina bays	Marginal: Preferred habitat is not located in the study area.	--
Fimbristylis perpusilla Harper's fimbry	T	FSC	S1	G2G3	drawdown zones of blackwater rivers, moist sandy soils	Moderate: Multiple community types in study area.	coastal fringe evergreen forests, dune grass, maritime shrub
Galactia molis soft milk-pea	C	--	S2	G4G5	sandhills	Moderate: Preferred habitat present within study area.	coastal fringe evergreen forests

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Gelsemium rankinii swamp jessamine	SR	--	S2	G5	floodplains of blackwater rivers and streams	Marginal: Preferred habitat is not located in the study area.	--
Helenium brevifolium littleleaf sneezweed	C/PE	--	S1	G3G4	bogs, seeps, riverbanks, other wet sites	Marginal: Preferred habitat is not located in the study area.	--
Helenium pinnatifidum dissected sneezeweed	SR	--	S2	G4	savannas and open, wet, mucky sites	Marginal: Preferred habitat is not located in the study area.	--
Helenium vernale spring sneezeweed	SR	--	S1	G4?	savannas and adjacent ditches	Marginal: Preferred habitat is not located in the study area.	--
Helianthemum corymbosum pinebarren sunrose	SR	--	S1	G4G5	maritime forests	Moderate: Preferred habitat present within study area.	coastal fringe evergreen forests
Helianthemum georgianum Georgia sunrose	C	--	S1	G4	maritime forests	Moderate: Preferred habitat present within study area.	coastal fringe evergreen forests
Hypericu nitidum Carolina St. John's- wort	SR	--	S1	G4	low pinelands, pools	Marginal: Preferred habitat is not located in the study area.	coastal fringe evergreen forests
Ilex amelanchier sarvis holly	SR	--	S3	G4	blackwater swamps and riverbands, clay-based Carolina bays	Marginal: Preferred habitat is not located in the study area.	--
Ipomoea imperati beach morning-glory	SR	--	S1	G5	sea beaches and foredunes	High: Likely present in study area.	upper beach and dune grasses
Lachnocaulon beyrichianum southern bogbutton	SR		S2S3	G2G3	sandhills, sandhill/pocosin ecotones	Low: Single community type present within study area.	coastal fringe evergreen forests

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Lechea torreyi Torrey's pinweed	C	--	S1	G4G5	sandhills, savannas	Low: Single community type present within study area.	coastal fringe evergreen forests
Leptochloa fascicularis var. *maritima* long-awned spangletop	SR	--	S1	G5T3	fresh to brackish tidal marshes	Marginal: Preferred habitat is not located in the study area.	--
Lilaeopsis carolinensis Carolina grasswort	T	--	S3	G3	freshwater marshes, pools, tidal marshes	Low: Single community type present within study area.	salt marsh
Linum floridanum var. *chrysocarpum* yellow-fruited flax	SR	--	S1	G4T3?	pine savannas	Marginal: Preferred habitat is not located in the study area.	--
Litsea aestivalis pondspice	C	FSC	S2	G3	limesink ponds, other pools	Low: Single community type present within study area.	non-riverine wet hardwood forest
Lophiola aurea golden crest	E	--	S1	G4	very wet, mucky habitats in pine savannas	Marginal: Preferred habitat is not located in the study area.	--
Ludwigia alata winged seedbox	SR	--	S2	G3G4	interdune ponds, open wet areas	Moderate: Multiple community types in study area.	back dune and salt marsh
Ludwigia lanceolata lanceleaf seedbox	C	--	S1	G3	interdune ponds, marshes	Moderate: Multiple community types in study area.	back dune and salt marsh
Ludwigia linifolia flaxleaf seedbox	SR	--	S2	G4	limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Ludwigia suffruticosa shrubby seedbox	SR	--	S2	G5	limesink ponds, clay-based Carolina bays	Marginal: Preferred habitat is not located in the study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Macbridea caroliniana Carolina bogmint	C	FSC	S2	G2G3	blackwater swamps, savanna/pocosin ecotones, ditches	Marginal: Preferred habitat is not located in the study area.	--
Malaxis spicata Florida adder's mouth	SR	--	S1	G4?	maritime swamp forests, calcareous but mucky outer coastal plain swamps	Low: Single community type present within study area.	non-riverine wet hardwood forest
Muhlenbergia torreyana pinebarren smokegrass	E	--	S1	G3	cypress savannas	Marginal: Preferred habitat is not located in the study area.	--
Myriophyllum laxum loose watermilfoil	T	FSC	S1	G3	limesink ponds, waters of natural lakes	Marginal: Preferred habitat is not located in the study area.	--
Oldenlandia boscii Bosc's bluet	SR	--	S1	G5	clay-based Carolina bays	Marginal: Preferred habitat is not located in the study area.	--
Panicum tenerum southeastern panic grass	SR	--	S2	G4	wet savannas, sandhill seeps, limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Parnassia caroliniana Carolina grass-of-Parnassus	E	FSC	S2	G3	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Parnassia grandifolia large-leaved grass-of-Parnassus	C/PT	--	SI-	G3G4	fens and seepsover calcareous or mafic rocks	Marginal: Preferred habitat is not located in the study area.	--
Paspalum dissectum mudbank crown grass	SR	--	S1	G4?	mudflats, other open wet areas	Marginal: Preferred habitat is not located in the study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Peltandra sagittifolia spoon flower	SR	--	S2	G3G4	pocosins, other wet, peaty sites	Marginal: Preferred habitat is not located in the study area.	--
Pityopsis graminifolia var. *graminifolia* silkgrass	SR	--	S1?	G5T4	savannas, pine flatwoods, snady roadsides	Marginal: Preferred habitat is not located in the study area.	--
Plantago sparsiflora pineland plantain	E	FSC	S1	G2	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Platanthera integra yellow fringeless orchid	T	--	S1	G4	savannas	Marginal: Preferred habitat is not located in the study area.	--
Plantanthera nivea snowy orchid	T	--	S1	G5	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Polygala hookeri Hokker's milkwort	C	--	S2	G3	savannas	Marginal: Preferred habitat is not located in the study area.	--
Polygonum glaucum seabeach knotweed	C	--	S1	G3	ocean and sound beaches	Moderate: Multiple community types in study area.	upper beach and dune grasses
Polygonum hirsutum hairy smartweed	SR	--	S1	G4G5	limesink ponds, clay-based Carolina bays, drawdown zones of blackwater riverbanks	Marginal: Preferred habitat is not located in the study area.	--
Ponthieva racemosa shadow-witch	SR	--	S2	G4G5	blackwater forests and swamps, especially over marl	Marginal: Preferred habitat is not located in the study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Ptilimnium sp. 1 Carolina bishopweed	C	--	S1	G2	tidal freshwater marshes	Marginal: Preferred habitat is not located in the study area.	--
Rhexia aristosa awned meadow-beauty	T	FSC	S3	G3	clay-based Carolina bays and limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Rhexia cubensis West Indies meadow-beauty	SR	--	S1	G4G5	limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora alba northern white beaksedge	C	--	S2	G5	fens, bogs, pocosin openings, limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora breviseta short-bristled beaksedge	C	--	S1	G3G4	savannas	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora decurrens swamp forest beaksedge	C	FSC	S1	G3G4	swamp forests	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora divergens white-seeded beaksedge	SR	--	S1	G4	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora globularis var. *pinetorum* Small's beaksedge	SR	--	S1	G5T3	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora harperi Harper's beaksedge	C	--	S1	G3	limesink ponds and cypress savannas	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora odorata fragrant beaksedge	SR	--	S1	G4	maritime wet grasslands	Marginal: Preferred habitat is not located in the study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Rhynchospora oligantha feather-bristle beaksedge	C	--	S2S3	G4	savannas, seepage bogs	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora pleiantha coastal beaksedge	C	--	S1	G3	limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora scirpoides long-beak baldsedge	SR	--	S2	G4	beaver ponds, limesink ponds, wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora thornei Thorne's beaksedge	C/PE	FSC	S1	G1	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Rhynchospora tracyi Tracy's beaksedge	SR	--	S2	G4	clay-based Carolina bays, limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Sabal palmetto cabbage palm	SR	--	S1	G5	maritime forests on the southeastern coast	Moderate: Preferred habitat present within study area.	coastal fringe evergreen forest
Sabatia kennedyana Plymouth gentian	T-SC	--	S1	G3	drawdown zones on banks of blackwater rivers	Marginal: Preferred habitat is not located in the study area.	--
Sagittaria isoetiformis quillwort arrowhead	SR	--	S1	G3G4	limesink ponds, clay-based Carolina bays, beaver ponds, natural lakes	Marginal: Preferred habitat is not located in the study area.	--
Sarracenia minor hooded pitcher plant	SR	--	S2	G4G5	savannas	Marginal: Preferred habitat is not located in the study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Schoenoplectus etuberculatus Canby's bulrush	SR	--	S3	G3G4	blackwater creeks	Marginal: Preferred habitat is not located in the study area.	--
Scirpus lineatus drooping bulrush	C	--	S2	G4	low rich woods over marl	Marginal: Preferred habitat is not located in the study area.	--
Scleria baldwinii Baldwin's nutrush	C	--	S1	G4	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Scleria georgiana Georgia nutrush	SR	--	S2	G4	savannas	Marginal: Preferred habitat is not located in the study area.	--
Scleria reticularis netted nutrush	SR	--	S2	G4	clay-based Carolina bays, limesink ponds	Marginal: Preferred habitat is not located in the study area.	--
Scleria verticillata savanna nutrush	C	--	S1	G5	savannas over coquina limestone ("marl") intermediate swales	Marginal: Preferred habitat is not located in the study area.	--
Seymeria pectinata sticky afzelia	C	--	SH	G4G5	disturbed habitats	Moderate: Multiple community types in study area.	urbanized areas
Sideroxylon tenax tough bumelia	C	--	S1	G3?	maritime forests and scrub	Moderate: Multiple community types in study area.	coastal fringe evergreen forest and salt shrub
Solidago gracillima graceful goldenrod	SR	--	S1S2	G4?	savannas, boggy sites, peaty places	Marginal: Preferred habitat is not located in the study area.	--
Solidago pulchra Carolina goldenrod	E	FSC	S3	G3	savannas, sandhill ecotones, wet meadows	Low: Single community type present within study area.	coastal fringe evergreen forest

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Solidago tortifolia twisted-leaf flowing goldenrod	SR	--	SH	G4G5	dry savannas and sandhills	Low: Single community type present within study area.	coastal fringe evergreen forest
Solidago verna spring-flowering goldenrod	E/PT	FSC	S3	G3	mesic to moist pinelands, pocosin ecotones	Marginal: Preferred habitat is not located in the study area.	--
Spiranthes laciniata lace-lip ladies'-tresses	C	--	S1	G4G5	moist wet habitats	Low: Single community type present within study area.	non-riverine wet hardwood forests
Spiranthes longilabris giant spiral orchid	C	--	S1	G3	savannas	Marginal: Preferred habitat is not located in the study area.	--
Sporobolus teretifolius sensu stricto wireleaf dropseed	T	FSC	S1	G1G2	wet savannas	Marginal: Preferred habitat is not located in the study area.	--
Sporobolus virginicus saltmarsh dropseed	SR	--	S1	G5	brackish marshes	Marginal: Preferred habitat is not located in the study area.	--
Stylisma aquatica water dawnflower	SR	--	S1	G4	clay-based Carolina bays, moist sandy pinelands	Marginal: Preferred habitat is not located in the study area.	--
Tofieldia glabra Carolina asphodel	C	FSC	S3	G3	savannas, sandhill seeps, moist sandhill/pocosin ecotones	Low: Single community type present within study area.	coastal fringe evergreen forest
Trichostema sp. 1 dune bluecurls	C	FSC	S2	G2	dunes, openings in maritime forest and scrub	Moderate: Multiple community types present within study area.	dunes, coastal fringe evergreen forest, and salt shrub
Tridens carolinianus Carolina triodia	C	--	S3	G3?	sandhills and pine flatwoods	Low: Single community type present within study area.	coastal fringe evergreen forest

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Utricularia olivacea dwarf bladderwort	T	--	S2	G4	limesink ponds, beaver ponds	Marginal: Preferred habitat is not located in the study area.	--
Vaccinium macrocarpon cranberry	C	--	S2	G4	bogs, seeps, pocosins	Marginal: Preferred habitat is not located in the study area.	--
Xyris brevifolia shortleaf yellow-eyed-grass	SR	--	S2	G4G5	savannas, other low wet areas	Low: Single community type present within study area.	non-riverine wet hardwood forests
Xyris elliottii Elliott's yellow-eyed-grass	SR	--	S1	G4	low wet areas	Low: Single community type present within study area.	non-riverine wet hardwood forests
Xyris flabelliformis savanna yellow-eyed-grass	C	--	S1	G4	savannas	Marginal: Preferred habitat is not located in the study area.	--
Yucca gloriosa moundlily yucca	SR	--	S2?	G4	dunes	High: Recorded sitings in study area.	dune grasses
Zephyranthes sp. 1 Carolina atamasco lily	C	--	S2?	G2?	roadsides, calcareous coastal fringe forest	High: Recorded sitings in study area.	roadsides, coastal fringe evergreen forest, dune grasses
NON-VASCULAR PLANTS							
Campylopus carolinae savanna campylopus	C	FSC	S1	G1	savannas, sandhills	Low: Single community type present within study area.	coastal fringe evergreen forest
Cheilolejeunea rigidula a liverwort	SR	--	S2	G5	on bark in maritime forests, and in blackwater swamp forests	Low: Single community type present within study area.	coastal fringe evergreen forest

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
Lejeunea bermudiana a liverwort	SR	--	SH	G3G4	on marl outcrops or on decaying logs in blackwater swamps, or tree bases in swamps	Marginal: Preferred habitat is not located in the study area.	--
Plagiochila ludoviciana a liverwort	SR	--	S1	G5	on bark in coastal plain swamps, on bark on moist rock in mountain gorges	Low: Single community type present within study area.	non-riverine wet hardwood forest
Sphagnum fitzgeraldii Fitzgerald's peatmoss	SR	--	S2S3	G2G3	pocosins and savannas	Marginal: Preferred habitat is not located in the study area.	--
Syrrhopodon incompletus Cuban schliessmund	C	--	S1	G5	on treetrunks in maritime forests	Moderate: Preferred habitat present within study area.	coastal fringe evergreen forest
Teloschistes flavicans sunrise lichen	SR	--	S1	G3G4	on twigs in maritime forests	Moderate: Preferred habitat present within study area.	--
NATURAL COMMUNITIES							
bay forest	--	--	S3?	G3G4?	NA	Not present in study area.	--
brackish marsh	--	--	S5	G5	NA	Not present in study area.	--
calcareous coastal fringe forest	--	--	S1	G1?	NA	Not present in study area.	--
coastal fringe evergreen forest	--	--	S1	G3?	NA	Present within study area.	--
coastal fringe snadhill	--	--	S1	G3?	NA	Not present in study area.	--
coastal plain bottomland hardwoods (blackwater subtype)	--	--	S3	G5T5	NA	Not present in study area.	--
coastal plain levee forest (brownwater subtype)	--	--	S4	G5T5	NA	Not present in study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
coastal plain semipermanent impoundment	--	--	S4	G5	NA	Not present in study area.	--
coastal plain small stream swamp (blackwater subtype)	--	--	S5	G5	NA	Not present in study area.	--
cypress savanna	--	--	S1	G2?	NA	Not present in study area.	--
cypress-gum swamp	--	--	S5	G5T5	NA	Not present in study area.	--
dry mesic oak-hickory forest	--	--	S5	G5	NA	Not present in study area.	--
dune grass	--	--	S3	G3G4	NA	Not present in study area.	--
high pocosin	--	--	S4	G4	NA	Not present in study area.	--
interdune pond	--	--	S1	G2?	NA	Not present in study area.	--
low pocosin	--	--	S3	G3	NA	Not present in study area.	--
maritime evergreen forest	--	--	S1	G2G3	NA	Not present in study area.	--
maritime shrum	--	--	S3	G4	NA	Present within study area.	--
maritime wet grassland	--	--	S2?	G3?	NA	Not present in study area.	--
mesic mixed hardwood forest (coastal plain subtype)	--	--	S4	G5T5	NA	Not present in study area.	--
mesic pine flatwoods	--	--	S3	G5	NA	Not present in study area.	--
oxbow lake	--	--	S3	G5	NA	Not present in study area.	--
piedmont/coastal plain acidic cliff	--	--	S2?	G4	NA	Not present in study area.	--
pine savanna	--	--	S2	G3	NA	Not present in study area.	--
pine/scrub oak sandhill	--	--	S3	G4	NA	Not present in study area.	--
pone pine woodland	--	--	S4	G4G5	NA	Not present in study area.	--

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

SPECIES OF CONCERN	STATE STATUS IN COUNTY[1]	FEDERAL STATUS IN COUNTY[1]	STATE RANKING[2]	GLOBAL RANKING[2]	HABITAT PREFERENCE	PROBABILITY OF OCCURRENCE WITHIN STUDY AREA[3]	ON-SITE HABITAT CLASSIFICATION[4]
salt flat	--	--	S4	G5	NA	Not present in study area.	--
salt marsh	--	--	S5	G5	NA	Present within study area.	--
sand and mud bar	--	--	S5	G5	NA	Not present in study area.	--
small depression pocosin	--	--	S1?	G2?	NA	Not present in study area.	--
small depression pond	--	--	S2	G3	NA	Not present in study area.	--
tidal cypress-gum swamp	--	--	S3	G4	NA	Not present in study area.	--
tidal freshwater marsh	--	--	S3	G4	NA	Not present in study area.	--
vernal pool	--	--	S2	G3	NA	Not present in study area.	--
wet pine flatwoods	--	--	S3	G3G4	NA	Not present in study area.	--
xeric sandhill scrub	--	--	S4	G5	NA	Not present in study area.	--
GEOLOGIC FEATURES							
barrier island complex	--	--	--	--	NA	Present within study area.	--
sinkhole	--	--	--	--	NA	Not present in study area.	--
spring	--	--	--	--	NA	Not present in study area.	--

Please see notes and sources on the following two pages.

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

Notes:

1. STATUS:

Federal:	E	Endangered	State:	E	Endangered
	T	Threatened		T	Threatened
	C	Candidate		SC	Special Concern
	FSC	Federal Species of Concern		SR	Significantly Rare
	T(S/A)	Listed as threatened because of similarity of appearance (e.g., American alligator.		C	Candidate for Listing

2. RANKING:

State:

S1	Critically imperiled because of extreme rarity or otherwise very vulnerable to extirpation in the state
S2	Imperiled in North Carolina because of rarity or otherwise vulnerable to extirpation in the state.
S3	Rare or uncommon in North Carolina
S4	Apparently secure in North Carolina, with many occurrences.
S5	Demonstrably secure in North Carolina and essentially ineradicable under present conditions.
SA	Accidental or causal: one to several records for North Carolina, but the stat is outside the normal range of the species.
SH	Of historical occurrence in North Carolina, perhaps not having been verified in the past 25 years.
SR	Reported from North Carolina, but without persuasive documentation for either accepting or rejecting the report
SX	Believed to be extirpated from North Carolina.
SU	Possibly in peril in North Carolina, but status uncertain.
_B	Rank of breeding population in the state. Used for migratory species only.
_Z	Population is not of significant conservation concern; applies to transitory, migratory species.

APPENDIX E, PART III (continued)

FEDERAL CANDIDATES AND STATE-LISTED SPECIES POTENTIALLY OCCURRING IN STUDY AREA

2. RANKING (continued):

Global:

G1	Critically imperiled globally because of extreme rarity or otherwise very vulnerable to extinction throughout its range.
G2	Imperiled globally because or rarity or otherwise vulnerable to extinction throughout its range.
G3	Either very rare and local throughout its range, or found locally in a restricted area.
G4	Apparently secure globally, although it may be quite rare in parts of its range (especially at the periphery).
G5	Demonstrably secure globally, although it may be quite rare in parts of its range (especially at the periphery).
GH	Of historical occurrence throughout its range.
GU	Possibly in peril, but status uncertain; more information is needed.
G?	Unranked, or rank uncertain.
G_Q	Of questionable taxonomic status
T_	Status of subspecies or variety; the G rank refers t the species as a whole.

3. Study area includes project study area and the barrier island.

4. North Carolina Natural Heritge Program, Classification of the Natrual Communities of North Carolina, Third Approximation. 1990.

Sources: North Carolina Natural Heritage Program

1990 Classification of the Natural Communities of North Carolina, Third Approximation. Compiled by M. Schafale and A. Weakley. North Carolina Natural Heritage Program, Division of Parks and Recreation: Raleigh, N.C..

1995a Natural Heritage Program List of the Rare Animal Species of North Carolina. Compiled by H. LeGrand, Jr. and S. Hall. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation: Raleigh, N.C..

1995b Natural Heritage Program List of the Rare Plant Species of North Carolina. Compiled by J. Amoroso and A. Weakley. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation: Raleigh, N.C..

1996 Natural Heritage Program Element List. July 9.

APPENDIX F

APPENDIX F

PART I

NOTICE OF INTENT

Total estimated PFC revenue:
$308,110,994.00

Brief Description of the proposed projects: the project are part of a multi-phased development program as defined in FAR part 158.3 consisting of the following:

(1) Renovate and expand Terminal Building by 544,000 square feet including: install 5 baggage claim carousels, provide new INS and Customs processing areas and office space, increase administrative office and terminal support space, install 11 new passenger loading bridges, replace existing outbound baggage system, install multi-user Flight Information Display System, replace single departure lounge of 13,500 square feet with gate oriented lounges totaling 69,000 square feet, construct 204,000 square feet of public area, and construct 26,000 square feet of mechanical/electrical space to support terminal building.

(2) Reconfigure Airport Access Road with grade separated crossovers, and reconstruct terminal loop road to increase curb frontage by 800 feet.

(3) Expand aircraft apron for 7 additional gates with taxilanes.

Class or classes of air carriers which the public agency has requested not be required to collect PFC's Part 135 air taxi/commercial operators.

Availability of Application

Any person may inspect the application in person at the FAA office listed above under FOR FURTHER INFORMATION CONTACT and at the FAA regional Airport office located at: Western-Pacific Region, Airports Division, room 3012, 15000 Aviation Blvd., Hawthorne, CA 90261. In addition, any person may, upon request, inspect the application, notice and other documents germane to the application in person at the Guam Airport Authority.

Issued in Hawthorne, California, on November 5, 1993.

Herman C. Bliss,

Manager, Airports Division, Western-Pacific Region.

[FR Doc. 93-28970 Filed 11-24-93; 8:45 am]

BILLING CODE 4910-13-M

Federal Highway Administration

Environmental Impact Statement: Brunswick County, NC

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of Intent.

SUMMARY: The FHWA is issuing this notice to advise the public that an environmental impact statement will be prepared for a proposed bridge replacement project in the Town of Sunset Beach, Brunswick County, North Carolina.

FOR FURTHER INFORMATION CONTACT: Roy C. Shelton, Operations Engineer, 310 New Bern Avenue, suite 410, Raleigh, North Carolina 27601, Telephone (919) 856-4350.

SUPPLEMENTARY INFORMATION: The FHWA in cooperation with the North Carolina Department of Transportation (NCDOT) will prepare an environmental impact statement (EIS) for the improvement of SR 1172 in the Town of Sunset Beach, Brunswick County, North Carolina. The proposed action would be the replacement of the Sunset Beach Bridge on SR 1172 over the Atlantic Intracoastal Waterway, potentially on new location, along with the reconstruction of the approach roadways. The project extends from the island to the mainland in Sunset Beach. Improvements to the existing one-lane pontoon bridge are considered necessary to improve traffic safety and highway access between the island portion of the Town of Sunset Beach and the Brunswick County mainland and to enhance watercraft operation on the Intracoastal Waterway.

Alternatives under consideration include: (1) The "no-build," (2) rehabilitation of the existing structure, (3) replacing the existing structure at its current location, and (4) replacing the structure on new location. A 65-foot fixed span and various heights of movable span structures will be evaluated.

Letters describing the proposed action and soliciting comments have been sent to appropriate Federal, State and local agencies, and to private organizations and citizens who have previously expressed or are known to have interest in this proposal. A complete public involvement program has been developed for the project to include: The distribution of newsletters to interested parties, along with public meetings and a public hearing to be held in the project study area. A toll-free project telephone "hotline" is also being made available. Information on the time and place of the public hearing will be provided in the local news media. The draft EIS will be available for public and agency review and comment prior to the public hearing. A formal interagency scoping meeting has also been conducted.

To ensure that the full range of issues related to this proposed action are addressed and all significant issues are identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to the FHWA at the address provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Research, Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program)

Dated: November 18, 1993.

Roy C. Shelton,

Operations Engineer, Raleigh, NC.

[FR Doc. 93-28993 Filed 11-24-93; 8:45 am]

BILLING CODE 4910-22-M

Environmental Impact Statement: Gila, Coconino, and Navajo Counties, AZ

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of Intent.

SUMMARY: The FHWA is issuing this notice to advise the public that an Environmental Impact Statement (EIS) will be prepared for a proposed highway project in Gila, Coconino, and Navajo Counties, Arizona.

FOR FURTHER INFORMATION CONTACT: Mr. Nathan M. Banks, District Engineer, Federal Highway Administration, 234 North Central Avenue, Suite 330, Phoenix, AZ 85004, Telephone: (602) 379-3646.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the Arizona Department of Transportation (ADOT), will prepare an Environmental Impact Statement (EIS) for a proposal to improve State Route 260 between Payson and Heber, AZ. The proposal will include a "no action" alternative in addition to a range of build alternatives along and away from the existing roadway to improve the capacity and safety features of this 54-mile segment. Various designs of grade, alignment, geometry and access will be evaluated. The evaluation of alternatives will consider the social, economic, and environmental impacts associated with construction and with secondary and cumulative effects.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State and local agencies, and to private organizations and citizens who have previously expressed or are known to have interest in this proposal. Public involvement will continue with public information meetings to obtain public input in the planning process, newsletters to advise

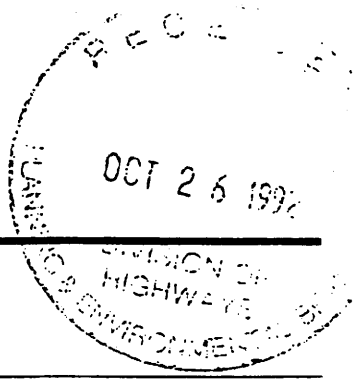
APPENDIX F

PART II

AGENCY COMMENTS
FOLLOWING THE NOTICE OF INTENT

Advisory
Council On
Historic
Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004



OCT 22 1992

Mr. L. J. Ward, P.E.
Manager, Environmental Planning Branch
North Carolina Department of
Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

REF: Sunset Beach Bridge Replacement
Brunswick County, North Carolina

Dear Mr. Ward:

It has come to our attention that the referenced project may have an effect on properties eligible for inclusion in the National Register of Historic Places. We also understand that this project requires permits from the U.S. Army Corps of Engineers and the U.S. Coast Guard.

Pursuant to Section 106 of the National Historic Preservation Act, Federal agency involvement in this undertaking and the potential of the project to affect historic properties may require that the Council be provided an opportunity to comment. The Council's regulations, (36 CFR Part 800) set forth this responsibility. The lead Federal agency should investigate the applicability of the Council's regulations in this matter and notify us of their finding.

Should you have any questions, please call MaryAnn Naber of our staff at (202) 606-8505. We appreciate your cooperation.

Sincerely,

John L. Klima
Director, Eastern Office
of Project Review

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

October 19, 1992

Planning Division

Mr. L. J. Ward, P.E., Manager
Planning and Environmental Branch
Division of Highways
North Carolina Department
of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Ward:

This is in response to your letters of September 16 and 28, 1992, requesting our comments on the initiation of a study of the project, "Environmental Impact of the Proposed Sunset Beach Bridge Replacement, Brunswick County, State Project No. 8.2230101, TIP No. B-682," (Regulatory Branch Action I.D. No. 19930088).

Our comments, from the U.S. Army Corps of Engineers (COE) perspective, involve impacts to COE projects, flood plains, and other environmental aspects, primarily waters and wetlands. The proposed bridge replacement would cross the COE's Atlantic Intracoastal Waterway (AIWW) navigation project, which provides for a channel 12 feet deep and 90 feet wide. Disposal areas for dredge material are located in the vicinity of the existing bridge. We recommend that you coordinate with our Navigation Branch to ensure that the proposed bridge replacement would not adversely affect our navigation project. The point of contact is Mr. Carmine Forcinito at (919) 251-4832.

The proposed project is sited in Sunset Beach, which participates in the Federal Flood Insurance Program. The bridge replacement would be within the 100-year flood plain and within the velocity zone. Based on the August 1992 Sunset Beach Flood Insurance Rate Map, the 100-year (base flood) elevation is 15 feet mean sea level. We suggest that you coordinate with the town of Sunset Beach for compliance with their flood plain ordinance and possible revision to their flood insurance maps and report.

Department of the Army permit authorization, pursuant to Section 404 of the Clean Water Act, as amended, will be required for the discharge of excavated or fill material, including construction debris, into waters of the United States or any adjacent and/or isolated wetlands. Please provide sufficient information for our evaluation of environmental impacts for all construction corridors which you are considering. Included should be wetland and soils mapping, indicating wetland and soils types, and data regarding endangered species, cultural resources, and fish and wildlife habitat. Adverse environmental impacts should be avoided and then minimized. Mitigation must be provided to compensate for unavoided impacts. Our comments will be provided in response to such information. Because of this early review and evaluation, we would expect a most expeditious processing of your application for the specific activity requiring Federal authorization. Questions or comments related to the permit may be directed to Mr. Rudolf Scheiner, Wilmington Field Office, Regulatory Branch, telephone (919) 251-4629.

We appreciate the opportunity to comment on this project. If we can be of further assistance to you, please do not hesitate to contact us.

Sincerely,

Lawrence W. Saunders
Chief, Planning Division

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

RECEIVED
NOV 9 1992
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

IN REPLY REFER TO

November 4, 1992

Regulatory Branch

Action ID. 199300088

Ms. Julie Hunkins, P.E.
Project Engineer
Planning and Environmental Branch
North Carolina Department of Transportation
Post Office Box 25601
Raleigh, North Carolina 27611

Dear Ms. Hankins:

This responds to your request for comments to the proposed replacement of Sunset Beach Bridge Number 189 on S.R. 1172 over the Atlantic Intracoastal Waterway at Sunset Beach, Brunswick County, North Carolina (State Project No. 8.2230101, TIP No. B-682). All comments pertain to the scoping presentation given on Wednesday, October 28, 1992.

Based on the description of the three potential alternative alignments, it would appear that construction of the new bridge along the current alignment of the existing bridge would be the least damaging practical alternative. Barring significant construction problems, we recommend that this alignment be used.

Mitigation for lost wetland resources, if any, would involve the replacement of coastal tidal marsh. There appears to be some potential in the immediate area to mitigate by removing existing to wetland elevations both on the bridge causeway and possibly within dredge spoil islands if they have been abandoned by the U.S. Army Corps of Engineers.

If the existing structure will be replaced by a bascule, it is recommended that it have sufficient clearance to minimize the need to open and close for waterway traffic and thereby limit interruptions to normal and emergency vehicular traffic to and from the island.

We look forward to reviewing and commenting on the Draft Environmental Impact Statement for this project. Please direct all future correspondence on this project to Mr. Rudolf Scheiner in my office. He can be contacted at telephone (919) 251-4629.

Sincerely yours,

Clifford Wayne Wright
Chief, Regulatory Branch

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9450 Koger Boulevard
St. Petersburg, FL 33702

October 8, 1992 F/SE071

RECEIVED
OCT 12 1992
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRA

Mr. L. J. Ward, P.E.
N. C. Department of Transportation
P. O. Box 25201
Raleigh, North Carolina 27611-5201

Attention Ms. Julie Hunkins

Dear Mr. Ward:

This responds to your letter dated September 16, 1992, requesting input into the development of an Environmental Impact Statement (EIS) for the proposed replacement of the NC 179 bridge to Sunset Beach, Brunswick County, North Carolina, by the N. C. Department of Transportation (NCDOT) (TIP No. B-682). The proposed replacement bridge would provide improved access to the island of Sunset Beach by crossing a section of the Atlantic Intracoastal Waterway. Wetlands impacted by this work support National Marine Fisheries Service trust resources. Fish and invertebrate species of commercial and recreational importance use the project area as spawning, nursery, and feeding habitat. Accordingly, we recommend that the environmental document prepared for this project address the following information needs and fishery related issues:

1. The EIS should describe alternative bridge alignments and designs considered. This should include a discussion of how each alternative would avoid and minimize direct and indirect losses of wetlands that support fisheries.

2. The EIS should describe the location and acreage of wetlands, including open water areas, potentially impacted by the proposed work. Vegetation species in these areas should be included.

3. The EIS should describe the fishery resources found in the project area and provide an assessment of the impacts of the project on these resources.

4. Bridge construction often requires filling for temporary access roads and/or excavation of canals for construction access. The EIS should address the impact on fisheries habitat of any temporary construction related wetland losses.

5. The alternative analysis and Section 404(b)(1) Guidelines compliance section of the EIS should demonstrate selection of the least damaging alternative consistent with project requirements.

6. The construction of a high rise bridge to Sunset Beach will be a substantial improvement over the existing access and thereby,

likely stimulate additional residential and commercial growth in Sunset Beach. The EIS should address the impact of secondary development resulting from bridge replacement on the waters and wetlands that surround Sunset Beach.

7. Wetland involvement and impacts should be avoided and minimized whenever possible. If unavoidable wetland losses are necessary, the EIS should provide a mitigation plan to compensate for these losses. This should be consistent with the mitigation Memorandum of Agreement between the U. S. Army Corps of Engineers and the U. S. Environmental Protection Agency. Unless compensation for wetland losses is incorporated as a part of the project, we will likely recommend against the issuance of a COE's Section 10/404 permit for the project.

The N. C. Division of Marine Fisheries and the N. C. Wildlife Resources Commission biologists are excellent sources of information concerning specific fishery resources in the project area. We encourage the NCDOT to address mitigation of fishery habitat losses early in the project planning process in accordance with the guidance in the joint federal publication Applying the Section 404 Permit Process to Federal-Aid Projects. A representative of the Beaufort Field Office is available to discuss NMFS concerns.

Sincerely yours,

for Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

cc: FWS, ATLA, GA
FWS, Raleigh, NC
EPA, ATLA, GA
NCDNRCD, Raleigh, NC
NCDNRCD, Morehead City, NC
F/SEO2
COE, Wilmington, NC

U.S. Department of Transportation
United States Coast Guard

Commander
Fifth Coast Guard District

Federal Building
431 Crawford Street
Portsmouth, VA 23704-5004
Staff Symbol: (obr)
Phone: (804) 398-6227

16590
26 Oct 92

Mr. L. J. Ward, P.E.
Manager
Planning and Environmental Branch
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Ward:

This is in response to your letter dated September 28, 1992, soliciting comments for the start of a new environmental study to be conducted for the replacement of the pontoon bridge across the Atlantic Intracoastal Waterway, mile 337.9, at Sunset Beach, North Carolina.

Coast Guard Bridge Permit (6-89-5) was issued May 5, 1989, approving the previous plans and location of the proposed replacement bridge; however, since construction of this bridge did not begin before May 5, 1992, the permit is no longer valid. You will be required to reapply for another permit for the proposed bridge.

As with all projects, our main concern is the impact the crossing will have on navigation at that location. All projects are reviewed to ensure adequate clearances for navigation are provided by the proposed structure. The Advance Notification Fact Sheet states two designs are being considered, a bascule and a fixed span bridge. If a fixed span bridge is the selected design, the navigational clearances must comply with the guide clearances established for fixed bridges across the Atlantic Intracoastal Waterway. The minimum vertical clearance is 65 feet at mean high water for fixed bridges, and the minimum horizontal clearance is 90 feet between piers/fender system for all bridge designs.

The Draft and Final Environmental Impact Statement should address the types (recreational, commercial, military, etc.) and sizes of navigation that transit the Atlantic Intracoastal Waterway within the vicinity of the proposed bridge. Commercial industry within the study area that depend on this waterway for their survival should be addressed and adjacent property owners identified. Impacts to the environment associated with the construction of the new bridge will be reviewed to ensure all Federal, State and local agencies concur with any mitigation measures needed to offset damage caused by the project.

16590
26 Oct 92

We appreciate the opportunity to be a part of the coordination study and to comment on this matter. If you should have any questions regarding this matter, please contact Ms. Gilliam at (804) 398-6227.

Sincerely,

ANN B. DEATON
Chief, Bridge Section
By direction of the Commander
Fifth Coast Guard District

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

TAKE PRIDE IN AMERICA

RECEIVED
NOV 10 1992
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

November 9, 1992

L.J. Ward, P.E.
Manager, Planning and Environmental Branch
Division of Highways
Department of Transportation
PO Box 25201
Raleigh, North Carolina
27611-5201

Attention: Julie Hunkins

Dear Mr. Ward:

Reference is made to your September 16, 1992, request for potential environmental impacts associated with the proposed replacement of bridge 189 on SR 1172 at Sunset Beach, Brunswick County, North Carolina. The Fish and Wildlife Service (Service) makes the following recommendations in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543).

Replacement of bridge 189 may adversely affect wetlands in the project vicinity. These are primarily saline marshes along both sides of SR 1172, south of the Atlantic Intracoastal Waterway. These marshes are of high fish and wildlife habitat value, and perform important water quality and land stabilization functions. The Service recommends the use of alternatives that avoid wetland impacts if at all possible. Any unavoidable wetland impacts should be reduced, and the fish and wildlife habitat value of affected wetlands should be compensated by suitable mitigation. Temporary, construction-related impacts, such as access routes or detours, should be restored to their original habitat.

Several endangered and threatened wildlife and plant species occur in Brunswick County (Attachment 1). Additionally, there are other species that are candidates for federal listing as endangered or threatened. The environmental analysis should address all possible impacts to these species and their habitats. The analysis should consider direct effects, as well as secondary, indirect impacts that may result from altered drainage patterns, induced development along the beach front, or any other effects. If any threatened or endangered species are likely to be affected, further coordination with this office will be required.

Of the listed species, the wood stork, sea turtles (especially the loggerhead sea turtle), shortnose sturgeon, and piping plover are the most likely species to occur within the project impact area. Please note that sea turtles, when in the water, and the shortnose sturgeon are under the jurisdiction of the National Marine Fisheries Service. That agency should be contacted concerning your responsibilities under Section 7 of the Endangered Species Act.

Based on the preliminary information available, adverse impacts to wetlands and Federally-listed species may be avoided or minimized by rehabilitating the existing structure (Alternative C3). The next preferable alternative would be the bascule bridge on existing alignment (Alternative C2). Of the new alignments, the western corridor might have the least impact <u>if</u> it were redesigned to tie-in to NC 179 at the shoreline of the Intracoastal Waterway so as to avoid bisecting the tract of woods across from the fire station. Based on our experience with other bridge replacement projects, the Service would expect a bascule bridge to have the least amount of wetland fill compared to any high-rise alternative.

Bridge 189 is located between two spoil disposal areas used for channel maintenance in the Intracoastal Waterway. Tides flow through openings only about 900 and 400 feet wide on either side of the existing alignment of SR 1172. Because of this relatively narrow tidal connection, any additional, or altered blockage of flow could have detrimental effects on adjacent saline marshes, and planning efforts should carefully consider this issue.

Increased fill associated with a relocated roadway or any temporary bypasses would restrict flows. Attenuated tidal exchange would be expected to increase the extent and duration of inundation, and thereby alter ratios of marsh to tidal flats, alter plant species composition, and possibly increase the area of open water. These effects would decrease the value of adjacent marshes for foraging wood storks and other shorebirds and wading birds. These impacts can be minimized or avoided by use of the center corridor, providing adequate hydrologic connections through any temporary access routes and detours, and by elevating bridge approaches on pilings especially if a new alignment is constructed.

The Service appreciates the opportunity to comment on this project. If you have any questions, please contact David Dell, Permits Coordinator for this office (919/856-4520).

Sincerely,

L.K. Mike Gantt
Supervisor

Attachment 1

REVISED OCTOBER 2, 1992
2 PAGES

Brunswick County

Green sea turtle (Chelonia mydas) - T
Shortnose sturgeon (Acipenser brevirostrum) - E
Florida manatee (Trichechus manatus) - E
Bald eagle (Haliaeetus leucocephalus) - E
Piping plover (Charadrius melodus) - T
~~Red-cockaded woodpecker (Picoides borealis) - E~~
Kemp's (Atlantic) ridley sea turtle (Lepidochelys kempii) - E
Arctic peregrine falcon (Falco peregrinus tundrius) - T
Wood stork (Mycteria americana) - E
Loggerhead sea turtle (Caretta caretta) - T
~~Rough-leaved loosestrife (Lysimachia asperulaefolia) - E~~
~~Cooley's meadowrue (Thalictrum cooleyi) - E~~
Eastern cougar (Felis concolor couguar) - E
Leatherback sea turtle (Dermochelys coriacea) - E
American alligator (Alligator mississippiensis - T S/A+

Sea turtles when "in the water" and the shortnose sturgeon are under the jurisdiction of the National Marine Fisheries Service and should be contacted concerning your agency's responsibilities under Section 7 of the Endangered species Act. Their address is:

National Marine Fisheries Service
U.S. Department of commerce
9450 Koger Boulevard
Duval Building
St. Petersburg, Florida 33702

REVISED OCTOBER 2, 1992

There are species which, although not now listed or officially proposed for listing as endangered or threatened, are under status review by the Service. These "Candidate"(C1 and C2) species are not legally protected under the Act, and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as threatened or endangered. We are providing the below list of candidate species which may occur within the project area for the purpose of giving you advance notification. These species may be listed in the future, at which time they will be protected under the Act. In the meantime, we would appreciate anything you might do for them.

Henslow's sparrow (Ammodramus henslowii) -C2
Bachman's sparrow (Aimophila aestivalis) - C2
Carolina crawfish frog (Rana areolata capito) - C2
Magnificent ramshorn snail (Planorbella magnifica) - C2
Rare skipper (Problema bulenta) - C2
Sea-beach amaranth (Amaranthus pumilus) - C2
Chapman's sedge (Carex chapmanii) - C2
Carolina grass-of-parnassus (Parnassia caroliniana) - C2
Awned meadowbeauty (Rhexia aristosa) - C2
Sun-facing coneflower (Rudbeckia heliopsidis) - C2
Carolina goldenrod (Solidago pulchra) - C2
Spring-flowering goldenrod (Solidago verna) - C2
Wireleaf dropseed (Sporobolus teretifolius) - C2
Carolina pygmy sunfish (Elassoma boehlkei) - C2
Savanna leadplant (Amorpha georgiana confusa) - C2
Savanna campylopus (Campylopus carolinae) - C2*
Harper's fringe rush (Fimbristylis perpusilla) - C2
Pondspice (Litsea aestivalis) - C2
Carolina bogmint (Macbridea caroliniana) - C2
Loose watermilfoil (Myriophyllum laxum - C2
Savanna cowbane (Oxypolis ternata - C2
Pineland plantain (Plantago sparsiflora) - C2
Carolina asphodel (Tofieldia glabra) - C2
Dune blue curls (Trichostema sp.) - C2
Pyxie moth (Agrotis buchholzi) - C2

+Threatened/Similarity of Appearance
*Indicates no specimen in at least 20 years from this county.

DIVISION OF PARKS AND RECREATION

October 12, 1992

MEMORANDUM

TO: Melba McGee

THROUGH: Stephen Hall

FROM: Harry LeGrand, Natural Heritage Program HL

SUBJECT: Notification of Bridge Replacement at Sunset Beach

REFERENCE: 93-0200

The Natural Heritage Program database contains a number of rare species locations in the vicinity of Sunset Beach. Many of these species are Federally listed as Endangered or Threatened. Though few if any of these would be directly impacted by the construction of a new bridge, many would be impacted secondarily by an increase in traffic flow and subsequent increase in people using the island of Sunset Beach and the beaches (proper) on the island.

The Federally Endangered wood stork (Mycteria americana) forages in the marshes and tidal flats in the vicinity of the bridge. Construction of the bridge and the increased traffic could drive the species away from Sunset Beach. The storks, generally about 30 per year, arrive in June and depart in September; most are immatures that have moved northward along the coast after having been fledged farther to the south.

Several rare species are closely tied with the beaches and sandy parts of the island. The Federally Threatened loggerhead turtle (Caretta caretta) nests on the beaches each summer. The Federally Threatened piping plover (Charadrius melodus) has nested on sand flats at Sunset Beach in the 1980's and might still breed there on occasions. The species is present on the beaches and inlet flats in migration and might overwinter on the island. The Federally Threatened peregrine falcon (Falco peregrinus) occurs mainly as a fall migrant. The seabeach amaranth (Amaranthus pumilus) is a plant that is Proposed Threatened by the U.S. Fish and Wildlife Service. It is present on the upper beach and sand flats at both the eastern and western ends of the island and would certainly be impacted secondarily by the project.

Sunset Beach is usually host to a breeding colony of colonial nesting waterbirds. State-listed species such as gull-billed tern (Sterna nilotica) (State Threatened) and black skimmer (Rynchops niger) (State Special Concern) often breed in the

passerina) is occasionally seen on the island; in fact, Sunset Beach is now the northernmost site on the Atlantic coast where the species is seen with any regularity.

The American alligator (Alligator mississippiensis), State Threatened and Federally listed as Threatened Due to Similarity of Appearance, is present in the Twin Lakes on the mainland near the existing bridge. The animals probably occur in the Intracoastal Waterway on occasions.

Because of the numerous rare species, particularly Federally listed species, present in the project area, the Natural Heritage Program recommends that an Environmental Impact Statement be prepared. This EIS should not only address primary impacts caused by the construction of the new bridge with the associated loss in wetlands, but also should address secondary impacts caused by the much heavier flow of traffic onto the island expected as a result of the new bridge.

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27604

James G. Martin, Governor
William W. Cobey, Jr., Secretary

OCT 1992
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SECRETARY'S OFFICE

October 12, 1992

A. Preston Howard, Jr., P.E.
Acting Director

MEMORANDUM

To: Monica Swihart MS → Melba McGee, Planning and Assessment

Through: for John Dorney REF

From: Eric Galamb EG

Subject: Water Quality Checklist for EA/EIS/Scoping Documents
Replace Sunset Bridge Over AIWW
Brunswick County
State Project DOT No. 6.503082, TIP #B-682
EHNR # 93-0200, DEM WQ # 6996

The Water Quality Section of the Division of Environmental Management requests that the following topics be discussed in the EA/EIS/Scoping documents:

A. If the COE determine that a new 404 permit is required for this project, then a new 401 Water Quality Certification will be needed.

B. Will borrow locations be in wetlands?

C. Identify the streams potentially impacted by the project. The stream classifications should be current.

D. Identify the linear feet of stream channelization/relocations. If the original stream banks were vegetated, it is requested that the channelized/relocated stream banks be revegetated.

E. Number of stream crossings.

F. Identify the stormwater controls (permanent and temporary) to be employed.

H. Please ensure that sediment and erosion control measures are not placed in wetlands.

I. Wetland Impacts

i) Identify the federal manual used for identifying and delineating jurisdictional wetlands.
ii) Have wetlands been avoided as much as possible?
iii) Have wetland impacts been minimized?
iv) Mitigation measures to compensate for habitat losses.
v) Wetland impacts by plant communities affected.
vi) Total wetland impacts.
vii) List the 401 General Certification numbers requested from DEM.

Written concurrence of 401 Water Quality Certification may be required for this project. Please be aware that 401 Certification may be denied if wetland impacts have not been avoided and minimized to the maximum extent practicable. Applications requesting coverage under our General Certification 14 or General Permit 31 will require written concurrence.

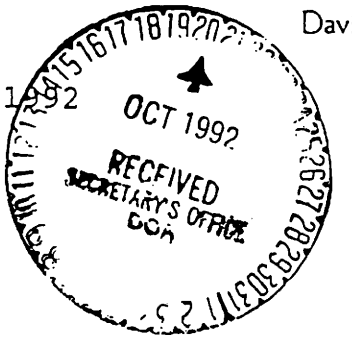
cc: Eric Galamb

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Soil and Water Conservation
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

David W. Sides
Director

October 8, 1992



MEMORANDUM

TO: Melba McGee

FROM: David Harrison DH

SUBJECT: Replacement of Sunset Beach Bridge on SR 1172 in Brunswick County. Project No. 93-0200.

The proposal is to replace the existing obsolete bridge. Commercial development has eliminated any unique, prime, or important farm land in the area. A wetlands evaluation should be included in the Environmental Assessment. Actions that minimize impacts are desired.

DH/tl

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Land Resources

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Charles H. Gardner
Director

PROJECT REVIEW COMMENTS

Project Number: 93-0200 County: BRUNSWICK

Project Name: BRIDGE REPLACEMENT

Geodetic Survey

_____ This project will impact ____ geodetic survey markers. N.C. Geodetic Survey should be contacted prior to construction at P.O. Box 27687, Raleigh, N.C. 27611 (919) 733-3836. Intentional destruction of geodetic monument is a violation of N.C. General Statute 102-4.

✓ This project will have no impact on geodetic survey markers.

_____ Other (comments attached)

For more information contact the Geodetic Survey office at (919) 733-3836.

Cliff Van Hoorn 9-29-92
Reviewer Date

Erosion and Sedimentation Control

_____ No comment

_____ This project will require approval of an erosion and sedimentation control plan prior to beginning any land-disturbing activity if more than one (1) acre will be disturbed.

✓ If an environmental document is required to satisfy Environmental Policy Act (SEPA) requirements, the document must be submitted as part of the erosion and sedimentation control plan.

✓ If any portion of the project is located within a High Quality Water Zone (HQW), as classified by the Division of Environmental Management, increased design standards for sediment and erosion control will apply.

✓ The erosion and sedimentation control plan required for this project should be prepared by the Department of Transportation under the erosion control program delegation to the Division of Highways from the North Carolina Sedimentation Control Commission.

_____ Other (comments attached)

For more information contact the Land Quality Section at (919) 733-4574.

David Wind 09/25/92
Reviewer Date

P.O. Box 27687 • Raleigh, N.C. 27611-7687 • Telephone (919) 733-3833

An Equal Opportunity Affirmative Action Employer

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Melba McGee, Planning and Assessment
Dept. of Environment, Health, & Natural Resources

FROM: for David L. Cox
Dennis Stewart, Manager
Habitat Conservation Program

Date: October 20, 1992

SUBJECT: Request for information from the N. C. Department of Transportation (NCDOT) regarding fish and wildlife concerns for replacement of Sunset Beach Bridge, Brunswick County, North Carolina, TIP No. B-682, SCH Project No. 93-0200.

This correspondence responds to a request from Mr. L. J. Ward of the NCDOT for our concerns regarding impacts on fish and wildlife resources resulting from the subject bridge replacement project. The N. C. Wildlife Resources Commission (NCWRC) has reviewed the proposed project, and our comments are provided in accordance with provisions of the N. C. Environmental Policy Act (G.S. 113A-1 et seq., as amended; 1 NCAC 25), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Comments on the previous environmental document (Dennis Stewart, January 31, 1986) were based on specific project alternatives presented at that time. Alternatives to be considered in the upcoming study include existing location and new location replacement options as well as a no-build alternative. While the anticipated environmental impacts may be minimized under the no-build or existing location replacement alternatives, replacement at a new location may result in significant impacts to fish and wildlife resources.

The environmental document should include complete inventories for wildlife and fisheries resources potentially affected by the project, including State and Federally listed rare, threatened, and endangered species. Information on listed species may be obtained from Randy Wilson, Nongame and Endangered

Species Program Manager, at (919) 733-7291. Study areas for such inventories should include, to the extent practicable, potential borrow sites and construction easements connected to the project. Cover type maps showing upland and wetland habitat impacted by the project should also be included, so that qualitative as well as quantitative impact comparisons may be made among alternatives. For alternatives which propose construction on new location, fragmentation effects on fish and wildlife habitat should be addressed.

The project proposal should address mitigation for avoiding, minimizing or compensating for direct and indirect degradation in habitat quality as well as quantitative losses. A preliminary plan for mitigating unavoidable wetland losses should also be included.

If we can further assist your office, please call David Yow, Highway Project Coordinator, at (919) 528-9887. Thank you for the opportunity to provide input in the early planning stages for this project.

DLS/DLY

cc Thomas Padgett, District 4 Wildlife Biologist
Keith Ashley, District 4 Fisheries Biologist
Randy Wilson, Nongame and Endangered Species Program Manager
Julie Hunkins, Project Engineer, NCDOT
David Yow, Highway Project Coordinator

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: L. J. Ward, Manager
Planning and Environmental Branch, NCDOT

FROM: Dennis Stewart, Manager
Habitat Conservation Program

Date: November 12, 1992

SUBJECT: Supplementary information for the N. C. Department of Transportation (NCDOT) regarding fish and wildlife concerns for replacement of Sunset Beach Bridge, Brunswick County, North Carolina, TIP No. B-682.

This correspondence supplements earlier comments (Dennis Stewart, October 20, 1992) regarding impacts on fish and wildlife resources resulting from the subject bridge replacement project. The N. C. Wildlife Resources Commission (NCWRC) received more detailed descriptions of the project alternatives during an on-site meeting on October 28, 1992. Our comments are provided in accordance with provisions of the N. C. Environmental Policy Act (G.S. 113A-1 et seq., as amended; 1 NCAC 25), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Project proposals include fixed and bascule bridge types on three alternative alignments (center, east, and west) as well as replacement of the existing bridge type. The NCWRC recognizes that the lack of off-site detour options presents significant challenges to bridge replacement at or near existing location. However, we recommend that the center alignment alternatives be fully evaluated in the environmental document.

Vertical clearances of the bascule type bridges should be evaluated to maximize continuous boating access. While the center alignment allows the least clearance, boating access will be a major factor in alternative selection. If bridge height is used to eliminate construction alternatives, the NCWRC recommends that the center alignment option for the bascule bridge be modified to improve vertical clearance prior to comparison with

other alternatives. While additional fill would be required to elevate the approaching roadways, the net wetland loss would likely be minimized by using the center alignment.

Since all project alternatives except replacement with a similar pontoon bridge will result in fill of wetlands, mitigation areas need to be identified. Abandoned causeway segments may provide some of the required acreage, and a small filled area adjacent to the existing causeway could also be restored to previous elevation. Preliminary plans for mitigation of wetland loss should be included in the upcoming environmental document.

The existing causeway on the island side of the bridge site is presently being used by local boaters for access to the Intracoastal Waterway and adjacent waters. While no state or federal agency is responsible for maintaining this access, all project alternatives will probably eliminate it. If boating access is reduced by project construction, an alternate boat launch area should be identified which would allow continuous access during and after project construction.

The NCWRC appreciates that secondary development impacts are being included in the project evaluation. Impacts of such development, particularly on nesting sea turtles, should be carefully examined in cooperation with appropriate environmental reviewing agencies. Assistance from NCWRC endangered species biologists may be coordinated through the office of Randy Wilson, Nongame and Endangered Species Program Manager, at (919) 733-7291.

If we can further assist your office, please call David Yow, Highway Project Coordinator, at (919) 528-9887. Thank you for the ongoing opportunity to provide input in the early planning stages for this project.

DLS/DLY

cc Thomas Padgett, District 4 Wildlife Biologist
Keith Ashley, District 4 Fisheries Biologist
Randy Wilson, Nongame and Endangered Species Program Manager
Julie Hunkins, Project Engineer, NCDOT
David Yow, Highway Project Coordinator

North Carolina Department of Cultural Resources

James G. Martin, Governor
Patric Dorsey, Secretary

Division of Archives and History
William S. Price, Jr., Director

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OCT 23 1992
DIVISION OF HIGHWAYS
ENVIRONMENTAL

October 20, 1992

MEMORANDUM

TO: L. J. Ward, P.E., Manager
Planning and Environmental Branch
Division of Highways
Department of Transportation

FROM: David Brook
Deputy State Historic Preservation Officer

SUBJECT: Replace Bridge No. 198 at Sunset Beach, Brunswick County, B-682, 8.2230101, CH 93-E-4220-0200, ER 93-7513

We have received information concerning the above project from the State Clearinghouse, as well as your memorandums of September 16 and 28, 1992.

We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area. However, given the past controversy surrounding this project, we would like updated information about Bridge No. 198 so that we can determine if the structure may be eligible for listing in the National Register. Photographs, a description, and a brief history of the bridge would be helpful. Also, what type of structure was in place (if any) before this bridge, and is this bridge the only one of its kind in the state?

There are no known National Register-eligible archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources which may be eligible for inclusion in the National Register of Historic Places will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 provides for the protection of wetlands as well as enhancements for all modes of transportation. Considering the commitment of ISTEA and the potential effects of this undertaking, the Federal Highway Administration and the North Carolina Department of Transportation have a good opportunity to investigate various designs and modes of transportation for the crossing of the Atlantic Intracoastal Waterway.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:slw

cc: State Clearinghouse
Nicholas Graf
B. Church

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201
RALEIGH 27611-5201

JAMES G. MARTIN
GOVERNOR

THOMAS J. HARRELSON
SECRETARY

PUBLIC TRANSPORTATION & RAIL DIVISION
POST OFFICE BOX 25201
919/733-4713

MEMORANDUM TO: Julie Hunkins
Planning and Environmental Branch

FROM: Paul Worley
State Rail Corridor Manager

SUBJECT: RESPONSE TO SCOPING REQUEST

The Public Transportation & Rail Division does not have any interest in the following project(s) that does not effect a railroad or rail corridor:

B-682

Thanks for your continued assistance in notifying us of these upcoming projects.

pw

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201
RALEIGH 27611-5201

JAMES G. MARTIN
GOVERNOR

THOMAS J. HARRELSON
SECRETARY

DIVISION OF HIGHWAYS

WILLIAM G. MARLEY, JR., P.E.
STATE HIGHWAY ADMINISTRATOR

RECEIVED
OCT 28 1992
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

October 26, 1992

STATE PROJECT: 8.2230101 (B-682)
COUNTY: Brunswick
DESCRIPTION: SR 1172, Bridge #198, Replace bridge over Intracoastal Waterway at Sunset Beach

SUBJECT: Geological Environmental Impact Study

INTRODUCTION

The new bridge over the Intracoastal Waterway will replace an existing Pontoon Drawbridge on SR 1172 between the mainland in Brunswick County and the island of Sunset Beach.

PHYSIOGRAPHY, RELIEF, AND DRAINAGE

The study area is situated along the southern boundary of the Tidewater Region of the Coastal Plain. The topography is relatively flat to gently sloping. Along the existing SR 1172 corridor, the relief generally increases with increasing elevation. Elevations in this area typically range from 20 to 25 feet.

GEOLOGY AND SOILS

The geologic map of North Carolina (1985) depicts this portion of the Coastal Plain as consisting of sandy silts and clays in the Quaternary Surfical Deposits and the Tertiary Waccamaw Formations. Soils within the project corridor consist mostly of moderately to well-drained soils. These soils are composed of AASHTO Soils Classifications A-1-b, A-2-4, A-3, and A-7-6 with minor traces of A-4 and A-6.

GROUNDWATER

Groundwater north of the channel typically lies at elevations of 8 to 13 feet below existing ground surfaces, and lies at 0-3 feet across the marsh on the island end of the bridge.

HAZARDOUS MATERIALS/UNDERGROUND STORAGE TANKS

A reconnaissance survey of the project corridor identified 3 sites which contain or have the potential for underground storage tanks (UST's). In a subsequent records search of the DEM/Groundwater Section, the following information was obtained:

Site No. 1

An abandoned one story business, which is on the west side of SR 1172, is located approximately 40 feet north of the intersection of Sunset Boulevard (SR 1172) and W. Canal Ave. One pump was observed on the premises by Geotechnical Unit personnel. The tank is estimated to be 500 gallons or less. The tank at this facility is located approximately 115 feet from the existing SR 1172 centerline. No information was available from the DEM/Groundwater Section regarding this site.

Site No. 2

Island Grocery, which is on the west side of SR 1172, is located approximately 45 feet south of the intersection of SR 1172 (Sunset Boulevard) and Shoreline Drive. Three UST's were observed on the premises by Geotechnical Unit personnel, and there is the possibility of a fourth abandoned tank. The tanks at this site are located approximately 75 feet from the existing SR 1172 centerline. No information was available from the DEM/Groundwater Section regarding this site.

Site No. 3

Bill's Seafood is located on the east side of SR 1172. Three pumps are located approximately 35 feet south of the intersection of Sunset Boulevard (SR 1172) and Shoreline Drive, and approximately 50 feet from the existing SR 1172 centerline. The tanks at this site are located above ground behind the facility. No information was available from the DEM/Groundwater Section regarding this site.

A files search of the Division of Solid Waste Management was also conducted to determine whether any known unregulated dumps

or other potentially contaminated sites were within the corridor. After reviewing these files and the DEM/Groundwater incident list, none of the known sites within the Brunswick County area were identified within the project corridor.

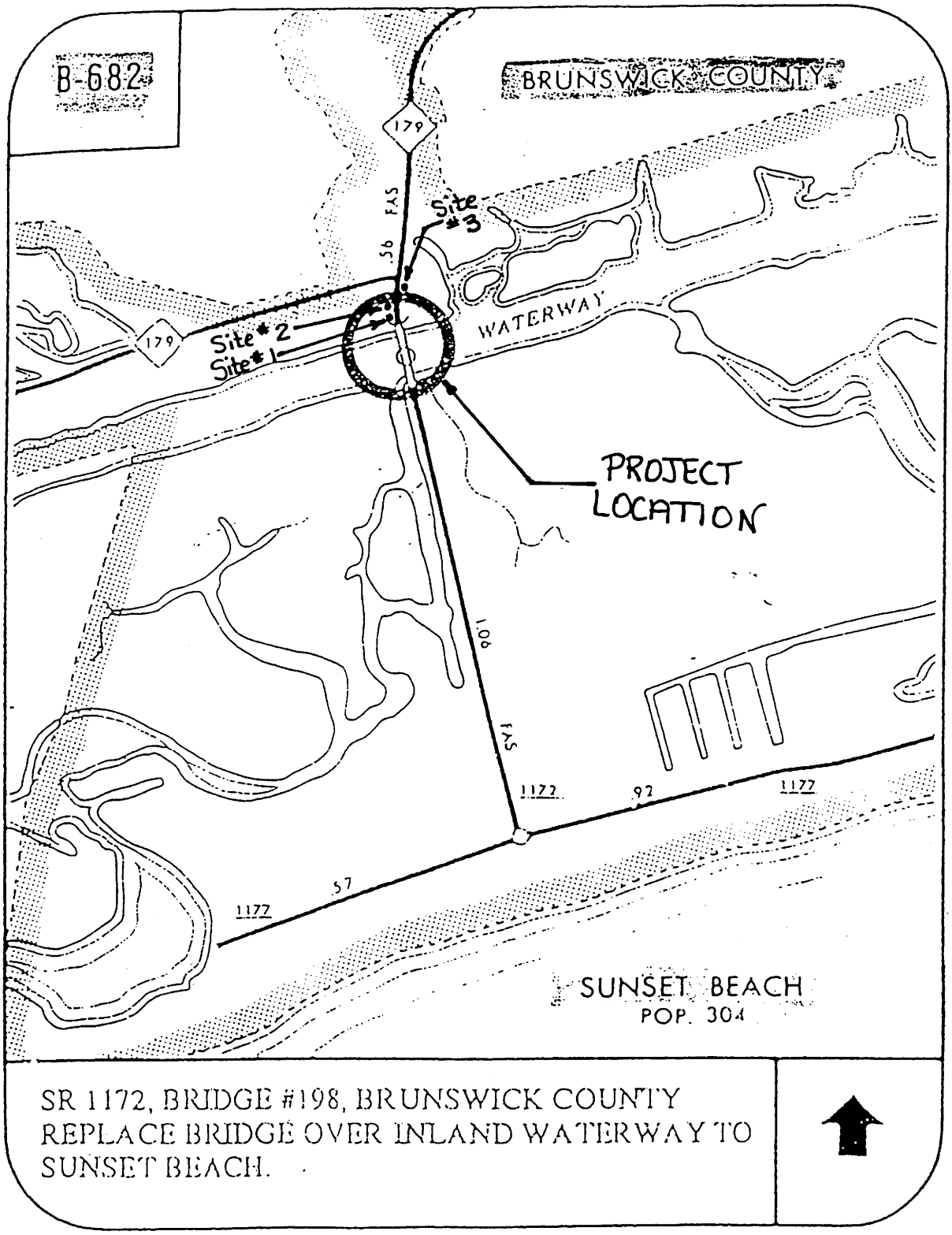
Respectfully submitted,

Lisa A. Sharp

Lisa A. Sharp
Assistant Environmental Geologist

LAS

Attachment



SR 1172, BRIDGE #198, BRUNSWICK COUNTY
REPLACE BRIDGE OVER INLAND WATERWAY TO SUNSET BEACH.

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Coastal Management
225 North McDowell Street • Raleigh, North Carolina 27602

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Roger N. Schecter
Director

TO: Melba McGee, Division of Planning & Assessment
FROM: Stephen B. Benton, NC Division of Coastal Management

SUBJECT: Review of SCH # 93-0200 DATE: 10/14/92

REVIEW COMMENTS:

___ Reviewer Comments Attached

___ This document is being reviewed for consistency with the NC Coastal Management Program. Please forward a copy of agency comments to us as they are received.

✓ A ✓ CAMA Permit or ___ Consistency Determination is/may be required for this project. Applicant should contact BOB STROUD in WILMINGTON phone no. 919 395 3900 for assistance.

___ Proposal is in draft form, a consistency response is inappropriate. A consistency determination should be included in the final document.

___ A ___ CAMA Permit or ___ Consistency Response has already been issued, or ___ is currently being reviewed under a separate circulation. Permit/Consistency No. _____ Date Issued _____.

___ Proposal involves < 20 acres or a structure < 60,000 sq.ft. and no AEC's or Land Use Plan problems.

___ Proposal not in the Coastal Area and will have no significant impacts on the Coastal Area.

___ Proposal is exempt from CAMA by statute. ___ Other (See attached)

CONSISTENCY POSITION:

___ The proposal is consistent with the NC Coastal Management Program provided that all State authorization and/or permit requirements are met prior to implementation of the project.

___ A consistency position will be developed based on our review on, or before _____.

___ The proposal is inconsistent with the NC Coastal Management Program.

✓ Not Applicable

___ Other (See attached)

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-2293

State of North Carolina
Department of Environment, Health, and Natural Resources

INTERGOVERNMENTAL REVIEW — PROJECT COMMENTS

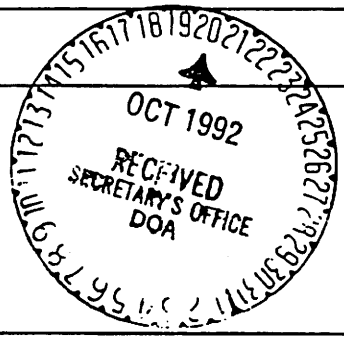
Reviewing Office: Wilmington	
Project Number: 93-0200	Due Date: 10-14-92

review of this project it has been determined that the EHNR permit(s) and/or approvals indicated may need to be obtained in r for this project to comply with North Carolina Law.

Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form.

All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
Permit to construct & operate wastewater treatment facilities, sewer system extensions, & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts On-site inspection. Post-application technical conference usual	30 days (90 days)
NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
Permit to construct & operate Air Pollution Abatement ilities and/or Emission Sources as per 15A NCAC 21H.0600	N/A	60 days (90 days)
y open burning associated with subject proposal must be in compliance with 15A NCAC 2D.0520.		
Demolition or renovations of structures containing asbestos material must be in compliance with 15A NCAC 2D.0525 which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-733-0820.	N/A	60 days (90 days)
Complex Source Permit required under 15A NCAC 2D.0800.		
The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Sect.) at least 30 days before beginning activity. A fee of $30 for the first acre and $20.00 for each additional acre or part must accompany the plan		20 days (30 days)
The Sedimentation Pollution Control Act of 1973 must be addressed with respect to the referenced Local Ordinance:		(30 days)
Mining Permit	On-site inspection usual. Surety bond filed with EHNR. Bond amount varies with type mine and number of acres of affected land. Any area mined greater than one acre must be permited. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.D. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
Oil Refining Facilities	N/A	90-120 days (N/A)
Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to EHNR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)



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Continued on reverse

APPENDIX F

PART III

AGENCY COMMENTS FOLLOWING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

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Federal Emergency Management Agency
Region IV
1371 Peachtree Street, NE, Suite 700
Atlanta, GA 30309

August 7, 1995

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
N.C. Division of Highways
P.O. Box 25201
Raleigh, North Carolina 27611-5201

RE: Draft Environmental Impact Statement
Brunswick County, North Carolina
Bridge Replacement on SR 1172 over
the Intercoastal Waterway at Sunset Beach

Dear Mr. Vick:

This is in response to the Draft Environmental Impact Statement we received August 2, 1995 for the above-referenced project.

Brunswick County, North Carolina is participating in the regular phase of the National Flood Insurance Program (NFIP). The County has 100-year floodplains delineated associated with coastal flooding and therefore, any developemnt in the floodplain must be in compliance with the NFIP regulations.

The agency in charge must ensure compliance with the floodplain management measures as enacted by the State of North Carolina. In this regard, it is imperative the agency coordinate closely with the appropriate staff in the Floodplain Management Section of the Division of Emergency Management.

If we can be of further assistance, please contact Ms. Bel Marquez at (404) 853-4436.

Sincerely,

Robert E. McBeth

Robert E. McBeth, Chief
Hazard Identification and
Risk Assessment Branch
Mitigation Division

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

REPLY TO
ATTENTION OF

June 29, 1995

Special Studies and
Flood Plain Services Section

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
North Carolina Division of Highways
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

This is in response to your letter of June 7, 1995, requesting our comments on the "Replacement of Bridge No. 198 on SR 1172 over Intracoastal Waterway in Sunset Beach, Brunswick County, Federal Aid Project BRS-1813(1), State Project No. 8.2230101, TIP No. B-682" (Regulatory Branch Action I.D. No. 199300088).

Our comments involve impacts to flood plains and jurisdictional resources, which include waters, wetlands, and U.S. Army Corps of Engineers projects. Enclosed are our comments on flood plains and Corps projects. Comments on waters and wetlands will be provided to you under separate cover by our Regulatory Branch. The point of contact in that office is Mr. Scott McLendon, who can be reached at (910) 251-4725.

We appreciate the opportunity to comment on this project. If we can be of further assistance, please contact us.

Sincerely,

William R. Dawson, P.E.
Chief, Engineering and
Planning Division

Enclosure

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U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT, COMMENTS ON:

"Replacement of Bridge No. 198 on SR 1172 over Intracoastal Waterway in Sunset Beach, Brunswick County, Federal Aid Project BRS-1813(1), State Project No. 8.2230101, TIP No. B-682" (Regulatory Branch Action I.D. No. 199300088)

1. FLOOD PLAINS: POC - Bobby L. Willis, Special Studies and Flood Plain Services Section, at (910) 251-4728.

Our comments on flood plains were provided to your office by letter dated October 19, 1992, a copy of which is contained in Appendix F, Part II, of the Preliminary Draft Environmental Impact Statement (PDEIS). From a review of Section 3.2.1.2 of the PDEIS, it appears that flood plain issues are discussed in reasonable detail. This includes reference to inadequacy of the present bridge for emergency access during major storm events. However, we would like to bring to your attention a few items for consideration in future revision of the document. The most recent revision to Panel 1 of the Sunset Beach Flood Insurance Rate Map (FIRM), which covers the bridge crossing, is August 1992 rather than April 1991, as stated in the last paragraph on page 3-30 of the PDEIS. Also, when comparing Exhibit 3.3 with the FIRM, there appears to be inconsistencies in the delineation and designation of the flood zones. We hope that these comments will be helpful in preparing the next phase of the document.

2. U.S. ARMY CORPS OF ENGINEERS PROJECTS: POC - Mr. Howard Varnam, Navigation Branch, at (910) 251-4411.

We do not have further comments beyond those provided in our letter dated October 19, 1992. If you have any questions relating to the Atlantic Intracoastal Waterway Project, please contact Mr. Varnam.

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

REPLY TO
ATTENTION OF

August 7, 1995

Regulatory Branch

Action ID No. 199300088, Replacement of Bridge No. 198 on SR 1172, T.I.P. No. B-682

Mr. Frank Vick
Planning and Environmental Branch
Division of Highways
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

Please reference your letter dated June 9, 1995, requesting comments on the preliminary Draft Environmental Impact Statement (DEIS) and Natural Systems Technical Memorandum for the above referenced project. The following comments should be considered in addition to those provided in our letter dated November 4, 1992.

According to the DEIS, the North Carolina Department of Transportation (DOT) is proposing to construct a new bridge to Sunset Beach and has selected three (3) reasonable and feasible alternatives for this project; two high level fixed span bridges (alternatives C-1 and W-1) and a mid-level (bascule) bridge (alternative C-4). According to the DEIS, alternative C-1, W-1, and C-4 would impact 1.54, 3.91 and 0.92 acres of waters and wetlands, respectively. Fill and dredging in surface waters associated with alternative W-1 total 2.75 acres and 0.17 acres with alternative C-1 and C-4.

Based on information provided in the document, construction of alternative C-1 along the current alignment of the existing bridge should be least damaging, practicable alternative, however, the following information should also be addressed prior to the selection of a preferred alternative.

1. NCDOT should assess impacts to the public access of the upper end of Slough Canal due to the relocation of NC 179.

2. A thorough assessment of construction related impacts should be provided. Specifically, impacts to wetlands associated with the installation of bridge bents and footings should be determined.

3. A more detailed identification of suitable wetland restoration, enhancement, or creation sites in the vicinity of the project should be provided.

4. More specific information regarding shading impacts and how they were determined should be provided.

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We appreciate the opportunity to comment on this project. Questions or comments may be addressed to Scott McLendon, Wilmington Field Office, Regulatory Branch, telephone (910) 251-4725.

Sincerely,

G. Wayne Wright
Chief, Regulatory Branch

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

REPLY TO
ATTENTION OF

September 29, 1995

Regulatory Branch

Action ID No. 199300088, Replacement of Bridge No. 198 on SR 1172,
T.I.P. No. B-682

Mr. Frank Vick
Planning and Environmental Branch
Division of Highways
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

Please reference our letter dated August 7, 1995, in which we offered comments relative to the North Carolina Department of Transportation's (DOT) proposal to replace Bridge 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach. We understand that DOT is in the process of completing the final Environmental Impact Statement (EIS) for this project.

Although we have no further comments to offer at this time, we would expect that our earlier comments would be fully addressed in the final EIS.

Questions may be addressed to Scott McLendon, Wilmington Field Office, Regulatory Branch, telephone (910) 251-4725.

Sincerely,

G. Wayne Wright
Chief, Regulatory Branch

Copy Furnished:

Mr. Nicholas L. Graf
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

July 21, 1995

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DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

Mr. H. Franklin Vick, P.E.
Planning and Environmental Branch
N.C. Department of Transportation
P.O. Box 25201
Raleigh, North Carolina 27611-5201

Attention Julie Hunkins

Dear Mr. Vick:

The National Marine Fisheries Service (NMFS) has reviewed the preliminary Draft Environmental Impact Statement (DEIS) and Natural Systems Technical Memorandum (NSTM) for the proposed replacement of Sunset Beach Bridge. The preliminary DEIS examines three alternatives for replacement of the bridge, which connects the mainland and island portions of the town of Sunset Beach, located in Brunswick County, North Carolina. The following comments are provided for your consideration.

General Comments

In our letter of October 8, 1992, NMFS identified several issues that need to be addressed by the environmental document prepared for this project. It appears that the preliminary DEIS addresses most of the issues we raised. However, the discussions of fishery resources and the impacts of the project on these resources are extremely brief.

Fishery resources: statements are made in both the DEIS and the NSTM that "It is likely that the small creeks and sounds provide foraging and spawning habitat for a number of commercially important finfish.". As is noted elsewhere in the document, the waters of the project area have been designated as "Primary Nursery Area" by the state of North Carolina. More detailed discussions of the commercial fisheries species that depend on the project area for foraging, spawning, and nursery habitat should be incorporated. Those species include summer flounder (Paralichthys dentatus), spotted seatrout (Cynoscion nebulosus), spot (Leiostomus xanthurus), shrimp (Penaeus sp.), and blue crab (Callinectes sapidus).

Impacts on fishery resources: the NSTM does not address impacts of project activities on fishery resources except the endangered shortnose sturgeon (Acipenser brevirostrum). Impacts of the

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proposed project on fishery resources that require analysis include: the impacts of permanent loss of wetlands and aquatic areas due to dredging and fill activities, the impacts of temporary increases in turbidity as a result of construction operations, and the impacts of re-aligning the channel of Big Narrows. An analysis of fishery resources impacts should take into consideration seasonal variations in fish populations (e.g. estuarine-dependent species) in the project area. The only statement concerning fishery resource impacts in the DEIS is: "The build alternatives . . . would have some impact to fisheries due to increased turbidity and siltation during bridge construction/ rehabilitation.". This statement is not an adequate characterization of the impacts of the proposed project on fishery resources.

The DEIS should also give some indication of the severity of fishery impacts and compare the impacts of the three alternatives, identifying which alternative will have the greatest and least impact.

Protected Species

Your letter of July 7, 1995, requested that this office concur with the document's biological conclusions concerning the impact of the three alternatives on shortnose sturgeon. We agree that the shortnose sturgeon is a likely inhabitant in the intracoastal waterway in the vicinity of the Sunset Beach Bridge. Due to the presence of this Federally-protected species and in accordance with the Endangered Species Act of 1973, as amended, consultation with our Protected Species Management Branch at the letterhead address must be initiated. Staff in the Protected Species Management Branch are responsible for reviewing the document's biological conclusions regarding shortnose sturgeon. If it is determined that these activities may adversely affect any species listed as endangered or threatened, then formal consultation may be required.

Specific Comments - DEIS

2.0 ALTERNATIVES
2.2 ALTERNATIVES CONSIDERED FOR FURTHER ANALYSIS
2.2.3 Construction Alternatives
2.2.3.5 Bridge Construction Methods

Page 2-15, paragraph 1. It is stated here and elsewhere in the document that because constructing the bridge piers using barge equipment would require extensive dredging, the piers would "most likely" be constructed using a top-down method. If there is a possibility that the piers could not be constructed using the top-down method, the DEIS should address the impacts associated with the extensive dredging that will be required if construction using barges is necessary.

2.3 TRAFFIC OPERATIONS AND COST ESTIMATES
2.3.3 Cost Estimates

Page 2-40, Table 2.9. The calculations on cost estimates do not include the costs associated with compensatory mitigation for the wetland impacts of each of the alternatives. Although precise estimates cannot be made until a mitigation plan is approved by the Corps of Engineers, a rough estimate should be possible based on the area of wetlands impacted and the cost of compensatory mitigation for similar impacts in North Carolina. Based on acreage impacted, the cost of compensatory mitigation would appear to be highest for alternative W1 and least for alternative C4.

4.2 IMPACTS TO THE PHYSICAL ENVIRONMENT
4.2.1 Hydrology
4.2.1.1 Navigable Waterways

Page 4.34, paragraph 6. The second sentence of this paragraph states that the U.S. Fish and Wildlife Service reviews Section 10 and Section 404 permits. Please note that the NMFS also reviews these permits and provides recommendations on minimizing impacts to living marine resources.

Specific Comments - NSTM

IV. ENVIRONMENTAL CONSEQUENCES
B. Water Resources
B.2 Specific Impacts
B.2.1 Alternative W1

Page 37, paragraph 2. Alternative W1 would require filling part of the current channel for Big Narrows and dredging a new channel alignment. The document discusses the possibility that the new channel might not be self-maintaining (as is the current channel) and the likelihood that if the channel migrates back to its original location, the drainage of the adjoining salt marsh and upland areas would be affected. In addition, sediment transport balances could be altered in the Atlantic Intracoastal Waterway itself. The document concludes that an estuary model and scour evaluation may be necessary to fully evaluate the impacts of this alternative. NMFS strongly concurs that hydrologic modeling of the proposed re-alignment of Big Narrows is essential to an adequate evaluation of the environmental consequences of alternative W1. The results of the modeling should be used to assess probable impacts on fishery resources that utilize Big Narrows and the adjacent salt marsh, and should be incorporated in any environmental document.

We appreciate the opportunity to provide these comments.

Sincerely,

for Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

cc: FWS, ATLA, GA
FWS, Raleigh, NC
EPA, ATLA, GA
NCDEHNR, Raleigh, NC
NCDEHNR, Morehead City, NC
F/SEO2
F/SEO13

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, Florida 33702

September 6, 1995

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Mr. H. Franklin Vick, P.E.
Planning and Environmental Branch
N.C. Department of Transportation
P. O. Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

The National Marine Fisheries Service (NMFS) has reviewed the Federal Draft Environmental Impact Statement (DEIS) for Replacement of Bridge No. 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach, Brunswick County, North Carolina, Federal-Aid Project No. BRS-1813(1), State Project No. 8.2230101, TIP No. B-682 dated July 1995. The DEIS examines three alternatives for replacement of the bridge which connects the mainland and island portions of the town of Sunset Beach. The following comments are provided for your consideration.

General Comments

In our July 21, 1995, comments on the Preliminary DEIS, we identified several issues that should have been addressed in any environmental document for this project. It appears that these comments were not considered since this DEIS is virtually identical to the Preliminary DEIS and our comments have not been incorporated. Our overall continuing concern is the document's lack of analysis of impacts on fishery resources from the dredging, wetland fill, channel re-alignment, and other activities associated with the proposed alternatives. Without such analysis, NMFS does not consider the document adequate in terms of meeting the requirements of the National Environmental Policy Act (NEPA) (Public Law 91-190).

Specific Comments

2.0 ALTERNATIVES
2.2 ALTERNATIVES CONSIDERED FOR FURTHER ANALYSIS
2.2.3 Construction Alternatives
2.2.3.5 Bridge Construction Methods

Page 2-15, last paragraph. The document states that construction methods would be determined after an alternative is selected. The available construction methods range from top-down construction to use of construction barges in a dredged channel. The former construction method would have the least impact on the aquatic environment while the latter method would have a

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greater impact. Because the construction method will have a significant effect on the overall environmental impacts of each alternative, the document should explicitly state the construction method assumptions that were used in the analysis of each alternative.

2.3 TRAFFIC OPERATIONS AND COST ESTIMATES
2.3.3 Cost Estimates

Page 2-42, Table 2.9. The calculations on cost estimates do not include the costs associated with compensatory mitigation for the wetland impacts of each of the alternatives. Although precise estimates cannot be made until a mitigation plan is approved by the Corps of Engineers, a rough estimate should be possible based on the area of wetlands impacted and the cost of compensatory mitigation for similar impacts in North Carolina.

3.3 EXISTING NATURAL ENVIRONMENT
3.3.2.3 Fisheries Resources

Page 3-55, paragraph 3. The document states that, "It is likely that the small creeks and sounds provide foraging and spawning habitat for a number of commercially important finfish." As is noted elsewhere in the document, the waters of the project area have been designated as a "Primary Nursery Area" by the State of North Carolina. More detailed discussions of the commercial and recreationally fisheries species that depend on the project area for foraging, spawning, and nursery habitat should be incorporated. The impact of the work on the area's primary nursery function also should be addressed.

4.2 IMPACTS TO THE PHYSICAL ENVIRONMENT
4.2.1 Hydrology
4.2.1.1 Navigable Waterways

Page 4-35, paragraph 6. The second sentence of this paragraph states that the U.S. Fish and Wildlife Service reviews Section 10 and Section 404 permits. Please note that the NMFS also reviews these permits and provides recommendations on minimizing impacts to fishery resources.

4.3 IMPACTS TO THE NATURAL ENVIRONMENT
4.3.2 Fisheries Resources

Page 4-61, paragraph 6. The only statement concerning fishery resource impacts in the DEIS is: "The build alternatives . . . would have some impact to fisheries due to increased turbidity and siltation during bridge construction/rehabilitation." This statement is not an adequate characterization of the impacts of the proposed project on fishery resources. Impacts of the proposed project on fishery resources that require analysis include: the impacts of permanent loss of wetlands and aquatic area due to dredging and fill activities; the impacts of temporary increases in turbidity as a result of construction operations; and the impacts of re-aligning the channel of Big Narrows. An analysis of fishery resource impacts should take into consideration seasonal variations in fish populations (e.g., estuarine-dependent species) in the project area.

The DEIS also should give some indication of the severity of fishery impacts and compare the impacts of the three alternatives, identifying which alternative will have the greatest and least impact on fishery resources.

We appreciate the opportunity to provide these comments.

Sincerely,

Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

United States Department of the Interior

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WASHINGTON, D.C. 20240

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ER-95/562

OCT 20 1995

Mr. Nicholas L. Graf
Division Administrator
Federal Highway Administrator
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601

Dear Mr. Graf:

This responds to the request for the Department of the Interior's comments on the Draft Environmental/Section 4(f) Evaluation for the replacement of a bridge on State Route 1172 over the Intercoastal Waterway at Sunset Beach, North Carolina.

SECTION 4(f) EVALUATION COMMENTS

Based on the information provided in the Draft Environmental Impact Statement (DEIS) and Section 4(f) Evaluation, we agree with the determination that the Atlantic Ocean Beach, a public parking lot which includes a gazebo and provides public beach access, and the other many public access easements in the vicinity of the proposed highway bridge fall under the protection of Section 4(f) of the Department of Transportation Act, as amended.

Information presented in the DEIS and Section 4(f) Evaluation indicate that none of the bridge construction alternatives, including the rehabilitation of the existing bridge should have significant primary or direct impacts on the Section 4(f) areas. Based on the information presented in the DEIS and Section 4(f) Evaluation, we would concur that the project would have no impacts on any Section 4(f) areas.

We would encourage the North Carolina Department of Transportation (NCDOT) to replace the boat ramp and provide some parking for this facility which is located in the existing highway right-of-way.

ENVIRONMENTAL STATEMENT COMMENTS

General Comments

The U.S. Fish and Wildlife Service (FWS) believes the range of alternatives considered for this project is adequate. The NCDOT is currently considering three build alternatives, one upgrade alternative, and the no-build (no-action) alternative. The DEIS does not indicate a preferred alternative. Based on information given in the DEIS, the upgrade alternative would have the least environmental impact, and the FWS recommends that the NCDOT carefully consider this option.

Additionally, the FWS believes that each of the three build alternatives would adversely impact important fish and wildlife habitat. Adverse impacts common to all build alternatives include placement of fill in a small amount of ecologically significant estuarine salt marsh and the clearing and filling of coastal fringe evergreen forest, a critically imperiled community located in

North Carolina. The FWS believes that these adverse impacts can be avoided or minimized by design features and construction techniques. To address these impacts, the FWS recommends bridging of salt marshes and the redesign of connecting roads on the mainland in the northern part of the project area.

Adverse impacts to the West Indian manatee (Trichechus manatus) could be minimized by limited in-water work from October through May.

Specific Comments

In its comments to the NCDOT of November 9, 1992, the FWS recommended the improvement of the existing facility, the construction of a new draw bridge on the existing alignment, or the use of the western alignment for new construction.

The DEIS addresses five alternatives. These are the no-build alternative, the rehabilitation alternative (Alternative C3R), and three alternatives for a new bridge. The new bridge alternatives are: (1) a high-level fixed span bridge about 250 feet west of the existing bridge (Alternative W1); (2) a high-level, fixed span bridge immediately east of the existing bridge (Alternative C1), or (3) a mid-level drawbridge immediately west of the existing bridge (Alternative C4).

Upland Communities

Table 4.11 (page 4-57) of the DEIS states that each of the build alternatives would impact areas of coastal fringe evergreen forest. This is an upland community dominated by loblolly pine (Pinus taeda), live oak (Quercus virginiana), and laurel oak (Quercus laurifolia). The North Carolina Natural Heritage Program has designated this community as S1, critically imperiled in the State because of extreme rarity or otherwise vulnerable to extinction. Impacts, both clearing and filling, to this community for Alternatives W1, C1, C4 and C3R are 1.95, 1.63, 0.46 and 0 acres, respectively. It is shown in Exhibit 3.6 that this community is only found in patches north of the Atlantic Intercoastal Waterway (AIWW) where the NCDOT has proposed connector roads in a new location. The FWS is opposed to any loss of this unique habitat. Therefore, the FWS recommends that either Alternative C3R be selected or the new construction north of the actual bridge be realigned to avoid this community.

Wetland Losses and Mitigation

The FWS's primary concerns about this project involve the direct loss of estuarine wetlands and the secondary adverse impacts which could occur if natural hydrological patterns are disrupted. A summary of the wetland impacts resulting from the four build alternatives is provided in Table 4.11 (page 4-57). Wetland habitats listed in this table include salt marsh and nonriverine wet hardwood forest.

Salt marshes in the project area are estuarine wetlands dominated by smooth cordgrass (Spartina alterniflora). The FWS agrees with the assessment in the DEIS (page 3-53) which states that a salt marsh "...is a highly productive system which provides feeding area, cover, and nursery for a variety of animals." Permanent losses of salt marsh, due to filling or dredging, for Alternatives W1, C1, C4, and C3R would be 0.68, 0.59, 0.67, and 0, respectively. The FWS does not consider areas which would be shaded by a new bridge to be permanent losses. The DEIS notes that salt marsh losses for Alterative C1 are based on the use of a top-down or similar bridge construction method. If such methods are not used, a work channel approximately 30 feet wide and 1,100 feet long would be dredged. This channel would impact 0.75 acres of salt marsh.

The FWS recommends that all losses of salt marsh habitat be avoided. Avoidance would involve the selection of Alternative C3R or use of bridging in all marsh areas. Construction should not require the dredging of work channels. If losses cannot be totally avoided, the NCDOT should use all available design feature and construction techniques to minimize losses. Salt marsh losses among the new bridge alternatives are similar. However, the extent to which additional bridging would reduce these losses is unclear. The DEIS states that the selection of Alternative W1 would "encroach on the Big Narrows Channel and that the use of this alternative would require the dredging of a new channel adjacent to the new bridge in order to maintain the navigable waterway. The FWS recommends that Alternative W1 be redesigned in such a manner that the new bridge would pass high enough over the Big Narrows Channel that small boat traffic could use the existing channel.

The only alternative which impacts nonriverine wet hardwood forests is C1. Based on Exhibit 3.6 this 0.27 acre loss is associated with the realignment of roads on the mainland side of the bridge. The FWS recommends that the NCDOT realign this connecting road in order to avoid impacting this wetland.

The proposed project may create an opportunity for restoring some salt marsh areas which are currently part of the SR 1172 causeway. If the NCDOT selects one of the new bridge options, bridging to elevate the roadway south of the AIWW may begin over 1,000 feet from the open water. Part of this area is currently used as the causeway for the existing bridge. The selection of a new bridge alternative would allow this causeway to the removed and restored to salt marsh. The restoration of this salt marsh would have a positive impact on natural hydrologic patterns in the project area. In its comments on this project to the U.S. Coast Guard on September 22, 1988, the FWS recommended that 2.6 acres of causeway could be removed and restored as compensation for unavoidable wetland losses. The FWS still strongly supports the restoration of salt marsh habitat.

ENDANGERED SPECIES ACT COMMENTS

On July 11, 1995, the FWS provided comments on the Preliminary DEIS pursuant to Section 7 of the Endangered Species Act, as amended. In the FWS response, it was noted that the West Indian manatee (Trichechus manatus) is the only species under the jurisdiction of the FWS which is likely to be affected by the project. The FWS stated that any risk to this federally-endangered mammal could be sufficiently minimized by limiting in-water construction activities to October through May. If work must occur during the period from June through September, the NCDOT should insure that manatee observers are present on the work site with the authority to take immediate precautionary measures if manatees are observed in the construction zone.

SUMMARY COMMENTS

The Department of the Interior concurs with the determination by the Federal Highway Administration that Section 4(f) does not apply to the alternatives presented.

As to project impacts on fish and wildlife resources, the FWS is concerned that the proposed project will adversely impact wetlands of high value to these resources. Based on the data provided in the DEIS, the rehabilitation of the existing bridge would result in the least environmental impacts. However, the FWS believes that NCDOT has the opportunity to redesign the new bridge alternatives in order to avoid or minimize adverse impacts to important coastal

habitats. Furthermore, the construction of a new bridge provides an excellent opportunity to restore salt marsh presently lost to the causeway of the existing bridge. In order to mitigate these losses, the FWS recommends the use of all feasible design and construction techniques and the implementation of a comprehensive plan of compensatory mitigation for unavoidable wetland losses.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance

cc: Mr. H. Franklin Vick
North Carolina Department
of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

23 SEP 88 14 45

September 22, 1988

Captain C. S. Park
Commander (ob)
Fifth Coast Guard District
431 Crawford Street
Portsmouth, VA 23704-5004

Dear Captain Park:

This is the report of the U.S. Fish and Wildlife Service and the Department of the Interior on the North Carolina Department of Transportation's application for a permit to construct a bridge at mile 337.9 on the Atlantic Intracoastal Waterway at Sunset Beach, Brunswick County, North Carolina (U.S. Coast Guard Public Notice 5-676). This report is submitted in accordance with provisions of the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e).

According to information provided in the Public Notice, the proposed project would cause the loss of approximately 1.10 acres of intertidal marsh. Based on our conversations with NCDOT staff, that acreage includes 0.6 acre of marsh dredged for a work canal and permanently converted to open water habitat and 0.5 acre of marsh permanently filled for bridge constuction. An additional 0.8 acre of marsh will be temporarily filled during construction, but this will be placed on protective mats and removed prior to project completion. Also, an approximately 0.4 acre freshwater pond will be permanently filled.

To compensate for project-related wetland losses, the applicant proposes to remove 2.6 acres of causeway fill from the existing bridge alignment and restore wetlands by planting with salt marsh vegetation. The Service finds this mitigation plan generally adequate and we commend NCDOT planners for their exemplary consideration of fish and wildlife resources. To ensure successful implementation of the proposed mitigation and to minimize distrubance of area fisheries resources during construction, we recommend that the following conditions be included in any permnit issued for the proposed project:

1. Approximately 2.6 acres of existing causeway fill will be removed to the elevation of the existing adjacent wetlands. This area will be planted with native wetland vegetation sufficient to restore 50 percent aerial ground cover after 2 complete growing seasons. If that amount of ground cover is not successfully achieved after 2 growing seasons, the restoration should be corrected to achieve

that degree of cover.

2. No excavation in waters or wetlands will be conducted during the period April 1 through September 30 of any year without prior approval from the North Carolina Division of Marine Fisheries.

The Service appreciates the opportunity to provide these comments. We are available to discuss our comments and recommendations upon request.

Sincerely yours,

David H. Rackley

for L. K. Mike Gantt
Supervisor

U.S. Department of Transportation
United States Coast Guard

Commander
Fifth Coast Guard District

Federal Building
431 Crawford Street
Portsmouth, VA 23704-5004
Staff Symbol: (obl)
Phone: (804) 398-6227

16590
29 Jun 95

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

This is in response to your letter dated June 7, 1995, requesting our review of the Draft Environmental Impact Statement (DEIS) for the proposed project across the Atlantic Intracoastal Waterway (AICW) at Sunset Beach, North Carolina.

The DEIS has been reviewed by my Bridge Staff. It appears all of the alternatives provide for the reasonable needs of navigation that transit the Atlantic Intracoastal Waterway. As stated in the DEIS, Alternate C1 will be the only alignment crossing two waterways, the AICW and Slough Creek. At this time, the Coast Guard cannot endorse Alternate C1. We are concerned with the navigational clearance proposed for the new bridge across Slough Creek that will offer a vertical clearance of 4 feet at mean high water. We feel this will prohibit recreational boaters who currently transit this creek from traveling the last 200 feet to obtain supplies and visit the seafood restaurants. Also of concern, is the economic impact the proposed low clearance would have on the two restaurants located at the end of Slough Creek and the shrimp and fishing vessels that presently make seafood deliveries to these restaurants.

Even though at this time we find Alternate C1 unacceptable, positive public opinion from affected waterway users could alter our decision. Please keep in mind that the Coast Guard is the only Federal agency that ensures bridges across navigable waters of the United States do not impede waterway traffic. We are especially sensitive to the commercial waterway operators who use these waterways as part of their livelihood.

In response to your invitation to hold a joint public hearing, we do not feel a need to participate at this time.

We appreciate the opportunity to provide comments on the Draft Environmental Impact Statement. If you should have any

questions, please contact Ms. Linda Gilliam, Bridge Management Specialist, at (804) 398-6227.

Sincerely,

ANN B. DEATON
Chief, Bridge Section
By direction of the Commander
Fifth Coast Guard District

U.S. Department of Transportation
United States Coast Guard

Commander
Fifth Coast Guard District

Federal Building
431 Crawford Street
Portsmouth, VA 23704-5004
Staff Symbol: (dl)
Phone: (804) 398-6227

16590
28 Sep 95

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

This is in response to your letter dated July 25, 1995, requesting our review of the Draft Environmental Impact Statement (DEIS) for the proposed project across the Atlantic Intracoastal Waterway (AICW) at Sunset Beach, North Carolina.

The comments that were provided to you in our letter dated June 29, 1995, on the Preliminary DEIS and Alternate C1 remain the same. As stated in our letter, we currently cannot endorse Alternate C1 from a navigational standpoint since part of the project will involve crossing Slough Creek restricting navigation from transitting the last 200 feet of the creek. However, if we receive additional information that vessel operators and businesses directly affected by this proposal have no objection to Alternate C1, we will withdraw our tentative objection to the proposed crossing of Slough Creek.

Once again, we appreciate the opportunity to provide comments on the DEIS. The point of contact for this project is Ms. Linda Gilliam, Bridge Management Specialist, at (804) 398-6227.

Sincerely,

ANN B. DEATON
Chief, Bridge Section
By direction of the Commander
Fifth Coast Guard District

RECEIVED
OCT 04 1995
DIVISION OF HIGHWAYS
ENVIRONMENTAL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

SEP 19 1995

RECEIVED
SEP 22 1995
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL

Mr. H. Franklin Vick
Manager, Planning and Environmental Branch
Division of Highways
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, North Carolina 27611-5201

Subject: Replacement of Bridge No. 198 S.R. 1172 Sunset Beach, Brunswick County - Draft Environmental Impact Statement T.I.P. No. B-682 (D-FHW-E40760-NC)

Dear Mr. Vick:

The subject document has been reviewed by EPA Region 4 in accordance with Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act. The proposed action is the replacement of a single-lane, floating barge, swing-span bridge across the Intracoastal Waterway (ICW). The evaluated build alternatives include high, fixed-span bridges, low and mid-height bascule draw bridges and rehabilitating the present bridge, in addition to no-build alternatives. A preferred alternative is not identified in the Draft EIS.

The document presents valid safety reasons for improving the bridge access to Sunset Beach, although EPA questions the appropriateness of providing federal assistance which would benefit and promote habitation on a storm-prone barrier island. Notwithstanding this question, EPA favors Alternative C4, a 30-foot high bascule bridge. This alternative minimizes the impacts to land and water resources and would best balance highway and marine transportation needs and protection of environmental resources and the community's visual character. Our specific comments are presented below.

Purpose and Need

A major benefit defined in the document of a permanent structure is the safety afforded to persons on the island by minimizing the isolation created when the present bridge is impassable. Usually highway safety is also expected to improve. We note the excellent road safety of this bridge and adjacent sections of SR 1172 compared to comparable roads in the state. It is likely, however, the accident rate and accident severity would increase with a new bridge due to increased speeds. This might be mitigated somewhat by imposing a very slow speed limit on the bridge and approaches.

Water Quality

Alternative C4 is superior to the other build alternatives. Requiring the least upland areal (4.6 acres) disturbance, C4 would lessen the erosion and sedimentation impact to these waters which are designated High Quality Waters (HQW) and also a Primary Estuarine Nursery Area (PNA). The project area is also designated for shellfishing (SA) and subject to state anti-degradation policies. Alternative C4 would avoid disturbance to Big Narrows and the adjacent salt marsh thus preserving the present hydrology of this channel that is utilized for water recreation and potential shellfishing.

Alternative W1, a high-rise bridge on new alignment to the west of the present bridge, presents significantly greater aquatic impacts than other alternatives, by relocating Big Narrows and disturbing adjacent wetlands. Alternative C1, a high-rise bridge on the approximate alignment as C4 and the present bridge, presents additional water quality and aquatic impacts by requiring the bridging of Slough Canal, a creek at the mainland.

While construction impacts will lessen with time, the long-term operational impacts to the surface waters and wetlands that dominate the project area present a problem for effective mitigation and project implementation. It is stated in the Draft EIS that potential long-term operational impacts to water quality are unavoidable because there are no suitable areas within which to treat pollutant runoff from the bridge and road. Nevertheless, there is good reason for requiring nonpoint source pollution (NPS) abatement since these ORW/PNA/SA waters have exceeded standards during the 1983-93 period of monitoring. These waters are currently closed to shellfishing. Without pollution abatement, full attainment with designated uses is not likely. Accordingly, we request that the Final EIS address in detail all NPS treatment alternatives including measures which would have only partial treatment capacity, and to also address off-site compensatory abatement of NPS presently impacting these waters.

Watersheds with these formal designations require stringent controls on pollutants. Because it is anticipated that greater traffic loads would result in greater pollutant runoff to these waters, it is uncertain whether any project to handle greater traffic is consistent with state water quality criteria without complete avoidance or compensation of the adverse impacts.

The document did not present an adequate conceptual plan for mitigating wetland losses. This could have been done despite not knowing the selected alternative and precise impacts. We think merely converting a portion of Big Narrows to salt marsh, as is suggested, is inappropriate since it is not likely to be done on a large enough scale to make it a measurable benefit to the environment or be practical to manage long-term.

Bridge Construction Methods

There are important differences amongst the alternatives which would occur from the methods selected. Alternative C4, other than the rehabilitation alternative, would result in less disturbance of wetlands since it is nearly on the present footprint of SR 1172. Likewise, C1 is on this same alignment but would require temporary parallel work access roads over land and aquatic areas. Compared to the other two build alternatives, W1 would adversely impact far greater areas for accessing the construction. C4 has the further benefit of requiring less fill and fewer piers; and these new piers would only be on land and in the ICW. We suggest avoiding any technique involving dredging channels or canals to access construction.

For a bridge project in planning since 1979, the construction techniques are quite vague and in one case misleading. The top-down technique, an environmentally sound but more costly technique, is identified as possible but limited to spans between 50 and 70-feet. The proposed 90-feet spans between supports requires an even costlier modified technique. We question whether this technique is really under consideration and therefore suggest shorter spans in the design to make top-down technique practical. Also, the differences between alternatives in the amount of excavated material to be disposed of and the quantity of fill required should have been presented.

Land Use

We note the continuing public debate about the possible socio-economic changes a new bridge may cause to the island community which is estimated to be 60% developed. We applaud the effort to study the changes in development patterns on nearby Holden and Ocean Isle barrier island communities before and after high-rise bridge construction. The EIS concludes that the impacts, including changes in the rate and character of future development of the island of Sunset Beach, would be marginal. Nevertheless, improving access is likely to produce greater traffic volumes on and to the island thereby altering present vehicular movement and the character of island life.

We also note that Alternative C4 would be more compatible to bike and pedestrian traffic by the bridge's reduced slope and better access. Since the Town of Sunset Beach occupies both sides of the ICW, this may be an important feature to the community.

Noise Impacts

A comprehensive analysis of the impacts and abatement feasibility is presented. While anticipated noise levels of Alternatives C1 and W1 approach or exceed FHWA criteria for multiple sensitive receptors,

Alternative C4 would avoid such impacts. The impacts of C1 and W1 were found to exceed the cost-effectiveness criterion for instituting abatement measures, meaning no mitigation would be implemented. The mid-level bridge (Alternative C4) is preferred for these reasons.

Summary of Comments

This Draft EIS assesses the impacts of a reasonable range of construction and non-construction alternatives for the transportation project. EPA is assigning a numeric rating of "2" to this Draft EIS, meaning additional information is needed to fully define the anticipated impacts to water quality and wetlands long-term. There needs to be a more complete assessment of NPS abatement measures as well as a mitigation plan for anticipated wetlands losses.

A preferred alternative has not been identified. We believe Alternative C4 is superior to the other new-bridge alternatives and it appears to meet the criteria of Clean Water Act Section 404(b)(1). These Guidelines require selection of the practicable alternative that maximizes avoidance of impact to wetlands. Alternative C4 also would result in the least water quality, noise, land disturbance and socio-economic impacts. Accordingly, we are rating this alternative "EC" meaning that we have environmental concerns that can be mitigated satisfactorily. We are assigning a rating of "EO" (Environmental Objections) to Alternatives C1 and W1 because these options present unnecessarily greater impacts to the coastal environment, and should be avoided due to the high quality criteria designations of the aquatic resources of the project area. Alternative C3, rehabilitation of the present pontoon bridge, is assigned a rating of "LO." We do not have any reservations about the environmental acceptability of this alternative.

Thank you for providing us the opportunity to review the Draft EIS. If you have questions about our comments, Mr. Ted Bisterfeld on my staff should be contacted at 404/347-3776.

Sincerely,

Heinz Mueller

Heinz J. Mueller
Chief, Environmental Policy Section

cc: Roy Shelton, FHWA Raleigh
Melba McGee, NCDEHNR
MIke Gantt, USFWS Raleigh Field Office

North Carolina Department of Cultural Resources

James B. Hunt, Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
William S. Price, Jr., Director

August 28, 1995

MEMORANDUM

TO: H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
Division of Highways
Department of Transportation

FROM: David Brook psc for David Brook
Deputy State Historic Preservation Officer

SUBJECT: Replacement of Bridge 198 on SR 1172 over Intracoastal Waterway at Sunset Beach, Federal-Aid Project BRS-1813(1), State Project 8.2230101, TIP B-682, 96-E-4220-0110

We have received the Draft Environmental Impact Statement (DEIS) and Draft Section 4(f) Evaluation concerning the above project from the State Clearinghouse.

The DEIS makes the recommendation that if Alternative W1 is selected as the route for the bridge replacement, additional archaeological testing be conducted at archaeological site 31BW65. In addition, the DEIS states that whereas site 31BW65 warrants additional investigation it will not require preservation in place. After review of the DEIS, we concur with the recommendations concerning site 31BW65.

We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:slw

cc: N. Graf
B. Church
T. Padgett

109 East Jones Street • Raleigh, North Carolina 27601-2807

State of North Carolina
Department of Environment,
Health and Natural Resources

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary

DEHNR

David B. Foster, Director
Highway Environmental Evaluation Program

October 2, 1995

MEMORANDUM

TO: Chrys Baggett

FROM: David B. Foster

SUBJECT: **North Carolina Department of Transportation (NCDOT) Draft Environmental Impact statement and Draft Section 4(f) Evaluation for replacement of Bridge No. 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach, Brunswick County, North Carolina, TIP # B-682, SCH # 96-0110**

The Department of Environment, Health, and Natural Resources (DEHNR) has reviewed the subject document and the comments of our agencies are attached. The comments from our agencies cover a number of concerns that should be addressed prior to the issuance of the final document. In order to avoid possible delays, please coordinate with our agencies to adequately address their concerns prior to the final document.

We look forward to our continued involvement with you on this project.

cc. Melba McGee, DEHNR

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OCT 2 1995
N.C. STATE CLEARINGHOUSE

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State of North Carolina
Department of Environment, Health, and Natural Resources

ERGOVERNMENTAL REVIEW — PROJECT COMMENTS

Reviewing Office: Wilmington	
Project Number: 96-0110	Due Date: 9/12/95

review of this project it has been determined that the EHNR permit(s) and/or approvals indicated may need to be obtained in for this project to comply with North Carolina Law.
ns regarding these permits should be addressed to the Regional Office indicated on the reverse of the form.
ications, information and guidelines relative to these plans and permits are available from the same onal Office.

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
it to construct & operate wastewater treatment ties, sewer system extensions, & sewer s not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts On-site inspection. Post-application technical conference usual	30 days (90 days)
ES - permit to discharge into surface water and/or it to operate and construct wastewater facilities ging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time. 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
ige and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
nit to construct & operate Air Pollution Abatement ities and/or Emission Sources as per 15A NCAC 21H.0600	N/A	60 days (90 days)
en burning associated with subject proposal it be in compliance with 15A NCAC 2D.0520.	N/A	60 days (90 days)
tion or renovations of structures containing os material must be in compliance with 15A 2D.0525 which requires notification and removal r to demolition. Contact Asbestos Control Group -733-0820.		
ex Source Permit required under 15A NCAC 2D.0800.		
Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation trol plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Sect.) at least 30 efore beginning activity. A fee of $30 for the first acre and $20.00 for each additional acre or part must accompany the plan		20 days (30 days)
dimentation Pollution Control Act of 1973 must be addressed with respect to the referrenced Local Ordinance:		(30 days)
Permit	On-site inspection usual. Surety bond filed with EHNR. Bond amount varies with type mine and number of acres of affected land Any area mined greater than one acre must be permited. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
rth Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
ecial Ground Clearance Burning Permit - 22 unties in coastal N.C. with organic soils	On-site inspection by N.D. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
Ref Facilities	N/A	90-120 days (N/A)
m Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans. inspect construction. certify construction is according to EHNR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a	30 days (60 days)

F-III, 2

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
rmit to drill exploratory oil or gas well	File surety bond of $5,000 with EHNR running to State of N.C. conditional that any well opened by drill operator shall, upon abandonment, be plugged according to EHNR rules and regulations.	10 days (N/A)
ophysical Exploration Permit	Application filed with EHNR at least 10 days prior to issue of permit Application by letter. No standard application form.	10 days (N/A)
ate Lakes Construction Permit	Application fee based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days (N/A)
1 Water Quality Certification	N/A	60 days (130 days)
AMA Permit for MAJOR development	$250.00 fee must accompany application	55 days (150 days)
AMA Permit for MINOR development	$50.00 fee must accompany application	22 days (25 days)
veral geodetic monuments are located in or near the project area. If any monuments need to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687, Raleigh, N.C. 27611		
andonment of any wells, if required, must be in accordance with Title 15A, Subchapter 2C.0100.		
tification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
mpliance with 15A NCAC 2H.1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
her comments (attach additional pages as necessary, being certain to cite comment authority):		

REGIONAL OFFICES

uestions regarding these permits should be addressed to the Regional Office marked below.

☐ Asheville Regional Office
59 Woodfin Place
Asheville, NC 28801
(704) 251-6208

☐ Fayetteville Regional Office
Suite 714 Wachovia Building
Fayetteville, NC 28301
(919) 486-1541

☐ Mooresville Regional Office
919 North Main Street, P.O. Box 950
Mooresville, NC 28115
(704) 663-1699

☐ Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 733-2314

☐ Washington Regional Office
1424 Carolina Avenue
Washington, NC 27889
(919) 946-6481

☐ Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(919) 395-3900

☐ Winston-Salem Regional Office
8025 North Point Blvd.

State of North Carolina
Department of Environment,
Health and Natural Resources
sion of Coastal Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
Roger N. Schecter, Director

DEHNR

MEMORANDUM

TO: Melba McGee, NC Division of Policy and Development
FROM: Steve Benton, NC Division of Coastal Management

SUBJECT: Review of SCH # 96 - 0110. DATE: 8/22/95

___ A Copy of All Comments Received by the SCH is Requested

✓ Reviewer Comments Attached

Review Comments:

This document is being reviewed for consistency with the NC Coastal Management Program pursuant to federal law and/or NC Executive Order 15. Agency comments received by SCH are needed to develop the State's consistency position.
Project Review Number (if different from above) _____.
A Consistency position will be developed based on our review on or before _____.

A Consistency Determination document ___is, or ___may be required for this project. Applicant should contact Steve Benton or Caroline Bellis in Raleigh, phone # (919) 733-2293, for information on the proper document format and applicable state guidelines and local land use plan policies.

Proposal is in draft form, a consistency response is inappropriate. A Consistency Determination should be included in the final document.

A Consistency Determination document (pursuant to federal law and/or NC Executive Order 15) is not required.
___ A consistency response has already been issued.
Project No. _____. Date issued _____.
___ Proposal involves < 20 Acres or a structure < 60,000 Sq. Feet and no AEC's or Land Use Plan Problems.
___ Proposal is not in the Coastal Area and will have no significant impacts on any land or water use or natural resource of the Coastal Area.

✓ A CAMA Permit ✓ is, or ___may be required for all or part of this project proposal. Applicant should contact Bob Stroud in Wilmington, phone # 910-395-3900, for information.

___ A CAMA Permit ___has already been issued, or ___ is currently being reviewed under separate circulation.
Permit No. _____. Date issued _____.

___ Other (see attached).

State of North Carolina Consistency Position:

___ The proposal is consistent with the NC Coastal Management Program provided that all conditions are adhered to and that all state authorization and/or permit requirements are met prior to implementation of the project.

___ The proposal is inconsistent with the NC Coastal Management Program.

___ Other (see attached)

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-2293 FAX 919-733-1495
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DEHNR

MEMORANDUM

TO: Stephen B. Benton
Consistency Coordinator

FROM: Zoé D. Bruner, District Planner

SUBJECT: SCH96-0110, Replacement Bridge No 198, Sunset Beach

DATE: August 17, 1995

The following comments are based on my understanding of the policies in the Town of Sunset Beach 1992 Land Use Plan and my review of SCH96-0110.

LAND USE CLASSIFICATION: Conservation, Developed

CLASSIFICATION DESCRIPTION:

RELATED POLICIES AND IMPLEMENTATION MEASURES:

Resource Protection

Coastal Wetlands: In some instances, it may be necessary and in the public interest for roads to transverse wetland areas. Where this is absolutely necessary, state and federal regulations may allow such with certain safeguards and/or mitigation measures.(p.52)

Public Trust Areas: ...Projects which would directly or indirectly block or impair navigation channels, increase shoreline erosion, deposit spoils below mean high tide, cause adverse water circulation patterns, violate water quality standards, or cause degradation of shellfish waters shall not be allowed.

For the Town of Sunset Beach, a navigational channel will be defined as any water channel which is passable by boats during high tide. Permanent obstruction of these navigational channels will not be allowed. Improvements such as bridges and docks must be built to allow boating access.(p.53)

Capacity of Existing Facilities and Local Commitment to Providing Services for Development

(4) To promote public safety, the Town of Sunset Beach supports improved bridge access to the island. As stated in a resolution passed on October 11, 1993, the Town Council of Sunset Beach supports the planning efforts of the North Carolina Department of Transportation to provide better access to the island and requests that "the recommended renovation of the bridge or other measures to facilitate improved better safety conditions be accomplished as expeditiously as possible.

Bicycle Traffic Improvements

The Town of Sunset Beach supports the provision of bicycle improvements along NC 179 and SR 1172 in order to promote bicycling as an alternative means of transportation, improve bicycle safety, reduce the demand for vehicular parking, increase recreational activities, support the local tourist economy, protect the environment, and conserve energy resources... (p.73A)

Storm Hazard Mitigation

Evacuation: *Implementation* - Town officials and many town residents contend that the one-lane drawbridge may be a major obstacle for the safe evacuation of the island. Town officials continue to support the efforts of the NC Department of Transportation to provide better and more reliable bridge access to the island. (p. 77)

CONSISTENCY OPINION:

The Town of Sunset Beach 1995 Land Use Plan Update supports improved access to the island. The text of the plan describes local controversy about the preferred form of improved access. In 1992, the town was equally divided in preference for maintenance vs. new construction.

Plan policy supports protection of coastal wetlands. When wetlands must be crossed by roads, mitigation is required.

Navigable public trust waters may not be obstructed.

The inclusion of bicycle lanes in road improvements and/or new construction is encouraged.

This project will be consistent with the Plan if the following conditions are met:

1. Mitigation provisions will be made for coastal wetlands lost or damaged by construction of the bridge and/or approach roads.

2. The navigable waters of Slough Creek will not be obstructed.

3. Bridge improvement and/or replacement will include bicycle lanes for safety and to encourage alternate transportation use.

4. Applicable requirements of local ordinance will be met.

cc: L. Fluegel, Town Manager
CR Stroud, Jr.

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Inter-Agency Project Review Response

Project Number
96-0110

County
Brunswick

EIS-

ject Name NCDOT

Type of Project replacement of bridge 198 on SR 1172

☐ The applicant should be advised that plans and specifications for all water system improvements must be approved by the Division of Environmental Health prior to the award of a contract or the initiation of construction (as required by 15A NCAC 18C .0300 et. seq.). For information, contact the Public Water Supply Section, (919) 733-2460.

☐ This project will be classified as a non-community public water supply and must comply with state and federal drinking water monitoring requirements. For more information the applicant should contact the Public Water Supply Section, (919) 733-2321.

☐ If this project is constructed as proposed, we will recommend closure of ____ feet of adjacent waters to the harvest of shellfish. For information regarding the shellfish sanitation program, the applicant should contact the Shellfish Sanitation Branch at (919) 726-6827.

☐ The spoil disposal area(s) proposed for this project may produce a mosquito breeding problem. For information concerning appropriate mosquito control measures, the applicant should contact the Public Health Pest Management Section at (919) 726-8970.

☐ The applicant should be advised that prior to the removal or demolition of dilapidated structures, an extensive rodent control program may be necessary in order to prevent the migration of the rodents to adjacent areas. The information concerning rodent control, contact the local health department or the Public Health Pest Management Section at (919) 733-6407.

☐ The applicant should be advised to contact the local health department regarding their requirements for septic tank installations (as required under 15A NCAC 18A .1900 et. seq.). For information concerning septic tank and other on-site waste disposal methods, contact the On-Site Wastewater Section at (919) 733-2895.

☐ The applicant should be advised to contract the local health department regarding the sanitary facilities required for this project.

☑ If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Environmental Health, Public Water Supply Section, Plan Review Branch, 1330 St. Mary's Street, Raleigh, North Carolina, (919) 733-2460.

Reviewer

EH/PWSS
Section/Branch

8/22/95
Date

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Environmental Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
A. Preston Howard, Jr., P.E., Director

DEHNR

September 28, 1995

MEMORANDUM

To: Melba McGee.

From: Eric Galamb EG

Subject: Draft EIS for the Replacement of Bridge No. 198 on SR 1172
Brunswick County
State Project DOT No. 8.2230101, TIP # B-682
EHNR # 96-0110, DEM # 11020

The Division of Environmental Management is responsible for the issuance of the Section 401 Water Quality Certification for activities which impact waters of the state including wetlands. The subject project as proposed would impact up to 3.91 acres of wetlands. DEM offers the following comments on the project.

Alternative W1 would require a partial relocation of Big Narrows Channel. The document states that the hydrology and sediment transport may be adversely effected. From a water quality perspective, this alternative is not acceptable.

B) Any of the C alternatives are conditionally acceptable to DEM but our preference (in order) is C3R, C4 and lastly C1. The conditions are: 1) impacts to wetlands and waters must be minimized to the extent practicable (Staging areas should not be in wetlands.), 2) there are no lateral roadside ditches in wetlands, 3) an acceptable wetland mitigation plan is developed and implemented, 4) that high quality sediment and erosion control measures are used, and 5) construction techniques that minimize environmental impacts are used. (Dredging in salt marsh communities is not acceptable).

C) Stormwater issues should be more fully discussed in the FEIS. Please contact Mr. Bradley Bennett at 733-5083 to ensure that the appropriate level of documentation occurs.

All of the above information will be important to the 401 Certification decision.

Please be advised DEM may deny the 401 Certification upon application if wetland or water impacts have not been avoided and minimized to the maximum extent practicable. Questions regarding the 401 Certification should be directed to Eric Galamb in DEM's Environmental Sciences Branch at 733-1786.

P.O. Box 29535, Raleigh, North Carolina 27626-0535 Telephone 919-733-7015 FAX 919-733-2496
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cc: Wilmington COE
Stephanie Briggs, DOT
Monica Swihart
John Dorney
Steve Benton, DCM
Bradley Bennett

sunset.eis

State of North Carolina
Department of Environment,
Health and Natural Resources
Wilmington Regional Office
Division of Marine Fisheries

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
Alice Freeman, Director

DEHNR

September 26, 1995

TO: Melba McGee

FROM: Fritz Rohde FR

SUBJECT: 96-040 Sunset Beach bridge

The Division of Marine Fisheries does not object to this project as long as the following conditions are met:

1. In Alternative C1, use top-down construction to avoid dredging a new channel. The area is a Primary Nursery Area and the Division is opposed to new dredging in these areas.

2. Mitigate the loss of wetlands.

3. Find a replacement for the private boat ramp now being used by many people, including Division personnel.

4. Use the best practices possible to minimize sedimentation and erosion impacts to the surface waters.

127 Cardinal Drive Extension, Wilmington, N.C. 28405-3845 • Telephone 910-395-3900 • Fax 910-350-2004

DIVISION OF PARKS AND RECREATION

September 8, 1995

Memorandum

TO: Melba McGee

FROM: Harry LeGrand HL

SUBJECT: DEIS -- Replacement of Bridge No. 198 at Sunset Beach

REFERENCE: 96-0110

The Division has reviewed the DEIS for the bridge replacement at Sunset Beach. The document adequately addresses the proposed impacts to known, or possibly occurring, endangered, threatened, and rare species. Few, if any, of these species will be directly impacted by the construction of a new bridge to Sunset Beach. On the other hand, secondary impacts to some species, such as loggerhead turtle (Caretta caretta) and seabeach amaranth (Amaranthus pumilus) are likely to increase after the new bridge is constructed, as a result of greater human usage of the beaches and increased construction because of better access to the island.

The DEIS and supporting documents provide considerable data on natural communities and other information about the natural setting. Alternative W1 is expected to impact 1.95 acres of Coastal Fringe Evergreen Forest, and C1 is expected to impact 1.63 acres of this community (Table S.1). On the other hand, C4 is predicted to impact only 0.46 acres of Coastal Fringe Evergreen Forest. This is a critically imperilled community in North Carolina. It is likely that the presently non-impacted Coastal Fringe Evergreen Forest lying just west of the mainland end of the bridge will be developed in the near future. Nonetheless, the Division supports alternatives that spare as much of this imperilled natural community as possible, in hopes that this site or others can be given long-term protection. Another critically imperilled community -- the Nonriverine Wet Hardwood Forest -- would be slightly impacted by Alternative C1 but not by C4.

Based on the data presented on Table S.1, the Division believes that Alternative C4 (Center Bascule) would have less impact on critically imperilled natural communities than would the other "build" alternatives (W1 and C1).

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Melba McGee
Office of Legislative and Intergovernmental Affairs

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: September 25, 1995

SUBJECT: Draft Environmental Impact Statement (DEIS) for the replacement of Bridge No. 198 on SR 1172, over the Intracoastal Waterway at Sunset Beach, Brunswick County, North Carolina. TIP No. B-682, SCH Project No. 96-0110.

Staff biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the subject DEIS and are familiar with habitat values in the project area. The purpose of this review was to assess project impacts to fish and wildlife resources. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The proposed project involves the replacement of the existing pontoon bridge over the Intracoastal Waterway with a new high-rise fixed-span bridge or mid-level bascule bridge. Three Build alternatives were studied as well as the Do-nothing and rehabilitation alternatives. The build alternatives consist of a high-rise fixed-span structure or mid-level bascule bridge that closely parallel the existing bridge and a high-rise bridge that would be built approximately 250 feet west of the existing bridge.

We recommend Alternative C1 as the preferred build alternative. The C1 alignment closely parallels the existing fill causeway which reduces wildlife habitat fragmentation. However, this alternative does have greater impacts to the Coastal Fringe Evergreen Forest. These impacts are due to the realignment of roads on the mainland. NCDOT should further explain the need for this additional roadway work. If it is impossible to totally avoid the Coastal Fringe Evergeen Forest impacts, NCDOT should propose mitigation in the form of preservation or creation of this habitat type.

We feel that the western alignment (W1) would be unacceptable. The WI alternative will require some realignment of the Big Narrows channel which could effect the flushing characteristics of the channel and the surrounding marsh. It is impossible to predict the long-term impacts that hydraulic alterations will have on navigability and on the salt marshes adjacent to the Big Narrows channel.

Thank you for the opportunity to review and comment on this DEIS. If we can further assist your office, please contact me at (919) 528-9886.

cc: Howard Hall, U.S. Fish and Wildlife Service, Raleigh
Scott McLendon, USACOE, Wilmington

TOWN OF SUNSET BEACH

220 SHORELINE DRIVE WEST, SUNSET BEACH, NC 28468

October 3, 1995

Julie Hunkins, P. E.
Project Manager
Planning and Environmental Branch
N.C.D.O.T.
P.O. Box 25201
Raleigh, N. C. 27611

Dear Miss Hunkins:

On February 6, 1995, the Council of the Town of Sunset Beach endorsed the concept of a high rise bridge.

This was the first time a specific design had been approved by the Council. This was done in response to the accident of January 20, 1995, when a 196 foot barge struck the present bridge, tearing away the pontoon section causing it to float about one half mile up the Intracoastal Waterway. At the time of the accident five D.O.T. employees, as well as the bridge tender, were on the pontoon in a precarious situation. The island was inaccessible to all traffic for over twenty-four (24) hours . Boat traffic was stopped for four and one half days. The court ruled the accident unavoidable because of high winds, tides, and treacherous currents.

This accident was only the latest one in which the bridge has been damage by a passing barge hitting it or the footings. The Council expressed the view that a wider opening for boats would be safer for both the boating traffic and the structural integrity of the bridge. The E.I. S. reports on the various lengths of horizontal openings of the different bridge designs and was cited by the Council in making a decision for the high rise bridge with a 180 foot opening as opposed to the bascule bridge with 105 foot opening.

The Council has found the E. I. S. to be comprehensive and very helpful. It concurs with the findings that a high level, fixed-span bridge is the best design for safety. It is also the most economical. These are major considerations. The report represents a great deal of work and goes into much detail that is invaluable as a planning tool.

In September a family rushed a young boy into the Town Hall to await the arrival of an ambulance. He was a leukemia victim and had been suddenly taken ill. They were afraid to wait on the island for emergency services because they feared the bridge might hinder them . Their uppermost thought was to get to the bridge. If it were open, get the child across. He was lain on a table until emergency personnel arrives to take him to the hospital.

Several summers ago, a young boy was slashed across the abdomen by a surf board. Men, at the pier, put him into a car and rushed him across the bridge and awaited the arrival of emergency services at the mainland bridge approach. They too were fearful the bridge would be down. The most pressing need was to be sure that he reached the mainland for help. They knew how unreliable the present bridge is.

These are just two of the "minor" emergencies that have been complicated by the bridge that I have personal knowledge of. They never made the newspapers and, as far as I know, there is no official report on them. They illustrate the very basic fear our people live with when an emergency happens.

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OCT - 1995
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TELEPHONES 919-579-6297 • 919-579-3808 FAX 919-579-1840

The bridge is the islands lifeline. When it is unavailable to emergency vehicles and personnel, it becomes a threat to life and property. There is no way to predicate when it will be impassable because of weather conditions, mechanical failure or the normal openings for boats. The safety of our children must be given priority, to do less is unconscionable.

We concur with the E.I.S. findings that a high rise bridge is the safest and most economical. The western high rise should be proceeded with immediately.

Sincerely,

M. Mason Barber, Jr.
Mayor

CC: David A. Griffin, C.E.P.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Habitat Conservation Division
9721 Executive Center Drive N.
St. Petersburg, Florida 33702

RECE
OCT 2 8 1996
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENT

October 24, 1996

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
N.C. Department of Transportation
P.O. Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

This responds to your October 4, 1996, letter requesting comments on the additional information submitted by the N.C. Department of Transportation regarding the proposed replacement of Bridge No. 198 over the Intracoastal Waterway in Sunset Beach, Brunswick County, North Carolina (Federal Aid Project BRS-1813(1), State Project No. 8.2230101, TIP No. B-682). The following documents were provided for our review and comment: 1) the biological assessment for the endangered shortnose sturgeon prepared pursuant to Section 7 of the Endangered Species Act; and 2) an Addendum to the Natural Resources Technical Memorandum that addresses the concerns raised in our comments on the Draft Environmental Impact Statement for this project.

Your request for comments regarding the adequacy of the biological assessment for addressing project impacts on the endangered shortnose sturgeon under the purview of the National Marine Fisheries Service should be referred to our Protected Species Management Branch at the letterhead address.

Regarding the addendum to the Natural Resources Technical Memorandum, we believe that it adequately describes fishery resources in the project area and the work's potential adverse impact on these resources. The inclusion of this additional information in the Final Environmental Impact Statement should resolve our concerns regarding the treatment of fishery resources in the Draft Environmental Impact Statement.

Thank you for the opportunity to provide these comments.

Sincerely,

Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

cc: F/SEO2
F/SEO13

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, FL 33702

NOV 5 1996

F/SEO13:JEB

H. Franklin Vick
Manager, Planning and Environmental Branch
Division of Highways
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, NC 27611-5201

Dear Mr. Vick:

This responds to your October 4, 1996, request for consultation on the replacement of bridge No. 198 on SR 1172 over the Intracoastal Waterway in Sunset Beach, Brunswick County, North Carolina. You are coordinating this consultation on behalf of the U.S. Department of Transportation, Federal Highway Administration (FHWA). The Federal Aid Project number is BRS-1813(1). A biological assessment (BA) was transmitted pursuant to Section 7 of the Endangered Species Act of 1973 (ESA).

We have reviewed the BA and concur with your determination that populations of endangered or threatened species under our purview would not be adversely affected by the proposed project. This determination is based upon the protective measures the FHWA will require, as described in the BA.

This concludes consultation responsibilities under Section 7 of the ESA. However, consultation should be reinitiated if new information reveals impacts of the identified activity that may affect listed species or their critical habitat, a new species is listed, the identified activity is subsequently modified, or critical habitat is determined that may be affected by the proposed activity.

If you have any questions please contact Jeffrey Brown, Fishery Biologist, at (813) 570-5312.

Sincerely,

Andrew J. Kemmerer
Regional Administrator

cc: F/PR8
F/SEO2

F-III, 45

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

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DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL

October 10, 1996

H. Franklin Vick, P. E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
PO Box 25201
Raleigh, NC 27611-5201

RE: Replacement of Bridge No. 198 on SR 1172 over ICW in Sunset Beach, Brunswick County, Federal Aid Project BRS-1813(1), State Project No 8.2230101, TIP No. B-682

Dear Mr. Vick:

The U.S. Fish and Wildlife Service (Service) has reviewed the above-referenced project in Brunswick County, North Carolina. Our comments are provided in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543).

Based on the information provided in your letter, the Service concurs that this project is not likely to adversely affect the West Indian manatee or any other Federally-listed endangered or threatened species, their formally designated critical habitat, or species currently proposed for Federal listing under the Endangered Species Act, as amended.

We believe that the requirements of Section 7 of the Act have been satisfied. We remind you that obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Thank you for your continued cooperation with our agency.

Sincerely,

Ken Graham

Ken Graham
Acting Supervisor

FWS/R4:CMartino:cm:10-10-96:919/856-4520:WP51\NCDOT\Sunset-Brdg.NE

August 22, 1996

David Griffin
Project Manager
Greiner, Inc.
6200 Falls of the Neuse Road, Suite 101
Raleigh, N. C. 27609-3563

Dear David:

I was informed that Councilman Herb Klinker contacted you about an error in the recent news letter on the Sunset Beach Bridge Replacement Project.

Mr. Klinker questioned your statement about the Town Council adopting a resolution by unanimous vote requesting the NCDOT to give the Sunset Beach Bridge Replacement Project a high priority.

In checking the minutes of the meeting of June 4, 1996 I found that I had erred in stating at the bottom of the resolution that is was unanimous. The minutes of the meeting clearly state that Councilman Klinker voted against the resolution.

I am enclosing a copy of the minutes of that meeting and a revised copy of the resolution for your information.

I am very sorry for any inconvenience that this error has caused you and anyone else in your firm.

If you need any additional information on this please feel free to call me.

Sincerely,

Linda Fluegel

Linda Fluegel
Administrator

Enc. 2
CC: Mayor Cheek
Councilman Klinker

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606 Princess Drive
Phone 910 579-0297

SPECIAL CALLED MEETING
AND WORK SHOP
JUNE 4, 1996
3:30 P.M.

MEMBERS PRESENT:
C.G. CHEEK, MAYOR
ED GORE, MAYOR PRO-TEM
JULIA THOMAS, FINANCE OFFICER
ED HUGHES
HERBERT KLINKER
LINDA FLUEGEL, TOWN ADMINISTRATOR

1. CALL TO ORDER

MAYOR CHEEK CALLED THE MEETING TO ORDER AT 3:30 P.M.

2. ORDINANCE REQUESTING D.O.T TO GIVE PRIORITY TO SUNSET BEACH BRIDGE.

MOTION BY THOMAS, SECONDED BY GORE, TO APPROVE THE ORDINANCE REQUESTING D.O.T. TO GIVE PRIORITY TO SUNSET BEACH BRIDGE AS PRESENTED. THOMAS, GORE, HUGHES, AND BAZEMORE VOTED YES, KLINKER VOTED NO. MOTION CARRIED. (COPY ATTACHED)

3. WORK SHOP ON BUDGET.

COUNCIL DISCUSSED THE PROPOSED BUDGET FOR FY 96-97.

3. ADJOURNMENT

THERE BEING NO FURTHER BUSINESS TO COME BEFORE THE COUNCIL:

MOTION BY HUGHES, SECONDED BY BAZEMORE, TO ADJOURN THE MEETING.

CARRIED UNANIMOUSLY.

C.G. CHEEK, MAYOR

Cookie Minton
DEPUTY CLERK, COOKIE MINTON

C.G. Cheek

ORDINANCE REQUESTING D.O.T. TO GIVE PRIORITY TO SUNSET BEACH BRIDGE

WHEREAS: the need for replacement of the Sunset Beach bridge was recognized by the D.O.T. and the community more than fifteen (15) years ago; and

WHEREAS: the delay caused by the judge's ruling for a full EIS is now going into it's 7th year; and

WHEREAS: the EIS draft was completed in 1995 and the selection of one of the proposed alternate plans was to have been made in December of 1995. We are now six months into 1996 and no announcement has been made. The need for replacement of this bridge becomes increasingly urgent, with each passing year. The safety and welfare of our citizens are in serious jeopardy because the bridge has not been replaced; and

WHEREAS: the elected body of the Town has previously supported the high rise alternative. Therefore, the present body does hereby urgently request that at the earliest possible date you make your selection for a safe, dependable bridge that will allow ingress and egress to the island without interruption or delay for all modes of transportation.

NOW, THEREFORE, BE IT RESOLVED that we sincerely and urgently request that this project be given the highest priority to remove this peril from our town.

The Ordinance was adopted by a majority vote with Councilman Gore, Hughes, Bazemore and Thomas voting in favor and Councilman Klinker voting against.

This the 4th day of June, 1996.

TOWN OF SUNSET BEACH

C. G. Cheek, Mayor

ATTEST:

Linda Fluegel, Administrator

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GREINER, INC.

590 Pineview Drive • Sunset Beach, NC 28468
Telephone 910-579-6297 • 910-579-3808 • FAX 910-579-1840

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470
FAX: 910-579-6993 E-Mail: sbta@infoave.com

JUN 18

June 17, 1996

Garland Garrett
Secretary of Transportation
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Dear Secretary Garrett:

This is in regard to a resolution adopted by the Sunset Beach Town Council on June 4, 1996 requesting that the North Carolina Department of Transportation at the earliest possible date select a bridge option, and, in effect, that the option selected be a high-rise bridge.

We support the town's request that the DOT move as quickly as possible to select a bridge replacement option. We agree that at this point DOT has, or should have, all the information needed to select the best bridge option for Sunset Beach Island.

However, we strongly disagree that the best bridge option for Sunset Beach Island is a high-rise. As established by multiple polls and the DOT's own public hearing, the majority of island residents and property owners do not support a high-rise bridge for the island. The Sunset Beach Town Council does not speak for this majority view.

The arguments against a high-rise bridge option have become increasingly clear as the Draft Environmental Impact Statement (DEIS) process has unfolded.

1. The federal and state environmental agencies that offered comments in response to the DEIS expressed serious concerns about the environmental impact of the high-rise options, particularly in regard to the Big Narrows Channel, water quality, and the Coastal Fringe Evergreen Forest.

2. A high-rise bridge would irrevocably damage the unique character of Sunset Beach Island, lessen the quality of life of its residents, and jeopardize the capital investments of its property owners. Our community is more desirable and our property more valuable because our citizens have worked to preserve the beauty of the natural environment and quiet residential character of the island. A 65-foot bridge would increase the volume and speed of vehicles going to and from the island. This would mean an increase in noise, people, traffic hazards and crime. The beauty and quality of life that make Sunset Beach Island unique would be permanently marred.

3. A high-rise bridge would adversely affect our main business, namely, vacation cottage rentals, for which our renters pay a premium because of the unique nature of this quiet family beach with its great natural beauty.

We understand that DOT continues to promote and revise the high-rise bridge options in an attempt to address the concerns of the environmental agencies. However, the problems associated with the high-rise options cannot be mitigated or revised away; they are inherent to a high-rise bridge itself. It is clear from the comments in response to the DEIS that a high-rise bridge is not appropriate for this tiny island in its unique setting.

The replacement bridge must be one that strikes a balance between environmental, quality of life, and economic concerns, and the legitimate concern about the efficiency of moving vehicular and boat traffic. Traffic efficiency, however can not be the sole criterion, as has been made clear by the requirement for an EIS and by the comments of federal and state agencies.

The time has come to select a replacement bridge for Sunset Beach Island and to move with dispatch to replace the current bridge. However, we must ensure we select the least environmentally damaging, practicable alternative. We believe there are practical alternatives to a high-rise bridge that do strike a balance between environmental and traffic concerns and stand ready to work with you on implementing one of these.

Sincerely,

Barry Lentz, President
Sunset Beach Taxpayers Association

cc: Dr. Larry Goode, State Highway Administrator
H. Franklin Vick, Manager, Planning & Environmental Branch
Julie A. Hunkins, Project Manager, Planning & Environmental Branch
Linda B. Rimer, Assistant Secretary for Environment Protection DEHNR
Federal & State commenting agencies

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

July 2, 1996

Mr. Barry Lentz, President
Sunset Beach Taxpayers Association
Post Office Box 6053
Sunset Beach, North Carolina 28470

Dear Mr. Lentz:

Thank you for your recent letter regarding the resolution passed by the Sunset Beach Town Council in reference to the replacement of Bridge No. 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach in Brunswick County (TIP No. B-682). The Town's resolution urged the Department of Transportation to select a preferred alternative in the near future in light of the pressing need to replace the deteriorating bridge. Your letter also expressed concerns about the high-rise bridge options, requesting the Department to fully consider the potential adverse impacts on the natural and human environment, in addition to the potential changes in the character of the island and quality of life of its residents.

On June 21, 1996, the Department announced the selection of the preferred alternative for the replacement of the existing bridge. After thoroughly reviewing the economic and environmental impacts along with input from the public and local officials, the West Corridor was selected as the preferred alternative. Within the West Corridor, some modifications in the design are being made to minimize impacts to Big Narrows Channel. The selection of a fixed-span, 65-foot high bridge across the Intracoastal Waterway west of the existing bridge was made based on safety and reliability, transportation efficiency, and cost. State and federal resource agencies reviewed these proposed modifications which addresses their concerns and have reached general consensus regarding the preferred alternative.

I realize the preferred alternative will not satisfy everyone's interests. However, it is the Department's obligation to provide the safest and most reliable transportation access for the citizens of this State, and the high-rise bridge options meet this requirement.

F-III, 53

PHONE (919) 733-2520 FAX (919) 733-9150

It is anticipated the Final Environmental Impact Statement will be approved by December 1996. A Record of Decision is scheduled for March 1997, after which the court will review the documentation for adequacy.

Again, I appreciate your interest in this transportation project and your support to replace the current bridge.

Sincerely,

Garland B. Garrett, Jr.

GBG/hfv

cc: Odell Williamson, Member, Board of Transportation
Linda B. Rimer, Assistant Secretary, DEHNR
Larry R. Goode, Ph.D., P. E., State Highway Administrator
H. Franklin Vick, P. E., Manager, Planning and Environmental Branch
Julie Hunkins, P. E., Project Manager, Planning and Environmental Branch

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

January 23, 1997

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442

Re: Sunset Beach Bridge on SR 1172, Federal Aid No. BRS-1813(1), State Project 8.2230101, TIP B-682, Brunswick County, ER 97-8085

Dear Mr. Graf:

Thank you for your letter of December 17, 1996, transmitting the archaeological survey report by John J. Mintz and Thomas Beaman Jr., concerning the above project.

During the course of the archaeological testing of site 31BW391, no intact cultural features or significant archaeological deposits were found within the area of potential effect. The report recommends that no further archaeological investigations be conducted in connection with this project. We concur with this recommendation since this project will not involve significant archaeological resources.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: H. F. Vick
T. Padgett

RECEIVED
JAN 29 1997
DIVISION OF HIGHWAYS

109 East Jones Street • Raleigh, North Carolina 27601-2807

APPENDIX F

PART IV

AGENCY COMMENTS FOLLOWING THE PRELIMINARY FINAL ENVIRONMENTAL IMPACT STATEMENT

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DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890
January 27, 1997

IN REPLY REFER TO
Special Studies and
Flood Plain Services Section

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
North Carolina Division of Highways
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

This is in response to your letter of December 11, 1996, requesting our comments on the preliminary Final Environmental Impact Statement (FEIS) for the "Proposed Replacement of Sunset Beach Bridge on SR 1172 over the Intracoastal Waterway, Brunswick County, Federal Aid No. BRAS 1813(1), State Project No. 8.2230101, TIP No. B-682" (Regulatory Branch Action I.D. No. 199300088).

Our comments involve impacts to flood plains and jurisdictional resources, which include waters, wetlands, and U.S. Army Corps of Engineers projects. Comments from our Regulatory Branch on waters and wetlands are being provided under separate cover. Enclosed are our comments on the other issues.

We appreciate the opportunity to comment on this project. If we can be of further assistance, please contact us.

Sincerely,

C. E. Shuford, Jr., P.E.
Acting Chief, Engineering and
Planning Division

Enclosure

U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT, COMMENTS ON:

"Proposed Replacement of Sunset Beach Bridge on SR 1172 over the Intracoastal Waterway, Brunswick County, Federal Aid No. BRAS 1813(1), State Project No. 8.2230101, TIP No. B-682" (Regulatory Branch Action I.D. No. 199300088)

1. **FLOOD PLAINS: POC - Mr. Bobby L. Willis, Special Studies and Flood Plain Services Section, at (910) 251-4728**

Our latest comments on this project were made by letter dated June 29, 1995, a copy of which is contained in Appendix F of the preliminary FEIS. We wish to commend your agency on the detailed discussion of flood plains contained in Sections 3.2.1.2 and 4.2.1.2 of the document. We agree that the proposed high-rise bridge alternative would not substantially impact flood heights, flood limits, or flood risks. In addition, it appears that inconsistencies in the delineation and designation of the flood zones, as referred to in our earlier letter, have been addressed in this latest document.

2. **U.S. ARMY CORPS OF ENGINEERS PROJECTS: POC - Mr. Howard Varnam, Operation Technical Support Branch at (910) 251-4411**

The proposed bridge should be constructed so as to not interfere with the operation and maintenance of the navigation channel in the Atlantic Intracoastal Waterway. To accomplish this, we request that a minimum of a 120-foot wide navigation opening be provided, 60 feet from the channel centerline on either side. To assure this clearance, please contact this office to obtain the channel centerline coordinates prior to design and construction of the bridge.

If you have any questions on the Federal navigation project, they should be addressed to Mr. Varnam.

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

January 22, 1997

IN REPLY REFER TO

Regulatory Branch

ACTION ID. 199300088, TIP B-682, Replacement of Sunset Beach bridge over the Atlantic Intracoastal Waterway, Brunswick County

Mr. Frank Vick, Manager
Planning and Environmental Branch
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

Reference your letter dated December 11, 1996, requesting comments on the preliminary Final Environmental Impact Statement (FEIS) for the above referenced project. As you are aware, at the agency coordination meeting held on June 19, 1996, information concerning alternative W1R was presented to representatives of state and Federal resource agencies. This alternative was developed in response to concerns over impacts to Big Narrows Canal if the high level bridge alternative (Alternative W1) was selected for construction. Subsequently, the North Carolina Department of Transportation (NCDOT) selected alternative W1R as their preferred build alternative for this project.

While we concur with the stated purpose and need for this project, our permit program requires that we make a complete, thorough, and unbiased review of all factors associated with a proposed project within jurisdictional waters of the United States. A major component of the review is the consideration of reasonable and practicable alternatives, required by both the National Environmental Policy Act and the Clean Water Act 404 b (1) Guidelines (33 U.S.C. Section 1344 (b); 40 CFR Part 230). The Clean Water Act requires that individual permit decisions be made "after notice and opportunity for public hearings" (33 U.S.C. Section 1344(a)). Based on these requirements, we believe it is inappropriate for the Wilmington District to make any binding commitment concerning the selection of a single preferred alternative or comment on the likelihood of issuance or denial of a permit prior to going through the review process required by our regulations, found at 33 CFR part 325.

The District can, however, review, comment, and make recommendations to the planning review of alternative corridors with reference to potential Department of the Army Permit concerns. As a result of ongoing coordination on this project, we continue to support the selection of the preferred alternative (W1R) for this project, subject to the conditions and comments from the State and Federal commenting agencies.

Although the stated permanent impacts to surface waters and salt marsh are relatively minor, approximately 4.3 acres of Spartina alterniflora marsh will be filled to construct a temporary detour. We would expect NCDOT to utilize all practicable measures to reduce the amount of temporary fill necessary; to employ construction techniques, including simultaneous construction on both sides of the project, that will minimize the time the fill is in place, and, finally, commit to the successful restoration of this site to pre-project conditions.

We are encouraged that you have included a conceptual mitigation plan in the FEIS that identifies 1.64 acres of causeway fill that may be appropriate for salt marsh restoration. Subject to approval from other state and Federal resource agencies, we feel that this is an appropriate approach to the mitigation of unavoidable wetland impacts.

Finally, I have listed several specific items in the FEIS that should be corrected or clarified:

a. Page 2-7. Were any of the 8 preliminary alternatives dropped from consideration for reasons other than traffic constraints?

b. Page 2-17. Were permanent impacts to salt marsh from construction of piers considered in the impact table?

c. Page 13 of Appendix H. Section A states that "Impacts to the salt marsh community adjacent to the causeway will occur as a result of the temporary placement of fill for the staging area/haul road. Approximately 1.73 hectares (4.28 acres) of salt marsh will be impacted." It is our understanding that this 4.28 acres of temporary impact was associated with the temporary detour for automobile traffic, not for construction purposes. Please explain this discrepancy.

d. Page 4-78. "The staging area would require approximately 0.5 hectare (1.3 acres) of temporary work bridge fill." Will this temporary fill be placed in wetlands or on high ground?

e. Page 4-107. "To obtain permit approval,...Clean Water Act Section 404(b)(1) Guidelines" (February, 1990)." This statement should be revised to reflect that wetland impacts should first be avoided, then impacts further minimized, and then finally mitigation will be considered for the unavoidable wetland impacts.

f. Section 4.3 Impacts to the Natural Environment. Impacts associated with the temporary detour should be discussed in detail. It is unclear as to the location and need for the 4.28 acres of temporary fill in wetlands.

We appreciate the opportunity to provide comments during this stage of the planning process for this project. If you have any questions or comments regarding this correspondence, they may be addressed to me at (910) 251-4725.

Sincerely,

Scott McLendon
Regulatory Project Manager

Copies Furnished:

Mr. John Hefner
U.S. Fish and Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Nicholas L. Graf
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601

Ms. Melba McGee
North Carolina Department of Environment,
Health, and Natural Resources
Legislative and Intergovernmental Affairs
512 N. Salisbury Street
Raleigh, North Carolina 27604

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

RECEIVED
JAN 2 2 1997
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

January 17, 1997

Mr. H. Franklin Vick
Manager, Planning and Environmental Branch
Division of Highways
N. C. Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

This responds to your letter of December 11, 1996, requesting comments from the U.S. Fish and Wildlife Service (Service) on the Preliminary Final Environmental Impact Statement (PFEIS), dated December 1996, for the Replacement of Bridge No. 198 on SR 1172, (TIP No. B-682), Brunswick County, North Carolina. The Department of the Interior (DOI) provided comments on the Draft EIS (ER-95/562) by letter dated October 20, 1995. This report is provided in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to the PFEIS, the North Carolina Department of Transportation (NCDOT) proposes to replace the existing single-lane, floating steel-barge, swing-span draw bridge which is part of Secondary Road (SR) 1172 over the Atlantic Intracoastal Waterway (AIWW). The preferred alternative for the new bridge is a high-level, fixed span structure located approximately 150 feet west of the existing bridge. The preferred alternative is designated as W1R. East Shoreline Drive would be realigned to provide a four-leg intersection with NC 179 and the relocated SR 1172.

Alternatives analysis

Section 2 of the PFEIS presents a detailed discussion of the project alternatives. The DOI comments on the Draft EIS recommended that the NCDOT carefully consider the option of improving the existing bridge. Since that time the NCDOT has revised the original W1 alignment, creating the revised W1 (W1R) alignment, to minimize impacts and proposed a compensatory mitigation plan which will remove the existing causeway and

restore salt marsh wetlands. The modification of alignment W1 to create W1R reduces impacts to the coastal fringe evergreen forest from 1.95 to 1.58 acres. Therefore, the Service believes that this analysis and material related to the selection of W1R as the preferred alternative are adequate.

Design Features and Construction Techniques

The PFEIS notes (p. 4-38) that the NCDOT will incorporate measures into the design of the preferred alternative to control water quality aspects of stormwater runoff. The document also indicates that the use of hazardous spill catch basins will be investigated. While we believe that the final environmental document should include specific plans to protect water quality, the Service strongly encourages the NCDOT to incorporate all feasible measures to ensure water quality into the final project design.

Avoidance and Minimization of Wetland Losses

The PFEIS discusses the efforts of the NCDOT to limit adverse impacts on the important wetland resources in the project area. The Service is pleased that the preferred alternative avoids the loss of any forested wetlands and dredging for the relocation of Big Narrows channel.

Compensatory Mitigation of Wetland Losses

Despite efforts to reduce the permanent loss of wetlands, the PFEIS states (Table 4.11) that the dredge and fill requirements for the preferred alterative will result in the permanent loss of 0.41 acres of salt marsh and 1.56 acres of open water. Shading will result in permanent adverse impacts to 0.22 and 0.54 acres of salt marsh and surface water, respectively.

Appendix H of the PFEIS presents the compensatory mitigation plan for wetland losses. The major part of the plan calls for the removal of the existing causeway and the restoration of salt marsh wetlands. The plan indicates that approximately 1.64 acres of salt marsh can be restored. The area would be revegetated with smooth cordgrass (*Spartina alterniflora*). The removal of the old causeway should also restore the hydrological connection between the salt marsh communities which are currently separated.

The Service strongly supports this conceptual mitigation plan. This effort is an excellent example of on-site, in-kind compensation which is necessary to prevent significant adverse impacts to important fish and wildlife resources in coastal areas. We recommend that the final plan contain a specific success criteria for revegetating the area and a multi-year

monitoring plan to ensure that success is achieved. We also request that the plan indicate the disposal location of the material removed from the abandoned causeway.

Section 7

Section 4.3.3 (pp. 4-67/70) of the PFEIS presents information on federally threatened and endangered species. The National Marine Fisheries Service (NMFS) has jurisdiction for the shortnose sturgeon (*Acipenser brevirostrum*) and sea turtles in the water. By letter dated July 11, 1995, the Service concurred that the project was not likely to adversely impact the bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus tundrius*), wood stork (*Myceria americana*), seabeach amaranth (*Amaranthus pumilis*), or nesting by sea turtles. Regarding the manatee (*Trichechus manatus*), the Service recommended that the NCDOT either schedule construction during the colder months or incorporate specific manatee protective measures in project plans.

The Service has reviewed the information in the PFEIS regarding potential impacts to seabeach amaranth, the piping plover (*Charadrius melodus*), the three listed birds mentioned above, nesting by sea turtles, and the West Indian manatee. The NCDOT has determined that the project will have no affect on seabeach amaranth and is "not likely to adversely effect" sea turtles or listed birds. The Service is pleased that the NCDOT has incorporated our recommendations for protecting manatees in project plans.

Based on the information supplied by the NCDOT and the assumption that stringent water quality and erosion control procedures will be employed during construction, the Service concurs that this project is not likely to adversely affect any federally-listed endangered and threatened species under our jurisdiction, their formally designated critical habitat, or species currently proposed for Federal listing under the ESA, as amended.

We believe that the requirements of Section 7 of the ESA have been satisfied. We remind you that obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Section 4(f)

The DOI stated in comments on the Draft EIS that the project should not have significant primary or secondary impacts on areas protected by Section 4(f) of the Department of Transportation Act of 1966. We have reviewed the material in Section 4.7 of the PFEIS which addresses this issue, and found no reason to change our previous position on Section 4(f) areas.

Closing

The Service appreciates the opportunity to comment on this project. Please continue to advise us of the progress made in the planning process, including your official determination of the impacts of this project. If you have any questions regarding these comments, please contact Howard Hall at 919-856-4520, ext. 27.

Sincerely,

Mike Wicker
Acting Supervisor

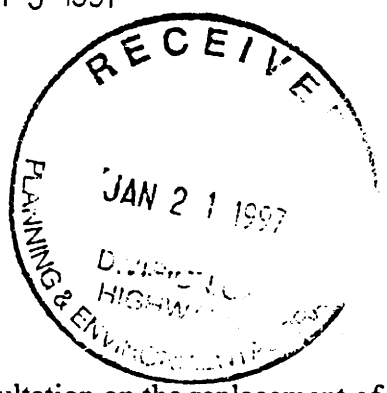
FWS/R4:HHall:1/17/97:WP:A:sunset.197

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, FL 33702

F/SEO13:JEB

JAN 15 1997



H. Franklin Vick
Manager, Planning and Environmental Branch
Division of Highways
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, NC 27611-5201

Dear Mr. Vick:

This responds to your December 9, 1996, request for a reconsultation on the replacement of bridge No. 198 on SR 1172 over the Intracoastal Waterway in Sunset Beach, Brunswick County, North Carolina. You are coordinating this consultation on behalf of the U.S. Department of Transportation, Federal Highway Administration (FHWA). The Federal Aid Project number is BRS-1813(1). On October 4, 1996, you transmitted a biological assessment (BA) pursuant to Section 7 of the Endangered Species Act of 1973 (ESA). That BA included a moratorium on in-water pile construction between the months of April and August in order to protect shortnose sturgeons. Your December 9, 1996, letter proposes, among other things, to eliminate the moratorium on in-water pile construction but proposes to employ turbidity curtains on all drilled shaft construction and during the months of March through August for in-water pile construction.

We have reviewed the BA and the new protective measures included in your December 9 letter and have determined that populations of endangered or threatened species under our purview would not be adversely affected by the proposed project. This determination agrees with our November 5, 1996, consultation on this project and is based upon the protective measures the FHWA has agreed to.

This concludes consultation responsibilities under Section 7 of the ESA. However, consultation should be reinitiated if new information reveals impacts of the identified activity that may affect listed species or their critical habitat, a new species is listed, the identified activity is subsequently modified, or critical habitat is determined that may be affected by the proposed activity.

If you have any questions please contact Jeffrey Brown, Fishery Biologist, at (813) 570-5312.

Sincerely,

Andrew J. Kemmerer
Regional Administrator

cc: F/PR8
F/SEO2

U.S. Department of Transportation
United States Coast Guard

Commander
Fifth Coast Guard District

Federal Building
431 Crawford Street
Portsmouth, VA 23704-5004
Staff Symbol: (Aowb)
Phone: (757) 398-6227

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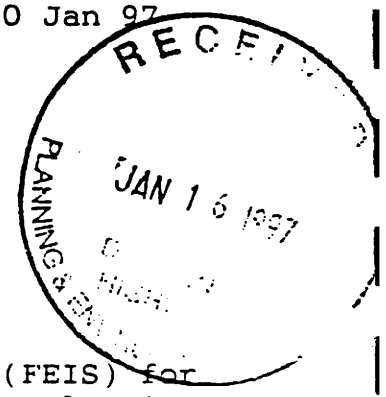
10 Jan 97



Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
Division of Highways
P.O. Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

The Preliminary Final Environmental Impact Statement (FEIS) for the replacement of Bridge No. 198 on SR 1172 over the Atlantic Intracoastal Waterway (ICW), mile 337.9, at Sunset Beach, North Carolina, has been reviewed.

The Coast Guard concurs with the North Carolina Department of Transportation's (NCDOT) selection of Alternative W1R for replacement of the existing pontoon bridge across the ICW at Sunset Beach. Our concurrence is based on Alternate W1R not encroaching on Slough Canal or the Big Narrows channel which were some of the issues we were concerned with, especially Slough Canal since Alternative C1 would have involved crossing it with a 4-foot vertical clearance restricting recreational and commercial vessels access to the last 200 feet where two restaurants are located. Further review of the Preliminary FEIS reveals that Alternate W1R will not displace residences or businesses on the mainland or the island. The other alternatives such as the center mid-level bascule bridge and the center high level bridge would have resulted in displacement. The realignment of Alternative W1 (renamed W1R) reduced wetland impact by avoiding the dredging of Big Narrows channel relocating the navigational channel.

The proposed vertical clearance of 65 feet at mean high water for Alternative W1R will meet the reasonable needs of navigation that transit the ICW. For those vessels unable to clear the 65-foot vertical clearance, they do have the option of an alternate route, the Atlantic Ocean. The navigational guide clearances for the Atlantic Intracoastal Waterway published in the Federal Register by the Coast Guard in 1985 recommends that for fixed bridges, a 65-foot vertical clearance is advised. These clearances were originally initiated by the Corps of Engineers and called "Standard Clearances" prior to 1967 when bridge permitting fell within their jurisdiction and later adopted by the Coast Guard under the name "Guide Clearances".

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10 Jan 97

With the aging of existing bridges on the ICW, replacing them with new structures is becoming necessary due to the continued maintenance problems and deterioration these bridges are experiencing. Since 1986, 12 of the 19 drawbridges crossing the North Carolina Cut of the Atlantic Intracoastal Waterway have been replaced with 65-foot high fixed highway bridges eliminating the need to maintain draw machinery that can break down and close the ICW not only to recreational boaters, but to commercial waterway users such as tugboat companies who depend on waterways for their livelihood.

Highway traffic congestion has in recent years become more of a problem when delayed by drawbridge openings. The Coast Guard is the regulatory agency responsible for ensuring that the regulations that govern the operation of drawbridges across navigable waters of the United States create an even balance between vessel and highway traffic. An example of an unbalanced situation is when a drawbridge opens for a recreational boater, then closes only to open again for a commercial boater which compounds traffic congestion. Commercial vessels, in most cases, can demand a bridge opening at anytime and the reason we allow this is that they depend on the waterways for a living. Therefore, fixed high bridges are becoming the theme of the future eliminating highway traffic congestion and allowing for the free uninterrupted movement of navigation. Also one other point that should be kept in mind in respect to fixed bridges is the delay of emergency vehicles is considerably reduced allowing them quicker response time which in the end saves lives.

We appreciate the opportunity to comment on the Preliminary (FEIS). If you should have any questions regarding this letter, please contact Ms. Linda Gilliam, Bridge Management Specialist, at (757) 398-6227.

Sincerely,

ANN B. DEATON
Chief, Bridge Administration Section
By direction of the Commander
Fifth Coast Guard District

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

FEB 13 1997

Mr. H. Franklin Vick
Chief, Planning and Environmental Branch
Division of Highways
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611

Subject: Preliminary Final EIS - Replacement of Sunset Beach Bridge - TIP No. B-682

Dear Mr. Vick:

This concerns a request by Julie Hunkins of your staff, for a review of the Final EIS at the preliminary stage and obtain EPA's opinion on the adequacy of the document and preliminary evaluation of the proposed project.

ALTERNATIVES EVALUATION

The total alternatives analysis, from project inception, is fully documented in this document. We will address some elements of the earlier analyses but focus on the work subsequent to the Draft EIS.

A modification to the center (C1) and west W1 high-level fixed span bridge alternatives was developed and is called W1R. This alignment was put forth as a result of coordination with involved environmental agencies, which expressed concern that the high-rise alternatives evaluated in detail could have unnecessary adverse impacts to: (1) salt marshes and aquatic areas in Big Narrows channel on the barrier island side of the Intercoastal Waterway, and (2) wetlands and aquatic habitat associated with Slough Canal on the mainland. The effort to develop Alternative W1R indicates responsiveness to those concerns.

Alternatives other than the high-level fixed span and mid-level bascule (C4) options are addressed in the subject document, which is important according to NEPA. In summary, we consider this present document a good alternatives analysis.

ENVIRONMENTAL IMPACTS

1. Socio-economics and Land Use

The early analyses for the Draft EIS of the potential for secondary development, inappropriate land use changes, social and economic impacts to the island as a result of a high capacity fixed span were important since these were strongly voiced local

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concerns. Conclusions regarding these impacts were based at least in part on comparative analyses of developmental trends on Sunset Beach, Holden Beach and Ocean Isle Beach, The latter are adjacent barrier island communities with recently constructed fixed span high-level bridges. Those conclusions generally were that the bridge should not have a significant impact because building and property values on Sunset Beach were rising faster than the larger barrier islands with new bridges in place. These analyses are acknowledged to be imprecise, nevertheless they are appropriate for the EIS. However, it would be good to clarify whether the historical property value data are local government derived assessed values or actual property sales. Regarding land use changes, we agree with the conclusion that primary control of changes in use/density rests with local government policies and regulations. It is also true that any infrastructure upgrade whether transportation, water, sewer, etc., provides developers with a stronger position to challenge low density and other land use restrictions.

Sunset Beach is a small island community of about 1,000 permanent residents, where seasonal visitation is estimated to swell daily population counts to 12,000. There is good logic for improved safety by lessening emergency vehicle response times. However, there are many examples of coastal and other island destinations where people elect to visit or live which are distant or inaccessible to such services. Also to restate our comment on the Draft EIS, we consider the entire town of Sunset Beach as a coastal destination, where DOT queuing and level of service guidelines need not necessarily be met for state participation in a transportation improvement project. We believe the present pontoon bridge provides a unique feature for the coastal community. We continue to favor the mid-level bascule for balancing the needs of this community. Perhaps NCDOT should develop some less imposing and less costly designs for aqueous crossings.

Another issue is the potential loss of recreational use of Big Narrows channel. There is a boat launch area which receives heavy use that would be lost by W1R, C1, and C4 alternatives. We understand the DOT and other officials are considering three other places in this area to locate a new boat ramp, and that will be established.

It is mentioned that Bird Island, adjacent to Sunset Beach, is a unit covered by the Coastal Barrier Resources Act (COBRA), and is therefore precluded from the Federal Flood Insurance Program. This document should clearly state that any federal support, including transportation or other action which would promote development of this undeveloped barrier island, would be a violation of COBRA. For that matter, the status of Sunset Beach relative to COBRA, should be stated.

2. Physical Environment

The project is in waters designated for shellfishing and primary nursery area (SA/PNA). Despite close proximity east and west to inlet passes for water exchange to the Atlantic Ocean, these confined waters are currently closed to shellfishing due to excessive bacterial contamination. We note that other bridges have scupper drains for runoff directly to the ICW, and the proposed bridge would have scupper drains. There should be a determination now whether design plans will have bridge runoff directed away from surface water. We believe that this decision should include the other recently constructed bridges. EPA recommends this BMP be installed as it could prove valuable in the event of an accident and spill.

Wetland habitat impacts were the subject of recent interagency meetings. Since the development of the W1R alternative, the restoration of salt marsh within the present SR 1172 causeway from the ICW to the point of a new bridge alignment is a viable on-site mitigation for 0.63 acre of permanent wetland loss. Accordingly, this document corrects a major deficiency of the Draft EIS and comment by EPA with the inclusion of the appended Conceptual Mitigation Plan for wetlands losses. We note a comparative lack of detail about accomplishing the restoration of the temporarily impacted wetlands (p.13). The same approach as for the SR 1172 causeway should be utilized. The plan must also define the disposal area(s) of the removed fill.

In summary, we consider the preliminary document adequate for an environmental analysis according to NEPA. We are reserving our final opinion on the preferred project (Alternative W1R) until we formally review the Final EIS.

Thank you for providing the preliminary document for review. The primary EPA contact will continue to be Ted Bisterfeld on my staff.

Sincerely,

Heinz Mueller

Heinz J. Mueller
Director, Office of Environmental Review

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Water Quality

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
A. Preston Howard, Jr., P.E., Director

DEHNR

January 27, 1997

MEMORANDUM

To: H. Franklin Vick, P.E., Manager
Planning & Environmental Branch

From: John Dorney

Subject: Preliminary Final Environmental Impact Statement for Replacement of Sunset Beach Bridge on SR 1172 over the Intracoastal Waterway
Brunswick County
State Project DOT No. 8.2230101, T.I.P. No. B-0682
EHNR # 96-0110, DWQ # 11020

The subject document has been reviewed by this office. The Division of Water Quality (DWQ) is responsible for the issuance of the Section 401 Water Quality Certification for activities which impact waters of the state including wetlands. The subject project will involve permanent impacts in up to 1.11 hectares (2.73 acres) of wetlands and surface waters. DWQ offers the following comments based on the document review:

In correspondence dated September 28, 1995, DWQ stated our formal objection to Alternative W1, as described in the Draft Environmental Impact Statement. The preliminary Final EIS acknowledges our concerns with this alternative, and includes a revised version (Alternative W1R) with significantly reduced environmental effects. DWQ commends NCDOT for addressing the problems associated with Alternative W1, and for investigating design features which have made Alternative W1R acceptable from our perspective. Based on the thorough discussion of environmental effects and mitigation measures, DWQ can now agree that the selection of Alternative W1R is justified..

The preliminary Final EIS includes a comprehensive discussion of permanent and temporary stormwater control measures to be implemented for this project. The document also contains information pertaining to specific design features and construction techniques which may be useful in minimizing the environmental effects of this bridge. The preliminary Final EIS states that there will be no stream modifications involved with this project. If this detail changes during the design phase of this project, stream mitigation may be required in accordance with current DWQ Wetland Rules which were not in effect at the time the EIS was prepared. Please be aware that issuance of a 401 Water Quality Certification will be contingent upon evidence of avoidance and minimization of wetland and stream impacts to the extent practical. DWQ will be happy to work with you throughout the design and construction phases of this project to ensure compliance with current water quality rules.

P.O. Box 29535, Raleigh, North Carolina 27626-0535 Telephone 919-733-9960 FAX # 733-9919

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DWQ appreciates the quality of the Final EIS prepared for this project, and the opportunity to provide comments. DOT is reminded that issuance of a 401 Water Quality Certification requires satisfaction of water quality concerns, to ensure that water quality standards are met and no wetland or stream uses are lost. Questions regarding the 401 Certification should be directed to Cyndi Bell at (919) 733-1786 in DWQ's Water Quality Environmental Sciences Branch.

cc: Julie Hunkins, P.E., NCDOT, P&E
Melba McGee, DEHNR
Jim Gregson, DWQ Wilmington

B682PEIS.DOC

WILMINGTON REGIONAL OFFICE

DIVISION OF COASTAL MANAGEMENT

395-3900

MEMORANDUM

TO: Julie Hunkins, N.C.D.O.T.

FROM: E.F. Brooks, DCM

THROUGH: Bob Stroud, DCM

SUBJECT: Preliminary Draft EIS - Sunset Beach Bridge Replacement

DATE: January 31, 1997

I have completed initial review of the above referenced preliminary final EIS. With this formidable document, NCDOT strives to address the numerous and diverse sociological, economic, and environmental issues that have come to the forefront during this project's 17 year history.

_ The high-level, fixed span bridge, located west of the existing bridge location continues to be the preferred alternative to accomplish the NCDOT and FHWA project goals of public safety and transportation efficiency. Although the bridge alignment has been shifted eastward to avoid the adverse impacts that would be associated with the relocation of Big Narrows Channel, this alternative proposes the largest impact and loss to coastal wetland resources.

_ The wetland mitigation plan (Appendix H) will need further development prior to permit application. Details of the proposed procedures for site preparation, species make-up, planting schedules, monitoring, and follow-up evaluation will need to be presented. Similar information with respect to the restoration of temporarily impacted wetland areas will also be required. Section III.(A) suggests placement of temporary fill on mats. Placement of temporary fill material on geotextile fabric has worked well in similar projects and has reduced compaction impacts and helped preserve the substrate's natural seed bank during restoration. The inference to the possible need for re-planting Smooth Cordgrass (Spartina alterniflora) into these areas, should be considered as part of required restoration.

_ The incorporation/loss of the tradition boat launch area along the west side of the existing causeway continues to be a primary concern of the Division. Referred to as "allowed trespass" in the text, the EIS proposes to study the feasibility and practicability of replacing or relocating the informal boat ramp in S-31 and Section 4.11.2 of the document. This area is primarily used by area residents dependent upon commercial fishing for a substantial portion of their livelihood. DCM recommends that a higher priority be given toward the commitment to ensuring the continuation of an estaurine boating access within or near the project area.

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Julie Hunkins
Planning and Environmental Branch, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: January 28, 1997

SUBJECT: Final Environmental Impact Statement (FEIS) for the replacement of Bridge No. 198 on SR 1172, over the Intracoastal Waterway at Sunset Beach, Brunswick County, North Carolina. TIP No. B-682.

Staff biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the subject FEIS and are familiar with habitat values in the project area. The purpose of this review was to assess project impacts to fish and wildlife resources. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The proposed project involves replacement of the existing pontoon bridge over the Intracoastal Waterway with a new high-rise fixed-span bridge. Four Build alternatives were studied as well as the Do-nothing and rehabilitation alternatives. The preferred build alternative consists of a high-rise fixed-span structure approximately 150 feet west of the existing pontoon bridge. The W1R alternative is a modification of alternative W1. This involves shifting the alignment of W1 eastward to avoid relocation of the Big Narrows channel. Although W1R will result in slightly higher impacts to some natural communities when compared to other alternatives, we feel that the avoidance of the Big Narrows channel will result in fewer long term water quality and natural community changes.

We remain concerned over possible impacts to the Coastal Fringe Evergreen Forest community. We recognize that NCDOT has no legal or statutory obligation to avoid or mitigate for impacts to this habitat type. However, we routinely recommend that NCDOT minimize impacts to rare or unique natural community types. Minimization of impacts on the natural resources of the state should always be a goal when public moneys are involved. Therefore, we continue to recommend that NCDOT design this project to avoid the Coastal Fringe Evergreen Forest to the maximum extent practicable. NCDOT should identify areas within the right of way which could be preserved (not cleared) and areas that could be restored (existing bridge approaches, property remnants) to offset the effects of this project. We recognize that this habitat type is vulnerable to private

development pressure but that is not justification for state agencies to further destroy this rare habitat type.

We feel the western alignment revised (W1R) would be acceptable with the environmental commitments described in the document. We request that NCDOT continue to coordinate the replacement of the community boating access area with our agency. At this time, we concur with the FEIS for this project. We anticipate an opportunity to comment on future permits for the proposed construction.

Thank you for the opportunity to review and comment on this FEIS. If we can further assist your office, please contact me at (919) 528-9886.

cc: Melba McGee, Office of Intergovernmental and Legislative Affairs, DEHNR
Howard Hall, U.S. Fish and Wildlife Service, Raleigh
Scott McLendon, USACOE, Wilmington

TOWN OF SUNSET BEACH

January 17, 1997

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
N. C. Department of Transportation
P.O. box 25201
Raleigh, N. C 27611-5201

Dear Mr. Vick:

I have reviewed the draft Section 4(f) Evaluation for the proposed bridge replacement at Sunset Beach dated 14 July 1995 and the preliminary final Section 4(f) Evaluation sent to me via facsimile dated 14 January 1997. I note the following from the study and concur that: 1) the beach, parking lot, gazebo, and public access points are the only applicable Section 4(f) resources in the project area; 2) Alternative W1R would not cause a "constructive use" of these resources; and 3) all practicable measures to minimize harm to these resources will be "incorporated and performed as an integral part of this project."

Given that all measures to minimize harm to these resources will be taken, on behalf of the majority of the Town Council of Sunset Beach, I concur with these findings and the selection of Alternative W1R as the preferred alternative.

Please let me know if I can provide any further assistance or review.

Sincerely,

Linda Fluegel

Linda Fluegel
Administrator

CC: Mayor Cherri Cheek
Roy Shelton, FHWA
✓ David Griffin, Greiner

600 Pineview Drive • Sunset Beach, NC 28468
Telephone 910-579-6297 • 910-579-3808 • FAX 910-579-1840

APPENDIX G

APPENDIX G

PART I

NEWSLETTERS

SUNSET BEACH BRIDGE REPLACEMENT NEWSLETTER

■ TOWN OF SUNSET BEACH ■ BRUNSWICK COUNTY

NO. 1 JANUARY 1994

PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) has selected the private engineering firm Greiner, Inc. to develop and study feasible and functional replacement and rehabilitation options for the Sunset Beach Bridge.

The Sunset Beach Bridge crosses the Atlantic Intracoastal Waterway on SR 1172, connecting the island portion of the Town of Sunset Beach with the mainland in Brunswick County, North Carolina. The purpose of the proposed action is to replace the existing bridge, which is structurally deficient and functionally obsolete. Replacement of this bridge with a new structure will improve highway access between the island and the mainland and will enhance watercraft operations on the Intracoastal Waterway. The new structure will also be more reliable and will offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures.

The existing bridge is a single-lane, steel-barge, swing-span draw bridge, with wooden approach spans, and crosses the Atlantic Intracoastal Waterway at mile 337.9. The beach road was added to the State System in 1960 as SR 1172, and the bridge has been maintained by NCDOT since 1961.

The existing bridge provides one-lane traffic operation using traffic signals at each end of the bridge to control alternating directions of traffic flow. During peak vacationing periods, considerable delay is experienced by both motorists and boaters using the highway and waterway in the project location. This delay is especially critical for emergency response vehicles.

STUDY TO DATE

The project is currently included in the NCDOT Transportation Improvement Program (TIP) and is identified as TIP No. B-682. In the fall of 1992, the first phase of the project was initiated, and an Interagency Scoping Meeting was held in Sunset Beach followed by a Citizens Informational Workshop. Through this process, we were able to identify agency issues and public concerns. The project scope was developed so that the second phase of the project could begin.

The second phase of the study began in the summer of 1993. This phase of the project includes the development of preliminary alternatives, the selection of reasonable and feasible alternatives, the preparation of a Draft Environmental Impact Statement, the selection of a preferred alternative, and the preparation of a Final Environmental Impact Statement.

Since Phase II of the project began, Project Team members have visited the study area to examine existing land uses, natural resources, waterway and vehicular traffic, pedestrian and bicycle traffic, and area socio-economics. Interviews and case studies have been conducted in order to address historical development trends that have taken place on Ocean Isle and Holden Beach. Surveys have been conducted to determine the height and frequency of watercraft using the Intracoastal Waterway and to determine the optimum bridge heights that should be considered during the study. Engineering teams have developed various alternative designs and have compiled preliminary cost estimates, business and residential displacements, and traffic analyses for each.

At present, the Project Team is utilizing all appropriate information collected to date on the study area to develop preliminary corridor alternatives for display at the Citizens Informational Workshop, scheduled to be held on February 1, 1994.

Published by the North Carolina Department of Transportation and Greiner, Inc.

Bridge Preservation Resource List

Public agencies

Advisory Council on Historic Preservation, Old Post Office Building, 1100 Pennsylvania Avenue, N.W., Suite 809, Washington, D.C. 20005 (202) 786-0503.

The Advisory Council on Historic Preservation is an independent agency of the federal government, established by the National Historic Preservation Act of 1966. It advises the president and Congress on matters pertaining to the preservation of historic, archeological, architectural and cultural resources. A principal responsibility is reviewing and commenting on federal, federally assisted and federally licensed projects affecting properties listed in or eligble for the National Register of Historic Places. The purpose of the review is to determine what is in the public interest. The Advisory Council has been involved with numerous historic bridges threatened with demolition by Federal Highway Administration-funded projects.

Federal Highway Administration (FHWA), U.S. Department of Transportation, 400 7th Street, S.W., Washington, D.C. 20590 (202) 426-0062.

The FHWA sets functional safety standards for the design, construction and maintenance of the nation's highways. It administers the federal-aid highway program, which distributes federal funds to states to construct and improve urban and rural highway systems. FHWA maintains 10 regional offices to coordinate the administration's work in each of the 50 states and U.S. territories.

Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, Washington, D.C. 20240 (202) 343-9606.

HAER was established in 1969 by a tripartite agreement among the National Park Service (NPS), the American Society of Civil Engineers (ASCE) and the Library of Congress. HAER is staffed by engineers, architects and historians and, in conjunction with National Park Service regional offices, conducts a nationwide program of documenting sites, structures and objects related to the history of engineering and technology within the United States. This documentation is undertaken in cooperation with state and local governments, professional societies, universities, preservation groups and other interested parties. The HAER staff is knowledgeable about many aspects of historic bridge preservation and is available for advice and consultation about specific problems related to historic bridge issues.

National Register of Historic Places, National Park Service, U.S. Department of the Interior, Washington, D.C. 20240 (202) 343-9536.

The National Register is the official list of America's cultural resources worthy of preservation. It includes districts, buildings, sites, structures and objects significant in American history, architecture, archeology, engineering and culture. Properties listed may be of local, state or national significance. The National Register is administered by the National Park Service within its Interagency Resources Management Division. Nonfederal nominations to the National Register come primarily from state historic preservation officers (SHPO). Nominations are first reviewed by the staff of the SHPO and generally must be approved by a state review board whose members are professionals in the fields of architecture, architectural history, history and archeology. After review, qualified nominations are signed by the SHPO and sent to the National Register office in Washington, D.C. Eligibility and listing provide protection by triggering legal considerations contained in NHPA, NEPA and Section 4(f) of the DOT act regardless of who nominates the site. However, listing will not automatically prevent the demolition of the properties. An annual list of properties added to the National Register is published in the Federal Register. Monthly additions appear in the Federal Register on the first Tuesday of each month.

State Departments of Transportation

State transportation departments are responsible for highway transportation projects within a given state except for those carried out by county or municipal authorities. All federal highway funds are channeled through the appropriate state transportation department and the allocation of these funds is largely determined by that department. The internal organization of these state agencies varies widely depending upon regional economic and political factors.

State Historic Preservation Officer (SHPO)

The SHPO is appointed by the governor of each state, territory and the Commonwealth of Puerto Rico and is in charge of historic preservation activities at the state level. Among other things, the SHPO serves as the link between communities and the federal government. The SHPO is responsible for the nomination of nonfederal properties to the National Register of Historic Places and for reviewing federal projects that have an impact on historic properties. The SHPO staff can provide assistance in bridge preservation efforts through coordination and consultation with state and federal transportation agencies and local governments.

Private Organizations

American Association for State and Local History (AASLH), 708 Berry Road, Nashville, Tenn. 37204 (615) 383-5991.

AASLH is a national organization dedicated to the advancement of local history in the United States and Canada and publishes a series of technical leaflets and the monthly magazine, *History News.*

American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, N.W., Washington, D.C. 20001 (202) 624-5800.

AASHTO is composed of representatives of state highway agencies and the Federal Highway Administration. It promotes a nationwide integrated highway

system and develops technical standards to foster the proper use of public transportation funds and to ensure uniformity and safety on our federal highway system. The AASHTO standards are used as a model for the design and maintenance of highways and highway structures. AASHTO usually has little interest in promoting historic bridge preservation.

American Society of Civil Engineers (ASCE), 345 East 47th Street, New York, N.Y. 10017 (212) 644-7496.

The ASCE was founded in 1852 and is the major professional society for civil engineers. The basic goals and objectives of the society are to conduct research, develop codes and standards on engineering technology with the American National Standards Institute. ASCE sponsors semiannual conferences, presents awards, sponsors competitions and publishes *Civil Engineering,* a monthly magazine, which occasionally has articles on bridge technology, both past and present. ASCE has a history and heritage committee, which can be helpful to bridge preservationists, and it has landmark designation programs at both the national and chapter levels. The committee can also assist with the formulation of arguments for saving historic bridges and may be able to assist by proposing engineering solutions for rehabilitation of bridges without damaging their integrity. However, this committee is also sensitive to the nonpreservation interests of the civil engineering profession and may be hesitant to become involved in difficult controversies.

National Trust for Historic Preservation, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036 (202) 673-4000.

The National Trust is a private, nonprofit membership organization chartered by Congress in 1949 to preserve historically significant properties and to encourage public participation in the preservation of buildings, sites and objects significant in American history and culture. The Trust's monthly newspaper, *Preservation News,* and bimonthly magazine, *Historic Preservation,* are sources of case study examples as well as forums for current issues. Small matching grants for consultant services are available for reuse feasibility studies, legal aid or bringing in other outside expertise as needed. Regional office staff are available to assist on a broad range of issues relating to bridge preservation.

Northeast Regional Office, Old City Hall, Second Floor, Boston, Mass. 02108 (617) 223-7754. (Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont)

Mid-Atlantic Regional Office, Cliveden, 6401 Germantown Avenue, Philadelphia, Pa. 19144 (215) 438-2886. (Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, Puerto Rico, Virgin Islands, Virginia, West Virginia)

Southern Regional Office, 456 King Street, Charleston, S.C. 29403 (803) 724-4711. (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee)

Midwest Regional Office, 407 South Dearborn, #710, Chicago, Ill. 60605 (312) 353-3419/3424. (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin)

Mountains/Plains Regional Office, 1407 Larimer Street, #200, Denver, Colo. 80202 (303) 837-2245. (Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Oklahoma, Wyoming)

Texas/New Mexico Field Office, 500 Main Street, Suite 606, Fort Worth, Tex. 76102 (817) 334-2061. (New Mexico, Texas)

Western Regional Office, 681 Market Street, Suite 859, San Francisco, Calif. 94105 (415) 974-8420. (Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Utah, Washington, Guam, Micronesia)

Society for Industrial Archeology (SIA), National Museum of American History, Room 5020, Smithsonian Institution, Washington, D.C. 20560 (202) 357-2058.

The SIA is a national membership organization focused on increasing public understanding of America's technological heritage. Its regular newsletter frequently includes articles on historic bridges, and the organization is a good networking resource.

Transportation Research Board (TRB), National Academy of Sciences, 2100 Pennsylvania Avenue, N.W., Washington, D.C. 20037 (800) 424-9818 or (202) 387-6335. Mailing address: 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

The TRB is a unit of the National Academy of Sciences. It acts as a national clearinghouse for research activities and information on transportation technology. The agency studies transportation systems and their interrelationships with other aspects of society. The TRB produces technical publications; maintains a number of standing committees; sponsors conferences, workshops and seminars; maintains a library; and presents annual awards for distinguished service and outstanding papers in the field. Although most TRB activities are unrelated to preservation, certain committees have been active in the effort to help preserve and protect historic bridges.

Selected References

Background Information; Bridge History

Billington, David P. *Robert Maillart's Bridges.* Princeton, N.J.: Princeton University Press, 1979.

Black, Archibald. *The Story of Bridges.* New York: Praeger, 1970.

Comp, T. Allan and Donald Jackson. "Bridge Truss Types: A Guide to Dating and Identifying." *History News* 32 (May 1977), no. 5 (Technical leaflet 95).

Condit, Carl. *American Building Art: The Nineteenth Century.* New York: Oxford University Press, 1960

_____. *American Building Art: The Twentieth Century.* New York: Oxford University Press, 1961.

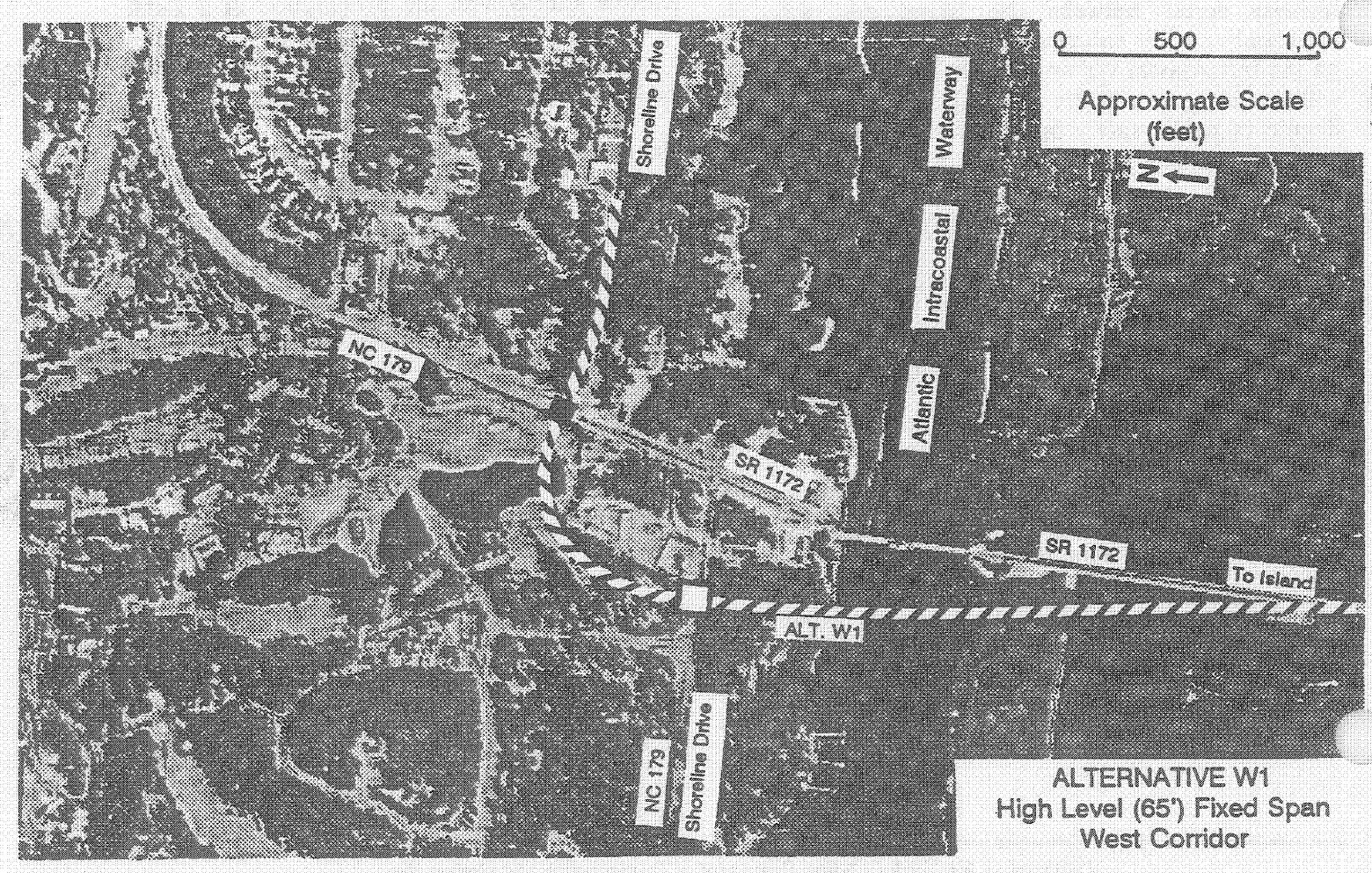
STUDY ALTERNATIVES

The project study will involve the identification and evaluation of a variety of build, as well as no-build alternatives. No-build alternatives include: 1) routine maintenance of the existing structure; and 2) complete rehabilitation of the existing structure.

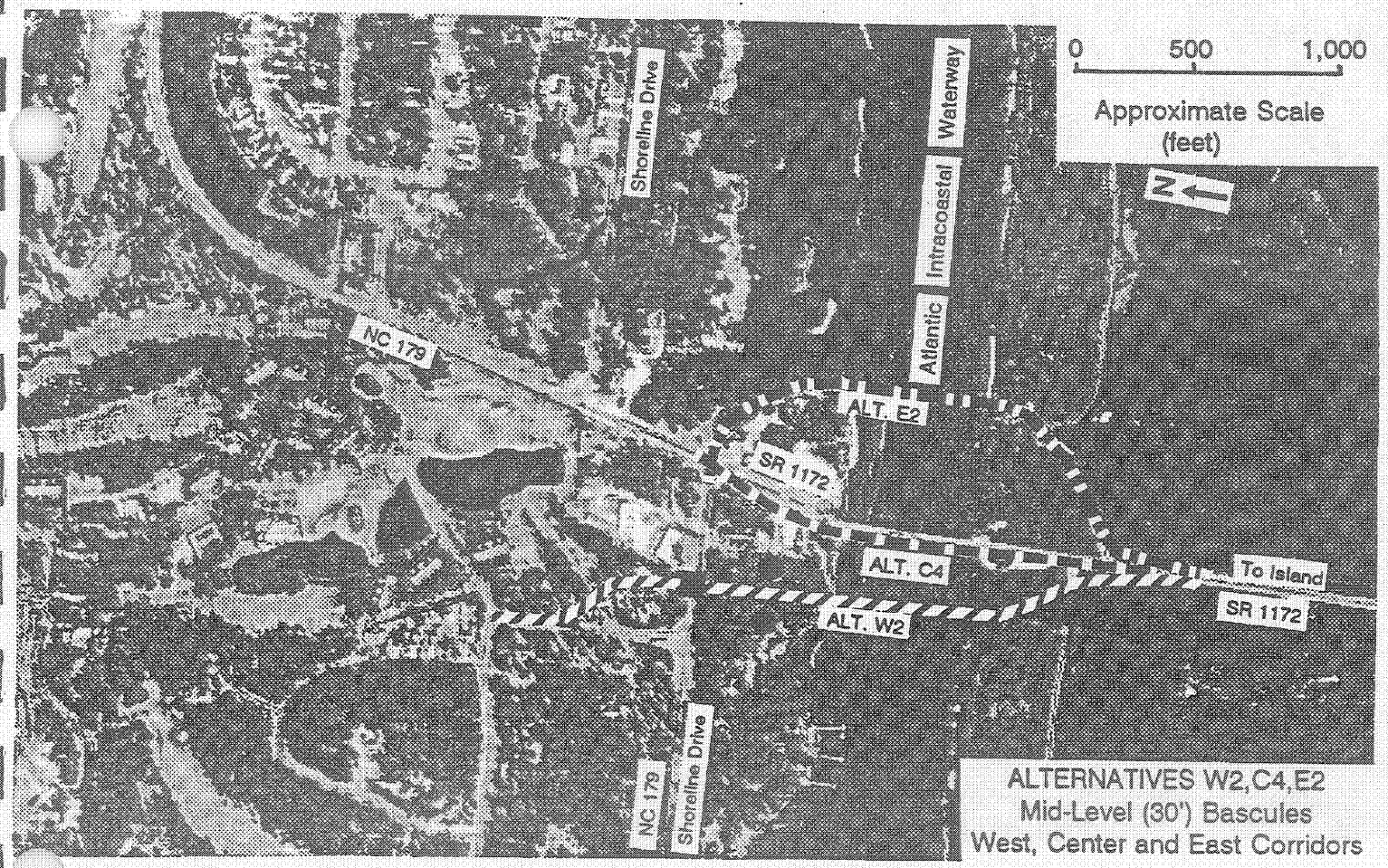
At present, eleven build alternatives are being considered. These include low and mid-level bascule (draw bridge) and high-level fixed span designs. Existing location (center corridor) and relocation alternatives, both to the east and to the west, have been developed (see figures on following pages of this Newsletter). Additionally, ferry and tunnel alternatives are being investigated during the preliminary phase of the project study. The preliminary build alternatives are depicted below.

LEGEND

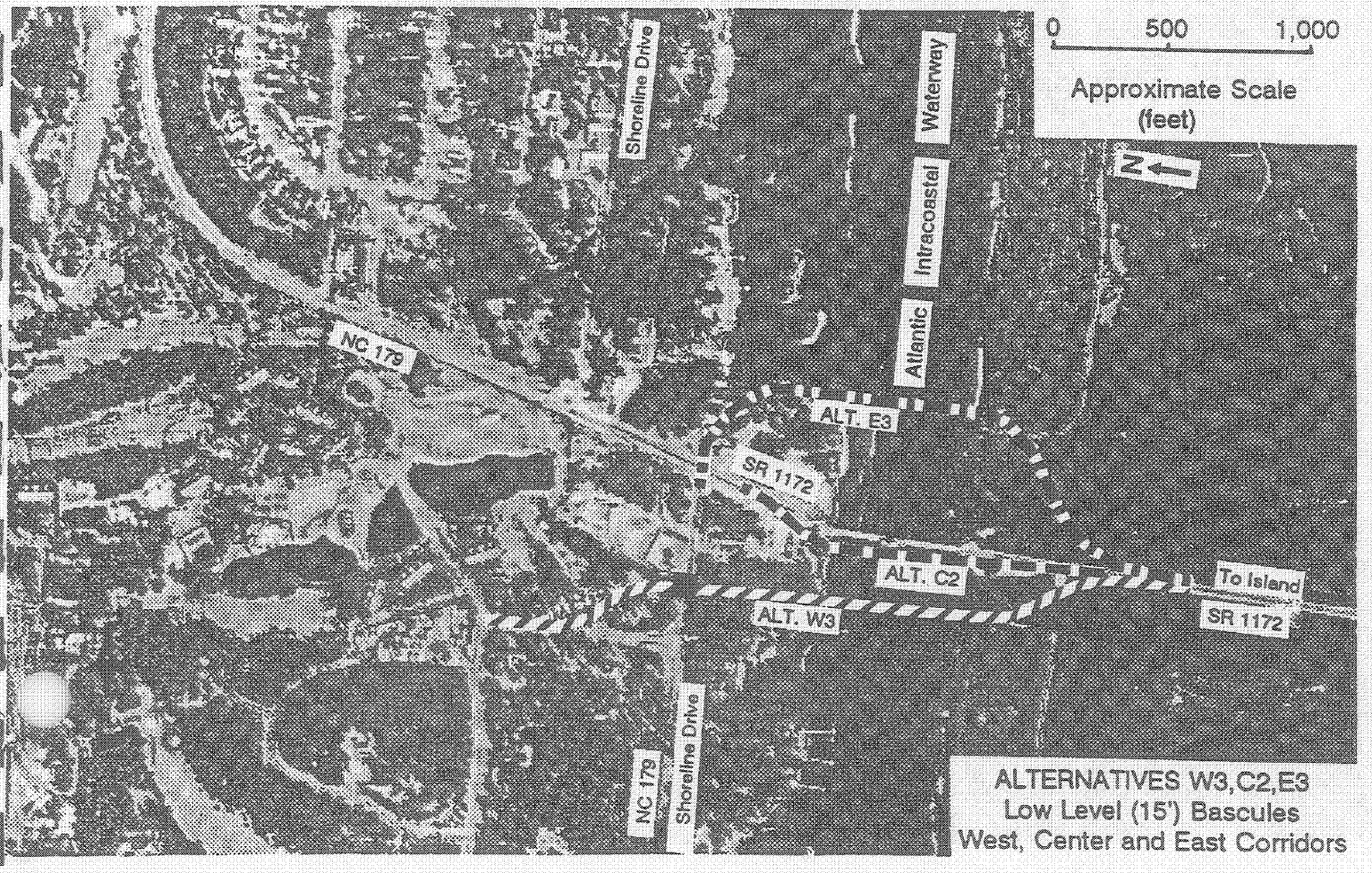
- AT-GRADE INTERSECTION
- GRADE SEPARATED INTERSECTION
- CUL-DE-SAC



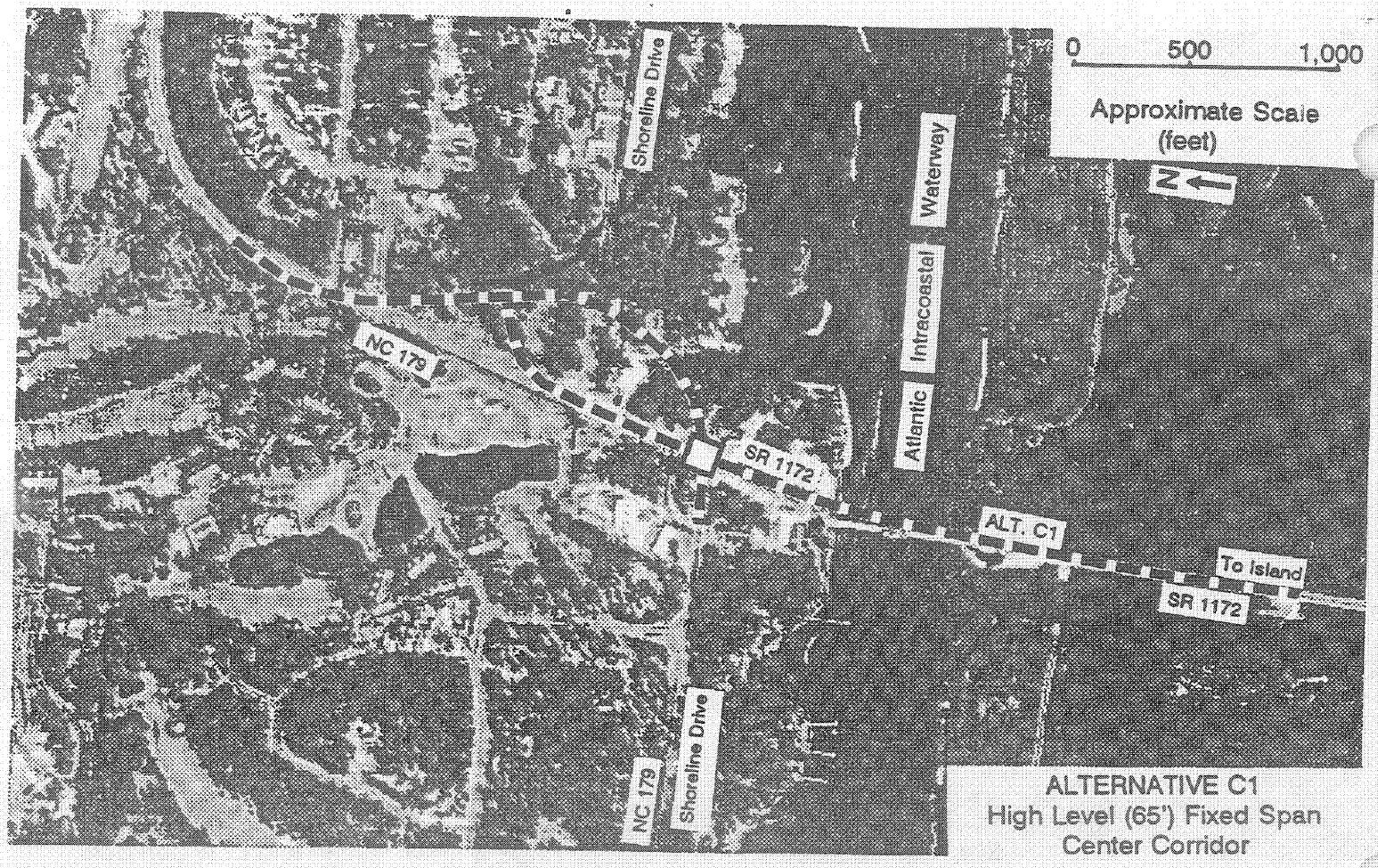
ALTERNATIVE W1
High Level (65') Fixed Span
West Corridor



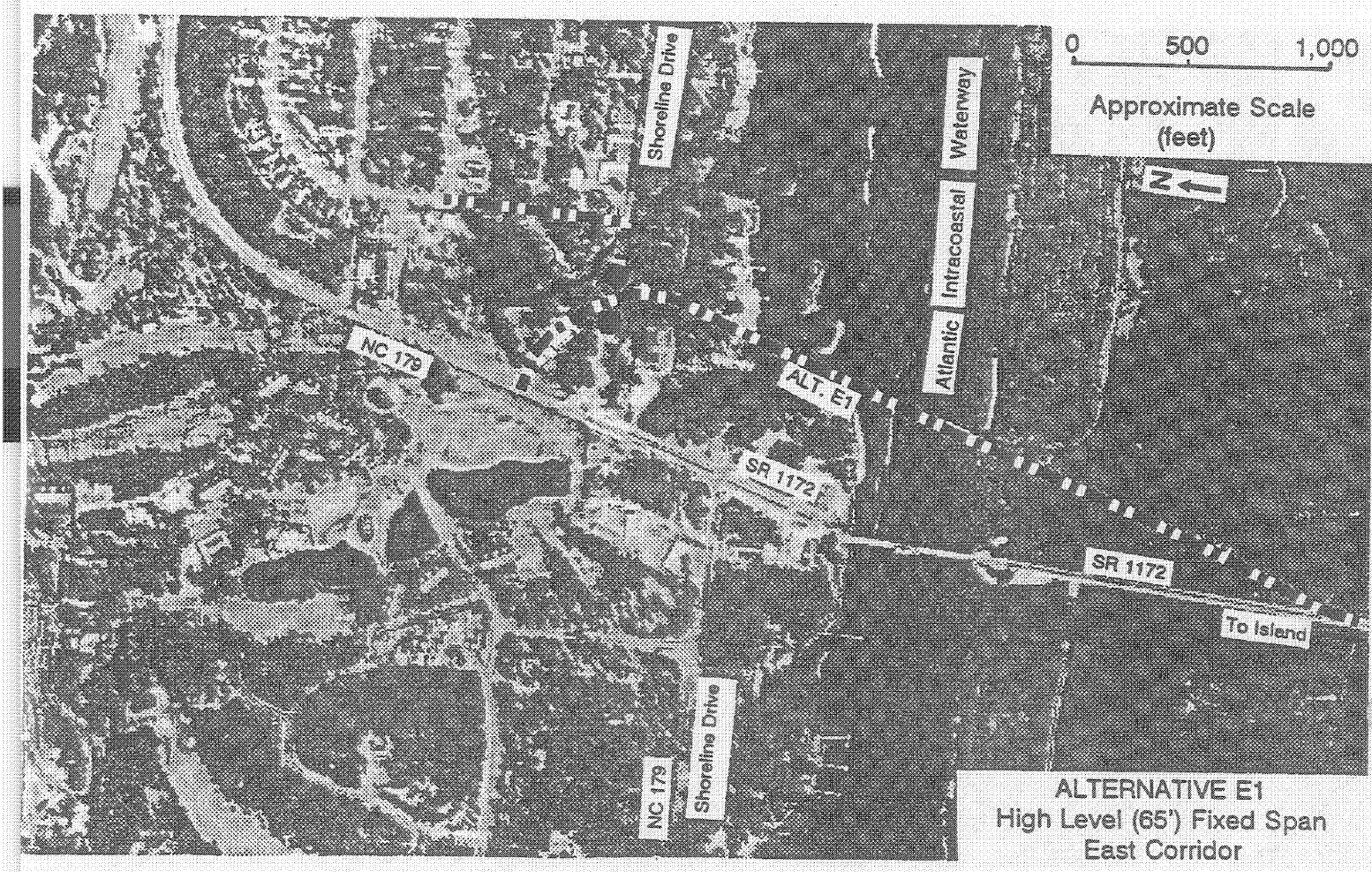
ALTERNATIVES W2,C4,E2
Mid-Level (30') Bascules
West, Center and East Corridors



ALTERNATIVES W3,C2,E3
Low Level (15') Bascules
West, Center and East Corridors



ALTERNATIVE C1
High Level (65') Fixed Span
Center Corridor



ALTERNATIVE E1
High Level (65') Fixed Span
East Corridor

STEERING COMMITTEE & PUBLIC INVOLVEMENT

As part of the study process, NCDOT has formed a Steering Committee to periodically review and comment on the project's progress. The committee includes representatives from NCDOT, the Federal Highway Administration, the Town of Sunset Beach and the project team. The first Steering Committee Meeting was held on December 8, 1993. Periodic Steering Committee meetings will be held throughout the course of the project study.

The public involvement program includes a series of informal citizens informational workshops held throughout the project's duration, in addition to a formal public hearing. Furthermore, individual groups or organizations can arrange meetings with Project Team members during the study process.

A project mailing list is being developed for those individuals or organizations that wish to receive project newsletters. The initial list was compiled during the first phase of the study. If you or your organization would like to be added to the mailing list, please complete the form below and return to:

GREINER, INC.
4630 PARAGON PARK ROAD
RALEIGH, NC 27604

All comments and questions regarding the Project Study should be directed to Greiner staff by either calling the toll-free hotline **1-800-233-6315** or 919/876-2760, or writing to the above address.

Public involvement is an important part of the project's planning process. The public is encouraged to participate in and comment on the Project Study throughout its duration. All comments received will be carefully reviewed and considered by the NCDOT and Project Team staff.

CITIZENS INFORMATIONAL WORKSHOP

February 1, 1994
Tuesday
4:00 p.m. - 8:00 p.m.
Jones/Byrd Pavilion
Sea Trails
Sunset Beach, NC

The purpose of the upcoming Citizens Informational Workshop is to provide the public with information on the Project Study and receive public input. The meeting will be informal and held in an open house format with displays and maps of the study area, preliminary corridor alternatives, and related information. We will present the 11 alternatives, as shown in this Newsletter, and will provide detailed information regarding the effects of each alternatives. Information such as costs, structure heights and lengths, relocatees, and natural resource impacts will be provided. Project Team members and NCDOT representatives will be available to answer questions and receive comments.

PROJECT SCHEDULE

Citizens Workshop	February 1, 1994
Newsletter #2	Fall 1994
Draft EIS completion	Fall 1994
Pre-Hearing Workshop	Winter 1994-95
Corridor Public Hearing	Winter 1994-95
Newsletter #3	Summer 1995
Final EIS completion	Summer 1995

SUNSET BEACH BRIDGE REPLACEMENT PROJECT
MAILING LIST

Name

Address

City, State, Zip, Neighborhood Organization/Affiliation

Comments

NEWSLETTER

Greiner GREINER, INC.
ENGINEERS/PLANNERS

4630 Paragon Park Road
Raleigh, NC 27604
Telephone (919) 876-2760

CONTACTS

Questions and comments regarding the
Project Study should be directed to:

Mr. D. A. Griffin, C.E.P.
Project Manager
Greiner, Inc.
4630 Paragon Park Road
Raleigh, North Carolina 27604
(919) 876-2760

Ms. Julie Hunkins, P.E.
Project Manager
NCDOT
P.O. Box 25201
Raleigh, North Carolina 27611
(919) 733-7842

Greiner GREINER, INC.
ENGINEERS/PLANNERS
4630 Paragon Park Road
Raleigh, NC 27604
Telephone (919) 876-2760

SUNSET BEACH BRIDGE STUDY

NEWSLETTER

TOWN OF SUNSET BEACH BRUNSWICK COUNTY

NO. 2 NOVEMBER 1994

PROJECT STUDY TO DATE

The North Carolina Department of Transportation (NCDOT) has retained the private engineering firm Greiner, Inc. to develop and study options to replace and rehabilitate Bridge No. 198 on SR 1172 over the Atlantic Intracoastal Waterway at Sunset Beach. The Sunset Beach bridge connects the island portion of the Town of Sunset Beach with the mainland in Brunswick County, North Carolina. The study has been underway since the middle of 1993 and has included a number of study components, including an extensive citizen involvement program.

Replacement of this structurally deficient and functionally obsolete bridge with a new structure will provide a reliable means of transportation between the island and the mainland. A new bridge will offer a greater degree of public safety by improving emergency response time and evacuation procedures. Furthermore, the new facility will enhance watercraft operations on the Intracoastal Waterway.

Initially, the study considered 11 build alternatives including three bridge types along three separate corridor locations, a ferry and a tunnel. The three bridge types evaluated included a low-level (15-foot) bascule bridge, a mid-level (30-foot) bascule bridge, and a high-level (65-foot) fixed span bridge. (A bascule bridge is a type of draw bridge.) Western, center and eastern corridor locations were also considered for each of the bridge types.

The 11 preliminary alternatives were evaluated with respect to roadway design, transportation service, traffic operations and public safety, as well as environmental, economic and social impacts. Construction, operations, maintenance and right-of-way costs also were considered in the evaluation process. This evaluation process led to the selection of the alternatives considered to be the most reasonable and feasible with regard to the project's purpose, need and environmental consequences.

The alternatives selection process is described in the *Preliminary Alternatives Report* dated April 1994. This report, along with others, are available for review at the Sunset Beach Town Hall, the Third Highway Division Office in Wilmington, the Department's Planning and Environmental Branch in Raleigh and the office of Greiner, Inc. in Raleigh.

SECOND CITIZENS WORKSHOP SCHEDULED

The Second Citizens Informational Workshop for the Sunset Beach Bridge Replacement Project will be held on December 6, 1994, from 4 - 8 p.m. in the Jones/Byrd Pavilion, Sea Trails Plantation, in Sunset Beach. The purpose of the workshop is to obtain comments, ideas and suggestions from the public and to inform the public of the status of the project. The workshop will be informal and held in an open-house format.

CITIZENS INFORMATIONAL WORKSHOP

December 6, 1994	Jones/Byrd Pavilion
Tuesday	Sea Trails
4 - 8 p.m.	Sunset Beach, NC

Various displays will be presented at the workshop, including maps and photos of the project area, photographic renderings of proposed bridge options and information pertaining to the project alternatives. Members of the project study team will be available to discuss the project study and answer questions.

NCDOT will provide reasonable auxiliary aids and services for disabled persons interested in attending the workshop, to comply with ADA. To receive special services, please contact Ms. Hunkins at (919) 733-7842 or you may fax your request to (919) 733-9794 prior to the date of the workshop.

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STUDY ALTERNATIVES IDENTIFIED

Three build alternatives were selected for further consideration and evaluation:

Alternative W1 High-level (65-foot) fixed span bridge along the western corridor.

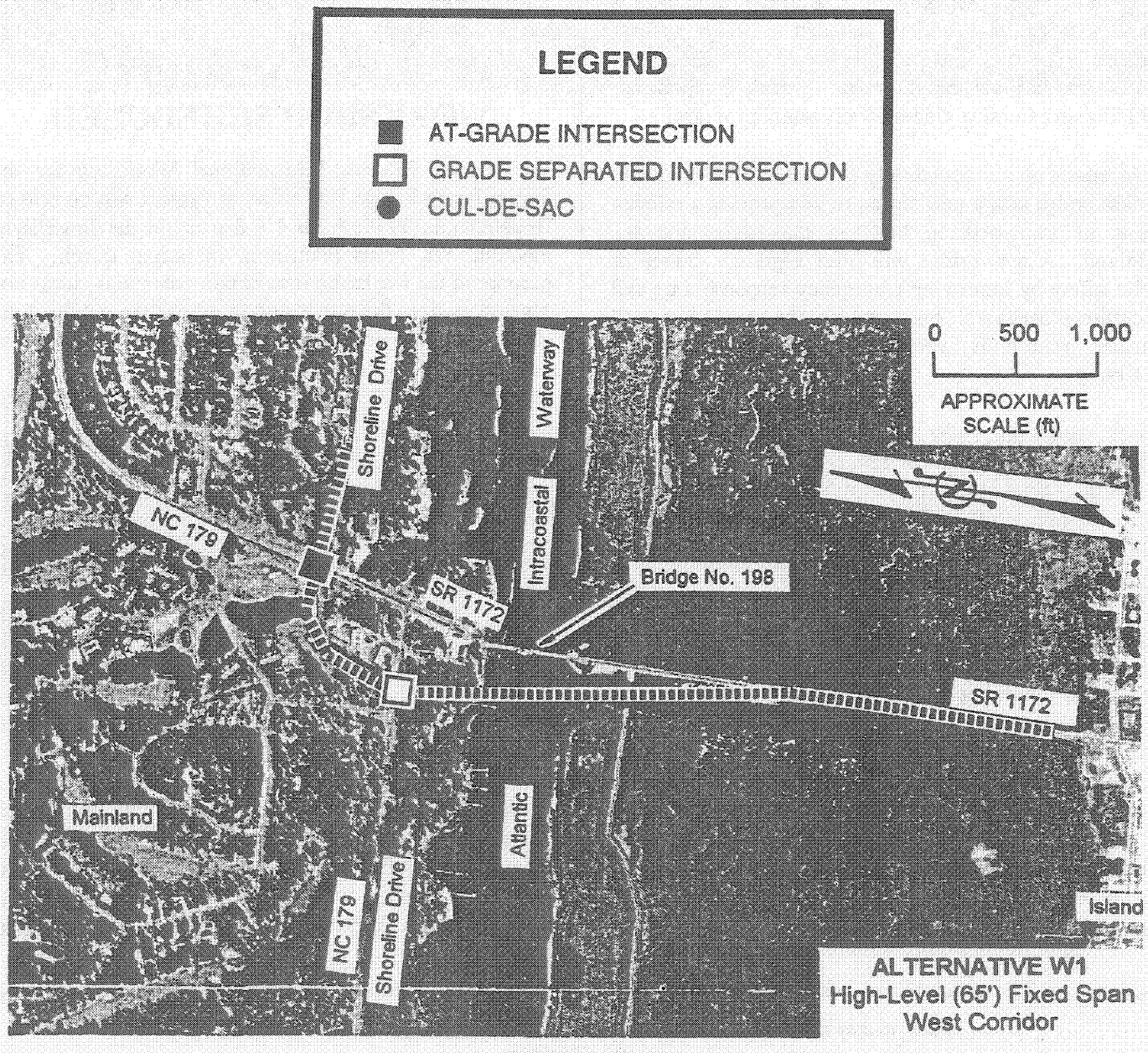
Alternative C1 High-level (65-foot) fixed span bridge along the center corridor.

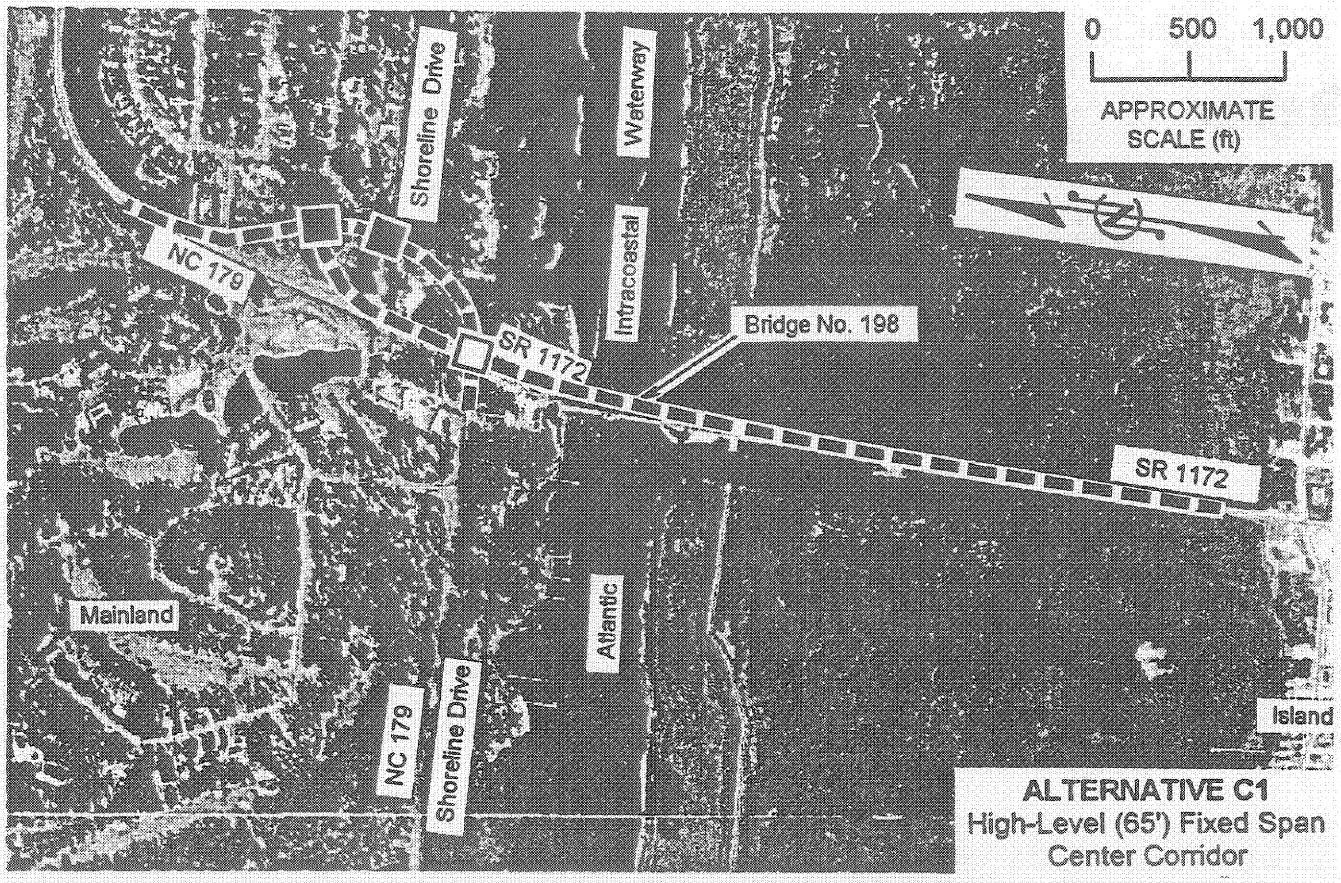
Alternative C4 Mid-level (30-foot) bascule bridge along the center corridor.

Additionally, rehabilitation of the existing facility and the "no-build" alternative will be evaluated further.

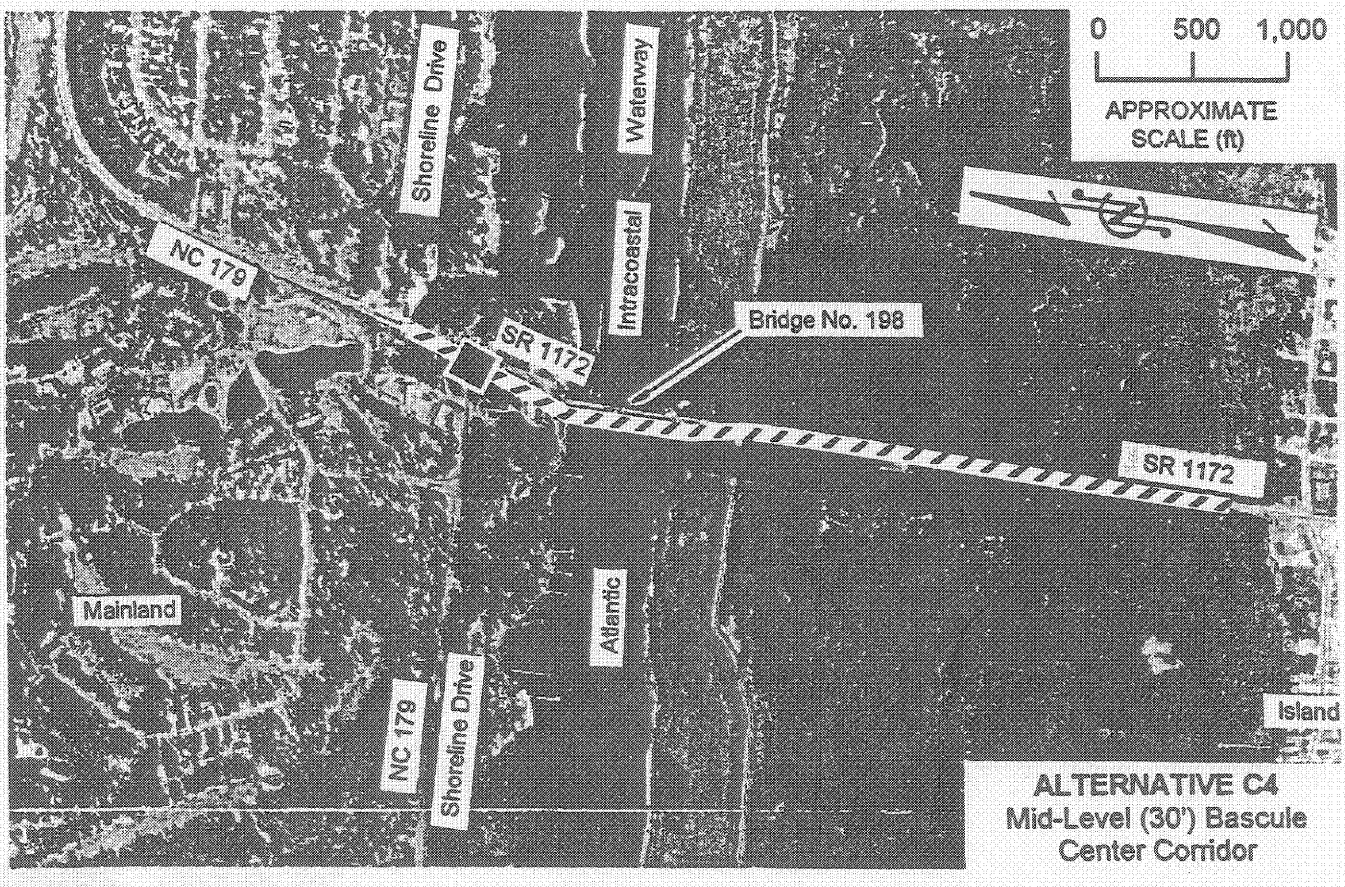
These five alternatives will be studied in greater detail and addressed in the Draft Environmental Impact Statement, which is currently being prepared. The Draft Environmental Impact Statement should be completed and available for public review and comment in the spring of 1995.

The following figures depict the three reasonable and feasible build alternatives.





ALTERNATIVE C1
High-Level (65') Fixed Span
Center Corridor



ALTERNATIVE C4
Mid-Level (30') Bascule
Center Corridor

NEWSLETTER

Greiner

GREINER, INC.
ENGINEERS/PLANNERS

4630 Paragon Park Road
Raleigh, North Carolina 27604
Telephone (919) 876-2760

CONTACTS

Questions and comments regarding the project study should be directed to:

Mr. D. A. Griffin, C.E.P.
Project Manager
Greiner, Inc.
4630 Paragon Park Road
Raleigh, North Carolina 27604
(919) 876-2760

Ms. Julie Hunkins, P.E.
Project Manager
NCDOT
P.O. Box 25201
Raleigh, North Carolina 27611
(919) 733-7842

or

CALL TOLL-FREE
1-800/233-6315

Greiner GREINER, INC.
ENGINEERS/PLANNERS
4630 Paragon Park Road
Raleigh, North Carolina 27604
Telephone (919) 876-2760

SUNSET BEACH BRIDGE REPLACEMENT STUDY

NEWSLETTER

TOWN OF SUNSET BEACH BRUNSWICK COUNTY

NUMBER 3 AUGUST 1995

➜ *REMEMBER:*

PUBLIC HEARING
SEPTEMBER 5
7:30 PM

at
Jones/Byrd
Clubhouse
Sea Trail Plantation
75 Clubhouse Road
Sunset Beach, NC

ALL ARE WELCOME TO COMMENT ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

DRAFT ENVIRONMENTAL IMPACT STATEMENT AVAILABLE

The Draft Environmental Impact Statement (DEIS) for the Sunset Beach Bridge project was completed on July 14, 1995 and is now available for public review. The DEIS describes the purpose and need for replacing the existing bridge over the Intracoastal Waterway, the existing environmental conditions in the study area, and the environmental impacts of the project alternatives. Five alternatives were evaluated: the No-Build Alternative, a Rehabilitation Alternative, two high-level bridges, and a mid-level bascule bridge (drawbridge).

Copies of the DEIS can be reviewed at the following three locations:

Sunset Beach Town Hall
220 Shoreline Drive West
Sunset Beach, NC 28468
(910) 579-6297

Brunswick County Public Library
5068 Main Street
Shallotte, NC 28470
(910) 754-6578

Third District Division Office
NC Department of Transportation
124 Division Drive
Wilmington, NC 28401
(910) 763-5133

Comments regarding the DEIS may be mailed to:

Mr. H. Franklin Vick, P.E.
Manager
Planning and Environmental Branch
NCDOT
PO Box 25201
Raleigh, NC 27611

Comments also can be submitted verbally or in writing at the upcoming Public Hearing on September 5, 1995 (see next section).

The public comment period on the DEIS will end September 23, 1995.

UPCOMING PUBLIC HEARING

A public hearing on the Sunset Beach Bridge project is scheduled for September 5, 1995, at 7:30 p.m. The hearing will be held in the Jones/Byrd Clubhouse at Sea Trail Plantation, 75 Clubhouse Road, Sunset Beach, NC.

From 6 p.m. to 7:30 p.m., project maps and information will be displayed in the clubhouse. Project team members from the NC Department of Transportation and Greiner, Inc. will be available to discuss the project and answer questions individually.

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The purpose of the public hearing is to give individuals a chance to comment on the proposed action. The project study team will make a formal presentation at the beginning of the hearing. The remainder of the hearing will be devoted to receiving public comment. All comments will be recorded.

Everyone is welcome to speak and/or submit written comments at the hearing. A speaker sign-up sheet will be available at the Jones/Byrd Clubhouse beginning at 6 p.m. Individuals may sign up to speak before September 5th by calling the toll-free project information line:

Toll-Free Project Information Line: 1-800-233-6315

NCDOT will provide auxiliary aids and services for disabled persons who wish to participate in the proceedings. To receive special services, please contact Mr. Bill Garrett, P.E., Public Hearing Officer, at (919) 250-4092. Please give adequate notice so arrangements can be made.

WHAT HAPPENS NEXT?

After the public comment period ends, all comments received by mail and recorded at the public hearing will be compiled. These comments, along with design data, will be considered in the selection of a bridge alternative.

Once an alternative has been selected, the preliminary design of the bridge will be developed. The design will minimize environmental impacts as much as possible, while taking into account engineering constraints.

The Final Environmental Impact Statement will be prepared based on more detailed environmental information gathered on the selected alternative. A design public hearing will be held to solicit comments on the preliminary design of the bridge.

Comments received during public review of the preliminary design will be used to develop a final design of the bridge.

A schedule for right-of-way acquisition and construction will be established after a court case associated with this project is resolved. The US District Court, Eastern District, Raleigh Division, has retained jurisdiction over this case. The Draft EIS describes the status and history of the project in more detail.

ABOUT THE PROJECT...

The existing Sunset Beach bridge, which is often referred to as a pontoon bridge, is a single-lane, floating steel-barge, swing-span draw bridge, with fixed wooden approach spans.

In February 1994, the bridge was inspected by the NCDOT and found to be in poor condition. The bridge was given a sufficiency rating of 4.0 on a scale of 0 to 100, with 100 being perfect condition. A new bridge structure would provide a more reliable means of transportation between the island and the mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures.

Three new bridge structures were evaluated in the Draft EIS - Alternatives W1, C1, and C4. The alignments of these alternatives are shown on the enclosed insert. Alternatives W1 and C1 are fixed-span, high-level bridges which would provide 65 feet of vertical clearance over the 90-foot main Intracoastal Waterway channel. Alternative C4 is a bascule bridge (drawbridge) which would provide 30 feet of vertical clearance over the main Intracoastal Waterway channel. Rehabilitating the existing bridge also was evaluated as an alternative (Alternative C3R).

The table on the insert page summarizes the quantifiable environmental impacts of replacing or rehabilitating the existing bridge.

Other issues, which could not be easily defined, are also included in the Draft EIS. One of these issues is whether a new bridge would affect land use patterns and the rate of development on the island of Sunset Beach. Comprehensive case studies of Ocean Isle and Holden Beach were conducted to help address this subject. High-level bridges were constructed to replace swing-span bridges in these two nearby beach communities in 1985 and 1986, respectively. Ocean Isle's former bridge was two lanes wide, and Holden Beach's previous bridge was one lane wide.

The case studies analyzed land use and economic conditions in Holden Beach and Ocean Isle to determine whether these conditions had been influenced by the construction of the high-level bridges. Building permit data for years before and after construction of the high-level bridges were collected. Elected officials, town government employees, and people representing real estate and retail interests were interviewed about their perceptions of the impacts of the high-level bridges in the communities. Each town's past and present land use plans and land use regulations also were examined to determine historical attitudes and approaches to growth. Sections 3.1.2.3 and 4.1.1.3 in the Draft EIS summarize the case studies and the conclusions which were drawn from them.

COMMENTS

Please use this space to record your comments about the project.

Mail to: Mr. H. Franklin Vick, P.E.
Manager
Planning and Environmental Branch
NCDOT
PO Box 25201
Raleigh, NC 27611

NEWSLETTER

SUNSET BEACH BRIDGE REPLACEMENT PROJECT

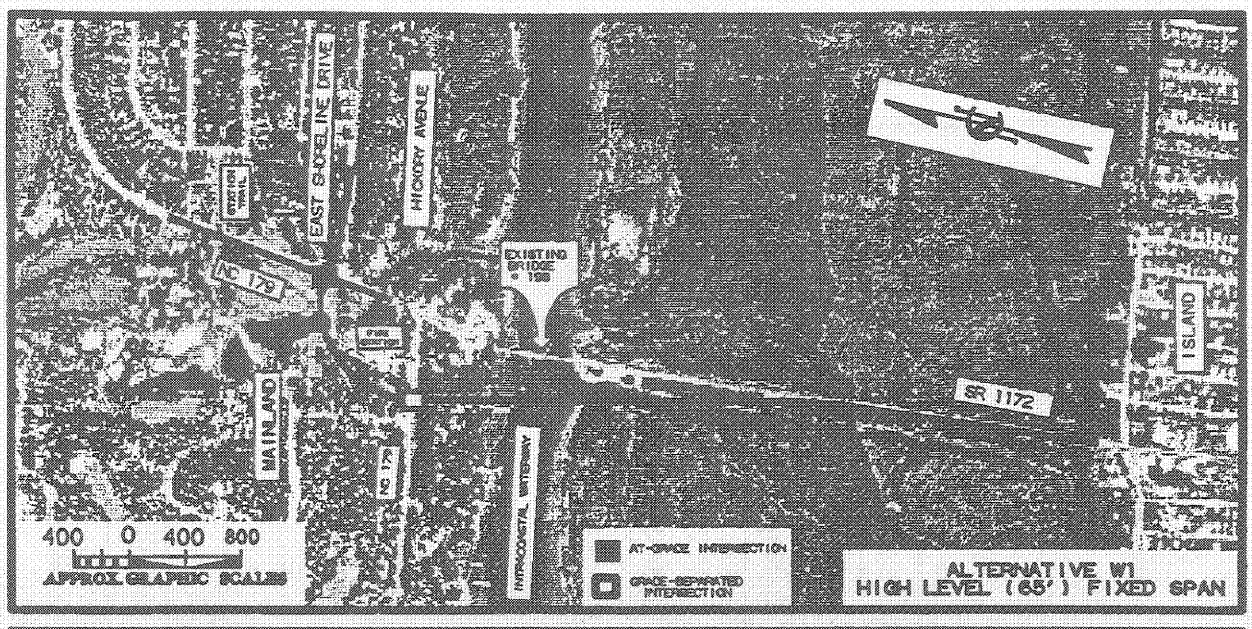
PUBLIC HEARING ANNOUNCEMENT

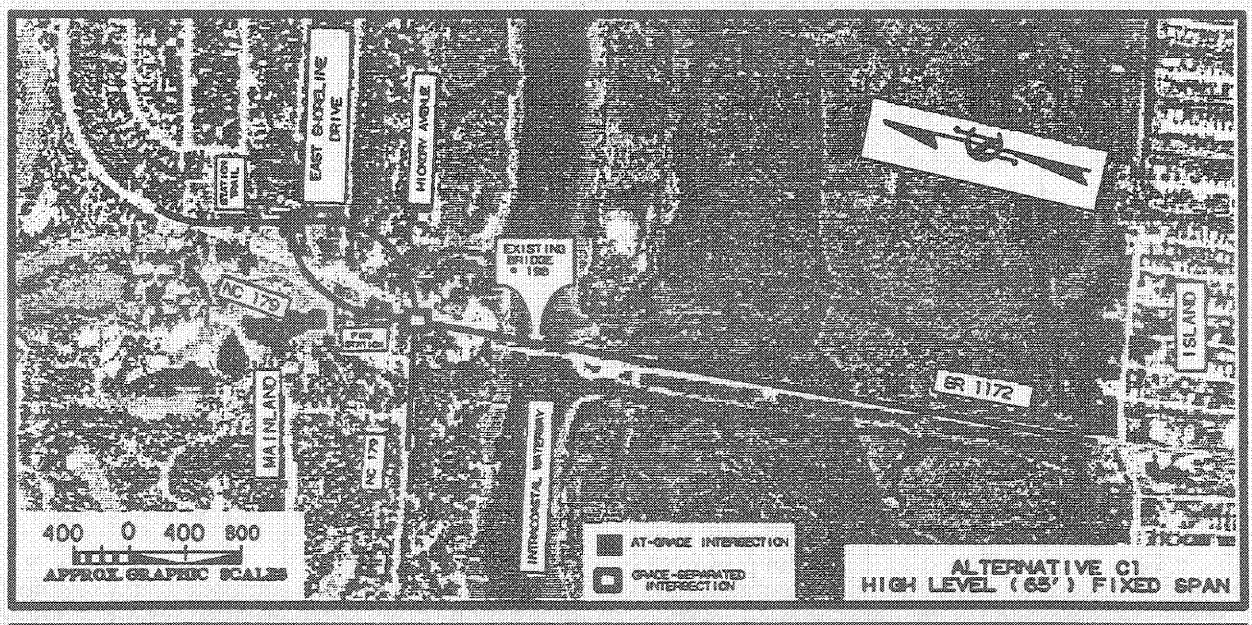
TOPIC: Sunset Beach Bridge Replacement Project (TIP Project No. B-682)

DATE: September 5, 1995
TIME: The Public Hearing begins at 7:30 PM
Project maps and information available for review from 6:00-7:30 PM
PLACE: Jones/Byrd Clubhouse at Sea Trail Plantation
75 Clubhouse Road, Sunset Beach, NC

FOR MORE INFORMATION: Call Greiner's toll-free project information line: 1-800-233-6315
or the Greiner, Inc. offices at (919) 876-2760

Greiner
4630 PARAGON PARK ROAD
RALEIGH, NC 27604


EAST SHORELINE DRIVE
HICKORY AVENUE
EXISTING BRIDGE
NC 178
MAINLAND
NC 179
INTRACOASTAL WATERWAY
SR 1172
ISLAND
400 0 400 800
APPROX. GRAPHIC SCALE
AT-GRADE INTERSECTION
GRADE-SEPARATED INTERSECTION
ALTERNATIVE W1
HIGH LEVEL (65') FIXED SPAN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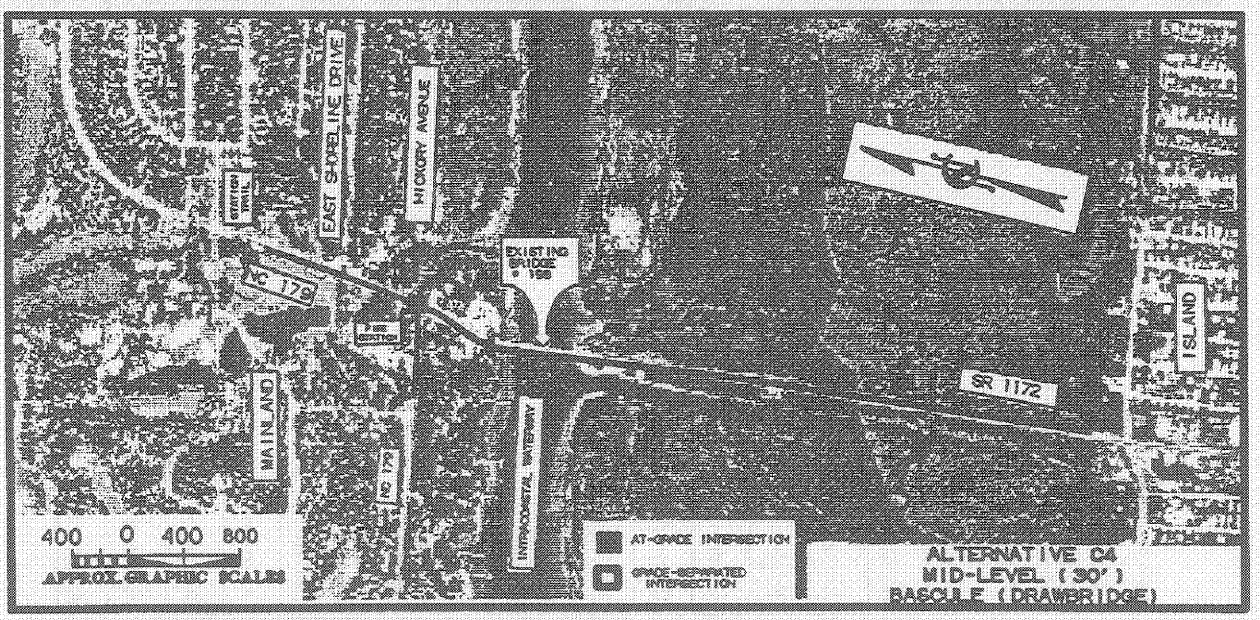
HIGH LEVEL (65') FIXED SPAN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NC 178
MAINLAND
NC 179
INTRACOASTAL WATERWAY
SR 1172
ISLAND
400 0 400 800
APPROX. GRAPHIC SCALE
AT-GRADE INTERSECTION
GRADE-SEPARATED INTERSECTION
ALTERNATIVE C4
MID-LEVEL (30')
BASCULE (DRAWBRIDGE)

SUMMARY OF IMPACTS

SUNSET BEACH BRIDGE REPLACEMENT PROJECT (TIP No. B-682)

IMPACT	Alternative W1 (West High-Level)	Alternative C1 (Center High-Level)	Alternative C4 (Center Bascule)	Alternative C3R (Rehabilitation)
Approximate Length of Roadway Improvements (ft)	4,325	5,230	5,140	0
Intracoastal Waterway Bridge Length (ft)	2,418	2,710	1,140	550
Slough Canal Bridge Length (ft)	--	90	--	--
Total Length (ft)	6,743	8,030	6,280	550
Construction Costs	$11,400,000	$11,000,000	$13,000,000	$1,359,950
Right-of-Way Costs	$1,325,500	$3,525,500	$1,949,500	--
Operations/Maintenance Costs*	$1,587,550	$1,781,250	$3,650,750	$2,447,630
Total Costs	$14,313,050	$16,306,750	$18,600,250	$3,807,580
Navigable Waterway Crossings	2	2	1	1
Residential Relocations	0	3	0	0
Business Relocations	0	3	3	0
Visual Impact Rating (< -2.0 is adverse)	-2.124	-2.0	-1.625	--
Potential Hazardous Materials Sites	0	2	3	0
Sensitive Areas Impacted by Noise	2	3	0	0
Acres of Salt Marsh Impacted	0.89	1.10	0.75	0
Acres of Surface Water Impacted	3.02	0.17	0.17	0.24
Acres of Nonriverine Wet Hardwood Forest	0.00	0.27	0.00	0.00
Acreas of Coastal Fringe Evergreen Forest	1.95	1.63	0.46	0.00

* Operations and maintenance costs are amortized over a 40-year period.

NEWS LETTER

SUNSET BEACH BRIDGE REPLACEMENT STUDY

NUMBER 4
JULY 1996

TOWN OF SUNSET BEACH, BRUNSWICK COUNTY

PREFERRED ALTERNATIVE SELECTION MADE

INSIDE

LOCATION MAP OF ALTERNATIVES

SUMMARY OF IMPACTS

SUNSET BEACH BRIDGE REPLACEMENT STUDY

For more information contact:

Mr. H. Franklin Vick, P.E.
Manager, Planning and Environmental Branch
NCDOT
P.O. Box 25201
Raleigh, NC 27611

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NCDOT MAKES SELECTION After thoroughly reviewing the economic and environmental impacts along with input from the public and local officials, the selection of the West Corridor (Alternative W1), as the preferred alternative, was made by the North Carolina Department of Transportation (NCDOT). Within the West Corridor some modifications in the design are being made to minimize impacts to Big Narrows Channel (Alternative W1R).

Located approximately 250 feet west of the existing pontoon bridge, Alternative W1R is proposed as a new, high-level, fixed span bridge. The high-level bridge would be about 2,374 feet in length with a minimum vertical clearance of 65 feet. Vessel travel will be uninterrupted along the Intracoastal Waterway with this alternative. The proposed bridge would have two 11-foot wide travel lanes with 5 feet of lateral clearance on each side. The approach roadways would have 11-foot wide travel lanes and 4-foot wide paved shoulders.

BASIS FOR SELECTION The alternative selection was based on safety and reliability, traffic service, and cost. Other issues considered included land use planning, cultural resources, navigable waterways, pedestrian and bicycle utilization, agency input, public input, local government input, community facilities and services, hazardous material sites and residential and business relocations.

Alternative W1R, high-level fixed span would be reliable in terms of public safety and emergency access. Access interruptions to the island caused by bridge openings, scheduled or unscheduled, would be eliminated with Alternative W1R. Constraints imposed on response times of fire, police, and emergency rescue units in emergency situations would be reduced. Alternative W1R would also facilitate evacuation procedures.

Traffic service, both on land and water, would be greatly improved by the high-level fixed span bridge. There would be less vehicular traffic congestion surrounding the bridge approaches and intersections near the bridge which is occurring now due to openings for waterway traffic. In addition, uninterrupted flow of Atlantic Intracoastal Waterway boat traffic would be provided with Alternative W1R.

Alternative W1R, in terms of both initial capital investment (combined right-of-way and construction cost) and long-term (a 40-year life cycle period), is the least costly alternative

considered. Over a 40-year analysis period, the next most cost effective choice would require and additional expenditure of $2 million.

Alternative W1R is consistent with the current 1992 Sunset Beach Land Use Plan which supports improved bridge access to the island. There is one archaeological site likely to be impacted by a west corridor alternative, which the NCDOT plans to investigate further in order to evaluate the site's potential in relation to current research interests.

For pedestrians and bicyclists, four-foot paved shoulders along the approaches to the bridge and five feet of lateral clearance on the bridge would be provided. The hazards bicyclists and pedestrians face crossing the existing bridge would be reduced with the additional lateral clearance provided with Alternative W1R.

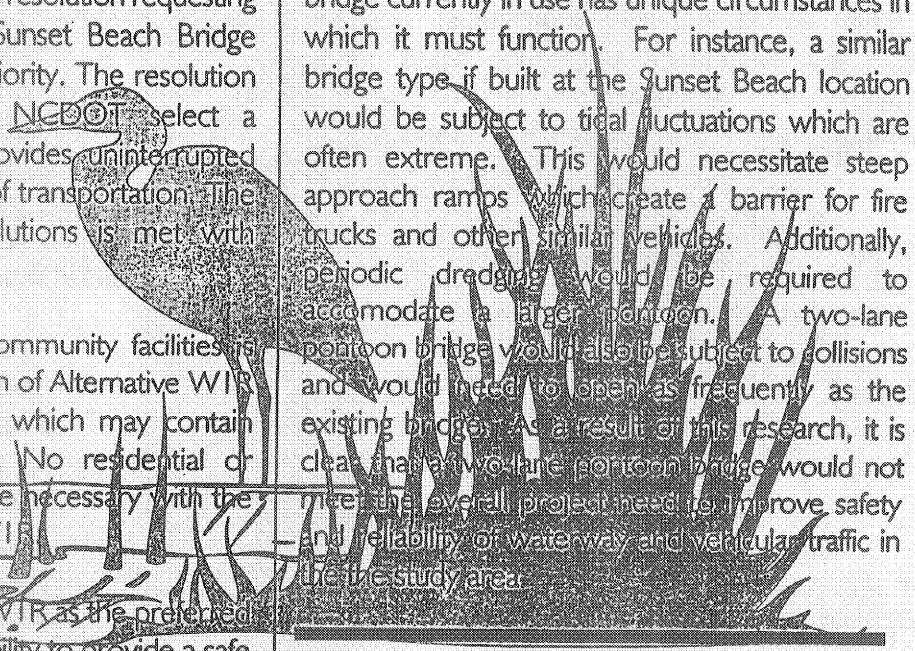
REVISIONS TO W1 Agencies' preferences for the alternatives were cited after the Draft Environmental Impact Statement was circulated. Differences of opinion were expressed as to which alternative was preferred, primarily as a result of the proposed relocation of Big Narrows Channel. The original alignment is being modified in order to eliminate or significantly reduce and minimize the amount of dredging required in Big Narrows Channel. Agencies have reviewed these proposed modifications and reached general consensus regarding the preferred alternative.

The majority of the public agrees on the need for improvement to the existing transportation access; however, the community remains divided regarding the type of improvement that should be implemented. The Sunset Beach Town Council officially endorsed, by resolution on February 6, 1995, a 65-foot high-level fixed span bridge between the island and mainland portions of the Town. On June 4, 1996, the Town of Sunset Beach unanimously adopted a resolution requesting the NCDOT to give the Sunset Beach Bridge Replacement Project high priority. The resolution further requests that the NCDOT select a replacement bridge that provides uninterrupted travel service for all modes of transportation. The compatibility of these resolutions is met with Alternative W1R.

No direct impact on any community facilities is anticipated. The construction of Alternative W1R would avoid any properties which may contain underground storage tanks. No residential or business relocations would be necessary with the construction of Alternative W1R.

The selection of Alternative W1R as the preferred alternative was based on its ability to provide a safe and reliable means of transportation between the island and mainland at Sunset Beach and the greater degree of public safety it offers by improving emergency response time and emergency evacuation procedures.

PONTOON BRIDGE RESEARCH During the comment period for this study, there were several comments received concerning the consideration of a two-lane pontoon bridge alternative. Several state DOT's were contacted regarding the tested use of two-lane pontoon bridges. There were three states found to have used pontoon bridges. Concerns expressed by the personnel contacted included inefficiency, balance and buoyancy problems, and related safety issues. Each pontoon bridge currently in use has unique circumstances in which it must function. For instance, a similar bridge type if built at the Sunset Beach location would be subject to tidal fluctuations which are often extreme. This would necessitate steep approach ramps which create a barrier for fire trucks and other similar vehicles. Additionally, periodic dredging would be required to accomodate a larger pontoon. A two-lane pontoon bridge would also be subject to collisions and would need to open as frequently as the existing bridge. As a result of this research, it is clear that a two-lane pontoon bridge would not meet the overall project need to improve safety and reliability of waterway and vehicular traffic in the the study area.



PROJECT SCHEDULE

Alternative Selected	June 1996
Newsletter No. 4	July 1996
Final EIS Complete	December 1996
Record of Decision	March 1997

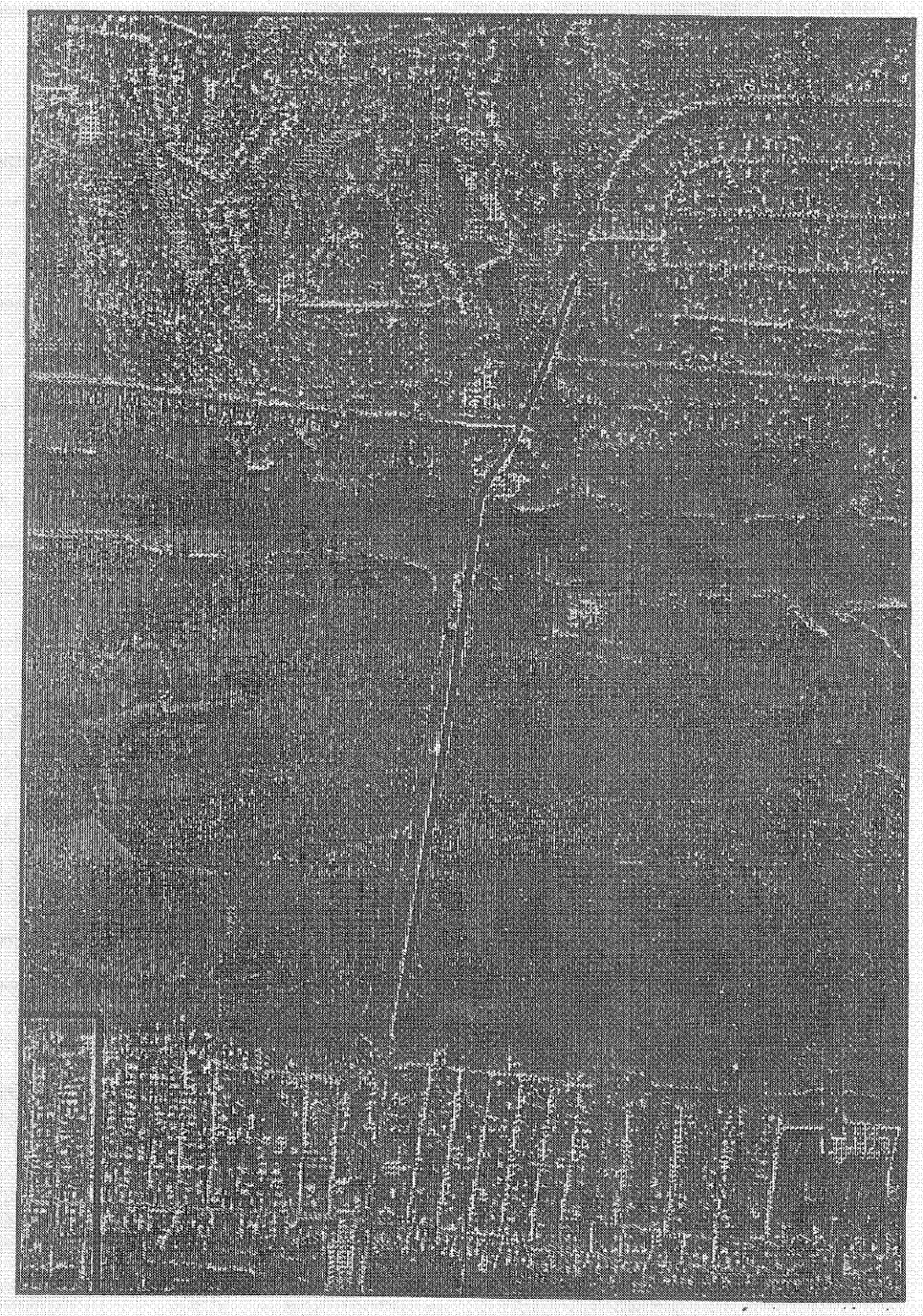
SUMMARY OF IMPACTS

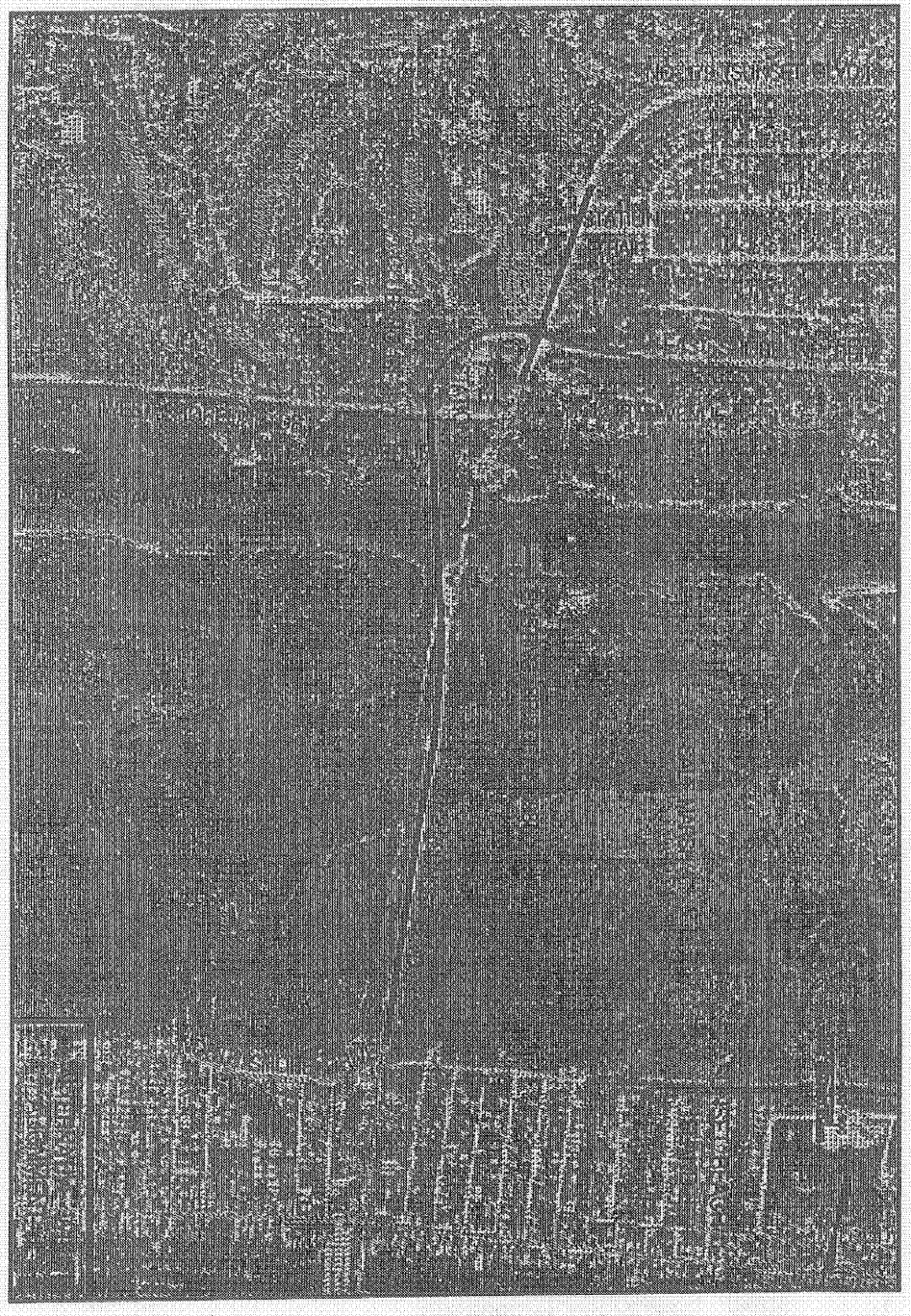
SUNSET BEACH BRIDGE REPLACEMENT STUDY (TIP No. B-682)

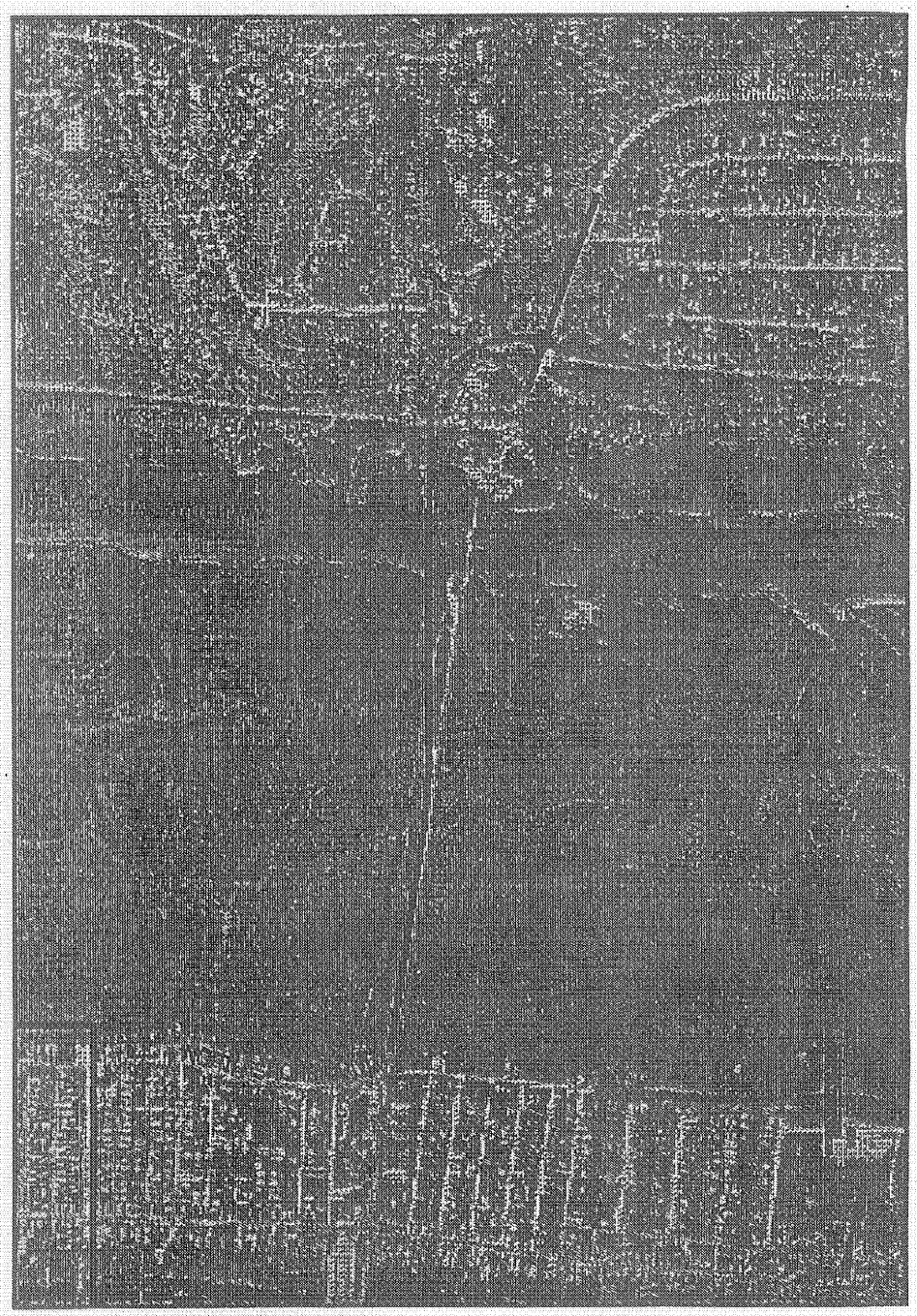
IMPACT	Alternative WIR** (West High-Level)	Alternative WI (West High-Level)	Alternative CI (Center High-Level)	Alternative C4 (Center Bascule)	Alternative C3R (Rehabilitation)
Approximate Length of Roadway Improvements (ft)	4,143	4,325	5,230	5,140	0
Intracoastal Waterway Bridge Length (ft)	2,374	2,418	2,710	1,140	550
Slough Canal Bridge Length (ft)	–	–	90	–	–
Total Length (ft)	6,517	6,743	8,030	6,280	550
Construction Costs	$12,200,000	$12,700,000	$13,800,000	$12,800,000	$1,359,950
Right-of-Way Costs	$1,325,500***	$1,325,500	$3,525,500	$1,949,500	–
Operations/Maintenance Costs*	$1,564,700	$1,587,400	$1,781,100	$3,650,750	$2,447,630
Total Costs	$15,090,200	$15,612,900	$19,106,600	$18,400,250	$3,807,580
Navigable Waterway Crossings	1	2	2	1	1
Residential Relocations	0	0	3	0	0
Business Relocations	0	0	3	3	0
Visual Impact Rating (< -2.0 is adverse)	-2.124	-2.124	-2.0	-1.625	–
Prehistoric Sites Impacted	1	1	0	0	0
Potential Hazardous Materials Sites	0	0	2	3	0
Sensitive Areas Impacted by Noise	2	2	3	0	0
Acres of Salt Marsh Impacted	0.55	0.78	0.90	0.75	0
Acres of Surface Water Impacted	1.57	3.02	0.17	0.17	0.24
Acres of Nonriverine Wet Hardwood Forest	0.00	0.00	0.27	0.00	0.00
Acres of Coastal Fringe Evergreen Forest	1.58	1.95	1.63	0.46	0.0

* Operations and maintenance costs are amortized over a 40-year period.

**Preferred alternative.







Greiner
4630 PARAGON PARK ROAD
RALEIGH, NC 27604

NEWSLETTER

SUNSET BEACH BRIDGE
REPLACEMENT PROJECT

FOR MORE INFORMATION

MAIL COMMENTS AND QUESTIONS TO:

Mr. H. Franklin Vick, PE
Manager, Planning and Environmental
NCDOT
PO Box 25201
Raleigh, NC 27611

Mr. David Griffin
Project Manager
Greiner, Inc.
6200 Falls of the Neuse Road, Suite 101
Raleigh, NC 27609-3563

OR CALL:

TOLL-FREE PROJECT INFORMATION LINE
1-800-233-6315
(8:00AM - 5:00PM Weekdays)

APPENDIX G

PART II

SUMMARIES OF PUBLIC COMMENTS FOLLOWING CITIZENS INFORMATIONAL WORKSHOPS

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
1	P		X		H	C	Prefers C1. Stormwater runoff issues. Commended study team.
2	P	X					
3	M	X					Opposes high rise.
4	M	X					Opposes high rise.
5	W	X	X				Wants pedestrian/bikeway.
6	M						Opposes high rise.
7	P	X					
8	M						Woody Woodstork Poem against eastern alternatives.
9	M						Opposes high rise and eastern alternatives. Wants Hickory Ave. to remain dead end.
10	W		X		H		Expedite project.
11	W		X				Expedite project. Higher bridge is needed.
12	M		X		L/M	C	Favors C2 and C4. Opposes high rise.
13	M		X		L/M	C	Favors C2 and C4. Opposes high rise.
14	W						Questions if other causeway locations have been investigated.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
15	P	X					
16	W		X		L	C	Opposes high rise on west corridor. Favors C2 or C4.
17	W		X		L	C	Opposes high rise on west corridor. Favors C2 or C4.
18	M			X		C	If no-build not feasible, prefers C2.
19	M			X		C	If no-build not feasible, prefers C2.
20	M		X		L		Feels high rise would contribute to commercialism.
21	M		X		L		Environmental and safety concerns.
22	M		X		L		Environmental and safety concerns.
23	M	X	X			E	Favors E2.
24	M	X					
25	P	X					
26	W						Feels taxpayers money is being wasted.
27	M		X			C	Opposes eastern/western corridors. Concerns with environment.
28	W		X		L/M		Favors building a bascule bridge. Concerns with environment.
29	M						Opposes high rise.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
30	W		X		H	W	Prefers W1. Cites safety issues.
31	P/M/P	X		X			
32	M/M		X		H	C	Favors C1. Draw bridge would have to be replaced later.
33	P	X					
34	M		X		M	C	Favors C4.
35	W		X		L/M	C	Opposes high rise. Favors C2 or C4.
36	W		X		L/M	C	Opposes high rise. Favors C2 or C4.
37	W		X				Avoids going to island for fear of being delayed or stuck.
38	M		X		M	C	Expedite project.
39	M						Opposes high rise.
40	P	X					
41	M		X		L		
42	P	X					
43	W		X		L	C	Favors C2.
44	W		X		L	C	Favors C2 or C4.

[redacted] [redacted]

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
45	W		X		L/M	C	Favors C2 or C4. Opposes high rise and western alternatives.
46	P/M	X			L		Opposes high rise.
47	M			X			Opposes high rise.
48	W		X		M		Opposes high rise.
49	W		X		M		
50	P/M	X	X		H		Expedite project.
51	P/M	X	X		H		Expedite project.
52	W		X		M/H		Expedite project. Current bridge is a nightmare.
53	P	X					
54	M		X		H	W	Favors W1.
55	M	X					
56	M	X					Opposes high rise.
57	P	X					
58	M	X					
59	M		X		M	C	Favors C4 or E2.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
60	M		X		M	C	Favors C4 or E2.
61	W		X		H	C	Favors C1. Commended study team.
62	W		X		H	C	Favors C1. Commended study team.
63	M		X		M/L		Opposes high rise.
64	W		X		H	W	Favors W1. Concerns with eastern alternatives.
65	W		X		H	W	Favors W1.
66	M		X		L		
67	M		X		L	C	Opposes western alternatives.
68	M	X					
69	M		X		L/M	C	Concerns about eastern alternatives.
70	M		X				Opposes E1.
71	M	X	X		M	C	Prefers C2. Does not understand purpose and need of project.
72	M	X	X		L/M		Opposes high rise.
73	P	X					
74	M			X			

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
75	M			X			
76	M	X	X		L/M		Prefers C2 or E3. Opposes high rise.
77	M		X		L/M		Prefers C2 or E3. Opposes high rise.
78	M			X			Opposes high rise. Commended study team.
79	P	X					
80	M	X					
81	P	X					
82	M						Opposes high rise.
83	P	X					
84	P	X	X		H		Reduce impacts to environment and businesses/residences.
85	W		X		H		
86	M		X		H	W	Favors W1.
87	P	X			L		
88	W		X		H		Expedite project.
89	W		X		H		Concerns with safety issues. Expedite project.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
90	M	X					
91	W		X		L/M	C	Favors C2 or C4. Wants pedestrian/bikeway.
92	M		X		L/M	C/W	Opposes high rise. Favors C2 or W2.
93	M		X		L/M	C/W	Opposes high rise. Favors C2 or W2.
94	P	X					
95	P	X					
96	P	X					
97	W		X		H		
98	M	X		X			Opposes high rise.
99	W		X		L/M		Opposes high rise.
100	M						Opposes high rise.
101	M						Opposes high rise.
102	M	X					
103	P		X		H		Expedite project. Safety issues. Commander local CG Auxiliary.
104	M						Opposes high rise.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
105	M			X			Proposes emergency police/ambulance boat.
106	M						Opposes high rise.
107	M		X		L		Opposes high rise. Member SBTA and supports their ideas.
108	M		X		L		Opposes high rise. Member SBTA and supports their ideas.
109	P	X					
110	M		X		L	C	Opposes high rise.
111	M		X		L	C	Opposes high rise.
112	M	X	X		H		Cites safety issues.
113	M				L		
114	M				L		
115	M/M		X		L	E	Favors E2 and W2. Opposes high rise.
116	M		X		H		Wants pedestrian/bikeway all the way to the ocean.
117	M		X		H		Wants pedestrian/bikeway all the way to the ocean.
118	M		X		L		Opposes high rise.
119	P	X					

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
120	M	X		X			Interested in preserving Bird Island.
121	M	X		X			Interested in preserving Bird Island.
122	M	X			L/M		Opposes high rise.
123	M	X			L/M		Opposes high rise.
124	M	X			L	C	Favors C2.
125	M			X	L/M	C	Opposes high rise.
126	M		X				Feels locals are self-focused.
127	M			X			Opposes high rise.
128	P	X					
129	W		X		L	C	Favors C2.
130	W		X		L	C	Favors C2.
131	M						Opposes high rise.
132	M	X					
133	M				M	C	Favors C4.
134	M		X		M	C	Favors C4. Commended study team.
135	W		X		H		Economic and safety issues.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
136	M		X		M	C	Favors C4. Commended study team.
137	M	X	X		M/L	C/W	Favors W3, W2 or C4, C2.
138	M		X		M	C/E	Opposes high rise.
139	M		X		M	C	Favors C4. Opposes high rise.
140	M	X		X			Opposes high rise.
141	M		X		L		Opposes high rise.
142	M/P						Opposes eastern alternatives/wood storks. Concerns with C1.
143	P	X					
144	M				L		
145	M	X	X		H	C	Favors C1, but would accept E1.
146	M	X	X		H	C	Favors C1, but would accept E1.
147	M		X		L		
148	W		X		M/L	C	Favors C4 or C2.
149	W		X		M/L	C	Favors C4 or C2.
150	M		X		H	W	Favors W1. Commended study team.

SUNSET BEACH BRI[illegible] REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
151	P	X					
152	M	X					
153	M	X	X		M	C/E	Opposes high rise.
154	M	X	X		M	C/E	Opposes high rise.
155	M	X		X	M	C	Prefers C2 of the builds.
156	M	X		X	M	C	Prefers C2 of the builds.
157	P/M		X				Opposes eastern alternatives and C1.
158	P/M		X		H	W	Opposes eastern alternatives and C1.
159	M				M	E/C	
160	M	X	X				Favors construction of two single lane bridges.
161	P	X					
162	M	X	X		M		Opposes high rise.
163	M	X	X		M		Opposes high rise.
164	M		X		H	W	Favors W1.
165	M		X		L/M	C/E	Favors C2 or E3. Opposes western alternatives.
166	M		X		L/M	C/E	Favors C2 or E3. Opposes western alternatives.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
167	M	X		X			
168	M	X		X			
169	M	X		X			
170	M	X	X		M	C	Favors C4.
171	M	X	X		M	C	Favors C4.
172	M	X	X		M		Expedite project.
173	M	X					
174	M		X		H	W	Favors W1.
175	M		X		L/M	C	Favors C2. C4 second choice. Opposes high rise.
176	M		X		L/M	C	Favors C2. C4 second choice. Opposes high rise.
177	W		X		L/M	C	Favors C2 and C4.
178	P	X					
179	P/M	X	X		L		Wants cute, quaint bridge.
180	M	X					
181	M	X	X		M	C	Favors C4.
182	M	X			M	C	Favors C4.

SUNSET BEACH BRID[redacted] REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
183	M	X					
184	M	X		X	L	C	If no-build not an option, favors C2.
185	M	X	X		L		Opposes high rise.
186	M			X			Opposes high rise.
187	M			X			Opposes high rise.
188	M	X					
189	M		X		L		Feels high rise would be unattractive.
190	P	X					
191	M		X		L/M	C	Favors C2 and C4. Opposes high rise.
192	M	X	X		H	W/E	Economics. Commended study team.
193	P	X					
194	M	X					
195	M		X		L	C	Favors C2.
196	M	X	X		H	W	Opposes E1.
197	P/M		X		L/M	C/W	Favors C4 or W2; or C2 or W3. Opposes high rise.
198	M		X		H	W	Safety/environmental issues. Commended study team.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
199	M		X		H	W	Safety/environmental issues. Commended study team.
200	W		X		H		
201	M		X		H		
202	M		X		H		
203	M						Opposes high rise.
204	M	X		X			Opposes high rise. Thinks money would be better spent on a high-rise jail.
205	M		X		L		Partners in duplex on beach. Cites development issues.
206	W						Opposes high rise.
207	W		X				Compromise. Visitors/tourists opinions important because of revenue.
208	P	X					
209	M				L		
210	P	X					
211	M	X					Opposes high rise.
212	M	X					Opposes high rise.
213	P/P	X	X		H	W	Opposes eastern alternatives, especially E1.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING CITIZENS INFORMATIONAL WORKSHOP NO. 1

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS BUILD	FAVORS NO-BUILD	TYPE PREFERRED LOW MID HIGH (L/M/H)	CORRIDOR PREFERRED WEST CENTER EAST (W/C/E)	COMMENTS
214	M/W		X		L/M		Opposes high rise. Feels island should have 24-hour fire and police.
215	W		X		L/M		Opposes high rise. Feels island should have 24-hour fire and police.
216	M		X		H		Expedite project. Access to safe inlet badly needed.
217	M		X		M	C	Opposes high rise. Would accept mid-level on any corridor.
218	M		X		L		Commended study team.
219	M	X	X				Favors two-lane floating bridge.
220	M	X	X				Favors two-lane floating bridge.
221	P	X					
222	M						Opposes high rise.
223	M						Opposes high rise.
224	P	X					
225	M			X	L		Prefers no-build. Cites natural beauty of area.
226	M			X	L		Prefers no-build. Cites natural beauty of area.
227	W			X	L	C	Prefers no-build. C2 would be acceptable.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
1	W	X	X				Island residents since 1969. Feels W1 is most cost effective.
2	W	X	X				Same as above.
3	W		X				Cites traffic, safety, and taxpayer issues.
4	W	X	X				Same as above.
5	M		X				Feels majority of Town Council will support.
6	W		X	X			Cites safety concerns.
7	W		X				Cites safety concerns. Wants bicycle/pedestrian lanes.
8	W	X			X		
9	W	X			X		
10	W					X	Mid-level as last resort. Opposes high rise.
11	W					X	Same as above.
12	W			X			Cites traffic flow.
13	W			X			Same as above.
14	W					X?	Questioned if current bridge could be two lanes.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
15	W		X				
16	W		X				
17	M		X	X			Owns two houses on beach. Responded as a result of recent incident with barge.
18	M	X	X				Cites safety and expense issues.
19	W				X		Cites impacts to environment, etc.
20	M				X		Concerns about need for noise mitigation if W1 is built.
21	M	X					Opposes C1 citing use of Slough Canal.
22	W	X				X	Cites island density, traffic problems.
23	W		X				
24	W	X			X		Cites impacts to natural habitats and island growth issues.
25	W	X			X		Same as above.
26	M	X					Opposes C1 citing use of Slough Canal.
27	M	X					Same as above.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
28	M	X	X				C1 is also acceptable. Opposes C4 for cost reasons.
29	P				X		Feels would be less disruptive and preserve ambiance and quaintness.
30	P				X		Same as above
31	W			X			Cites less impact to Sea Trail Plantation.
32	W				X		Less obtrusive.
33	W	X		X			Cites traffic patterns and future traffic plans.
34	W	X		X			Same as above.
35	W	X		X			Cites safety issues.
36	W			X			Less negative effect on mainland. Traffic issues.
37	M						Opposes C1 citing use of Slough Canal.
38	P		X	X			6th Street family house since 1967. Doesen't understand why people are concerned with development.
39	M						Opposes C1 citing use of Slough Canal.
40	W		X				

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
41	M			X			Cites concerns with safety, traffic, and cost of project.
42	M			X			Same as above.
43	M		X				Strong concerns about safety and costs. Feels if any alternative other than W1 or C1, there should be accountability to the taxpayers. Feels this issue should be put to a County vote.
44	W	X			X		
45	M						Wants bridge similar to existing but with two lanes in same location. Opposes any movement to a new route, but if necessary should be east not west. Felt recent workshop should not have been held at Sea Trails.
46	M						Same as above.
47	W					X	
48	W	X	X				Cites already purchased right-of-way.
49	W		X				Same as above. Suggested islanders make museum of old bridge.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
50	M		X	X			Owns property at Sunset Beach. Cites safety issues and rising costs. Feels high rise bridge would enhance the experience of going to the beach because of view.
51	M		X	X			Same as above.
52	M			X			Cites safety concerns.
53	W				X		Commended Study Team.
54	W					X	Commended Study Team.
55	W					X	Rehab w/two lanes.
56	M						Wants present bridge replaced. Cites EMS issues.
57	W	X		X			Would rather look at current bridge than cross it.
58	W			X			Same as above.
59	W				X		Opposes high rise.
60	M				X		Opposes high rise because of closure during high winds.
61	M	X		X			C4 would be acceptable. Cites EMS issues in need to replace existing bridge.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
62	M		X				Would like to see C1 eliminated. Cites use of Slough Canal.
63	M	X		X			Cites EMS concerns.
64	M			X			Would like bike/ped lanes. Resident. Tired of SBTA position. Also cites EMS concerns.
65	M	X	X	X			Commended study team. Expedite project.
66	M	X	X				Same as above.
67	W			X			
68	M	X				X	C4 would be acceptable. Opposes high rise.
69	M					X	Same as above.
70	W				X		
71	M		X				Opposes C1 and C4.
72	M		X				Same as above.
73	W				X		Opposes high rise.
74	W				X		Same as above.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
75	M				X		Opposes high rise. Thinks bridgetenders must be overpaid.
76	M						Opposes C1. Cites use of Slough Canal.
77	W		X				Cites less impacts to local businesses.
78	W		X				Same as above.
79	W				X		Cites safety concerns.
80	W			X			Cites maintenance, environmental, cost, development issues.
81	W				X		Concerned about impacts to businesses.
82	W						Expressed concern that current bridge has been allowed to deteriorate.
83	W				X		
84	W				X		
85	W		X				
86	W		X				
87	M		X	X			Cites EMS issues. Hopes high rise building on the island can be controlled.

SUNSET BEACH BRIDGE REPLACEMENT STUDY
SUMMARY OF COMMENTS RECEIVED AT AND FOLLOWING
CITIZENS INFORMATIONAL WORKSHOP NO. 2

COMMENT NUMBER	MAIL PHONE WORKSHOP (M/P/W)	MAIL LIST ADDITION/ HANDOUTS	FAVORS W1	FAVORS C1	FAVORS C4	FAVORS REHAB*	COMMENTS
88	M		X	X			Same as above.
89	P					X	Preserve bridgetender's job as Brunswick County has high unemployment rate.

* No responses received in favor of No-Build Alternative

SUMMARY OF COMMENTS
FROM
ISLAND MARKET NOTEBOOK

During the summer of 1994, the owners of the Island Market placed a notebook on display in their store on the island at Sunset Beach for the purpose of obtaining comments from patrons. The persons making comments in the notebook were responding to the following statement:

> "The State plans on replacing our bridge with a fixed concrete high rise. How do you feel? Please write your comments and tell us where you are from."

A copy of the comment book was forwarded to NCDOT by the Sunset Beach Taxpayers Association in October 1994. The comments are summarized as follows:

- 654 persons commented in one way or another that they wanted to keep the existing bridge. Frequent references are made to its quaintness and perceived historic significance.
- 67 persons comment that they saw the need for a bridge replacement.
- 1 person commented that the bridge should be replaced with ferry service.
- 11 persons commented that they would like to see the existing bridge rehabilitated.
- 500 persons were seemingly expressing opposition to a high rise bridge. Frequently, the words "No" and No Way" or "It Sucks" were used in response to the question in the book.
- 36 of the comments were simply "graffiti" with no meaning.
- 7 persons simply placed signatures in the book.
- 12 persons commented that a new bridge should be built, but the old bridge should be kept.
- 6 persons commented that the existing bridge should be destroyed and only bicycle/pedestrian lanes in place (no cars).
- 4 persons commented that they "didn't care."
- Of those making comments, 699 placed some form of signature in the book (initials, first or last name, or full name).
- The vast majority of those commenting were from out of state. Two (2) of the comments were in French, but a translation was obtained.

APPENDIX G

PART III

NOTICES OF PUBLIC HEARING AND AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT

c6

NOTICE OF A PUBLIC HEARING ON THE ALTERNATIVE LOCATIONS FOR REPLACEMENT, REHABILITATION OF EXISTING, OR CONTINUED MAINTENANCE OF THE EXISTING SUNSET BEACH BRIDGE ON SR 1172 OVER THE INTRACOASTAL WATERWAY

Project 8.2230101 B-682 Brunswick County

Personnel of the North Carolina Department of Transportation will hold the above public hearing on September 5, 1995 at 7:30 PM in the Jones/Byrd Clubhouse, 75 Clubhouse Road, Sea Trail Plantation, Sunset Beach, N.C. The public hearing exhibits will be available for public review from 6:00 to 7:30 p.m. Project Team personnel will be present to discuss the project prior to the formal hearing.

The hearing will consist of an explanation of the alternate locations for the proposed bridge, right of way requirements and procedures, relocation advisory assistance and State-Federal Relationship. The hearing will be open to those present for statements, questions, comments and/or submittal of material pertaining to the proposed project. Additional material may be submitted for a period of 18 days from the date of the hearing to: Mr. W.A. Garrett, Jr., P.E., P.O. Box 25201, Raleigh, N.C. 27611.

The alternatives contained in the Draft Environmental Impact Statement (DEIS) consisting of three build, rehabilitation of the existing and a "no-build" will be presented.

Those wishing to preregister to speak may do so by calling 1-800-233-6315. Speakers will be taken on a first call basis. Due to an anticipated large number of speakers, a five minute time limit per speaker will be imposed. Written material of any length will be accepted.

A map of the alternate locations and copies of the DEIS are available for public review at the Sunset Beach Town Hall. Copies of the DEIS are also available at the County Library in Shallotte. Anyone desiring additional information on the public hearing may contact Mr. Garrett at the above address or 919-250-4092.

NCDOT will provide auxiliary aids and services for disabled persons who wish to participate in the proceedings. To receive special services, please contact Mr. Garrett at the above number. Please give adequate notice so arrangements may be made.

NOTICE OF A PUBLIC HEARING ON THE ALTERNATIVE LOCATIONS FOR REPLACEMENT, REHABILITATION OF EXISTING, OR CONTINUED MAINTENANCE OF THE EXISTING SUNSET BEACH BRIDGE ON SR 1172 OVER THE INTRACOASTAL WATERWAY

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[Federal Register: August 4, 1995 (Volume 60, Number 150)]
[Notices]
[Page 39956]
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ENVIRONMENTAL PROTECTION AGENCY

[ER-FRL-4725-4]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 260-5076 OR (202) 260-5075.

Weekly receipt of Environmental Impact Statements Filed July 24, 1995 Through July 28, 1995 Pursuant to 40 CFR 1506.9.

EIS No. 950328, Draft EIS, FHW, HI, Kealakehe Parkway Completion, Queen Kaahumanu Highway and Honokohau Harbor Road Intersection to near the Mamalahoa Highway and Old Mamalahoa Highway Intersection, North Korna District, Hawaii County, HI, Due: September 18, 1995, Contact: Abraham Wong (808) 541-2700.
EIS No. 950329, Final EIS, AFS, MT, Wagner-Atlanta Vegetation Treatment Project, Implementation, Helena National Forest, Townsend Ranger District, Meagher County, MT, Due: September 05, 1995, Contact: George Weldon (406) 266-3425.
EIS No. 950330, Final EIS, BLM, WY, Greater Wamsutter Area II Natural Gas Development Project, Approvals and Permits Issuance, Carbon and Sweetwater Counties, WY, Due: September 05, 1995, Contact: John Spehar (307) 324-4841.
EIS No. 950331, Draft EIS, AFS, MT, Checkerboard Land Exchange, Plan of Approval and Implementation, Kootenai, Lolo and Flathead National Forest, Lincoln, Flathead and Sanders Counties, MT, Due: September 18, 1995, Contact: Ted Andersen (406) 293-6211.
EIS No. 950332, Final EIS, EPA, CA, Humboldt Bay Open Ocean Dredged Material Disposal Site (ODMDs) Designation, Samoa Peninsula, Humboldt County, CA, Due: September 05, 1995, Contact: Allan Ota (415) 744-1980.
EIS No. 950333, Final EIS, AFS, MT, Big Mountain Ski and Summer Resort Expansion Project, Special-Use-Permit, Flathead National Forest, Tally Lake and Glacier View Ranger Districts, Whitefish, Flathead County, MT, Due: September 05, 1995, Contact: Becky Smith (406) 862-2508.
EIS No. 950334, Draft EIS, FHW, OK, Canadian River Bridge Crossing Construction, MT-37 east of Tuttle northward to MT-152 in or near Mustang, Funding, COE Section 404 and EPA NPDES Permits Issuance, Canadian and Counties, MT, Due: September 18, 1995, Contact: James Erickson (405) 945-6011.
EIS No. 950335, Draft EIS, AFS, AK, Lab Bay Project Area Timber Harvest, Implementation, COE Section 404, EPA NPDES and Coast Guard Bridge Permits Issuance, Thorne Bay Ranger District, Ketchikan Administrative Area, Tongass National Forest, Prince of Wales Island,

AK, Due: September 18, 1995, Contact: Dave Arrasmith (907) 225-3101.
EIS No. 950336, Final EIS, COE, IL, Sugar Creek Municipal Water Supply Reservoir Construction, COE Section 404 Permit Issuance, City of Marion, Williamson and Johnson Counties, IL, Due: September 05, 1995, Contact: Terry Siemsen (502) 582-5550.
EIS No. 950337, Final EIS, AFS, CA, Mendocino National Forest Land and Resource Management Plan, Implementation, Colusa, Glenn, Lake, Mendocino, Tehama and Trinity Counties, CA, Due: September 05, 1995, Contact: Daniel K. Chisholm (916) 934-3316.
EIS No. 950338, Draft EIS, TVA, TN, KY, MS, AL, GA, NC, VA, Programmatic EIS--Energy Vision 2020, Integrated Resource Plan, Implementation of Long-Term Plan and Short-Term Action, TN, AL, KY, GA, MS, NC and VA, Due: October 15, 1995, Contact: Lynn Maxwell (615) 751-2539.
EIS No. 950339, Draft EIS, AFS, MT, Skyline Ridge Project Area Timber Salvage and Associated Activities, Plan of Approval and Implementation, Kootenai National Forest, Three Rivers Ranger District, Lincoln County, MT, Due: September 18, 1995, Contact: Steve Prieve (406) 295-4693.
EIS No. 950340, Draft EIS, AFS, WA, First Creek Basin Restoration Project, Implementation, Wenatchee National Forest, Chelan Ranger District, Chelan County, WA, Due: September 18, 1995, Contact: Al Murphy (509) 682-2576.
EIS No. 950341, Draft EIS, SFW, CA, Stephens' Kangaroo Rat (SKR) Authorization for Incidental Take and Implementation of a Long-Term Habitat Conservation Plan, Western Riverside County, CA, Due: September 18, 1995, Contact: Jeff Newman (619) 431-9440.
EIS No. 950342, Draft EIS, FHW, NC, Sunset Beach Bridge No. 198 on Secondary Road NC-1172 Replacement, Over the Atlantic Intracoastal Waterway, Funding, COE Section 10 and 404 Permit, Brunswick County, NC, Due: September 25, 1995, Contact: Nicholas L. Graf (919) 856-4346.
EIS No. 950343, Draft EIS, AFS, AK, Eight Fathom Timber Sales, Implementation, COE Section 404 Permit and EPA NPDES, Tongass National Forests, Hoonah and Sitka Ranger District, Chatham Area, AK, Due: September 19, 1995, Contact: Michael Weber (907) 747-6671.
EIS No. 950344, Draft EIS, FHW, CO, CO-82 Highway Transportation Project, Improvements to ``Entrance to Aspen'', Funding and COE Section 404 Permit, City of Aspen, Pitkin County, CO, Due: September 18, 1995, Contact: Ron Speral (303) 969-6737 ex.368
EIS No. 950345, Revised Draft EIS, UAF, ME, Loring Air Force Base (AFB) Disposal and Reuse, Implementation, Updated and Additional Information, Aroostook County, ME, Due: September 18, 1995, Contact: Nancy Speake (210) 536-5630.
EIS No. 950346, Draft EIS, UAF, NY, Griffis Air Force Base (AFB) Disposal and Reuse, Implementation, Oneida County, NY, Due: September 25, 1995, Contact: Jonathan D. Farthing (210) 536-3787.
EIS No. 950347, Final EIS, FAA, NJ, Expanded East Coast Plan, Changes in Aircraft Flight Patterns over the State of New Jersey, Implementation, NJ, Due: September 11, 1995, Contact: William Marx (202) 267-9155.
EIS No. 950348, FINAL EIS, NPS, WA, Elwha River Ecosystem Restoration, Implementation, Olympic National Park, Clallam County, WA, Due: September 05, 1995, Contact: Brian Winter (206) 452-0321.

Amended Notices

EIS No. 950250, Final EIS, FHW, PA, I-81 Interchange Project, Construction, Funding Chambersburg, Franklin County, PA, Due: July 17, 1995, Contact: Manuel Marks (717) 782-3461. Published FR--6-16-95 Correction to Title.

Dated: August 1, 1995.
B. Katherine Biggs,
Associate Director, NEPA Compliance Division, Office of Federal Activities.
[FR Doc. 95-19271 Filed 8-3-95; 8:45 am]
BILLING CODE 6560-50-U

APPENDIX G

PART IV

PUBLIC HEARING TRANSCRIPT

PUBLIC HEARING TRANSCRIPT
Replacement of Bridge No. 198 on SR 1172 over Intracoastal Waterway
at Sunset Beach-Brunswick County
TIP # B-682
September 5, 1995

Good evening ladies and gentleman and welcome to the public hearing on the bridge question here at Sunset Beach. I'm Bill Garrett with the Division of Highways and I will be your Moderator for the hearing tonight. Those of you that were at...okay, settle down. Can you hear that? The problem if I turn it up too loud we've got people sitting down front here that...the thing that...What I'm going to have to ask you to do is please do not talk among yourselves because the least little talking among yourselves you will drown the system out. And we'll certainly try to keep it loud enough for everyone to hear, but we ask you to cooperate with us also. I was starting to say any of you that happened to be here in '82 and '85, I was here then about 30 pounds lighter and less gray hair, but I was holding the hearings down in the firehouse station at that particular time.

Before we get into the proceedings, I would like to introduce a number of other people that are here tonight representing both the Division of Highways, the Federal Highway Administration, ,and the private engineering firm of Greiner. First from DOT, we have Julie Hunkins (and I was going to ask...there's). Julie on the left over here. Julie's with the Planning and Environmental Branch that's been involved with the development of the Draft Environmental Impact Statement; also from Planning and Environmental we have Mr. Barney O'Quinn and I think Barney's in the rear there somewhere; also from Planning and Environmental, Mr. Jim Buck, who is up front assisting tonight. From the Roadway Design Unit, Mr. Len Hill, who is one of the Assistant State Design Engineers and Mr. Leroy Smith who is one of the Project Engineers. From the Division office located in Wilmington and this is part of that particular Division, we have Mr. Doug Bowers who is the Division Engineer (excuse me) and Mr. Joe Blair, the Division Construction Engineer; Mr. Faison Lewis from the Division Right of Way Branch and Mr. Doug Jeffreys from the Location and Surveys segment. From the Federal Highway Administration, we have Mr. Roy Shelton out of the Raleigh office, Mr. Don Voelker out of that same office, Mr. Vince Barone and Mr. Tim Haigh from the Atlanta Regional Office. From Greiner, we have Mr. David Griffin, Mr. Tim Keener, Ms. Jill Gurak and Ms. Brenda Crumpler and we also have Peggy Hayes with us, from Hayes and Associates which her firm has been doing some specialized work for Greiner as part of the Environmental Impact Statement.

The reason I wanted to introduce all of these people to you is so that you'll know they're here. As we get into your segment of the hearing, if you have questions we will certainly attempt to answer any questions that are raised tonight. We do not guarantee an answer to all the questions that you might ask, but if we can't answer it for you tonight, please submit it to us in writing either on your Comment Sheet that's a part of your hand-out or by letter so that we can research it and get back to you on that.

Now the purpose of a public hearing is exactly as that name implies. It's to give you the...I started to say citizens of this area (of course I know some of you are part-time citizens of the area and part-time in other areas.) but to give the people that are basically involved or stand to be impacted affected whatever by a project an opportunity to continue to be a part of the planning process. And I say "continue" because you've already had two (I believe) workshops on this particular project since the Draft Environmental Impact Statement has been started. And this is just another step in allowing you an opportunity to continue to have input of all forms and to make comments for the record, anything that you would like considered in the decision-making process in the future on this particular project.

Now if you would, I would like to go over a little information in your hand-out. I'm not going over all of that material, I'll leave that to your own reading at your leisure. But if you'll take a look at the first page, there's a segment in the center of that page that's entitled, "Your Participation." That describes how you may be involved in the process, how you can make input, comments, etc. And as you can see, I do have recording equipment here tonight so that we will be recording what is said and from those tapes we'll make a transcript. To that transcript will be added all of the comments that we receive through other forms as a part of the process. And as you see there, the hearing document will be kept open for the next 18 days; and the reason it's 18 days, it's normally in a Document like this, you'll see 15 days or 10 days, but you have a comment period on the Draft DIS which goes until the 23rd of September and so we wanted to coincide the comments from the public hearing with the comments for the Draft EIS. And any material that you'd like to submit by mail can be submitted to the address shown there in that particular section.

Now I would like you to read that third paragraph under "Your Participation" because that basically states how I like to see a public hearing go. A public hearing is not a debate. I'm definitely not here to argue this project with anyone, I'm not going to be defending anything that has been developed on this project, and all we're asking there is you give the same consideration to others in the audience that may not share your views on the project. And I promise you that there are diverse views out here and the Department of Transportation is interested in everybody's views, everyone. So please let's give everyone the respect of listening to their views, and as such we do not need any "boo's," cat calls or anything of that nature, from the audience.

Now there's some information there about what is being done with the material that we receive and the State-Federal relationships and things of that nature. Under the project information on the next page, I did want to point out that the project is currently scheduled in the Transportation Improvement Program which is the seven-year document that the Division of Highways operates under for Planning Environmental studies. There is no Schedule at this time for Right of Way or Construction. And the reason for that is, I'm sure most of you are aware, that the project is involved in the courts and until that court action is settled, then a Schedule cannot be set for the construction or the Right of Way construction phases. So that is why you do not see that information there.

The Summary of Impacts pretty well covers the four alternatives. It does not have any information about the NO BUILD alternative, because the NO BUILD would not have a

cost factor attached to it at this stage. It would--if that were selected, then the normal maintenance would continue as it has over the years. But you can see the various factors that have been looked into in the development of this, the cost information and things of this nature.

The next page, actually two pages I guess looking at front and back, gives you a little history of the project, the two hearings that I had mentioned earlier, the two informational workshops that were held--one in February and the other in December -- of '94--and then just some pictorial information showing you the three locations that are being considered and then the three types of structures, their length, height, etc. and the Typical Sections. When we mention Typical Sections we're talking about roadway widths, shoulder widths, width of the bridge, things of that nature. And I might point out at this stage, I know there's been a lot of concern I say a lot of concern, there's been concern about pedestrian and bicycle use of a structure if a new structure is built. And this would be true of any of the alternatives not--it wouldn't differentiate in the bascule and the high level. But while specific bicycle and pedestrian features are not made a part of the project, the fact that a new bridge would have five-foot shoulders on either side and would also have what we call a bicycle rail. In other words, the railing on the outside of the bridge would be approximately 54 inches high which is higher than the normal rail to give protection to someone riding a bicycle on the structure. So it doesn't prohibit use but it was not a specific part of the project to provide for pedestrians by building a sidewalk or something of that nature on the bridge. The shoulders would be the same elevation as the roadway itself.

I understand, too, that there might be some lack of information maybe about the rehabilitation alternative that is contained in the Draft DIS. That would be basically a replacing of the current bridge in-kind. By that it would still be a two-lane, one lane [excuse me] bridge pontoon-type bridge and rehabilitation would merely go in and over a period of time replace the structure that is there by doing it maybe what we call a span-of-time, that's in between the rows of piling there where you would have to drive piles down through the deck, then put in your new substructure and deck and you would cover this over with medal plates certain times each day to keep traffic moving. But it would have to be done in a piece-meal fashion, but if it were rehabilitated, it would still be the same type structure that you have there currently, the same lane widths and things of this nature.

Normally in a hearing of this nature, I give some information about Right of Way and Relocation Assistance. Since we do not even have a Schedule on that, we don't know what alternative will be the final alternative that is selected. And as you can see in your handout there, the number of Relocatees vary from none for one alternate to three businesses for I think for C-4 and three businesses and three restaurants for the C-1 alternate. So rather than delay getting into your segment of the hearing which is the important segment, I would just like to say I do have some pamphlets available on Right of Way and our Relocation program. If anyone is interested, if you'll see me after the hearing I'd be glad to furnish you that material. Also, if and when a decision is made on the project, there will be a Design Public Hearing prior to Right of Way Action beginning and at that time more detailed information will be furnished to everyone involved with the project.

Now I would like to give you a very brief explanation of the map to my rear here and then we will move on into the speakers. And what I will do is call on the speakers that have signed up in advance. Once I have exhausted that list, then I'll open it to anyone else. The speakers you have your option if you'd like to use the mike to my right you may do that, if you want to use the one I'm using, you're welcome to it. If I can get someone to handle the mike for me I can send a wireless mike to you if you'd like to speak from your seat. So you have all the options available to you.

Now what we are showing on this particular map is the three locations for the proposed new bridges. Of course the relocation would be just as the name applies a relocation for the bridge. But the various alternates are shown in the different colors, the Orange being W-1, and this is basically along 179 here. You would turn to the right off 179 if you were going towards the beach, come up and over the bridge would begin in this area in here, would go over 179 across the Intracoastal Waterway, and back into the current causeway back in this area in here. The corridor goes on up, as you can see to North Shoreline Drive or just short of North Shoreline Drive because there would be some slight adjustment in the existing causeway. I think there has been some flooding that occurs in there occasionally and as a part of the project, there would be some adjustment to eliminate this particular situation. This would also, since there would be a new intersection created here, East Shoreline Drive would be tied-in at that point where it currently comes around (I think) would be extended over and put a single intersection in at that location. The Red Alternative is the Bascule Bridge Alternative and this would be the one that's proposed in the Document is a 30-foot bascule bridge. That's 30 feet in the closed position and by having it 30 feet, then it would be able to accommodate I think it's something like 62-63 percent more of the water traffic without having to open it. Now there's very few boats that can get through the current bridge without it being opened. But that bridge at that height would handle and there's been a fairly intensive survey of the boating traffic on the Intracoastal Waterway. That would be built just west of the current bridge and would require some minor realignment in here where you see this Red curving and then the bridge itself would be where the Black and White tape is shown, again improving the causeway some. Part of that improvement would be adding four-foot shoulders to the causeway where you currently just have the pavement.

With the C-1 Alternative, the other high level alternative, 179 would be relocated starting back here at Station Trail, would swing over to the north-north-east here, around and tie-in opposite 179 here. The bridge would start back in this area. To access the bridge, you would turn right here up and over the bridge. Again it would be going over 179 and since this swings around and crosses Slough Canal, it would require a structure across the canal there. And I believe that structure would have clearance of about 4 feet of so above the water. Is that correct, David? The Slough Canal Bridge?

But that basically are the three alternatives. And this hearing really doesn't lend itself to a straight forward location hearing or a corridor hearing and then a design hearing because we're also talking about the types of bridges that would fall within the various corridors. So it's really kind of combining some design features along with the location. Primarily the question that is being asked of you is your thoughts for the

benefit of the Draft DIS and future decisions of the project. Your thoughts on the three bill alternatives and also the rehab project.

Now I've got the Speaker's List and we'll move right on into that segment. And our first speaker is Julian Thomas, Julia Thomas. Okay fine, thank you. You can use this one right here, if you like.

Julia Thomas: I'm a resident going into my 16th year here with the last 10 years on Shoreline Drive East in close view of the Waterway and the site of the current bridge. Since moving to Sunset Beach, I've been involved in a great deal of community work. I'm currently serving my sixth year as an elected official on the Sunset Beach Town Council. But today, I speak as a private citizen of this community which I love very much and appreciate. The majority of us here, I think, today are transplants and I am happy to be a citizen of Sunset Beach. I've spent some hours studying the Summary, the Environmental Impact Study, but I confess I have not read the entire thing. It's about that thick. My preference is the 65-foot high level span bridge, the western or the W-1 Alternative. I prefer the W-1 design because I think it will involve less disruption of present businesses, local businesses. I think, it is my understanding, that part of the right of way options for W-1 have been previously studied and planned and it appears to be a better route with less re-routing of the current roads. We're now entering our 11th year of controversy over whether to build or not to build and if we do build, what kind of bridge to build. Now that the Environmental Impact Study shows no significant danger to the environment or to the marsh land and to the area, I say let's build a safe bridge that may save a life.

May we go back for a moment in history to the first bridge; the original one, privately-owned, built in 1958, normally left open at night for the waterway traffic? The Department of Transportation replaced this with the second bridge in 1961; a third in 1974; and the fourth one, the steel barge swing bridge that we still have, in 1984. With the approximate life span of these bridges, I feel it's about time and maybe overdue for a replacement. Of particular interest with the type bridge we have is that we need four full-time employees, 365 days a year, 24 hours a day you might say for the operation. That's a great deal of wear and tear on a bridge that must open and close. And with the 65-foot bridge we would not have this to consider. In August of 1988, seven years ago, our current bridge opened for 1,600 boats in one month, the month of August.

From the EIS Summary, the bridge opening for the present bridge in 1993 for the year were 4,481 with ten minutes per time for opening time. The C-4 Bascule Bridge, which is 30 feet, would still require four bridge tenders, 365 days a year. The estimated openings based on the vessel and the height in the traffic reports means that they still have to open 2,800 times per year--an average of 233 times a month. We lost our opportunity for a cheaper bridge in 1985 in the amount of $5.2 million. Today it is around $16 million, $15-$16 million. But the in-depth Environmental Impact Study has been completed now and with the delay, we still have added (I say) ten years delay we still have added tourist traffic, our population has increased tremendously, we do not have any high rise building on the island, but I don't think that our environment has shown very much improvement. All of this growth came with the bridge that we now have. There's still much work to be done but I still say, I

repeat, my hope for the 65 foot W-1. Let's build a bridge for the safety of our people and our environment and for the vessels that pass through the waterways. Thank you.

Moderator: Thank you Ms. Thomas. Frank Brand.

Frank Brand: My name is Frank Brand. I'm a resident of Florence, South Carolina, but I'm a taxpayer in the Town of Sunset Beach. And just so you'll know, I am a neighbor of Ms. Julia Thomas. We don't always disagree, I mean agree on everything but in this case, my speech is not quite as eloquent because I just got through with work, but I would like to say with a group this big and with all the compromising that takes place in America today, not only are we dealing with people's lives, we're dealing with people's recreational time, we're dealing with any number of circumstances why people moved here. I would like to say that the main reason why most of you moved here whether it be three years ago or ten years ago was because of the Sunset Island Bridge. You had the opportunity to move to Ocean Isle if you wanted to, Holden Bridge if you wanted to, but you live at Sunset Beach probably because of the bridge. My question to you is, why can't a compromise be met rather than three studies shoved down our throat by the North Carolina Department of Highways? Why can't they meet with a group of concerned citizens on a weekly-basis to establish some kind of compromise that would not create such a stir in the community that we live in. Granted there is a need for a better structure going across that marsh, there's no question about that but I think it could be resolved in a much, much finer way because all of you are fine people and you moved here for a reason--and that was the bridge. Thank you.

Moderator: Thank you, sir. Mr. Mason Barber.

Unidentified Female: Could I please request that these mikes be a lot louder? We're having a problem hearing people.

Moderator: I will turn them up as loud as I possibly can.

Unidentified Female: Thank you.

Moderator: You might want to use this one I think it's a little better.

Mason Barber: Hi, I'm Mason Barber, Mayor of Sunset Beach. Odell Williamson called me this weekend to advise me that he would be unable to attend this public hearing because he had to be in New Bern in the swearing-in of the new Chairman of the DOT, Mr. Garrett; not this Mr. Garrett but the Mr. Garrett from the Wilmington area. But he said to express to the individuals here that he supports a hi-rise bridge for Sunset Beach.

In 1984, I bought property down here. In 1986, I moved down here. In 1988, the State bought the property and the house that I built down here for the hi-rise bridge. So I had to be relocated real soon. I have seen first-hand danger to public safety that the pontoon bridge poses to the community and I do not know of anything that can be done to it that would even begin to address the risks associated with it.

Sunset Beach, in conjunction with the County, maintains a volunteer fire department on the Mainland. It not only serves the Town, but the outside areas. Not one of the volunteers associated with the fire department or the first respondent reside on the island so even if we had the resources to place equipment over there, there would be no one to manage when the bridge is open. To divide the equipment between the two locations would imperil those on the mainland and still we would have noone to manage when the bridge is impassable. We have been very fortunate that we have been able to deal with the emergencies that have arisen but we have had some close calls. How long our luck will hold up is anybody's guess, however we can be sure it will not last forever. This week-end it could come into play for us.

The bridge has been disabled several times by being hit by barges. There's a constant demand for maintenance, the cable has snapped, the high-tide make it impassable, and in heavy wind storms, it's tied back. There are numerous times during the year when the island is isolated and the availability of the emergency services is not available. Once summer renters fully comprehend the risk that they and their families run because of the old bridge, I expect that they will not want to imperil themselves and their families. A bascule bridge would still be subject to mechanical failures and so leaving those on the island marooned and without emergency services. It will also continue to back up traffic on State Road 179. It is only a partial solution to the problem. I favor a solution that would provide the maximum safety at the minimum cost. Let's do something that will mostly, fully protect the people and at the same time be most economical. The Western high rise will give us the maximum safety at the minimum cost. We are on borrowed time. Let this project move forth with speed. The Sunset Beach Town Council voted 4 to 1 for a high-rise bridge. Thank you.

Moderator: Thank you Mr. Mayor. Mr. Albert N. Wells.

Albert Wells: Good evening. My name is Albert N. Wells. I've owned a house at Sunset Beach for 35 years. I've been both a part-time and a full-time resident of Sunset Beach. Currently, I spend summers here and winters in service elsewhere and I've moved many times in my ministerial life. Sunset has been a stable place for me and my family, the closest thing to a homeplace we've had. Long since, I've come to love Sunset Beach and to form conclusions about what seems to me to be its character and it's true value. And I want to make a case tonight, you've been following my friend, Mason Barber. I want to make a case tonight for the rehabilitation option and I want to summarize it in this way. To say that, in my opinion, our one-lane floating bridge is the most valuable asset we hold together at Sunset Beach. Not because it's a picturesque relic from time past, a quaint conversation piece, an object of art that appears in nearly all the literature promoting Sunset Beach and on paintings that adorn every living room wall practically, but for sound social economic, environmental developmental and spiritual reasons our one-lane floating bridge is the most valuable asset we all hold together.

Now I've got three points to prove that case and I don't have time to make, I don't have time to make, all three of them so I'm just going to mention the first two and then we'll go on to the third one. The first one is that that one-lane bridge has enable

development to take place, progress to take place, over the last 35 or so years. The island now has almost a thousand attractive homes and vacation cottages and all of that development has come over that one-lane floating bridge. There's no other way and there still isn't. It accommodated every piling boarding and beam and stove and every TV and washing machine at Sunset Beach. So don't let anyone say that the floating bridge has hindered development and progress. It has enabled development and you have the whole of Sunset Beach there to prove it. Further more, it's reliable enough to continue to allow and make that development possible. Secondly, along with that development it has "paste development." In a unique way that bridge has helped to shape the character of Sunset Beach. Its helped to channel progress and that too helps to make our most valuable common asset.

Just a word about the hurricane evacuation that is referred to from time-to-time. Sunset Beach has the most effective hurricane evacuation plan on The Coast. It's very simple--put out the deadline for everybody--get off or else when you open the bridge there's no going back. You can't get more effective more decisive than that. That's how Mr. Maningore went about it in the early days, and I was here one time when he evacuated the beach and I can justify personally that it worked. But mainly our bridge is our most common asset by reason of the lifestyle it has promoted--a slow speed life-style that is far too rare in our high pressure fast-paced world; a lifestyle beautifully pictured and parents stopping their cars and carrying children on their shoulders to watch the bridge open and the boats go through; a lifestyle I exalt in everytime I have to wait.

I roll down the window, shut off the engine if the time permits, and just smell the marshes--the most valuable land over there by the way. And ponder that beautiful *spartinia alterniflora* marsh grass that thrives luxuriously in salt water and provides a nursery for all kinds of marine and bird life. And I listen for the quails and marsh hens and count the heroines, egrides, ospreys, wood storks--other wild friends. Sunset fosters that kind of a lifestyle, a lifestyle where the most notable social events are volley-ball games on the beach, a nature walk to Bird Island to the kindred spirit mailbox, and a beach worship service on Sunday morning. A life-style that has helped to make Sunset the most top rated beach on The Coast promoted in national magazines attracting vacationers from thousands of miles away, enhancing those family values everyone is going to find and preserve today. That's why people come here. Sure it's tough from the Fourth, and Memorial Day, and Labor Day, show me a vacation spot that is not glutted at vacation time or on holiday times. It's part of the deal. The strategy to have to plan your trip, learn what traffic is light, don't leave home between ten of and ten after; Do your frozen food shopping at off-peak hours, and what a great excuse you have when you're late for a meeting.

Mr. Well, Mr. Maningore said to me 36 years ago this month, "I want a beach of small single-family homes that will bring people together and help them stay together." Friends that was a worthy vision. When you look around today and see our society, he was right on target. So my plea, is leave the bridge in place; Choose the least expensive option, the least environmentally damaging option, the most distinctive option, rehabilitation, improving, up-grading, fine tuning yes, that the bridge can certainly stand, but not replacement. "Don't kill the goose that laid the golden egg."

Thank you very much for allowing me to say this. Just once more to be said that, our most valuable common asset in my judgment is our one-lane floating bridge. For the sake of the present and the future let's hold on to that worthy relic of the past, it's too valuable, too economical, and too reliable to do without. Thank you.

Moderator: Thank you Mr. Wells. Ms. Sue Winalds. Okay thank you. Ms. Minnie Hunt. Doctor Barry Lentz.

Dr. Barry Lentz: Thank you Mr. Garrett for arranging this meeting at a time when non-resident property owners on Sunset Beach could be here. My name is Barry Lentz and I am a non-resident owner and President of the Sunset Beach TaxPayers Association representing roughly 1500 owners or property on Sunset Beach. The main point that I wish to make to you this evening is that in my opinion the Draft DIS that you have prepared is flawed in that it seriously underestimates the secondary social impact of the 65-foot high-rise bridge proposed in your Plan. If you'd had a chance today to visit our Island, you will know why the property owners and residents of our community feel so strongly about maintaining a delicate balance that makes Sunset Beach Island a prime example of an enormously successful eco-tourist center. The key element in that balance is the one-lane pontoon bridge that currently both provides and limits access to this unique island. Your Draft DIS ignores the role that the current bridge plays in maintaining this unique environment. It relies instead on a statistical study commissioned by you of Hayes & Associates; a study that claims that replacing a two-lane and torrent bridge at Ocean Isle Beach did not alter either the rate or nature of development of that island.

First let me say that the degree of impact on this community of replacing the two-lane torrent bridge at Ocean Isle by a high-rise bridge cannot be compared to the degree of impact of replacing a one-lane pontoon bridge by a 65-foot high-rise. That's comparing apples to oranges. Second your statistics have not convinced Marie Shrivey, a lady whom I met yesterday on Sunset Beach. She was once a devotee of Holden Beach and Emerald Isle Beach. After the high-rises were built to those beaches, she felt the changes in those islands. She and here husband, Jack are now property owners on Sunset Beach Island and took a day off of work today just to be here for this meeting. My family and I cross that pontoon bridge to seek renewal and refuge from the stresses inherent in our modern society. If we experience some inconvenience and delay in reaching that refuge, that is a small price to pay for the peace and tranquillity we feel while here. Our polls show that most local residents, property owners, and visitors of Sunset Beach Island feel this way. To paraphrase Mark Twain, "your statistics are lying to you if they fail to tell what plain old fashion common sense must tell you." Namely that a 65-foot high-rise bridge will have irrevocably negative social impact on the lives of these people.

You claim in your Draft DIS that no scientific poll has been conducted determined the wishes of the local community. We presented to you during our visit to your offices on April 28th of this year the result of three polls. One, taken of the tourist who yearly return to the island from all over the US and the world reports that only 20 out of over 1,300 respondents favored a high-rise bridge. A second poll was conducted by Hayes and Associates for the 1992 Sunset Beach Land-use Plan required by CAMA. This poll; 92 percent of island residents and 72 percent of mainland residents

opp ·ed the high rise bridge. The majority of those expressing an opinion favored ma ining the current pontoon bridge. Finally, I present to you now an update of the po SBTA members that we present to you in April. In this poll, 69 percent of re: dents favored a pontoon type bridge with the majority of the support among this grou going towards a two-lane 16-foot pontoon bridge. Most of the respondents; roughly 20 percent, favored a bascule type bridge while only 10 percent of respondents favored a high-rise bridge.

In summary then, the Draft DIS that I have reviewed is seriously flawed and should be revised to reflect the adverse secondary social impact that a high-rise bridge will have on the local residents, owner, and visitor populations. When this is done, it seems clear that a smaller less environmentally intrusive bridge is the only option appropriate for Sunset Beach. Unfortunately, your four proposals for a bridge to our island do not even consider the option that is favored by the majority of poll respondents, namely a renovated and widened two-lane pontoon bridge. Instead, the DOT favors spending $14 million of this Country's taxpayers money on a bridge that the vast majority of folks impacted by it do not want. Why? Who does it benefit? The answer is that local developers stand to benefit most from a high-rise bridge that will make portions of their remaining developal property much more valuable. I for one do not wish to see the DOT spend my tax dollars "to line these gentlemen's pockets" and in doing so contribute to the the demise of what is widely recognized as the most uniquely peaceful of the islands that line the North Carolina Coast. Thank you for your attention.

Moderator: Thank you Dr. Lentz. Mr. Paul Hughes.

Ed Hughes: Thank you. My name is Ed Hughes, I'm a candidate for your Town Council coming in the coming election. I'm also your Town Historian and a member of the committee that serves with the fire and emergency services. I intend to get around and see each one of you at your homes before the election comes and I intend to ask you questions about how you feel about the big issues, including the bridge. I've already talked to a number of you and I wanted to share with you this evening some of the concerns that people have about the bridge and tell you that I find as a speaker who have come before me that most people tend to dwell on one issue when there are many issues concerning the bridge; environmental, economic, access, impact, aesthetics.

Now we've, as I've heard as I've talked to people, impassioned pleas; some are nostalgic, some having to do with statistics, but they all focus on one aspect of the problem that we have. And the problem that we have is to solve what we started out to solve many years ago which is now going to cost us a great deal more money. Environmentally, I read the Impact Study. It's really this big. I've only read the summary which is only this big. You'd have have several rainy days to get through the rest of it, but in some it, most of it has i n condensed really well in the Brunswick Beacon. But that situation has been taken care of, not to everybody's, not to everybody's satisfaction of course, that's never going to happen. But if you read it and look at it it's a reasonable answer to the Environmental Impact.

The economic situation, on the other hand, I think you have to decide whether you want one-time problem with economics where you pay for it and it's paid for or you want prolonged cost that goes on and on and on. Not only with the bridge itself, but with the also with the use of the town police for example, who have to sit there hour after hour as those cars pile up when they should be doing other things which are more useful. And what about the insurance that those folks are paying on the island. I guess they can all afford to pay high fire insurance but I'm sure if I were selling them insurance and they told me that the fire engine couldn't get over that bridge, they'd be paying a lot for fire insurance. Those are economic aspects people don't talk about.

What about access? Well you know the matter of safety. All it takes is one child visiting here over one week-end when the bridge is open not to get the help it needs and we're all the lesser for it. There's some people say the new bridge is a moral necessity. Impact on growth on the Island, I would say to you again if you want to look at that, study the EIS, it's all in there. There are people who won't agree with it, they're many people who will dislike it. We're not all gonna be pleased with the answer we get. What about the aesthetics? Sure, any kind of bridge we're gonna put up is going to change the skyline. It's going to change the way the island looks. All I can say about that is I'm sure the people that lived in the marina in San Francisco and looked across at Marion County said what are they doing when they put up the Golden Gate Bridge? Nobody's going to be satisfied fully. We're not all going to be happy. Aesthetics is a matter of taste.

What I would like you to do is--two things. Two questions that were originally considered when the bridge was first proposed were these: "which bridge gives the least economic cost in the long-run, and which bridge answers the question of continual access for fire and emergency services' ". Those are important questions. All of those aspects are important. Dwelling on one of them does not answer the question. When I come around to see ya'll and incidentally I'm delighted, this is the largest crowd I have ever seen at Sunset Beach at one spot, it's amazing. I hope you all will continue to be interested in everything that happens in Sunset Beach and not just the bridge. Thank you.

Moderator: Thank you Mr. Hughes. Our next speaker is Jan Harris.

Jan Harris: My name is Jan Harris and I'm a life-long resident of North Carolina. My husband and I have owned property on Sunset Beach Island since 1977. We have also owned property on the mainland and my husband's family owns property in Myrtle Beach. The bridge was here when we first purchased on the island. We knew of no plans to replace the bridge. The bridge was a big reason for our purchasing on the island. Presently, we are building our retirement home on the island which means we plan to become permanent residence. When we come to Sunset Beach, the minute we cross that bridge the tensions and stresses of our everyday life, fall away. This feeling is not limited to only us, when our friends and relatives visit they express the same view. People in other areas of the country who are familiar with Sunset Beach beg us to not let the bridge be replaced. It is true, the bridge requires you to slow down, that is the beauty of it. A high-rise bridge is not going to make you do something that is good for you, as the bridge at Sunset Beach does.

In my 18 years at Sunset Beach, I've experienced two medical emergencies; Thanksgiving of 1986, my father suffered a massive heart-attack and last spring my husband had a very severe kidney stone attack. When he had that kidney stone attack, a boat was being off loaded on the bridge. All I had to do was go to the head of the bridge and they backed the truck off the bridge and let us through, there was no problems at all.

I have heard expressed the concerns of safety for the residents and property owners on the island. These concerns ring empty in my view because it seems if this were a real concern this would be addressed now like stationing a fire vehicle on the island or setting up a way emergency egress should the bridge be open in an emergency. I see none of this happening. As a North Carolina taxpayer, I have a problem justifying spend $14 million to serve 150 people. Many lives have already been lost on Highway 17 in the southern part of Brunswick County and $14 million would go along way in correcting some of those areas. It is not a matter of pull up the ladder I've got mine, we simply would like to see the charm of Sunset Beach remain and the floating bridge is 90 percent of that charm. Why destroy that? A two-lane floating bridge would serve to address the concerns of both sides of this issue. Thank you.

Moderator: Thank you Ms. Harris. Rebecca Steadman.

Rebecca Steadman: Everyone has been so eloquent so I will just be short and sweet. My husband and I own a beach house on 34th Street. We live in Virginia and I stayed to say what I have to say. We love the island, we will be retiring here, we have property here and in seven years, we will become one of you. We already feel that way. We do not want to lose our bridge. Please save it for us save it for our children and for our future grandchildren. Thank you.

Moderator: Thank you Ms. Steadman. Louis M. Davis.

Louis Davis: Thank you. Most of the points that I wanted to make have been addressed very eloquently by previous speakers, Mr. Wells and Mr. Lentz, and I would just add my support to their remarks. And I would add only to you ladies and gentleman who serve in the various State agencies who will be most influential in preparing the recommendations in helping make the decisions as to what happens here, that you please treat gently the beautiful gift that nature has bestowed on North Carolina and its coastline and many of us here consider Sunset Beach to be the crown jewel of that coastline.

If we get a high-rise bridge here and the sewer that will come with it or shortly after it, the only remaining barrier to high-rise development of Sunset Beach will be local ordinances. And we know from experience from many other areas around the State that local ordinances crumble very quickly in the face of development. A lot has been said about emergency service on the Island. Certainly no one can deny you're less accessible out there but most of us choose and make the option to go to a place that is away from people and remote where we can enjoy ourselves. This is a--we are aware of the risk, I like to go hiking in the woods where you're away from everybody and I know that if an emergency happens in that circumstance it could be fatal, but we all take those risks like that everyday. In every major city around, people opt to build

on dead-end streets and cul-de-sacs. They are preferred, the lots sell at a lot higher prices, although this makes it tough on emergency service vehicles it's not as quick. Who wants to live beside the fire station or beside the hospital? Nobody. And again to you ladies and gentleman who will be influential in arriving at a decision, we ask that you "not sell our birthright for a mess of porridge."

Moderator: Thank you Mr. Davis. Ralph M. Holt.

Ralph Holt: Thank you Mr. Garrett and all you fine people assembled here, regardless of your purpose for attending this meeting. Public hearings are a part of our heritage, our culture, and it's what our democratic society is built on. I'm not a long-time property owner at Sunset Beach I come from Burlington, North Carolina, Alamance County where the past DOT chairman hailed from. We were glad to have Sam serve and we look forward to Mr. Garrett replacing him and continuing to serve, and I share the statements of the previous speaker that said, that these people with DOT have a problem. They have to listen to an awful lot of opinions, they look at a lot of studies that may not have been launched quite properly I think some of us feel that way. I'm not really properly dressed with coat and tie and I come with you with a real strong professional statement this evening, but I'm dressed the way I want to be, that's why I'm at Sunset Beach. We chose from many opportunities up and down this coast right before Hugo to pick Sunset Beach because of its quaint nature. My wife Edith and I, along with our ten grandchildren, thoroughly enjoy Sunset Beach and what it has to offer for us.

I think the most devastating part of this, these studies, is that they as maybe said in the statement says the purpose of this meeting or the purpose is the project is to replace the structurally deficient and functionally obsolete existing bridge. So everything that we have had seems to be with a dedicated purpose that maybe was ill-conceived from its inception. I urge that some of the concepts and choices promoted by some of the previous speakers, Mr. Lentz, I think Mr. Wall is Mr. Wells, I think he said beautiful statements also Mr. Harris, Ms. Steadman, many others that we urge that a more moderate and a preservative statement be made and choice be made to preserve one of the last heritage's left on the whole coast of North Carolina. There aren't any more like Sunset Beach. It is truly unique and why do we have to sacrifice it with a balancing edifice to the beautiful high rise that sits on the west-end of our neighbor to the east. Now those of you who think that's pretty, I'm sorry. Thank you very much.

Moderator: Thank you Mr. Holt. Our next speaker is Kirsten Dickey Moore.

Kirsten Moore: Good evening, my name is Kirsten Dickey Moore. I'm here with my husband and daughter to support my parents, Margaret and Richard Dickey. They own a home on Sunset Beach island and they wrote the following:

> The purpose of this letter is to vote in favor of rehabilitating the bridge at Sunset Beach. As an alternative, we would favor a small draw-bridge. We phenomenally oppose either of the proposals which would provide 65 feet of vertical clearance over the channel. These two proposals would have a negative impact

on the area both physically and aesthetically and destroy the whole atmosphere of the whole area in our opinion.

We purchased a home on beautiful Sunset Beach island this year because of the unique, quaint, and quiet quality of the island and its beaches and marshes. It serves as a restful remote get-away from the fast pace of our work-a-day world. We rejected homes at Ocean Isle and Holden Beach because of the ugly concrete gateways to those islands announcing progress, high-rise. We knowingly opted for an island with an antique bridge for which you may have a wait to open and close. It is part of the unique quality of the island. Our children and grandchildren remember their vacations ever so much memorably because of the draw-bridge. We want a bridge which will be safe and reliable transportation between the mainland and island. We don't want our vacation homes to be subjected to the on-slaughter that a 65-high foot bridge would invite.

Oftentimes, we regret the things that we do in the name of progress. Let not the destruction of the bridge be one of those things. Thank you for listening.

Moderator: Thank you Ms. Moore. Mr. Carl Basemore.

Carl Basemore: Thank you. I'm Carl Basemore.

Moderator: You need to speak right into this.

Carl Basemore: Sure. I'm Carl Basemore. I've vacationed here for 30 odd years. I've been a property owner here for over 15 and I moved here three years ago as a permanent resident. I don't think anybody's changed their mind here. The EIS that's out now is a very thorough and confidential document. It goes into all the aspects of the community, the environment, the waterway, the wildlife, everything that is involved in this area. But that hasn't changed anyone's opinion here. The two years in its study, the millions of dollars that have been spent on that has changed nobody's opinion, and it's not going to change it here tonight. The thing that we do have is an access problem. High-rise bridge provides the maximum access to the island. It provides the highest degree of safety for life and property to the island. And I think that's the issue and I think local administrations, local governments, State and Federal have to look at what is the things that you have to provide for the protection of their citizens. And this is exactly what we're faced with right now. As emotional as this issue is, it still doesn't change the fact that we have to do something about the bridge.

The high-rise in my opinion, is the way to go, I agree with the majority of the Town Council that the 65-foot high rise bridge is the only option we should be looking at. It's the only thing that offers the protection to us as citizens who are here as part-time, vacationers, whatever. The beach swells to thousands in the summertime. That provides some very, very serious safety and access problems to the island, thank you.

Moderator: Thank you Mr. Basemore. Mr. Bill Rucker, or is it possible Bill Ducker? I think it's Rucker, is it Rucker? Ducker, okay. I'm sorry about that I couldn't tell if that were a D or an R there.

Bill Ducker: You can call me anything you want, sir. At any rate, I think everything has been said and quite eloquently. One of the issues this gentleman just raised--can you hear? Was he brings the issue does our opinions matter? And I would like to ask you that directly now.

Moderator: They certainly do and we--if they did not matter you wouldn't be having this type opportunity tonight and we will be looking at everything that comes in through the process both what is said here tonight, what we received through the mail, that type thing, plus all of the information that's contained in the Document as well as the input of your local governmental officials and everyone of that nature.

Bill Ducker: Can you give us an idea of what kind of weight we have? I mean do we have any play in this at all?

Moderator: Well I think you're really, and here again I'm basing this on my experience and I don't even like to consider how long I've been doing this, but the question and I think someone else has eluded to it here tonight is, everyone has their opinion, their concerns, what they would like to see done, and why they would like to see it done and what we're trying to do as a agency in conjunction with the Federal Highway Administration is to determine what the agency or the people within the agency feel or think is the best solution for the most people over the long-run. So you know to answer your question everything that is said will definitely be given consideration but by the same token, where we are removed from say looking at the quaintness that someone might like about the bridge and be more concerned about the service that the bridge is providing; how well that service can be provided, how long that bridge can last in the form it is now, those kind of factors have to be looked at...so we're, I guess you can say we look at more factors maybe than individuals are looking at because their looking at what they would like to see and like to see remain there so we're looking at a little bigger picture I guess you could say.

Bill Ducker: One of the services that's been commented on here tonight and I will just expand on it a little bit if I can in a fashion, and that is that the bridge provides a bottleneck and I know that can be a problem, it can be cumbersome at times but it also develops a mentality to me and I think to most people who travel to the Island, and...we have to do some planning before we get there and after we get there. But what it also provides is a bottleneck that would eliminate a good portion of what if for no better word, "cruising" as far as the Island is concerned.

When I say "cruising," I'm not talking about just young people but just the public in general and I don't think that the roads on Sunset Beach are adequate to take any more additional traffic than is going to be anticipated. We're 68 percent developed now, from what I understand, and we probably have another 500 homes to be built. And if you line the cars up that would be at those homes at the height of a season and put them on the road system, you wouldn't have enough room for even those that would be visiting houses there. So I do believe that it is absolute factor that a high

rise bridge will introduce additional traffic and an overwhelming amount of traffic to the island at times and I think that poses a danger to a situation that I know that you all hold dear.

If you live at Sunset Beach and on the Island, quite often you'll see young children going to and from the beach. I don't know of many islands or many beach areas in that I can--along the East Coast where parents feel safe enough about the community and about the situation to allow their children to do that and so this is one of the--I feel--is a great asset it maybe cumbersome at times but I think maybe for that reason the bridge that we got now should be improved and can be improved. I am sure the engineers in this room that could offer some advice to the gentlemen that are here. And so as far as this brochure it says, replacement of existing bridge over intracoastal-coastal waterway, to me this is somewhat analogous to this item. Do you know what this is?

Moderator: It looks like a Susan B. Anthony two dollar.

Bill Ducker: Well actually it's one dollar. We had a lot of bureaucrats that got together and they worked extremely hard and this is what they came up with and it's still worth a dollar, but it's not necessary.

Moderator: Thank you very much. Our next speaker is Bill Adams.

Bill Adams: I want to thank the DOT very much for having this meeting and allowing us to express our opinions, and you've heard some very very different opinions and eloquent opinions. I'm kind of confused and I guess the main thing that I want to do, this is not a popularity vote contest or anything is, I'd like for the people who are opposed to the 65-foot bridge just to stand. Just to give you an opinion, thank you.

Moderator: Thank you sir. Now that completes the list of those that the list of those that had signed up in advance to speak so at this time I'd like to open it to anyone else that would care to make a statement or ask a question. And if you don't mind let me see if some others want to speak first and then we'll give you a chance--yes ma'am. And if you don't mind, if you'll give us your name for the record.

Mary Nooriginan: My name is Mary Nooriginan. I live on Shoreline Drive East. I'm a resident, a full-time resident, for 12 years. A lot of people that are here tonight are part-time residence. They don't see what goes on all year as we do. Mr. Rand who just recently moved on Shoreline Drive doesn't want the 65-foot bridge because it will obscure his view and a lot of people think the same way. But when maybe his child is drowning or your grandchildren are drowning and the tide came up and the bridge can't be accessible, then you will have peace and tranquillity for that child, think about it. Also, also I'm for the 65-foot bridge. Why do things two and three times? When we originally had this on the agenda, the Sunset Beach Taxpayers Association came up with many things to deter it; the environment and it was proved okay. Where were the fishermen gonna go, that go off the pier on the other end, they'll go some place else but we need the safety, we need the tranquillity.

Twelve years ago, the bridge was fine. We want to keep the bridge, keep it, but keep it open. Make a park around it, show the people this is what we had. It is quaint, it is adorable, but it's not good for the many people that are here now. What did we have? Fifty people on the island and when I moved here they said, and you have Sunset Beach for yourselves to use that's if you could get there. You can't get there because of the traffic jams. People are shaking their head no but let me tell you, you are retired or you are a part-time resident. I work at J. C. Penney's and coming home at night at 9 o'clock; tired after working all day, waiting to get in that shower I'm on Shoreline East, mind you the line was backed up to Oyster Bay. Now I had to go all the way around back again to Old Georgetown Road. I'm a permanent working resident. I'm not a part-time, I'm not a vacationer, I'm not retired. Thank you.

Moderator: Thank you. Who would like to be next? Yes ma'am. Will you carry that mike back to her there? Turn it--on the bottom there there's a little switch that says on and off.

Marie Shyry: Can you hear me? May I ask someone who has spoken a question about what they said for clarification, please?

Moderator: If the person is willing to reply, sure.

Marie Shyry: Or just simply make a statement about what was said. My name is Marie Shyry and we've had a house at 39th and North Shore for ten years. We're here as much as we can be here. We cannot vote, we pay our taxes, we pay for our fire insurance and I understood from Mr. Ed Hughes (I believe it is) that he is a candidate for the Town Board and I thought that I understood him saying that he had talked with many people on Sunset Beach. Since I cannot vote for or against Mr. Hughes, we've not had an opportunity to talk but what I thought he was relaying to us were the concerns that he had had. A permanent resident on Sunset Beach and yet he seem to be actually expressing his own feelings and I would like that clarified. What I heard from Mr. Hughes was that his feeling or was that the feeling of one percent or 50 percent of the people that he talked with? Thank you.

Ed Hughes: Thank you for the question. I'd like to clarify that. What I said were not my own feelings. I made no choices. I was trying to tell everybody or to suggest to everybody, that before I came around and saw them that they ought to consider all of the aspects and then let me know what their opinion was, okay. All of the things that I mentioned tonight are items that people have mentioned to me or emphasized to me as I talk to them about the bridge. It was not my own personal opinion, okay and I'm glad the lady asked me about that because I wouldn't want you to feel that I was trying--I was trying to get everybody on one plain with all the aspects so that when I came around they would have considered all the aspects instead of just as we have heard here tonight so often emphasizing one element of the question and only one element of the question. Thank you sir.

Moderator: Who would like to be next? Okay Tim can you get over there and you can carry--we got a lady in the center here and then we'll come to you sir. Let him bring the mike to you so everyone can hear what you have to say.

Unidentified Female: I would just like for you to answer this. When projects are located within a corporate limit the local corporate government maybe required to share in the projects cost. What does that mean to us who don't live here, who don't get to vote, and we don't want this high-rise?

Moderator: Well what that applies to is when projects fall within a municipality, an agreement (a municipal agreement) is entered into with a municipality and in some cases the local government will participate in the cost of a project if it is beneficial to the local residences also in the way of paying for some of the right of way or something like that. In this particular case, the municipal agreement has not been prepared. Actually that statement is in there because the mayor of another town said that I told him that the State was going to pay for it lock, stock, and barrel. And he found out that the town had to pay a little bit and so to make sure that I didn't make that mistake again, that general statement is put in but it is determined through a municipal agreement entered into the local officials. And we could find out if the Town was going to participate in any way in the project that had gone to contract but was stopped before the construction began. And I really don't/would not expect that the town to be involved in a project of this nature, but that has not been determined at this stage. We had a gentleman over here, Jim. But the statement is really to protect me.

Dick Zinzer: My name is Dick Zinzer. I've been a resident of Sea Trail Plantation for five years which means a resident of Sunset Beach for two and a half years. I live on the mainland. I love the bridge the way it is. I just ask you a question. What compelling reason is there to change the bridge to a high-rise bridge, what compelling reason? Thank you.

Moderator: Yes sir.

Sue Weedle: My name is Sue Weedle and unless there be any misunderstanding, I'm a year-round resident of the island. I see many of my friends and neighbors here. My husband works on the mainland. We don't want a high rise bridge, we're year-round residents on the island. Thank you.

Moderator: Thank you. If you will before you get another speaker I will respond in general to the gentleman's question there. There is not a compelling reason to build a high rise 65-foot structure. I think if you look at the history of the structure of bridges over the intracoastal-coastal waterway when they have been replaced if a 65-foot bridge could be constructed, that has been the normal type of replacement structure that has gone in. And that's not just here, that's throughout the intracoastal-coastal waterways. There are some bridges over the waterway in North Caroling that are still bascule bridges. There are some that are not 65 foot but they haven't come up for replacement at this particular stage. This particular bridge we; I don't know how many of you remember we--a lot of you probably were not involved at that particular stage with North Carolina possibly, but we had a bridge to fall into a river some years ago and several people were killed when this occurred. Due to that, all of our bridges have been inspected on a periodic basis to determine how safe, they are whether the load limits need to be adjusted, things of this nature. And as a part of the bridge replacement program which this structure is a part of that program, we do a sufficiency rating on the bridges and they receive a rating from 0 to a 100. And this

rating not only deals with the structural soundness or how safe it is for a vehicle to go across, but it deals with the type bridge that it is--whether it is a one lane or two lane, things of this nature. This particular bridge has a sufficiency rating of 4 out of 100. So that leads you to believe up front that something needs to be done to the bridge to make it a safer bridge or make it a to improve the operation of the bridge say.

So one of the alternatives you can always consider when you go to the intracoastal-coastal waterway is a high-rise bridge because the 65 feet is set by the Corps of Engineers (guess) and the Coast Guard as to what height you can have of a permanent structure over the bridge. So that is one of the alternatives, the bascule is another, the rehabilitation is another. So it's not a compelling reason that you've got to build a 65 there are other options available and they're being considered.

Unidentified Female: Sir, can you comment on the sufficiency rating...

Moderator: Just a moment I had a gentleman's hand up here first.

Unidentified Male: I don't think I need a mike. Can you give me the average sufficiency rating of all the pontoon bridges in North Carolina or is there a report?

Moderator: No, that is the sufficiency rating of this particular structure based on the inspection of that bridge. You don't compare them to each other,...it's the rating is just on the structure that's being...well I want to say investigated I guess. Yes ma'am your question.

Unidentified Female: I'm sorry that I was out of turn, but I wondered if you could comment on the sufficiency rating of the high-span bridge across the Cape Fear River in Wilmington that just collapsed last week.

Moderator: Well I think that there if you remember just a moment ago, I said that these bridges are inspected periodically. And that bridge is been in operation for a number of years and those bridges do have a tendency to wear out that's why we're in a big program of replacing and repairing structures. And I don't know what the sufficiency rating of that one might be and I don't know what occurred at that bridge, but we have an on-going inspection program where all bridges have to be inspected periodically to determine just how safe they are. I believe we already had a hand up back here then we'll come to you sir and then we can come here. Get Tim's running shoes on there.

Unidentified Male: I've bee coming to Sunset Beach for 32 years. I may not look that old but I am. The bridge did not bring me to Sunset Beach, the beach brought me to Sunset Beach. I will continue to come regardless of what you do, but I have a very very deep concern when I'm here with my children my family that if that bridge was broken and if I was to break loose, I may lose my home. Or if I have a loved one that has a heart attack or one of my grandchildren were drowned, that bridge is not open they may die. Now we can--I love nostalgic I like the bridge too, but there's time when nostalgic has to give away to common sense and I love all of you and regardless of what happens, I'm going to still come to Sunset Beach.

Moderator: Thank you sir. Tim had a gentleman down here.

Ron Knight: My name is Ron Knight and I ...

Moderator: He's bringing the mike to you Mr. Knight.

Ron Knight: My name is Ron Knight and I am a permanent resident of Sunset Beach and on the mainland here at Sea Trail Plantation. And I think that a high- rise bridge for Sunset Beach is nothing but a tremendous overkill. If you go up to Ocean Isle and drive across that bridge, which I did yesterday, Ocean Isle is a tremendous I don't know the miles and distance but so much bigger than Sunset Beach that I don't think there's anybody in here that says something should be done with that bridge. It should be done, it should be made safer, it should be made to open quicker. Anything mechanical can be rebuilt and that bridge can be made to open quicker, it can be made to carry cars and boats it can be made to raise or lower with less rise or fall with the current, with the tide, and I think that's the thing that we should look at. We do not need a high-rise bridge for Sunset Beach.

Moderator: Thank you sir. Tim the lady up front.

Eda Holt: I'm Eda Holt. Ralph spoke earlier and we have only been on the Island for six years. My question to the DOT is are they, if they are considering spending $14 to $15 million of my money, part of my money are they willing to spend $14 million to improve our bridge? We can have eight lanes probably for $14 million?

Moderator: Thank you. Gentleman right here--just come on up and use this mike if you don't mind, sir.

Phil Baldwin: Hi, I'm Phil Baldwin. We're from Canada, I don't know how many others are here. We first came to Sunset Beach in 1990, thoroughly enjoyed it, and bought a place in 1991. One of the major reasons that we liked the beach is because of the pontoon bridge. And I think the Reverend in his speech echoed a lot of our feelings about Sunset Beach. Thank you.

Moderator: Thank you sir. The gentleman right here. You can come up and use this one or the other one, either one it doesn't matter.

Harold Hatfield: My name is Harold Hatfield we owned property and are part-time residence of Sunset Beach. I don't think there's a person here that would not like to see this beach improved. And I think with the present bridge, if we could make that a two-lane bridge this would eliminate a lot of the traffic problems and with the island as one gentleman said, is around 65 percent complete as far as construction is concerned, a two-lane bridge would carry us I guess forever unless...Of course, if we get the high-rise bridge and then that sewer and then we start high-rise buildings, now you would need a high-rise bridge. But I don't think that is what anyone in this area wants. Thank you.

Moderator: Thank you sir. Okay.

Linda Winsnut: I'm Linda Winsnut and I have a house on First Street. Several years ago, Sunset Beach was rated in Money Magazine as being the fourth hottest vacation spot in the United States by investment. We got it with the bridge.

Moderator: Tim, lady over here. Oh, okay.

Cherry Cheek: My name is Cherry Cheek. I'm also on the Sunset Beach Town Council. I'm not going to reiterate a lot of points that have been made tonight, but I do want to make two points that have not been brought up. I lived on the island, I have three sons. My three sons attend public school. There have been many days that I have taken my sons to school to get to the bridge and the bridge be out of operation. I had to turn around and take my boys back home, call the school to let the school know that they would not be there until I could get them across the bridge. And being a ex school teacher, I know how valuable that the time is that they lost going to school on those days and getting behind in their classrooms.

Another point I'd like to bring up is that we are all very environmentally concerned and I would like to ask each of you what do you think goes on in that waterway when a large boat is sitting there pouring gas into the waterway waiting on that bridge to open.

Moderator: Thank you. Who would like to be next? Yes sir.

Art Gallagher: Good evening, my name is Art Gallagher. I'm a resident approximately since Christmas Eve. I resided in a community in the State of New Jersey and was a very quaint community. I may point out that I kind of stumbled on Sunset Beach and fell in love with it and it part on the count of that bridge. However, I feel in progress but I'm against the high-rise bridge. I feel the bridge should be repaired somewhat and an additional lane be built. This community that I resided in in the State of New Jersey is the highest point on the Eastern Coast, beautiful. I lived approximately three miles from the ocean and I lived on one of the best and most beautiful marinas in the State of New Jersey. I don't know if any of you ever heard of Sandy Hook, but it's a peninsula that jets out and you can look across the New York skyline. It's pretty at night time, dangerous during the night, dangerous during the day. They made the Sandy Hook a gateway park which after they did that, I stopped going to the beach because you just couldn't get there. It increased the crime rate tremendously and the traffic rate was terrible. However I am for expanding the bridge, but not a high-rise. Thank you very much.

Moderator: Thank you sir. Who would like to be next? Lady over here, Tim.

Kathy Caudle: I'm Kathy Caudle. I own a house on 35th Street in Sunset Beach and have for five years, not near as long as some of you all that prize it more than I do, maybe. But the one thing, two points made here tonight; one that I think DOT needs to realize if they don't already maybe you do, that all of us on that island have taxation without representation. We do not have a vote in what goes on over here. We are outnumbered four-to-one consistently. We don't we're not able to say anything except showing up and fighting for what we feel is right, and we feel that the high-rise is wrong and the only way that we can tell you about it is to continue to fight

because we don't have any representation on the City Council except Mr. Clinger and he gets nowhere.

Second of all the lady Mary, that works at J.C. Penney and Ms. Cherry, I'm sorry that you all have problems, but if you like Sunset Beach enough that's fine wonderful but if you don't and it presents a problem, move.

Moderator: I would like to remind you the statement in the handout that everyone is entitled to their own views so let's express ourselves but let's don't be taken anyone to task because they do not agree with you. Who would like to be next? Let me see if anybody else wants to speak first, please?

Unidentified Female: At all of the hearings the thing that has--the thing that kind of escapes me through the whole thing is that we keep hearing about the dangers of everybody who live on the island, of all the people who vacation on the island, those people return year after year after year knowing about those dangers. The people that live on the island, it seems like it's the people on the mainland--I'm a permanent resident on the mainland--but I don't think that you're hearing the people on the island. The people over here are the ones that are worrying about the people that are living there the people that are living there are not worried about it.

Moderator: Thank you. He's bringing the mike to you now. Let's give the lady your attention, please. She hasn't got it turned on.

Marty Leggett: I'm Marty Leggett and I'm very proud to have property. I have five lots or began with five lots on Sunset Beach. I chose Sunset Beach because I love Sunset Beach and I was well aware of some of the little problems that might arise from being on a small island, but that didn't deter from my enjoyment of the beach. I'm wondering about the weight that was given as it more or less given what is the weight given to those who haven chosen Sunset Beach because they love Sunset Beach, because they are happy with Sunset Beach, because they are happy with the way things go as compared to those who are on the mainland who don't really have the same--they've chosen perhaps for different reasons?

Moderator: Well I think that that's the second time we've come up with weight and actually I don't think that you'll find in the decision-making process that weights of that nature are actually assigned where those of us that are involved with the decision making are more interested in what is being said and the basis for it than we are that X-number said this and X-number said that. The process is set up to try to come up with the best possible solution for everyone and everything involved. So we don't go in and say okay the beach owner's the property owner's of the beach get X-number votes or weighting the mainland and you know actually you could look at it. I doubt if Sunset Beach would generate $14 million in gas tax revenue in a very short period of time. So if you wanted to sign weight, how much weight do you sign to the other $6 million citizens that are paying gas tax that a portion of that tax would be used for this particular structure. So, we, it's really not a weighing process of that nature. As far as public input we're more interested in what is being said and why it is being said and what is the basis and is that some basis that we need to make sure we consider in any type decision. Okay yes ma'am.

Unidentified Female: I guess it's time to head back to the table and go around for seconds. I've already made one statement but I did have one question and I think Mr. Garrett you can probably answer this. You were talking about the current bridge having a sufficiency rating now of 4 out of 100, I believe I understand that and we understand that that's compared to itself the bridge gets 4 out of a 100 and yet there is a time period I suppose that bridges are checked and made sure that they're safe and structurally sound and so forth and I guess I wonder what, where was the maintenance, what was the tax dollar doing to keep the bridge that I go across many days how did it get to a rating of four? That's of great concern and you know it would make me worry if we had a two-lane bridge or a 65-foot bridge, will it get to a rating of four? I just feel you know real worried about that.

Moderator: Well to try to alleviate some of your concerns about that and I think that I probably didn't state it well enough or you didn't understand what I was saying early on, that it wasn't just the structural soundness of a bridge that enters into the rating the fact that it's a one-lane bridge cuts the rating way down. The fact that it's a pontoon bridge cuts the rating way down. So you can go back, if you like, and look at the figures and there's a lot of maintenance and a lot of maintenance money. I think a lady brought out the barge itself is been replaced three times and I think the last time it was a million bucks to replace the floating portion. So it's not that maintenance money hasn't been spent. The sufficiency rating takes in all aspects of the structure. And the only thing that shows up out there in the structural portion is the weight limit has been lowered and a set weight limit which occurs as bridges age (and that happens all over the State) and then they reach a point where they have to be replaced or basically rebuilt and kind. But it's not that it's unsafe from a standpoint of someone falling through the bridge with a vehicle as they go across it, but it takes in all the factors. Yes ma'am.

Unidentified Female: It seems that the people on the island think the island is for them alone. When we moved on the mainland, we were told we had Sunset Beach there. So therefore we want to also go there. Now you have more and more golf courses going up and the golf courses are putting in condos, town-houses, and you people are probably in there, in that category. But you too, want to go to the beach but you're not the last condo or the last town house. Now you have Lion's Paw that's building over here on Old Town Georgetown Road. They're building and putting up homes, all these people are gonna cross over to go to the bridge. If you still repair the one that's there or you put a two-lane, it's still going to float with the tide. It still will deter traffic on the waterway which is a highway for boats just like 95 is a highway for cars. You are obstructing the highway boats. There's a lot of people who have fishing boats along the waterway. They make their living from fishing. The boats that have been held up circling and circling, polluting the water, oh yes, polluting the water I had a schooner capsize in front of my house because he couldn't get through the bridge. The tide was going out, he hit a low spot by circling, and capsized. That fellow had to stay there till the tide came in and lifted him back up. His radio was very clear to my house and we could hear him calling for help but there was no help.

Now also the boats that are detained waiting to cross, waiting for the bridge to open. When it does open, the fishing boats that have a schedule zip through and they don't

care--about don't make a weight. And they mash the fishing boats that are on the pier to pieces, and I have friends that this has happened to. So don't consider yourself. I don't care actually what you actually do with the bridge, I go to Ocean Isle because I know I'm going to get there and I'm going to come back. And I live walking distance to the beach. So you can't just think of yourself, honey. Think of other people, think of other people that are still coming, they need a better access. And if a hurricane comes; and it's one churning up down there right now, it might just come up this way and when they say everybody a mile back from the water to evacuate, I want to see the mass exodus trying to get over that little pontoon bridge or a little two-lane bridge and then I'll feel sorry for you if your house is on fire and the bridge is out of order and a little wind comes. Honey, you can say good-bye to your house because they are so close that cinders would blow and there would be another Bird Island because your house would be gone.

Consider other people, not because you came here for the bridge. I came here for the weather and the tranquillity. I got it on the mainland. It doesn't matter because of a bridge. That's not a living breathing thing, you are. Think of yourself and others.

Moderator: Okay, lady here and then if you don't mind let us get the gentleman right back there next to her and then we'll come to you.

Unidentified Male: Sir, you said you were interested in facts and more than of opinions and you've gotten a lot of both tonight, but one thing that I would like to reiterate and because I don't know whether I made it any clearer and if I did I'm going to make it clear again that the bottleneck and the restriction of traffic that we have with the present bridge off of Sunset Beach Island a safe place for pedestrians. I think that's extremely important and I think that should be top on you list to be considered as far as the access of the bridge are concerned.

Moderator: Thank you. Tim, the lady up here on the aisle, center aisle. The lady in the green dress here.

Kathy McCory: Well thank you, can I sit down?

Moderator: Sure.

Kathy McCory: Okay, well good. My name is Kathy McCory and I have attended I think every public meeting that has been held so far. And I'm not sure which meeting this was maybe one in '69, maybe one in '82, maybe one in '84, but I do remember that there was a good crowd there that night and one of the representatives from the, I assume it was the DOT I maybe wrong at this point said, think how great it's going to be for all of you when you come to Sunset because you can go straight across the bridge at 55 miles-an-hour. Well somebody at that point asked well how far would we be out in the Atlantic Ocean when we got the automobile stopped? But my concern always has been, and particularly with the high-rise level that will take so much road space to get into the beach itself, there would be--I don't know the figures--but I'm sure the mileage of the construction itself including the causeway the one that has to replace the causeway, would come pretty close to being the same as the mileage of the road existing roads on the island. And the safety

factor has been my main concern. I'm sure that everybody here tonight knows very well, as well as those of us who have been on the island for a long time although not permanent residence, that the roads are crowded with people with children, walking, with families walking pushing the baby carriages with the teenagers on roller blades the grown-ups on roller blades, and the bicycles galore. The traffic is bound to be increased with a high-rise because there is casual day traffic that would continue to come and will go as long as they can manage to get in. But I'm afraid that we'll have road problems, we'll have deaths, traffic deaths on the island from the increased traffic and I just wanted to say I hope that will be addressed in the survey. Thank you.

Moderator: Thank you ma'am. Gentleman about three-quarters of the way back there, Tim.

Sandy Ackton: My name is Sandy Ackton and I'm a non-resident owner. One question, I have two questions. One, what is your thought-process and your decision-making process; In other words what will DOT go through in their decision-making process to determine which bridge will or will not be built and two, have you allowed for in your appropriations for stoplights for the traffic coming off the high-rise bridges because on each of those Plans you have to come off the bridge and make a left-turn to go to Ocean Isle beach?

Moderator: Okay to get back to the thought process...the...I'm not really sure I understand exactly what you're--what we're going to do is take into consideration everything that has been developed about the project. And if you're familiar with the EIS process, that's a very in-depth document that contains not only material developed by the Department of Transportation or in this case the private engineering firm for the Department, but also information from numerous other agencies State and Federal that the document is submitted to and they make their own input into it. The areas that they have control over we have to look at any impact that is occurring in those area's and we have to satisfy our develop mitigations that will satisfy those agencies that control those particular areas. So all of that is looked at plus all of the input that has been received through the workshops and the public hearing. This public hearing will be considered.

Again trying to look at it from a standpoint of what is being conveyed to us that needs to be given consideration, such as the gentleman's statement about making sure we consider the pedestrian traffic that currently can safely use Sunset Beach. Looking at everything that comes in and will come in over the next two or three weeks...And now that I've said that, I've forgotten what the second question was. Oh yeah, the stop light.

Actually that while some consideration could have been given to that at this stage we're really not into the design details to that particular degree. And the way we make the determination about traffic signals, and I know we all like to refer to them as stop lights but if they were all stoplights we would have a grid lock around the country, but the signals will be considered as part of the design process and at that stage we look at the various traffic projections, how much traffic will be projected, how much through-traffic that type thing and a traffic signal can go in at any time it's warranted

whether it's part of a project or not, but it would definitely be given full consideration in the design phase of any project.

Unidentified Male: I'm doing development in Florida and each time we submit for a building permit, we basically have to provide a traffic impact study. What type of traffic study have you done to project the traffic counts before and after each one of these alternatives?

Moderator: That's all contained in the Draft DIS. There is a complete section on the traffic and it's projected over a 20-year planning period normally based on when the project would expect to be open to the traffic in the 20 years beyond that is what we use for the projections. Are there others? I feel like I'm neglecting this side of the room here. Yes ma'am, would you like to come up and use this mike and save Tim a few feet of walking I should say.

Unidentified Female: Thank you. I only have three questions, can you hear me? One, I hope that you can perhaps answer this. One question was on this presentation of the alternatives, I only see a the rehabilitation of the Great Bugaboo that one-lane bridge as we have it now. I wonder if there was a study made showing updated two-lane bridge with all of the other safety features that could be now at this point and time incorporated into the structure of a two-lane, or whatever is needed, pontoon bridge similar to the one that we have. I believe that if we're able to build gigantic 65-height bridges, we certainly ought to be able to build a safe pontoon bridge that will not destroy the character and the things that we enjoy so much of Sunset Beach. Can you tell me whether that study was ever made?

Moderator: As far as I know, there was not a specific study made of a two-lane pontoon bridge. But you have to look at it a little beyond. It's not a question of whether the engineers can design or can't design you can probably design and construct anything if you will have unlimited funds and unlimited things available to you, I guess I should say. But to build when you think about it to expand that bridge to a two-lane from a one-lane to a two-lane bridge, you've got to rebuild the bridge portion--the permanent bridge portion--coming out to the pontoon. If you remember on the rehab I mentioned that you'd do it a little bit at a time by driving piles down through the bridge. Well to add the others, you're going to have to build it on the outside to add additional width. Sure I imagine that could be done you might have a problem though when you get into the pontoon area of being able to continue to use the pontoon bridge that's there while you're building in there.

Now if you'll look at the various alternatives that are shown, if you're rebuilding you're moving away from your present bridge to give you enough room that the present bridge can continue to function while you're building the new ones. With expanding to a two-lane and I feel sure that it probably it could be done from an engineering construction standpoint it would be a very difficult task to keep traffic moving from the island to the mainland and vise versa while you were doing this. Plus, there is an added factor of a pontoon bridge when the traffic goes across the barge itself. If it's going to cross the center of the bridge, it's fairly stable but if you put two lanes of traffic opposing each other and when two vehicles hit the barge at the same time going in opposite directions you could create a situation there on the barge where it

might not be as safe as you would like. So there are some factors there but basically to get back to the original question there, the alternative was a rehab of the existing bridge keeping it as a one-lane structure.

Unidentified Female: In other words, we didn't we don't really know what will be involved in creating the kind of bridge that most of us would like to see. I wonder if we could persuade the powers that be to give us those figures along with the alternative high-rise bridges and so forth.

Moderator: Oh, I think that we could certainly develop some figures. My question and my concern I guess would be if we could justify a two-lane pontoon bridge. I understand from some comments I heard earlier that there are some, maybe in Louisiana or somewhere. Here again you got to consider what kind of traffic, what kind of waterway is it on, is it an intracoastal waterway, is it the only way over what ever that waterway happens to be. You know a number of factors like that. So I think from our standpoint as far as developing the document and this information, our consideration was a rehab if anything was done to the existing bridge it would be replacing it in-kind.

Unidentified Female: So to replace what we have we would have $3 million as opposed to $14 or $16 or $18 million. So we've got a lot of money to play with there and creating a pontoon bridge.

My second question was I've heard so much about the safety of the high-rise bridges. Did I not hear that during the last high wind or threatened storm that people were trapped over on Ocean Isle because they had to close the bridge--it was swaying so much-that the people were not allowed to use the bridge to get on or to get off? True, I didn't know whether that was just an exaggeration that I had heard, but seems to me that there are some cons against a high rise bridge.

The third question that I wanted to know we hear so much about the terrible things that can happen as far as safety and getting help to the island or getting off the island. Do you have any statistics as to the number of problems that have developed to date because of the pontoon bridge that we have? Have we had, how many deaths have occurred because of the bridge? How many accidents because of the bridge?

Moderator: There is information contained in the Report about some of the occurrences due to the bridge being out of service. Most of that is based on local information that was gathered.

Unidentified Female: Well, we've owned property here for some time and spent most of our time all but about three months we're out here at Sunset and I have heard of no fatalities or anything other than I think except when the barge hit the bridge and that was a problem I'm sure. But I'm just wondering how severe are we endangered presently on Sunset with the...Now understand that I know that the bridge needs some improvement I'm not questioning that, but how much are we really serious in danger with an updated and improved pontoon bridge?

My comment that I would like to make, and I think somebody touched on this I can't remember who it was, my husband and I were born in South Carolina. We grew up coming to the beach back when Myrtle Beach was just an average size beach it didn't attract a great deal of attention from the rest of the world but even then, we and our families went to the small family beaches like Ocean Drive, Crescent, Windy Hill, Cherry Grove and we spent many many happy hours collecting shells and enjoying the ocean and the sands and the sky and a great deal of fellowship among the people who were there. Most of you if you go down the South Carolina beaches now would not choose to buy a home there if you have a family. You know what has happened all up and down the Coast to our beaches. We found Sunset when we were looking after we came back to South Carolina after looking for a home to buy at the beach and fell in love with Sunset Beach because it's the kind of beach that we grew up with. The community is the kind of community that we grew up with. This is was a time when you could let your children wander all over the beach, anywhere on the beach without fear or concern. We didn't even think of locking our doors. If we left the cottage, you know, we didn't have to worry about locking the doors. I have that same feeling with Sunset now. If, if we see a great influx of the cruising--I think it was called--cruising traffic, we're going to loose that family security. I would hate to see that happen at Sunset. Thank you.

Moderator: Thank you. Yes ma'am we have a lady back there.

Unidentified Female: Hi, I'm from Virginia and I know a lot about bridges because I live on the Virginia Peninsula and the safety factor is always a concern but I've seen many many times on the Hampton Bridge Tunnel and Monter or Merry Mack Bridge or whatever bridge you choose to leave the Virginia Peninsula and go to the mainland where there have been car accidents, and I'm sure that they have endangered lives of people on the other side. Just because you build a big bridge doesn't mean you're gonna end all your safety problems.

Moderator: Thank you. Would you like to come up and use the mike here, sir.

Unidentified Male: I just have one quick question. If you've heard the same question or the same number of people that I've heard tonight favor the rehabilitation and "modernization" of the pontoon bridge to make it either two vehicles wide or make it open in five minutes rather than five or ten, or make it lower or raise quicker or whatever has to be done, and that was not done in this Study. What does the Department of Transportation, what is the frame of mind of the Department of Transportation to now investigate that if that's what the majority of the people have asked for?

Moderator: Well as I've said earlier we're going to be investigating everything that we've heard, and that is going to be one of them. Just to give you a little idea, some of those things that have already been given some consideration it's not like it hadn't--like the opening and closing faster it's not like when you got a pontoon bridge it's not a raising or lower, it's a swinging. And you're really controlled basically by the tide as to how fast they can swing out into place and come back in. But no to address your major question, we will be looking at everything we've heard and I think you can

rest assured that we will give some consideration to what would be involved if we tried to expand the pontoon bridge to a two-lane bridge and I think we have enough bridge expertise in our Department to certainly give us some information on that.

Unidentified Female: May I ask a question?

Moderator: Sure.

Unidentified Female: We just moved here in May so we're brand new. But from what I understand from the paper that you've handed out this is not the first hearing, I mean there's been hearings for years and years and years and years and years.

Moderator: Well if you look at--

Unidentified Female: Have people not said the same thing before that they're saying tonight?

Moderator: If you look at the--at that paper that you mentioned there, we actually had gone through the process and had an approved Environmental Document, had the Plans, bought the right of way, and the project was let to contract and the contract was ready to go to work on a high-level bridge back in 1990 (I believe) when the court action was taken and we were required by the Federal court to prepare a Draft Environmental Impact Statement before we did what is called an Environmental Assessment. And so that's what's been going on. And actually the way you can look at it is when the court action took place in 1990, it was a starting over point. So the hearings that were held before were held under the other process under the other document and basically when you did the Draft DIS, you started back from square one.

Unidentified Female: Obviously someone wasn't happy in '90. I mean these people that live on the island must have been saying then what they're saying now.

Moderator: There was a lot of opposition to a high-rise at the time, yes.

Unidentified Female: And there wouldn't have been a law suit if there was.

Moderator: Well the lawsuit was brought by the Taxpayer's Association and the judge ruled in their favor. Yes.

Unidentified Female: Well I mean you know we're taxpayers. Fourteen, sixteen, eighteen, twenty, whatever it's going to take to build that million dollars is coming out of our pockets. It looks like you all ought to listen to what we have to say instead of us listening to what ya'll have to say.

Moderator: Well I think there that it's it is coming out of your pocket. I could say the same thing. I have no connection with Sunset Beach whatsoever and

everytime I pump gas in my car, even though I work for the DOT, I pay for the same amount of gas tax that everyone else pays. And you know I could even look at it and say well if you build a pontoon bridge it's going to take X amount of maintenance over the years, it's going to take bridge tenders on duty all the time. Do I want to see my tax money spent that way? You know and so when you start talking about the tax money, we're really talking about everybody that buys gas in North Carolina so what we're trying to gather from our public involvement process is find out everything that we can about the situation to have all of that available to the people that are involved in making any final decisions or future decisions on the project. And it's not a referendum as you've noticed in the handout there. We--it's never been a road built that I know of or bridge or anything by referendum in the State so it's not that because again, what is the voting--who would be the voting public--for something like that. So really, the bottom line is trying to gather every possible bit of information in and then use that along with our expertise in the field there in to come up with what we feel is the best solution to the particular question. over the long term in which everything we're doing you're looking at 40 or 50 years into the future. So it's not something that's taking care of a problem as soon as it's built but or taking care of a situation but what's going to be there 40 years down the road and what's Sunset Beach going to be like then.

Unidentified Female: Which bridge was supposed to be [inaudible]

Moderator: It would have been along the W1 generally along a W1 is where it would change and come off 179, but it was that particular one. Are there others? Yes ma'am, I'll have someone bring you a mike or you can come up here.

Unidentified Female: I came here tonight and have listened to the passion pleas from both factions. And I want everyone here who's still seated and those who are leaving to know that there's no one that has been present this evening that has any more interest in the bridge as it is or the proposed bridges as they are proposed. I'm not a resident of Sunset Beach. I was a resident; I was one of the first four residents of Sunset Beach. I lived in the house which is right beside the bridge as it is now. That house is a commercial piece of property and it is one of the properties that is in danger of being completely done away with if one or two of the proposals are acted on. The bridge; and I'm really touched by the love that so many of you have expressed for the bridge, I love the bridge too. I watched the bridge being built.

My father is the one who designed and built that bridge. He operated it for two years or more, maybe it was three, out of his own pocket before the State took it over. I want you all to know tonight that it was not his intention when he put that bridge there so that people of the County of Brunswick County or the other counties all over the State of North Carolina, Virginia, Ohio or wherever they came from he did not intend for the bridge to be there for more than five years. He was adamant about the bridge being replaced. He even went and bought a surface bridge that was taken off of another island and had it stored until he could try to convince the State to install that bridge where the little quaint lovely pontoon bridge is now. That didn't happen but I want you to know that he died with the wish and the hope and the dream of someday that little bridge would be replaced by something that would serve the community of Sunset Beach. The rest of the County of Brunswick; because you people who live on

that beach, don't own the whole beach. You don't own the ocean, you don't own the intracoastal-coastal waterway. That beach was there, and it is now, for the enjoyment of every citizen who can cross the intracoastal waterway and I really believe that if you search deep in your heart and all this peace and tranquillity you say you have found at Sunset Beach, you should have enough love for your fellow citizens and other residence of outlying communities to allow them to have access to this lovely pristine beach; and allow the people who are trying desperately to do something for you, there not working against you.

It's time for the quaint little bridge to be put in dry dock. As the lady said, preserve it for all the things that it has meant to all of us, make a park on each end of the bridge access--a place where you can go and watch the boats go by; a place where you can remember the things, but as you look at this picture back here behind us you'll see the beach with little houses on every lot, almost every lot. That little bridge was not installed to support that many people coming and going, not to mention the other people on day-trips who would like to go over and dip their feet in the Atlantic Ocean and feel the sand between their toes. Give your fellow people who live in the outlying communities access to the beach and let them enjoy some of what God has given you, and it's time for the bridge to go and another one to be put in. Thank you.

Moderator: Thank you. Are there others? I believe we've about ended our--run our crowd out of here but--

Buddy Hodges: Could I say something?

Moderator: Yes sir.

Buddy Hodges: Buddy Hodges, I live at 526 Dogwood on the mainland and I've had three different residences down here in the last 26 years. And I think the bridge is quaint, but it does present some safety problems. I've been over on the island in extreme high tides. That bridge cannot be closed. It's been at least two hours I've been over there numerous times. And that concerns me. I know someone asked had there been any fatalities due to safety reasons. To my knowledge there has not been, but at the same time it does concern me. I've had bypass surgery, I could have a heart attack over there and could not get off the island, and I'm certain other people have medical problems or whatever. And that's my biggest concern, whether it's a high-rise bridge, a draw bridge, or if the present bridge could be remedied but the present bridge cannot be closed at extreme high tides. I'm certain lots of people are aware of that but some people may not be.

It does not have to be a storm or anything of that nature, even real high winds sometimes, they cannot close it. And whether it's feasible to build a different type pontoon bridge that can be closed, I really don't know but my main concern is safety. I do not want to see a member of my family have a medical problem and I don't want to see anyone else's family. You know whether I know them or don't know them. Thank you for your time.

Moderator: Thank you sir. Is there anyone else? On behalf of the Federal Highway Administration and the Department of Transportation, I certainly want to

thank you for particularly those of you those of you who stayed till the end but to thank everyone for their attendance for the comments, questions. I can assure that everything that we have heard everything that we have received will be thoroughly considered, reviewed. Anything we feel we need to work on we'll be doing that before any type of decision is made on this particular matter. Again, thank you very much for your attendance and we'll adjourn the public hearing. Thank you.

Hearing adjourned.

W. A. Garrett, Jr., P.E.
Moderator
Citizens Participation Unit

WAGjr:ds
September 5, 1995

COMMENTS AND LETTERS

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Andrew D. Taylor, Jr.

ADDRESS: 1400 Linda Ln. C/T NC 28211

COMMENTS AND/OR QUESTIONS:

Build the lowest bridge with the most lanes (2+) that will open (draw) the fastest! Ideal: 3 lanes, 20' high lift opens & closes in 5 min. or less.

ADT

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 ~~Over the~~
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: PAUL W. MENGEL

ADDRESS: 406 DOLPHIN ST., SUNSET BEACH NC 28468

COMMENTS AND/OR QUESTIONS:

#1 CHOICE - 2 LANE SWING BRIDGE WITH HIGH POWERED MOTOR !! (NOT A CHOICE)

#2 CHOICE - ALTERNATIVE C-4 CENTER BASCULE BELIEVE THIS WOULD CAUSE LESS IMPACT AT APPROACH AREA FROM MAINLAND AND MORE ACCEPTABLE VISUAL IMPACT.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Wesley Hunt

ADDRESS: 425 Second Street

COMMENTS AND/OR QUESTIONS: Sunset Beach, NC

I have been a property owner since the days when we had no paved road and a bridge which made the present one look modern! I have come only 11 houses on the island when I came. I regret the passing of the old bridge and favor the Bascule Bridge as a replacement most in keeping with the ambience we all love.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

Alternate C 4

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Diane Hacker

ADDRESS: 269 Sea Trail Dr Sunset Beach NC

COMMENTS AND/OR QUESTIONS:

I would vote for alternative C4
(center Bascule)

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: W. R. BOYD. JR

ADDRESS: 708 N. SHORE DR. SUNSET BEACH

COMMENTS AND/OR QUESTIONS:

C 4

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: ELART FOCHT

ADDRESS: 206 AZALEA CIR

COMMENTS AND/OR QUESTIONS:

I AM IN FAVOR OF REPLACING THE OLD BRIDGE WITH A NEW BRIDGE

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Grace E.L. Gibson

ADDRESS: 403 Dolphin St., Sunset Beach

COMMENTS AND/OR QUESTIONS:

I will remember going across a two-lane pontoon bridge (perhaps 15 years ago) across the Waterway to Sunset Beach. I wonder why no consideration has been given to this option. I believe having a two-way pontoon bridge would solve at least half of the vehicular traffic problem and would not increase the waterway traffic problem. I urge DOT to adopt this option: a two-way pontoon bridge across the Intracoastal Waterway to Sunset Beach, NC.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: James F Ingraham

ADDRESS: 806 Magnolia Dr. S.W. Sunset Beach N.C. 28468

COMMENTS AND/OR QUESTIONS:

I favor the W-1 - 65 Ft. Bridge

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
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Project 8.2230101 B-682 Brunswick County

NAME: VICTOR L. HAHN

ADDRESS: 269 SEA TRAIL DR, SUNSET BEACH, NC 28468

COMMENTS AND/OR QUESTIONS:

I feel very strongly that the best solution for the new bridge would be by using arrangement "Alternative C4 (Center Mid-level Bascule). This has the least environmental impact & disruption of the general area.

The heighth + length of W1 + C1 does not contribute to the aethetics of the area.

We need to consider the long range plan— money is a consideration - but not the only consideration.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Marie M Summerlin

ADDRESS: 806 Magnolia Ave. SW. Sunset Beach N.C. 28468

COMMENTS AND/OR QUESTIONS:

It's Time - I favor The W 1 65ft. Bridge

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Harry B. McCracken, Jr.

ADDRESS: 113 Queensferry Road

COMMENTS AND/OR QUESTIONS:

I have owned property on Sunset Beach for over 10 years and have been satisfied with the existing bridge operation. My first choice is to update the existing bridge. We enjoy the low traffic levels on the Island and feel that a highrise bridge would make the island too busy. My second choice would be replacing the existing bridge with a modern draw bridge.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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1

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Claire Macaulay

ADDRESS: 3417 Woodlawn Rd, Rocky Mount, NC 27804

COMMENTS AND/OR QUESTIONS:

No to the Bridge. Preserve a little history and beauty. Not everything has to be changed to be better.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Mary Ann Hester

ADDRESS: 612 Williamsboro St. Oxford, NC.

COMMENTS AND/OR QUESTIONS: SB Address- 422 Dolphin St.

I am very opposed to a high-rise bridge of any description. My preference is a rehabilitated pontoon bridge with 2 way traffic as the bridge was originally built by Mr. Gore.

There is much more involved than the money (cost of bridge) - The whole atmosphere of the island is a tranquil, family oriented place unlike the other beaches around. Please help to keep this place like it is.

Thank you.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: William Bell

ADDRESS: 7017 Thames Ct, Matthews NC 28105

COMMENTS AND/OR QUESTIONS:

As a recent purchaser of property on Sunset Beach I find it disturbing that the state try to disturb the reason I purchased my property. Once this bridge is replaced, hopefully not, the serenity of this island will be forever disturbed. Any safety concerns may be readily solved if anyone is interested.

As a resident of a Charlotte suburb I have see history being torn down and replaced for modern buildings and interests. Please do not do this to Sunset Beach as once it is destroyed it cannot be replaced

Thank You

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

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September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: RJ Macauley

ADDRESS: 701 Main St West

COMMENTS AND/OR QUESTIONS: Sunset Beach

Strongly opposed
to a high rise
bridge

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Lloyd V. Grantham

ADDRESS: 410 Waterock Wynd, Sunset Beach, N.C. 28468

COMMENTS AND/OR QUESTIONS:

This bridge has been an on going problem for 16 years. The cost has exceeded all reality and has become a joke. The old bridge is a hazard to health and safety and, it is a most that a new highrise be built

For God sake build the bridge before we die of old age

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Martha Boyd

ADDRESS: 708 N. Shore Dr. Sunset Beach, NC

COMMENTS AND/OR QUESTIONS:

would like to see the bascule bridge, because it would look coastal and persons could still ride over on bikes with a bicycle lane.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Phil Mossaro

ADDRESS: 418 30th St. Sunset Beach, NC 28468

COMMENTS AND/OR QUESTIONS:

There are many ways to weigh the benefits and impacts of a new bridge. You (DOT) have looked at many of the specifications (i.e. cost, distances, etc). What I want to tell you about is one that usually gets a minor note but I consider to be the most important of all. It is visual and environmental impact. I would like to see a 2 lane replacement for the current bridge.

What brought me here was the current bridge. I chose this small low-level floating bridge because it is unique. I found people in this area that agreed. This ~~unique~~ bridge separates this community from hundreds of others along the coast. I would like to see this maintained. I am not against progress. The current bridge needs to be updated and improved. To me this means a modern, low-level, 2 lane bridge. Please don't

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

give my community the same old high rise ~~bridge~~ bridge that others have. We have had a unique ~~bridge~~ bridge and please replace it with another. ~~I would~~ We need another alternative.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: RAY E. DILLON

ADDRESS: 340 HEATHER DR SUNSET BEACH

COMMENTS AND/OR QUESTIONS:

NO. QUESTION WE NEED A BRIDGE.
AS TO THE ALTERNATIVES IN MY OPINION, OF THE FOUR, THE BASCULE ROUTE WOULD BE THE MORE ACCEPTABLE. ASIDE FROM THE COST AND THE DISRUPTION OF 3 ESTABLISHED BUSINESSES ALL OTHER FACTORS FAVOR THIS TYPE OF BRIDGE. THE ISLAND IS ONLY 2½ MILES LONG ALREADY MOSTLY DEVELOPED. THE NEED FOR A HIGH RISE 65' CONCRETE BRIDGE IS "OVERKILL". IT WOULD DESTROY THE ESTETIC BEAUTY OF THE ISLAND, THE WATERWAY AND THE SURROUNDING AREA. PEOPLE WHO LIVE HERE CHOOSE THIS AREA FOR THIS BEAUTY. WHY NOT HAVE THEM VOTE ON WHAT IS BEST FOR THEM AND NOT LEAVE THE DECISION TO RALEIGH AND "SPECIAL INTERESTS".

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

R E Dillon

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470
FAX: 910-579-6993

Mr. H. Franklin Vick, P. E.
Manager
Planning and Environmental Branch
NCDOT
P. O . Box 25201
Raleigh, NC 27611

October 3, 1995

RE: Sunset Beach Bridge Replacement Project, TIP No. B-682

Dear Mr. Vick:

Thank you for extending the comment period to October 5, 1995. (See attached letter dated September 19, 1995) 1

The Draft Environmental Impact Statement (DEIS) related to the proposed bridge improvement/replacement at Sunset Beach is seriously flawed in several respects as indicated below and detailed in the accompanying documents. We hope these documents and the comments therein will be useful to you in dramatically amending the DEIS to produce a more accurate and balanced document. 2

First, several of the essential conclusions and observations reported in the DEIS are based on faulty analyses. To wit, the following issues are addressed in the accompanying document entitled "Draft Environmental Impact Statement Analysis": 3

1] Effects on Development/Redevelopment
2] Effects of Increased Day Visitor Traffic
3] Effects on Public Trust Tidal Marshes and Waters
4] Need in Terms of Public Safety and Transportation Efficiency
5] Public Opinion
6] Economic Impact
7] Bridge Alternatives
8] Conclusion

Second, we feel that the consideration given to alternatives that would have a less drastic social, economic, and environmental impact is totally inadequate. This concern is detailed in a section entitled Bridge Alternatives. 4

Third, we have found numerous factual and technical problems with the DEIS that are summarized in the attached Addendum. 5

Finally, we wish to comment on the objectivity of this DEIS. We recognize that any report on an issue as complex as this will inevitably reflect the predisposition of those preparing the report. However, the lack of objectivity in this DEIS is remarkable. A glaring misrepresentation of fact allows the impact of a high rise or bascule bridge on the estuary ecosystem and on public access to these public waters to be ignored. A totally fallacious comparison of Sunset Beach to the island communities of Holden Beach and Ocean Isle allows the ludicrous conclusion that a high rise bridge will not significantly impact either development/redevelopment or day traffic on Sunset Beach Island. This misrepresentation and misinterpretation of data along with a failure to make a clear analysis of the obvious economic impact of a high rise allows the DEIS to nearly totally ignore the issue of secondary social impact on island property owners and residents. In addition, the analysis of transportation and public safety issues ignores the most obvious conclusion that the essential change that would impact these issues is replacement of a one-lane with a two-lane bridge. The most glaring omission of the entire report is lack of consideration of an alternative that could accomplish the goal of DOT to improve traffic efficiency without serious disruption of the island eco- and social systems, namely renovation of the existing floating pontoon bridge to include a raised causeway and two-way traffic. This omission is especially glaring given that this is the option favored by the majority of local property owners in a poll that the DOT was given in April of 1995. 6

In summary, the factual failures and lack of objectivity of the DEIS leave the impression that it was prepared mainly to justify an already predetermined course of action designed to accommodate local and state political and development interests. We feel that State agencies such as the DOT have the legal and moral obligation to review such issues objectively and thereby provide redress to the public against such interests. In its current form, we do not consider the DEIS to be either a logically or a legally defensible document. 7

Thank you for your attention.

Sincerely,

Barry R. Lentz, President
Sunset Beach Taxpayers Association

tes: This page of the Sunset Beach Taxpayers Association's (SBTA) cover letter for their October 3, 1995 comments on the Draft EIS was inadvertently omitted from the transcript.

Paragraph numbers (hand-written numbers located in the right margin of each page of the SBTA's comment letter) were added by project team staff in order to organize responses to these comments. Responses to these comments can be found in Appendix G, Part V of this report.

COMMENTS ON

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DRAFT ENVIRONMENTAL IMPACT STATEMENT

FOR

Replacement of Bridge No. 198 on SR 1172 Over Intracoastal Waterway in Sunset Beach, Brunswick County

TIP No. B-682

Submitted by
The Sunset Beach Taxpayers Association

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DRAFT ENVIRONMENTAL IMPACT STATEMENT ANALYSIS

DEVELOPMENT / REDEVELOPMENT

The DEIS concludes (p. 4-13), *"Based on comparative studies of Holden Beach and Ocean Isle, replacement of the existing Sunset Beach pontoon bridge with a high-level bridge or a bascule bridge is not likely to greatly influence the rate or character of development on the island."* 8

Although Holden Beach and Ocean Isle are the nearest barrier islands to Sunset Beach, their circumstances are entirely different from those of Sunset Beach. Furthermore, the bridges that were replaced at Holden and Ocean Isle were not one-lane pontoon bridges. They were low level bascule bridges (permitting much more boat traffic to pass beneath) and Ocean Isle's was two lane. In addition to this fact, the nature of development prior to and following construction of a high rise bridge at Holden Beach and Ocean Isle is not predictive for Sunset Beach for the following reasons: 9

1. **Desirability As A Beach Resort Destination.** Holden Beach and Ocean Isle are both heavily eroding beaches. During the recent (September 1995) high tides caused by Hurricane Luis, a number of beach front houses at both Holden and Ocean Isle were condemned as well as a portion of beach front road being washed away. This is only the most recent occurrence of substantial erosion and subsequent property losses on both islands. 10

Sunset Beach, on the other hand, is the only accreting beach on the North Carolina coast and one of the few accreting beaches on the entire Atlantic coast. It is arguably the finest beach in North Carolina and one of the finest developed beaches in the country. As the only accreting beach in North Carolina and one of a handful on the Atlantic Coast, Sunset Beach Island is particularly desirable to coastal developers who seek to minimize the potential for investment losses. Among that number would be major hotel/resort developers. Furthermore, Sunset Beach was named by Money magazine (June, 1992) as one of the top ten vacation property investment spots in the nation. 11

Because of the accretion, current Sunset Beach oceanfront development sets behind 100 feet to 500 feet of ocean dunes. This leaves a large amount of highly desirable undeveloped oceanfront land. Only easily changed local zoning regulations prevent the development of this accreted land up to the state mandated set backs. 12

2. **Infrastructure Available To Support Development.** (DEIS, pages 3-18 to 3-27) Holden Beach does not have a central sewer system. Thus, development is limited to what can be developed with septic tanks or small development packages. Ocean Isle has a central sewer system for most of the Ocean Isle community. 13

Sunset Beach on the other hand is part of the South Brunswick Water and Sewer Authority, which is in the process of implementing a central sewer system for South Brunswick County. The planning area for the South Brunswick Water and Sewer 14

Authority includes not only Sunset Beach and Calabash but all the area from the South Carolina border on the west, to the Atlantic Ocean on the South, to the Ocean Isle ETJ on the east, to one mile past Highway 17 on the north. Located in the planning area are 12 golf courses with substantial development plans once the sewer system is in place. 14 (CONT.)

The environmental impact of a replacement bridge for Sunset Beach must be examined in concert with the central sewer system soon to be implemented for South Brunswick County. These two infrastructures combined will have a drastic impact on Sunset Beach Island. 15

As previously mentioned, there exists a substantial amount of highly desirable undeveloped noneroding oceanfront property. In addition, upward redevelopment of desirable ocean front properties routinely takes place if the infrastructure exist to support it. Small beach cottages give way to large houses or duplexes, which are in turn replaced with condos, hotels, and high rises. 16

Sunset Beach has already experienced this phenomenon. In the early 1980s, as soon as oceanfront lots had gained enough area through accretion to no longer be restricted to single-family structures, the zoning ordinance was changed to allow duplexes on the ocean front. Numerous small cottages have been moved from the ocean front to cheaper lots on the interior of the island, and large four bedroom per side duplexes have been erected in their place. 17

Land Use Plans and the wishes of the residents and the desires of the vacationing public, currently provide little or no protection against over development of highly desirable places like Sunset Beach. Economics - - the market place and the private investors pursuit of wealth - - drives the development and redevelopment of these unique spots blessed by nature. 18

The DEIS gives us a small taste of what may be in store for Sunset Beach. Let's look at what happened at Ocean Isle following the sewering of the island and the building of a high rise bridge, (DEIS, page 3-28) 19

a. 1985 - High rise bridge to the island is completed;
b. 1986 - CAMA Land Use Plan is changed from not supporting high rise, high density development to supporting mid-rise and high-rise developments;
c. 1987 - Ocean Isle installs a central sewer system;
d. 1987 - Seventy three unit, fifteen story high-rise, Ocean Point is erected on the island.

The developers' assertion that this project was in the works in any case are not convincing.

For Sunset Beach, the demand is here, as is evident in the Building permit statistics presented by Hayes & Associates. The high-rise bridge coupled with the central sewer system will provide the means to over develop and ruin this tiny island. The DEIS used erroneous comparisons with Holden Beach and Ocean Isle to avoid this obvious conclusion. 20

DAY VISITORS

According to the DEIS (page S-9) *"a new bridge at Sunset Beach would have a minor influence on choice of beach destination."* This is a ridiculous assumption. The opinions of 50 day visitors at Ocean Isle Beach, polled by Hayes & Associates, does not tell us anything the overwhelming potential of day visitors to Sunset Beach, once easy access is provided. Once again, the impact of a central sewer system for the area plus the impact of the planned Interstate Highway 74 running from the midwest straight into Calabash must be examined. This Interstate will undoubtedly have a huge impact on area tourist attractions and commercial and residential development. The fact that the DEIS failed to even mention this planned interstate is a gross omission. Let's look at the true situation and probable outcome of providing easy, uninterrupted access to the island. 21

1. First, size must be taken into consideration in evaluating the potential impact of a substantial increase in day visitors to Sunset Beach. Holden Beach is eight miles long; Ocean Isle is six; and Myrtle Beach advertises that it has seventy miles of Grand Strand. Sunset Beach, on the other hand, is a tiny island only 1.7 miles long. Any increase in day visitors will have a dramatic impact in such a small limited space. 22

2. As we discussed previously, the impact of a new bridge must be examined in concert with the development of a central sewer system for South Brunswick County and the subsequent and inevitable doubling of the population for this area, which is projected by Powell & Associates in the 201 Amendment for the proposed South Brunswick sewer system. As illustrated in promotional brochures for mainland golf course development, Sunset Beach Island is marketed as an amenity to mainland ownership by mainland developments. Two mainland golf course developments - Sea Trail and Ocean Ridge - have already established private parking lots on the island. Plus, according to the DEIS (Page, 4-3), shuttle buses are being contemplated by at least one developer. These facts obviate the DEIS statement that the development of mainland golf course communities has very little to do with their proximity to Sunset Beach. 23

3. To determine the impact of day visitors to the island, a review of what happened at Myrtle Beach - - where there was, at one time, a highly desirable, highly accessible beach and the infrastructure to support development - - would be more predictive of the impact to Sunset Beach Island. The parallel to Sunset Beach is clear, except that Sunset Beach lacks the access. Given that access, the fate of Myrtle Beach might be predicted to be the fate of Sunset Beach. In fact, at least one Sunset Beach mainland development is advertising their condos as being located at the north end of the Grand Strand. 24

The beach at Myrtle Beach is lined with parking garages, shuttle buses routinely deliver day visitors to the strand, and day visitors clog the beach, sidewalks, and cruise the ocean front boulevard. As a result, Myrtle Beach has a degraded beach, beach front plants and wildlife have virtually disappeared, and the quality of the beach/ocean experience has dramatically declined. 25

4. The potential impact of the planned Interstate Highway 74 coupled with easy uninterrupted access to the beach at Sunset **must** be examined. Once again 26

economics will drive the development. If a huge market for day tripper services and entertainment exists, it seems logical to infer that not only will there be acres of parking but an abundance of day tripper amusements such as miniature golf courses, video arcades, water slides, and other Coney Island type amusements. Ocean Isle with its high rise bridge and sewer system has already acquired all of these amusements, and they don't have near the demand or economic incentives that will exist at Sunset. 26 (CONT)

5. The argument is frequently made that parking, zoning, etc. are local issues and beyond the purview of state agencies. The DEIS states, *"The control of development is better handled by formal guidance system mechanisms as opposed to restricting services which may be beneficial to the environment and human health."* (Water Quality and Sewer Service Technical Memorandum, page 6) 27

This statement simply allows the DOT to ignore the realities of local politics and thereby avoid its mandated responsibility to judge the social economic and environmental impact of a high rise bridge on the island of Sunset Beach. Local government is often, and certainly is at Sunset Beach, very susceptible to pressure by local development interests. We believe that state agencies have, as part of their mission, the responsibility to act as good stewards for public trust lands and waters. To do this, they must take into account the likelihood that permitting decisions they make will lead to local governments permitting uses that will lead to the degradation of public trust lands and waters. 28

Island residents and property owners do not have the political means or regulatory authority to protect themselves and this island from exploitation. Sunset Beach is unique in that it is the only island on the North Carolina coast that is joined to a significant mainland portion. In fact island voters have been outvoted four to one; and with a new annexation effective October 1, 1995, Island voters will be outvoted approximately six to one. The DEIS overstates the year-round island population by more than 100%, incorrectly suggesting that the island has the political means to protect itself. (Land Use Impact Report, Executive Summary, page 1) 29

The mainland-dominated town council has proved to be very willing to accommodate mainland development interests in using the island as a mainland amenity. As mentioned in the DEIS, (page, 4-3), Sunset Beach has the most liberal parking and beach access policy of any of the three islands discussed - Holden Beach, Ocean Isle, Sunset Beach. Not only does Sunset Beach provide a substantial amount of designated parking spaces, it is the only island of the three that permits parking on both sides of the street the entire length of the ocean front road. The other two islands confine parking to designated parking lots only. 30

The town of Sunset Beach also permits private parking lots, and two have already been established on the island for the mainland golf communities of Sea Trail and Ocean Ridge. And in September 1995 the town council decreased the required parking space from 10' x 20' to 9' x 16', paving the way for more intensive parking and parking garages on the island. The purported reason for this change was to lessen impervious surfaces. However, with no cap on the number of spaces per given amount of land, the result will be to create more parking. 31

PUBLIC TRUST TIDAL MARSHES AND WATERS

The DEIS does not examine the environmental impact to the public trust tidal waters and marshes around Sunset Beach despite the fact that any replacement bridge will impact protected marshes, navigable tidal creeks, and a public boat launch ramp. The excuse given for not examining the impact to the public trust tidal marshes and creeks is: 32

> *"It is important to note that the salt marsh and wetlands on both sides of the causeway south of the existing bridge are privately owned. Through the investigation of the maps, it was determined that the wetlands other than surface waters, are deeded to private property owners and are, therefore, not publicly owned. Since the property is privately owned, it does not meet designated use criteria established by Section 4(f), and Section 4(f) does not apply."* (page, 4-73) 33

1. The tidal salt marshes between Sunset Beach Island and the Intracoastal Waterway are NOT under private ownership. Under North Carolina law, tidal lands below the mean high tide are owned by the State and held as a public trust. (See attached information from the Attorney General's office on ownership of tidal marshes.) The only exception to this public ownership of tidal marsh is tidal marsh lands sold by the Board of Education (BOE). Research with the Submerged Lands Office could identify **no claim yet recognized under this BOE exception for tidal marshes around Sunset Beach island**. Even where a valid claim to ownership of the salt marshes is recognized by the State, "unless the BOE salt marshes have been filled, they remain subject to all public trust right of use and access." 34

Virtually all of the one half mile of marshes between the Island of Sunset Beach and the Intracoastal Waterway both west and east of the causeway lies below mean high tide with the exception of a couple of small hammocks near the east side of the island. Furthermore, these marshes contain the navigable tidal creeks of the Big Narrows, Blane Creek, and Salt Boiler Creek, and the public boat launch ramp off of the causeway into the Big Narrows. 35

Evidently, the DOT failed to consult with the Office of Submerged Lands. This failure leaves unexamined a critical issue in the DEIS, a replacement bridge's impact on the estuarine environment east and west of a bridge. 36

2. While choosing not to studying the impact of a replacement bridge to Sunset Beach on the tidal marshes, the DEIS does mention a potential negative impact that would be created by the W1 Alternative. According to the DEIS, 37

> *"...this alternative also proposes to realign the Big Narrows channel to the west of the Alternative W1 bridge alignment. The current Big Narrows channel is apparently self-flushing. Realigning the channel could cause a long-term decline in the flushing capability of the Big Narrows, which could effect the navigability of the channel and drainage conditions in the surrounding salt marsh and upland areas. The sediment transport equilibrium present in the Big Narrows could also be altered."* (page, 4-34) 38

With the W1 alternative, the impact to all of the tidal marsh and tidal creeks west of the causeway could be devastating. The Big Narrows provides Blane Creek, the tidal creek that runs the length of the western end of the island, with its only navigable ingress and egress to the Intracoastal Waterway. These tidal creeks are used to access the Intracoastal Waterway by more than a hundred properties (most with docks and boats) at the west end of the island. Additionally, commercial fishermen who crab, fish and shellfish the tidal waters of Blane Creek and the Big Narrows would also be adversely affected. 39

Clearly, the W1 Alternative is inconsistent with the CAMA Land Use Plan Policy which states that public access to navigable waters should not be restricted. It is also inconsistent with the State of North Carolina Public Trust doctrine that tidal salt marshes remain subject to all public trust right of use and access. 40

3. All of the replacement alternatives would result in closing the public boat launch ramp located off the causeway and accessing the Big Narrows. Failure to address this impact in the DEIS using as excuses that 1) the marsh is under private ownership; 2) the boat launch is an "allowed trespass"; and 3) no official agency maintains the launch, is factually wrong and totally unacceptable. 41

This public boat launch is the only deep water public boat launch in local area waters. It has been used by the public for over 30 years and is maintained by Brunswick County for that purpose. It is in a public trust tidal marsh and is protected by the State of North Carolina Public Trust doctrine, as well as the CAMA Land Use Plan Policy which states that public access to navigable waters should not be restricted. Obviously if the only deep water public boat launch in area waters is removed, the public's right of access and use of public trust tidal marshes for both recreational and commercial use will be severely restricted. 42

PUBLIC SAFETY AND TRANSPORTATION EFFICIENCY

According to the DOT the need for the project resolves primarily around public safety and transportation efficiency issues. 43

1. <u>None of the bridge build proposals will provide uninterrupted access to the island</u>. According to the DEIS, page 2-9:

> *"All build alternatives would also include raising the grade of the island causeway to an elevation of 6.5 feet above mean sea level (MSL), which is an increase of about 0.4 feet from existing elevations. Raising the causeway by this amount would considerably decrease the frequency of over topping from spring high tides (NCDOT, personal communication, 1897)."* 44

Raising the expanse of causeway less than 5 inches will still permit any unusually high tides to periodically flood the causeway. Certainly any serious storm, such as the March 13, 1993 storm, will inundate the causeway leaving the island cut off. 45

2. In unanticipated emergencies, such as the March 13, 1993 storm, high rises are closed due to high winds. Both the Holden Beach and Ocean Isle bridges were closed during that storm. 46

3. Public Safety and transportation efficiency can be met without a high rise bridge as follows: 47

a. **Public Safety.**

(1). Fire. There is no reason a fire truck cannot be stationed on the island at all times. Both Holden and Ocean Isle have a fire truck on the island, and Islanders would gladly volunteer to man the truck. 48

(2). Medical Emergencies. Getting across the Intracoastal Waterway is only the beginning of redressing transportation efficiency problems. Grid locked summer traffic into the areas two full service hospital - Grand Strand Hospital (40 miles away) or the New Hanover Medical Center (65 miles away) - is the biggest hurdle to reaching adequate medical help. Creating a heliport landing area on the island would solve both problems without the need for a high rise bridge 49

(3). Evacuation. Sunset Beach currently has the most effective hurricane evacuation procedure on the North Carolina coast. Those that have lived on the island through the hurricane evacuations over the last 30 years can attest to the fact that the island is totally vacated long before there is any threat to life or property. There is no choice - - get off before the bridge is tied back - - and all do. Such an imperative will drastically change with any of the current proposed build alternatives. 50

It is clear a low- rise, two lane bridge with a causeway elevated above storm tide levels would be safest. However, this still would not provide all islanders safe exit. During the Storm of the Century the entire Inlet subdivision was cut off from the rest of the island by high water. 51

In the final analysis there are risks involved wherever one chooses to live, on a barrier island, in a remote mountain community, or in a city with heavy traffic. All of those who live on Sunset Beach Island and the vacationers who come here have chosen this place and chosen to accept what seems to them acceptable risks. **This sentiment was repeatedly echoed during a hearing held by the DOT on September 5, 1995.** 52

b. **Transportation Efficiency.**

(1). The major problem of efficiently moving traffic across the bridge is created by the fact the current bridge is one lane. After opening and closing the bridge, one lane of traffic at a time must be cleared slowing the whole process down and requiring the assistance of traffic directors on busy summer days. The four lane low level draw bridge to Wrightsville Beach clears rapidly after opening and closing and doesn't require traffic directors. Access to the island would be improved by a two lane pontoon bridge or low-level bascule bridge to the island. 53

(2). With the traffic increase created by unimpeded auto access to the island (see Day Visitors above), this tiny one and a half mile long, one block wide island would, itself, become the obstacle creating traffic jams and threatening public safety. The competition between hikers, bikers, roller bladers and cars for the very limited road space on the island will create a major public safety problem. 54

PUBLIC OPINION AND SURVEYS

The DEIS dismisses all public opinion surveys whether they are done by an individual (the owner of the general store on the island), the Sunset Beach Taxpayers Association, or their own consultants, Hayes Associates. (1992 survey for the 1992 Land Use Plan). However, public opinion clearly opposes a high rise bridge. This was verified at the 1995 DEIS public hearing held at Sunset Beach. About 80% of the 350-400 people in attendance stood in opposition to any high rise bridge to Sunset Beach. 55

1. Despite the complaint of the DEIS that no scientific public opinion poll has been conducted, the DOT has made no attempt to conduct such a poll. This omission is glaring, since the polls and surveys mentioned above have been made available to the DOT and clearly establish that the significant majority of property owners, residents, and vacationers vehemently oppose a high rise bridge. But it is clear in reading the DEIS, the high rise bridge alternative remains the bridge of choice for DOT regardless of public opinion. 56

2. The endorsement of a high rise bridge by the Sunset Beach Town Council does not represent the sentiments of residents or property owners and has been tainted by the vested interests of Ed Gore, the primary developer of Sunset Beach. Mr. Gore has sat on the Sunset Beach Town Council for over 25 years and dominates the local political process. Mr. Gore stands to profit substantially from the combination of a high rise bridge to the island coupled with the central sewer system. In addition to owning undeveloped commercial property on the island, Mr. Gore is a partner in the mainland golf development of Sea Trail and the principal owner of Ocean Ridge. Both of these golf course developments market their developments by citing the beach as an amenity to their mainland ownership. In fact, both developments have established private parking lots on the island for their respective private communities. Then, too, Mr. Gore owns a number of commercial lots on Sunset beach island and has spoken publicly and in print of his plans for a resort hotel on the island. 57

The Sunset Beach Taxpayers Association does not oppose further development on the island. Our point is: If infrastructure for development (the bridge and the sewer system) is installed on this island, with only the development-dominated Town Council controlling the growth that can then take place, this island will be developed for maximum profit to the developers with no adequate protection for the public trust beaches, inlets, tidal creeks and marshes. The finest beach on the North Carolina coast will have been sold out to development interests. 58

3. There are, in our opinion, serious conflict of interest issues involving Brunswick County representative to the Board of DOT, Odell Williamson who has been in the forefront 59

lobbying for a high rise bridge for Sunset Beach. Mr. Williamson owns several golf courses in the area encompassed by the South Brunswick Water and Sewer Authority as well as much other undeveloped land in the area. Additionally, he owns many undeveloped lots on deep water canals he built at Ocean Isle. The customers for these lots would be the owners of large sports fishing boats whose most convenient access to the ocean is through the Sunset Beach bridge to the Little River Inlet. Again, in our opinion, Mr. Williamson stands to profit substantially by the combination of a high rise bridge to the island and a central sewer system for the area. 59 (CONT.)

ISLAND ECONOMIC IMPACTS

This section concludes, once again based on comparisons to Ocean Isle and Holden Beach, that there would be minimal economic impact on commercial development for day visitors, and on residential property values. (DEIS, page 4-20) 60

Once again, Ocean Isle and Holden Beach cannot be used as predictors for Sunset Beach. To repeat, the combination of massive infrastructure for development in South Brunswick County - high rise bridge, central sewer system, interstate highway - make Myrtle Beach a more appropriate comparison. 61

1. Impact on Rental Income and Property Values

Currently, Sunset Beach is a family beach consisting of single family residences, some oceanfront duplexes, and a handful of commercial establishments (realtors, island market, etc.). About two-thirds of the residents are available for vacation rental. The main business on the island is vacation cottage rental to families interested in eco-tourism. For many Sunset Beach vacationers, the highlights of their visit are a nature walk to Bird Island and the opportunity to see a sea turtle nest hatch. There are no commercial entertainment activities. 62

The families who vacation at Sunset Beach have sought this place out as an alternative to a Myrtle Beach vacation experience. They pay a premium for this quiet, family atmosphere at Sunset Beach. A substantial increase in day visitors with the kinds of "Coney Island" commercial services that usually follow, will have a serious detrimental impact on the island's main business. Many of the current vacation cottage renters will choose to go elsewhere when the qualities that brought them here in the first place disappear. The rental premium that vacationers pay to stay at Sunset beach will also disappear, and property values will subsequently suffer. 63

2. Value of Pontoon Bridge

No attempt has been made to assess the economic value of the pontoon bridge itself and what its replacement would mean in terms of dollars and cents to the vacation property owners and to the commercial interests of the area (mainland restaurants, ice cream shops, etc.) 64

The bridge itself is a tourist attraction. Vacationers choose Sunset Beach not in spite of the bridge, but because of the bridge. Advertising and marketing for the area features "the quaint pontoon bridge" at Sunset Beach. It is the subject of countless articles, paintings, 65

and photographs; and soon will be featured in a major motion picture. (See attachment, Wilmington Morning Star, September 1, 1995) 65 (CONT.)

3. Impact on Development

Apogee Research, Inc. states in the Caveats and Exclusions section on the Economic Impact Analysis:

"In the longer run, it is logical to assume that, aside from transactions involving right of way, the economic impact would be more of a shift in commercial locus, with benefits for some and losses for others, with a net effect limited to the costs of relocation rather than permanent reduction in commercial activity." (Economic Impact Analysis, Apogee Research, Inc., page 31) 66

This is the first glimmer of recognition of an impact that deserves extensive analysis and exploration. Island property owners and residents lose, both in quality of life and value of investment, while mainland developers gain by having their property made more valuable. Is it reasonable or fair for the state to spend $14 million of taxpayers money to accomplish this redistribution of wealth? 67

BRIDGE ALTERNATIVES AND RECOMMENDATIONS

We recommend that the two high rise bridge replacement alternatives be discarded and a new option be developed. 68

1. W1 Alternative

Considering the potential adverse impact to the entire tidal marsh system west of the causeway, this alternative should already have been discarded. This alternative should be rejected forthwith based on the following. 69

a. It contains the potential for devastating, long-term impacts to the entire tidal marsh system west of the causeway. (DEIS, page 4-34). See above "Public Trust and Tidal Marches" 70

b. It is inconsistent with the CAMA Land Use Plan policy, which states that public access to navigable waters should not be restricted. This alternative would displace the public boat launch, as well as potentially make the tidal creeks (Big Narrows, Blane Creek and Salt Boiler Creek) unnavigable. (DEIS, pages S-38 and 4-34). See above "Public Trust and Tidal Marshes" 71

c. It is the only alternative identified to have an adverse visual impact. (DEIS, page S-17) 72

d. The disturbance of waterway bottom sediment would be the greatest. (DEIS, page S-18) 73

e. The noise levels would approach or exceed FHWA criteria. (DEIS, page S-20) 74

f. The largest area of coastal fringe evergreen forest would be directly impacted. (DEIS, page S-20) 75

g. The largest wetland area would be directly impacted. (DEIS, page S-20) 76

h. The impact to surface waters would be largest. (DEIS, page S-21) 77

i. It is the most expensive high rise alternative to build. (DEIS, page 2-42) 78

j. It is not the most efficient transportation design. *"Alternative C1 would provide the most efficient transportation design of all the alternatives."* (DEIS, page 2-13) 79

k. The property owners, residents and vacationers oppose a high rise bridge at Sunset beach. 80

The question remains, Why is W1 still being considering as an alternative?. If the answer is the total cost, including acquisition is cheaper than C1, we challenge that for the following reasons: 81

a. The cost figures are not accurate. In 1990, when bids for construction of a western corridor bridge were opened, they exceeded $10,000,000. Now in 1995, five years later, the construction cost are being estimated at only $11,400,000. It is apparent the DEIS is underestimating the current costs to build, just as they did in 1990. 82

b. The estimates of the present day value of land already acquired for the W1 alternative are not reflected in the acquisition costs for the W1 Alternative. 83

If the above is correct, we believe the W1 Alternative will be the most costly. In any case, cost alone cannot be the most significant factor determining the selection of a bridge for Sunset beach. 84

2. C1 Alternative 85

Alternative C1 should also be rejected based on the following.

a. It is inconsistent with the CAMA Land Use Plan policy which states that public access to navigable waters should not be restricted. This alternative would displace not only the public boat launch, but would also inhibit access to Slough Canal due to the low-level bridge that would span the canal. (DEIS, page S-18) 86

b. It transverses the greatest distance across salt marsh. (DEIS, page S-20) 87

c. It is the only alternative that transverses nonriverine wet hardwood forest. (DEIS, page S-21) 88

d. Noise levels would approach or exceed FHWA criteria. (DEIS), page S-20) 89

e. The property owners, residents, and vacationers oppose a high rise bridge at Sunset Beach. 90

3. Recommended Alternative

According to the DEIS, page 2-1, 'it is important to demonstrate that reconstruction and rehabilitation of the existing system will not adequately correct the identified deficiencies and meet the project need" (FHWA 1987:15). 91

Dot has limited the reconstruction alternative to replacing parts. They have not considered widening the bridge to two lanes and improving the roadway approaches to the bridge to 92

allow for queuing when the bridge is open. A smooth functioning two lane bridge would adequately correct the deficiencies of the current bridge. 92 (CONT

Wrightsville Beach with a much larger population, and substantially more car and boat traffic provides the level of service needed or wanted by Wrightsville with two lane traffic and a drawbridge. In fact, Wrightsville steadfastly resists any proposals for a second and high rise bridge to the island. 93

Clearly, DOT has not done their job: They have not demonstrated that reconstruction and rehabilitation of the existing system will not correct the deficiencies. 94

We recommend an alternative be created: a two lane pontoon bridge designed with a maximum load capacity to eliminate heavy duty trucks that could be used to transport supplies for high rise construction. Such a bridge would offer the following benefits: 95

a. It would maintain the cultural value of the current bridge and the competitive edge Sunset Beach enjoys in the vacation cottage rental business. 96

b. If properly designed and built, it would be both safe and efficient. 97

c. It would not provide infrastructure for intensive high rise / commercial development and redevelopment of the island. 98

d. It would provide jobs in a county where unemployment has run as high as 15% in the very recent past and currently sits around 7.5%. 99

e. It would be the cheapest build alternative. (DEIS, page 2-7) 100

f. It is an alternative that would have the support of the majority of property owners, residents, and vacationers. 101

CONCLUSION

This DEIS is not acceptable. 102

The direct and indirect impact to the tidal marshes and creeks must be examined including the impact and acceptable mitigation measures for the public boat launch. 103

The measure of indirect impact on beach communities cannot be a comparison to neighboring beaches to the east. It must be the process of examining beach communities that have experienced such impacts; measuring the quantity and quality of those impacts; identifying mitigation measures to avoid such impacts at Sunset Beach; and providing the means to implement those mitigation measures. 104

The environmental impact to the beach and its community must be examined in conjunction with the installation of a central sewer system and an Interstate highway. It is simply ludicrous to act like each of these infrastructures to support development is happening in a vacuum and need not be viewed together to determine the total impact. The attempt to isolate each project and its impact is an obvious methodology to minimize impacts in order to be able to pursue a course of action already decided upon. What is needed is comprehensive master planning, not piecemeal, self-serving justifications. 105

The DEIS must do two things. First, it must recognize that it is the state's responsibility to protect these natural resources; and second, it must develop a realistic methodology for determining the carrying capacity of this beach community. Until these two things are accomplished, the state has no business funding, building, permitting or in anyway aiding and abetting infrastructure for development that has the potential of leading to the destruction of irreplaceable coastal resources. 106

Finally, the state and federal governments must identify how to protect our irreplaceable natural resources, and public trust lands and waters, before they permit and fund infrastructure that can lead to the irreversible degradation of these national treasures. 107

Addendum I

Comments on Reports and Memorandum Relating to Alternative Selection and Cost

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Preliminary Alternatives Report
(Greiner, Inc.)

II. ALTERNATIVES

The opening discussion of alternatives states, *"The Draft Environmental Impact Statement (DEIS) will include a detailed analysis of the No-Build Alternative."* (page 4) 108

The DEIS index (Chapter 9) shows only three references under the No-Build subject title. The first, page S-4, contains 51 words on the subject. The second, page 1-14, nowhere mentions the No-Build Option. The third on page 2-8, stating *"In accordance with NEPA and FHWA guidelines, the environmental consequences of taking no action is given full consideration."*, contains 101 words. There are other scattered references throughout the DEIS that are no more than causal comparisons and **certainly would not qualify as "a detailed analysis" that would meet NEPA and FHWA guidelines.** 109

The No-Build and the Rehabilitation Alternatives fall woefully short in scope and presentation, both in this report as well as the DEIS. The major shortcoming of these alternative is the fact that *"No other roadway improvement...would be undertaken with this alternative."* (page 4) This attitude reflects the total lack of desire on the part of the NCDOT to make any effort to improve the present situation by simple methods of traffic lane management. 110

Alternative C2- (Low-level 15 foot bascule), the least offensive of the build alternatives offered, appears to be deliberately doomed for failure by its alignment and height. 111

The most blaring short-fall of this section is the **absence of the C3I** (Center Corridor Improvement) build alternative. This option would be the **two-lane pontoon bridge with appropriate roadway improvements, including appropriate turn lanes and the elevation and widening of the causeway to accommodate bike and pedestrian traffic.** This option is far more practical than two other options considered - the Ferry (F1) and the Tunnel (T1) options. A two-lane pontoon bridge would relieve the majority of the congestion and, of all the build options, would be least damaging to the environment. If such an alternative had been considered from the onset of the process, the outcome of the analysis and elimination process would have been different. 112

Section II C. 1. Design Criteria and Typical Sections focuses on the roadways in the project vicinity and highlights NC 179 as the major collector in the vicinity. This discussion completely **ignores the existence of and the improvements to the Georgetown road** that, when completed will divert the major portion of the north bound traffic coming from the Calabash area around the currently congested intersection at the Sunset Beach bridge. 113

III. ENVIRONMENTAL OVERVIEW

The elimination of the No-Build and the Renovation alternatives from this analysis obviates the conclusions in this section. 114

Traffic and Transportation

Of the three selected build alternatives (W1, C1 & C4) , both 65 foot high rise structures will have delays due to traffic signals which can cause far more serious traffic snarls than the current bridge. 115

Waterway Traffic

The Intracoastal Waterway was constructed and is maintained for commercial traffic. Since the bridge opens on demand for commercial vessels, there is clear traffic for these vessels. 116

Land Use / Social / Economic Impacts 117

See Addendum II

Wetland / Upland impacts

It would appear that Alternative C1 should have been rejected based on the following: 118

"Alternative C1 traverses the greatest distance across salt marsh than any of the other alternatives (900 l.f.)." (page 19)

"Alternative C1 is the only alternative that traverses nonriverine wet hardwood forest (100 l.f.)" (page 19)

"Alternative C1 involves 900 l.f. of approach roadway through coastal fringe evergreen forest community." (page 20)

Protected Species

There is no data to support the four (4) conclusions presented in this subsection. 119

IV. IDENTIFICATION OF REASONABLE AND FEASIBLE ALTERNATIVES

Development of Evaluation Criteria

The elimination of certain evaluation criteria was based on incorrect assumptions. 120

"'Impacts to cultural resources" was eliminated as studies to date indicate that there are no sites of archaeological or historic significance within the study area." (page 26)

Because the current pontoon bridge is only 35 years old does not eliminate it from historic preservation. (See attached Information sheet Number 36. 1984 National Trust Historic preservation in the United States: Saving Historic Bridges , and other attached articles.) 121

"'Impacts to public facilities" was eliminated as no publicly-owned facilities will be affected by the project." (page 26)

This statement is ludicrous and blatantly self-serving! The publicly- owned beach, the gazebo parking area, the boat launching area on the causeway, the public trust waters and marsh will all be either directly or indirectly impacted by this project. 122

Public Involvement Program
Data signifying nothing? What are the conclusions from this data? 123

Comparative Analysis of Alternatives
This is not a balanced criteria analysis. What are all the criteria and their assigned weighting factors? Advantages and disadvantages have been arbitrarily included or excluded in the presentation. 124

VISUAL IMPACT ASSESSMENT REPORT
(Greiner, Inc.)

SUBJECTIVITY AND RESULTING ERRORS OF PROCESS

"As stated earlier, the project area was determined to be in the 'Retention' *Class, based on the calculated* Total Assessment Value *of 15. (See Appendix C.) This corresponds to VIA Values between 10 and -2. Projects resulting in VIA Values of less than -2 are considered to be* 'Adverse'." *(page 20)* 125

Methodologies developed to objectively measure purely subjective impressions always turn out to have an incredible number of forms to convert subjective judgments into seemingly objective numbers in order to prove a preconceived conclusion. 126

Form 4, where the Total Assessment Value is assigned, could easily be upped by two points by recognizing - 1) the existence of Public Trust Waters under the category of User Activity and by recognizing that the build options will obstruct views of the Ocean Inlets under the category of Water resources. If this were done, the class would become "Preservation". 127

Form 6, which is the basis for the VIA values, is blatantly insulting in its subjectivity when dealing with the two location viewpoints from the back of the island (1-IE & 3-IW). Form 6 for both sites indicate that the construction of any of the proposed replacement bridges will make no difference visually. There is also a telling absence of the computer-enhanced pictures for the most severely impacted island viewpoint, 3-IW which will have the broad side of Alternative W1 to gaze upon. 128

If form 6 have been completed in a more realistically, all three build options would fall into the "Adverse" category within the Retention class. 129

RETENTION CLASS DOES NOT ALLOW ANY OF BUILD ALTERNATIVES

"The ' Retention' *class is defined as those areas that are regionally recognized as having distinct visual quality, but may not be institutionally protected. Project activity may be evident, but should not attract attention. Structures, operations, and use activities should remain subordinate to the existing visual resources and should repeat the form, color, texture, scale, and composition characteristics of the resource.* Similarity Zones *having a* Total Assessment Value *of 14 to 16 should be included in this class." (page 15).* 130

This area is nationally recognized as having distinct visual quality and is institutionally protected as public trust waters by the state. 131

All of the monoliths proposed by the build alternatives will attract attention. The structures will not be subordinate to the existing visual resource, they will dominate it. None of the build alternatives "repeat form, line,...scale and composition characteristics of this resource". 132

IMPACTS IGNORED

This report does not address the impact the bridge lights will have at night. 133

COST EFFECTIVENESS / LIFE CYCLE ANALYSIS REPORT (Greiner, Inc.)

"An Environmental Assessment (EA) was prepared and circulated on November 6, 1981. It recommended Alternative 1 at an estimated cost of $5.6 million." (Preliminary Alternatives Report, page 2) 134

"IV. PUBLIC AGENCY COSTS:

1. Initial Costs

Alternative	Description	Vertical Clearance	Construction	Right or Way	Total
W1	West High	65	$11,400.000	$1,325,500	$12,725,500
C1	Center High	65	$11,000,000	$3,525,500	$14,525,500
C4	Mid-Level Bascule	30	$13,000,000	$1,949,500	$14,949,500
	No-Build	0	$0	$0	$0
	Rehabilitation	0	$1,359,950	$0	$1,359,950

135

(page 8) 136

There is no data supporting these cost figures.

In 1981 the estimated total cost of the Alternative 1 option (which is essentially the present W1 Alternative) was $5,600,00. In 1990, when the bids for the construction of that bridge were opened, they came in above $10,000,000. Now in 1995, the construction cost for the same bridge is being estimated at $11,400,000. 137

The cost breakdown and bid specifications for the 1981 Alternative 1 bridge construction should be included in this report to enable some comparison to reality. 138

Noise Impact Assessment Report (Greiner, Inc.)

"The noise sensitive sites predicted to be directly impacted (i. e., experience noise levels that approach or exceed FHWA criteria or show a substantial increase over existing levels) by Alternatives W1 and C1 were further evaluated in terms of the feasibility and reasonableness of providing noise barriers." (DEIS, page 4-51) 139

"For Alternative W1, a barrier 8 feet in height and 1724 feet in length would be necessary to provide noise reduction values of 4.1-8.2 decibles at impact receivers. This barrier, as shown in Exhibit 4.7, would need to be located on top of a slope and along a portion of the bridge. Constructing a sound wall on the bridge may not be feasible due to structural and visual considerations. 140

"For Alternative C1, a 16-foot barrier 1,236 feet long was needed in the model to provide sufficient noise reduction values of 4.2-6.5 decibles at impact receivers. This 141

wall would be located in a community setting, where its 16-foot height could create adverse visual impacts." (DEIS, page 4-50 to 4-51) 141 (CONT.)

Based upon the above statements, both alternative W1 and C1 have significant, direct impact from noise, which apparently cannot feasibly be reduced through noise barriers. 142

Finally, the findings are not conclusive since the was no consideration of noise impact on the island; nor any evidence of measurement comparisons to the noise impacts of the Ocean Isle and Holden Beach bridges. 143

Queuing Analysis (Greiner, Inc.)

The findings are incomplete since no analysis was made of the potential queuing as a result of the back up of traffic at the stop lights for the other build options. 144

Comments on DEIS Alternative Impacts

4.3 IMPACTS TO THE NATURAL ENVIRONMENT
4.3.1 Biotic Communities
4.3.1.1 General Discussion

"...replacing the existing pontoon bridge is not expected to greatly affect the character or pace of development on Sunset beach, or be a substantial influence on day visitor's choice of beach destination." (page 4-56) This conclusion is erroneous (See Addendum II). It is a dismissal of all secondary impacts based on insufficient data. 145

Based upon Table 4.11 Potential Natural Resource Impacts (page 4-57) all build options should be eliminated. Mitigation would be unnecessary for the No-Build and Rehabilitation Alternatives. 146

4.3.1.2 Barrier Island Communities

The discussion of this impact is dismissed as a local control issue:
"A local zoning ordinance regulates the use of land within the town's corporate limits and extraterritorial area. Special provisions for protecting the barrier island dunes are included in the Town's Building Code. Provisions which prohibit vehicular traffic on the beach are included in the Traffic Code. Beach access points have been designated at the end of most streets on the island. These access points provide crosswalks over the dunes and have been lined with fences. It is illegal to walk, play in or alter the dunes (Greiner, Inc., 1994g:44)." (page 4-58) 147

The first thing wrong with the above statement is the failure to recognize responsibility for increased use of the beach due to improved access. The second thing wrong, is a complete disregard for the nature of the specific environment, which is far more extensive than one row of primary dunes, as is found on most other barrier islands. There is a wide expanse of dunes where individuals can, and do, wander, enjoying the coastal experience. And finally, some facts are incorrect - 1) All of the beach access points do not have crosswalks bridging all of the rows of dunes, nor are they all lined with fences; 2) Police, town maintenance, and garbage collection vehicles regularly drive on the lower and upper beach strand. As the amount of free access induced use increases so will the amount and frequency of town vehicles; and 3) The town dune ordinance does not prohibit walking on the dunes. *"151.06 (A) For the purpose of this section, 'FRONTAL DUNES' shall mean the first mounds of sand located north of the Atlantic Ocean. (E) It shall be unlawful for any person to alter, relocate or disturb in any manner any frontal dune or fraction thereof, either by hand machine or play."* 148

4.3.2 Fisheries Resources

The conclusions of this section totally ignore the impact from stormwater runoff; from increased turbidity due to increased boat traffic speed and use; and from the potential alteration of tidal flows due to the dredging of Big Narrows. 149

4.3.3 Protested Species

"Any secondary impacts which may occur to the sea beach amaranth would be due to build out of the island and would not be associated with the proposed project (see Section 4.1.1.1 and 4.5)." (page 4-62) 150

The same conclusion is drawn in terms of federally-protected sea turtles and bird species. Again, these are conclusions based on the erroneous conclusion that there will be no significant increase in beach use presented in the Hayes & Associates 151

reports. Also, they do not take into account the potential impact of the change in tidal flow due to the dredging of Big Narrows. 151 (CONT.)

"Any increases in operational noise or night-lighting along a replacement bridge are not anticipated to create adverse indirect effects on these four federally-protected bird species." (page 4-63) 152

Large numbers (20 to 40 at a time) of wood storks feed in the marsh areas behind Sunset Beach island during the fall months. This discussion does not address the effect the height of the bridge would have on the approach and use of these feeding areas. 153

There is no basis for the conclusion concerning any adverse impact from operational noise. 154

Addendum II

Comments on Reports and Memorandum Relating to Indirect Impact

Index

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Land Use Report (Hayes & Associates)	24
Technical Memorandum "The Induced Impact On Land Use As The Result Of High Rise Bridge Replacement At Holden And Ocean Isle, NC" (Hayes & Associates)	28
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Land Use Impact Report
(Hayes & Associates)

August 1993 Population Estimates 155

"Based on August 1993 housing counts, it is estimated that there are 515 year-round residents within the Town of Sunset Beach of which 269 live on the island and 246 live on the mainland." (Executive Summary, page 1)

Actually there are approximately 120 year-round residents on the island. This figure is based on first-hand knowledge of the people who reside on the island and could be easily verified by inspection of the mailing addresses on the town water bills, which is far more reliable than census data. 156

1993 Existing Land Use Summary 157

"Nearly all the developable land on the island and mainland has been subdivided into buildable lots, mostly for single-family structures." (Executive Summary page 1)

Close examination of the Existing Land Use - 1993 Map attached to this Hayes & Associates report will reveal that such an assertion is simply not true. 158

Carrying Capacity for The Planning Area 159

"Given the current corporate limits, zoning, land characteristics, economy, and rate of development, it is estimated that the Planning Area of Sunset Beach has a capacity of 5,527 housing units. Another limiting factor is that approximately 60 percent of the island and corporate mainland have already been developed." (Executive Summary page 2)

This assertion is not true, based on the data from page 2 of the Executive Summary, page 4 and page 6 of the report: 160

No. Units	Island	Mainland	ETA
Developed			
Year-round	120	110	191
Seasonal	882	443	762
Conceivable	649	586	1779
Total	1651	1139	2735
% Developed	60.7	48.5	35

Environmental Consequence Of Proposed Bridge Replacement On Land Use

A) *"All proposed bridge alternatives will displace the "Gore" unofficial boat launching area on the island side of the bridge."* (Executive Summary page 2) 161

Two of the alternative do <u>not</u> displace the boat launching area, the No-Build and the Renovation alternatives. 162

"There is no official public boat launching facilities within Sunset Beach." (Page 14) There is one very significant "official" public boat launching facility - The boat launch on the island side of the bridge which is on DOT right-of-way land. This right-of-way extends fifty feet from the center of the causeway - well beyond the point of mean high 163

time. It has been officially used as the only low water boat launch in the area for over thirty years. Brunswick County has maintained this launch area. The use of this public recreational facility is not " allowable trespass" and any presentation as such must be construed as an attempt to dismiss the significant impact that the loss of this facility will have on recreational and commercial land use in the planning area. 163 (CONT.)

B) *"Replacement of the existing bridge with a more reliable two-lane structure will not greatly accelerate the pace or character of development on the island or the mainland."* (Executive Summary page 2) 164

The poll results for Ocean Isle day-visitors show that 26% believed the type of bridge was important, only 40% felt that proximity was a factor, and 52% felt that parking facilities were a factor. The above assumption is based on a poll of 77 day visitors and 19 overnight visitors to the islands of Sunset Beach and Ocean Isle beach. This limited data is impressionistic and therefore not sufficient to support the above conclusion. 165

The Noise Impact Assessment Report (Greiner, Inc.) projects a doubling of peak hour traffic volumes in 2019 (Table 4, page 14). As usage and cruising of the island increases, non-island Sunset Beach area residents will find less and less available public parking. There is still a large area of DOT right-of-way in the business district that can be turned into additional parking. When that area is saturated, perhaps the "Gore" 35 acre parking lot on the west end of the island will again become an option, as our area developer attempts to gain access to the west end of the beach under the guise of "public parking". What would be the impact of such pressures on the small, fragile eco-system. 166

Question 6. Which of these factors influenced your decision to come to (Sunset Beach/ Ocean Isle)

(numbers have been converted to percentages:)

	Sunset Beach	Ocean Isle
Proximity	96%	40%
Parking Facilities	67%	52%
Restroom Facilities	11%	1%
Quality of Beach	96%	56%
Bridge	7%	26%
Road Conditions	11%	33%
Always Come to This Beach	18%	44%
Family Beach	15%	14%

(Appendix, page 7) 167

C) *"It is probable that the island will reach its carrying capacity for development within the next ten years no matter what type of bridge links the island to the mainland."* (Executive Summary page 2) 168

Hayes & Associates defines Carrying Capacity as "*...given the current town limits, zoning and rate of development, how much additional development can be accommodated within Sunset beach. The 'carrying capacity' ... is examined in order to determine the capacity of the entire Sunset Beach Planning Area.*" (page 22) 169

If such a build-out does occur, will all construction stop and all the developers go elsewhere? Or will the reconstruction of the area begin (as it has on the beach front due to enabling zoning changes in the 1970's & 1980's)? More likely, there will be continuing changes to the town limits and to the zoning codes to continually avoid the approaching "Carrying Capacity" build-out. 170

In the Carrying Capacity Analysis section on page 22, the very first premise is incorrect. *"All vacant land on the island has been subdivided which facilitates determining carrying capacity."* Examination of the attached Existing Land Use - 1993 Map shows the error of such statement - i. e. the west end and portions of the east end of the island, as well as portions of the beach front, and a large tract north of the bay on east end. 171

"In order to predict the carrying capacity of the island of Sunset Beach, one must make the following assumptions:' Three of the necessary assumptions are naive and have no basis in fact: 172

1 - *"The current zoning regulations and districts will remain the same;"*
The assumption that there will be no change to zoning in the future that could effect land use significantly ignores the past history of the Sunset Beach Town Council in respect to zoning changes to accommodate the area developers. The zoning for the recently created CR - 1 District has more recently been changed to increase density and reduce the beach set-back, due to developer pressure. The recently added ETJ areas, the majority of which is undeveloped, have been zoned exclusively MB- 1 And MR-3 - the highest density zoning districts, in order to allow the developers as much flexibility as possible. The permitted uses in the BB-1 District has also been recently changed, against the protest of island property owners, to allow miniature golf on the island. 173

2 -*" Both multi-family and single-family homes may be built in the MR-3 districts. However, subdivision plats have been submitted for these areas and these plats reveal that only an additional 68 multifamily units will be built in the River Creek And Colony developments. The remaining development will be single family."* 174
Submitted plats are not necessarily approved plats, and approved plats can always be changed. The belief that the local developer will not seek maximum return of investment is absurd.

3- *"The 35 foot building height restriction will not be changed by public referendum; therefore high-rise development will not be built on the island."*
The erroneous estimate of 269 island year-round residents presented on page 1 of the Executive Summary is a misleading figure. First, it misrepresent the political power of the island residents. Secondly, it makes workable the scenario of a make-believe referendum on the 35 foot height limit supposedly held on July 15, 1994 that is presented on pages 18 & 19. The tacit conclusion of this scenario is that, since it would take 256 vote to change the limit, and there are 269 island year-round residents, then the limit would not be changed. 175

If sewers are installed in the planning area; if the sewer cost rise; if the number of mainland voters continue to rise through more and more annexation; and if greater 176

density could reduce sewer costs, - would high-rise development not be a reasonable result in an effort to pay for the escalation sewer costs? 176 (CONT.)

Dismissing the potential of greater density development by the claim that the 35 foot height limit will not be changed is ignoring the fact that density and land usage are effected by far more than height restrictions. While the 35 foot height limit may require the vote of the residents, alteration to the other density regulations requires only the vote of three council members. 177

The building height limit for the M3-3 Mulit-family district is 50 feet and is not tied to a referendum. This limit was changed by the Town Council from 35 feet to 50 feet in 1985 by a vote of 3 to 2. 178

D) *"Consequently, there will be no significant impact on land use in Sunset Beach as a result of the replacement of the current bridge."* 179

This conclusion is based of both erroneous facts and naive conclusions, as outlined above. In addition, there is no recognition the significance of the following land uses: 180

1) The nature of the recreational use of the beach and the ability to protect the only growing "living" frontal dune system in the state; and 181

2) The nature and the extent of recreational uses of the surrounding marsh and estuarian waters (such as boating, crabbing , fishing, bird watching and other water dependent uses that will be impacted by the build options) and the consequences that additional use may have. 182

"The principal recreation areas, other than the beach-front, are the four 18-hole championship golf courses and the fishing pier. Beach and waterfront access is an important consideration in Sunset Beach. There is no mention of the nationwide recognition of the unique physical character of this island and its surrounds that have made it an internationally sought after sanctuary for eco-tourism. 183

" There are also 10 dedicated easements on the island providing public access to the estuarine waters but these easements are currently not marked." (Page 14). These accesses have been used, not for access, but for drainage of stormwater runoff directly into the estuaries. As development increases, so will the amount of runoff entering the estuarian waters, thus continuing to degrade water quality. 184

TECHNICAL MEMORANDUM
"THE INDUCED IMPACT ON LAND USE AS THE RESULT OF HIGH RISE BRIDGE REPLACEMENT AT HOLDEN AND OCEAN ISLE, NC"
(Hayes & Associates)

Assumption that the three beaches are comparable based on proximity alone.

185 *"These beach towns were selected because of their proximity to Sunset Beach which favors comparison."* (Page 1) *"This criteria of selecting replacement bridges in beach towns close to Sunset Beach was essential for the case study. The two bridges mentioned in the court order were not similar in this regard. The North Topsail Bridge was a new transportation link to Topsail Island and one would anticipate a more significant impact from such a transportation improvement. The Bouge Banks bridge replaced a ferry which also did not favor comparison"* (Page 2)

186 a) One only has to read the Social Impact Report to recognize that the perceived level of transportation provided by the one lane pontoon bridge to Sunset Beach is far more similar to the types of access replaced at the two islands mention by the court than to the two former bridges to the two island selected for comparison by Hayes and Associates.

b) Sunset Beach is so dissimilar to the two island picked for comparison in terms of size, ecological surrounding marsh and waters, and shorefront. Neither Holden Beach nor Ocean Isle have large mainland residential/resort development advertising the island as a major attraction/amenity (See attachment Golf Digest / October 1995).

187

	Holden Beach	Ocean Isle	Sunset Beach
Length (Miles)	8	6	1.7
Acres:			
Shorefront Available	52	114	108
Developable Island	816	999	261
Marsh & Water (All)	656	1014	2196
Mainland Developable	-0-	23	748

Failure to understand the land use consequences of a floating pontoon bridge.

188 *"Sunset Beach with its one lane pontoon bridge had an over all greater rate of residential development since 1985 than either of the other two beach towns with modern bridge structures."* (Executive Summary page 2)

189 The slow-down in building permits issued after the construction of the high rise bridges can also be viewed as the direct result of the high rise bridge. Once the anticipation of improved ingress and egress is replaced by the looming reality of the structure that brings it and all its social consequences, prospective new home owners perhaps choose to go elsewhere. Yet, forming judgments about the long term indirect and secondary impacts based on a 10 year period is short sighted.

Growth Trends:

"Building permit data was the best indicator available." (Page 2) 190

Land use analysis can not be limited to a comparison of numbers of building permits for construction of residences and commercial buildings, ignoring any changes to the size, type, nature of, and frequency of both new and existing land uses. 191

The construction development activity in the years leading up to the construction of the Ocean Isle and Holden Beach high rise bridges can easily be perceived as being directly influenced, if not induced, by the anticipated construction of those high rise bridges. The anticipation of improved ingress and egress allows and encourages the marketability of greater density (I. e. the planning for and the marketing of the 73-unit, 15 story Ocean Point high rise building on Ocean Isle). 192

Interview Key People:

"The second approach was to interview key people in all three beach communities in order to ascertain their perception of the impact of the high rise bridge." (Page 2) 193

This technique is what Apogee Research, Inc. calls *"impressionistic and not conclusive."* (Economic Impact Analysis, page iii) 194

CAMA Land Use Comparison:

"The third approach was to examine the beach communities CAMA Land use Plans and land use regulations in order to ascertain their attitude towards growth." (Page 2) 195

CAMA Land Use Plans, by definition, are designed to project intentions to control growth. One will find the same boilerplate phrases in all such plans for coastal barrier island communities. One must go further in such an analysis and determine whether action reflects attitude as presented in the CAMA Land Use documents, or if practice actually runs counter to expressed attitude. A comparison of the Ocean Isle 1980 and 1986 Plans reflects such deliberate discrepancies: 196

"The 1980 CAMA Plan states the following:

'High-density, High-rise developments will not be encouraged during the planning period. Such developments are viewed as being inconsistent with the aesthetics of the island.' (page 48) 197

By 1986 the CAMA Plan was changed to support mid-rise and high-rise developments. According to the Ocean Isle building inspector, the change was initiated by the desire to make the CAMA Plan conform to the Zoning Ordinance. Even in 1980 the zoning ordinance permitted mid-rise and high-rise residential buildings in planned residential development districts." (Page 15) 198

The Sunset Beach CAMA Land Use Plans are not referenced in this document. Also, one must remember that Holden Beach and Ocean Isle are barrier Island towns, without substantial mainland portions, and therefore their entire focus is on the barrier islands. 199

Social Impact Report
(Hayes & Associates)

"The social and public safety implications are examined from the perspective of the island and mainland residents and visitors as well as for boaters along the Intracoastal Waterway." (Executive Summary page 1). 200

The social impact examination in this report is overwhelmed by the extensive discussion of inconveniences posed by the present bridge, based upon incident statistics. All the data presented, when analyzed, is in essence making a mountain out of an ant hill. 201

- * The bridge is open on the average 10.6 times a day for ten minutes each.
- * The actual traffic accident rates are extremely low. 202
- * The bridge has been struck by barges twice in 35 years and in both cases the impact on boat and vehicular traffic was limited to less than a three day interruption.
- * The number of incidents of openings taking 20 minutes or longer is on a significant decline.
- * The largest traffic backup documented was at 3:00 P. M. (change over time) on a Saturday and was less than of a mile long.
- * The July 4, 1993 traffic debacle was town-induced by scheduling a major event on the island that, due to the expected attendance, should certainly have been held on the mainland.
- * While many closings may be unscheduled, most of them are not unpredictable.

Social Impacts Discussed:

<u>Traffic Congestion and Accessibility</u> -

" All three bridge replacement alternatives use basically the same approach route on the island. Traffic will probably back-up along SR 1172 and should not effect traffic flow on the island." 203

"However, during peak summer season, all bridge replacement alternatives may have delay problems at the bridge approach intersections on the mainland." (page 28) 204

"...numerous Shoreline Woods and Seaside residents expressed concern at previous public hearings expressed concern at previous public hearings that thru traffic would follow along Shoreline Drive thru their neighborhood, rather than turning onto Sunset Boulevard (NC 179)." (page 29). 205

206

- Congestion continues, even with high-rises.

"High-level bridges would only be closed with extreme, hurricane force winds and traffic accidents." (page 28) 207

- The Ocean Isle bridge has been closed due to less than hurricane force winds. It has also been reduced to one lane due to repairs. What are the traffic accident 208

statistics for the two neighboring high rise bridges compared to the pontoon bridge? 208 (CONT.)

There are no statistics presented nor conclusions drawn in this report concerning the impact that two lane, supposedly unimpeded traffic will have on the island of Sunset Beach and its community. 209

Pedestrians and Bicycles

Bridge alternatives should do more than allow such uses to continue. Walking and biking are an integral part of the beach experience at Sunset Beach. It must be demonstrated that the build alternatives will not diminish the current level of enjoyment of these uses. 210

Attitudes and Positions

The Sunset Beach Taxpayers Association took a poll of its members in March 1995 (See attached form). The results are as follows: 211

SBTA BRIDGE POLL RESULTS
NUMBER OF BALLOTS SENT: **763**
NUMBER OF BALLOTS RETURNED : **232 (30%)**
NUMBER OF VOTES CAST: 317

PONTOON TYPE:	**219**	**69%**
OLD BRIDGE :	87	27%
ONE LANE 16' :	22	7%
TWO LANE 16' :	**110**	**35%**
BASCULE TYPE :	**68**	**21%**
15' BASCULE :	33	10%
35' BASCULE :	35	11%
HIGH RISE TYPE :	**30**	**10%**

The 1992 CAMA Land Use Process included a survey questionnaire conducted by Hayes & Associates. The survey had a 62% return rate for a total of 124 respondents - 48 from the island, 48 from the mainland, 24 from the ETA and 4 other. In that poll the One-lane Swinging Drawbridge ranked 7th out of ten as major issues. The top 4 recreational facilities needs where Bike Paths, Access to intracoastal Waterway, Parking for Intracoastal Waterway, and Public Boat Ramps. 212

The results are presented below concerning desire for bridge alternatives and concerns over fire and rescue services as well as evacuation planning. 213

Questions:

14. Are you currently satisfied with the following public services:

Yes	No	Public Service
95	10	f. Fire Protection
88	8	g. Rescue Services
79	5	u. Evacuation Planning

214

	Total	Island	Mainland	Other	ETA
18. What is your preference for a bridge to the island?					
a. Maintain one-lane bridge	57	33	13	2	9
b. Build High Rise	27	4	11	2	10
c. Build Two-Lane	29	11	15	–	3
d. No Opinion	4	–	3	–	1

214 (CONT.)

19. Do you believe that Sunset Beach is prepared for emergency evacuation ?					
a. Yes	63	31	23	1	8
b. No	20	7	6	2	5
c. No Opinion	30	10	11	1	8

Hayes & Associates call all previous poll and survey results not "scientific" because they were voluntary and only *"... reflects the participants' thinking as of the time that they responded."* (page 31). This comment is an attempt to dismiss the reality of the results of poll after poll that continually reflect the attitude of the citizens of this beach community - which is **overwhelming opposition to the construction of a high rise bridge at Sunset Beach.** This fact was again forcefully put forth at the September 5, 1995 Public hearing where 80% of the over 500 people present stood up in opposition to a high rise bridge. 215

Social Impact Ignored

Hurricane Evacuation

Sunset currently has the most effective hurricane evacuation procedure on the NC coast. Those that have lived on the island through the hurricane evacuations over the last 15 years can attest to the fact that the island is totally vacated long before there is any threat to life or property. There is no choice - get off before the bridge is tied back, and all do. Such an imperative will drastically change with any of the currently proposed build alternatives 216

Effect On Pace and Quality of Life

The Sunset Beach floating Pontoon bridge is the focal point and the symbol of what the beach experience at Sunset Beach is all about. 217

See SUMMARY OF COMMENTS FROM ISLAND MARKET NOTEBOOK at the back of the DEIS) and attached articles:
Southern Living, "Written on the Water"
Sea Trail Plantation Newsletter "By The Fairway" Volume V, Number 1
The Washington Post Magazine, Globetrotting, "Carolina Dreaming" 218

WATER QUALITY AND SEWER SERVICE TECHNICAL MEMORANDUM
(Greiner , Inc.)

"While these are reasonable assumptions, recent studies indicate that bridge replacement is a separate issue from the development of a centralized wastewater treatment system and associated impacts to water quality. These associated impacts include stormwater runoff." (Page 2) 219

The **two issues of bridge replacement and central sewer** can, in the respect of direct linkage, be separate only if there is an irrevocable commitment to never attach sewer lines to any bridge replacement alternatives, now or in the future. 220

Since the two projects could, if plans are realized, come to completion at about the same time, **these two issues cannot be separated when it comes to the cumulative impact on the environment of Sunset Beach.** 221

"The control of development is better handled by formal quidance system mechanisms as opposed to restricting services which may be beneficial to the environment and human health." (page 6) 222

A floating pontoon bridge is a limiting factor in any construction that requires the transport of large and/or heavy structural materials. Therefore, the type of bridge has direct impact on the type of construction/development and any resulting degradation of water quality due to stormwater runoff. 223

"Long term impacts are expected to be minimal. All the current alternatives are associated with the regular dredging of the Intracoastal Waterway for vessel traffic." (page 7) 224

The No-Build and Renovation alternatives will have significantly less impact on water quality where the issue of Intracoastal Waterway dredging is concerned. The area around the current pontoon bridge has appreciably less need for maintenance dredging due to the imperative for boats to slow down during passage through the bridge. 225

"Therefore, it is reasonable to assume that a bridge replacement will not necessarily be the driving force for rate or type of development with respect to Sunset Beach." (page 8) 226

This statement is based on findings of the Hayes & Associates reports and memorandum, and therefore inconclusive. (See discussions above.) 227

ECONOMIC IMPACT ANALYSIS
(Apogee Research, Inc.)

Most of the conclusions of this analysis are based on the Hayes & Associates reports discussed above. A discussion of the conclusions that are unique to this report follows. 228

Composition of Population.
Over 35% of the single-family and duplex dwellings on the island are presently not available for rent through the three island real estate agencies. All the residents on the island are presently working families and retirees. The shift will most likely be in the opposite direction, toward more rental/investment residents due to the ease of access. 229

Town Finances.
The purpose of police officers at the bridge is to move traffic faster when the bridge reopens to vehicles by overriding the traffic light and keeping traffic flowing in one direction longer over the one-lane bridge. With any two lane bridge this would no longer be necessary. 230

A substantial increase in day visitors will mean additional policing, trash and litter pickup, garbage collection and road maintenance. No impact to town finances for the increase in cost for these services was examined. 231

House Salvaging.
While not addressing the cost of providing services created by an increased number of day visitor, much attention is devoted to the advantage of a high rise or mid-level bridge in allowing transportation off the island of environmentally at risk houses. 232

There are no environmentally at risk houses on the island. Sunset Beach is the only accreting island in North Carolina. The only houses at risk on the island are modest cottages on prime oceanfront lots targeted by developers as ripe to be replaced with large duplexes. 233

There are no escarpment areas on Sunset beach at the present time, much less within 20 feet of a home. There is no recognition of the number of homes on Sunset beach that have been salvaged by moving them from ocean front lots to less expensive lots on the island allowing duplexes to be built on the oceanfront lots. 234

CONCLUSION:

Most of the data and conclusions in the preceding reports and memoranda are inadequate or flawed. The analyses and comparisons take a short term outlook to what is going to be a long term problem. 235

None of the reports adequately address the following facts: 236

1) The Sunset Beach pontoon bridge is the drawing card, the advertising focus, the essential expression of the Sunset Beach experience. 237

2) The unique physical characteristics of the small island of Sunset Beach:

The accreting frontal dune system - the only example on a developed island of a 400 to 800 foot wide living, accreting frontal dune system in North Carolina. 238

The expansive amount of dynamic marsh that surrounds the island. 239

The amount of nationwide publicity that the island of Sunset Beach has received over the last ten years, promoting it as the most desirable in terms of safety and return on investment. 240

3) The potential magnitude of the pending population explosion that will occur on the mainland immediately behind the island of Sunset Beach from the Intracoastal Waterway north to Highway 17 and the resulting demand for "beach space". 241

4) The voluminous, pro-development history of zoning changes made by the Sunset Beach Town Council since the original zoning ordinance in the early 1970s. 242

ATTACHMENTS:

243

North Carolina Attorney General's Opinion,
"The Public Trust Doctrine In North Carolina"

Southern Living
Carolina Living, Written On The Water
"Slow Speed at Sunset"

The Washington Post Magazine / March 13, 1994
"Carolina Dreaming"

National Trust for Historic Preservation in the United States / Information sheet No. 36
"Saving Historic Bridges"

Golf Digest / October 1995
"Southern Comfortable"

Wilmington Morning Star / Friday, September 1, 1995
"Quaint swing bridge will be preserved - on film, at least."

Brunswick Beacon / September 28, 1995
"Approval Likely This Week For I-74 In Brunswick"

Greensboro News & Record / August 14, 1995
"Sunset's old bridge: Not without its charms."

The Official Sea Trail Plantation Newsletter, Volume V, Number I
"Getting Carried Away"

The State / August '88
"Facing The Future in Sunset Beach"

Sunset Beach Taxpayers Association
Sunset Beach Bridge Poll

Letter to Garland Garrett from Barry R. Lentz / April 21, 1995

Letter from H. Franklin Vick to Minnie K. Hunt / September 19, 1995

LACY H. THORNBURG
ATTORNEY GENERAL

State of North Carolina

Department of Justice
P.O. BOX 629
RALEIGH
27602-0629

July 29, 1992

Mr. and Mrs. W.G. Hunt
1210 East Main Street
Sunset Beach, N.C. 28459

Dear Mr. and Mrs. Hunt:

I recently spoke to Ms. Elizabeth Peel concerning activities allowed in wetlands (she raised the question in the context of the proposal to develop Bird Island); Ms. Peel asked me to send you the enclosed information concerning the public trust doctrine.

Sincerely,

LACY H. THORNBURG
Attorney General

Robin W. Smith
Assistant Attorney General

An Equal Opportunity/Affirmative Action Employer

THE PUBLIC TRUST DOCTRINE IN NORTH CAROLINA

WHAT IS THE GEOGRAPHIC SCOPE OF THE LANDS SUBJECT TO THE PUBLIC TRUST DOCTRINE?

North Carolina Law recognizes public trust ownership of both lands covered by waters subject to the ebb and flow of the tide and lands covered by waters that are non-tidal, but navigable by sea vessels. State law also recognizes public trust rights, including an easement for navigation, on waters that do not fall into either of the first two categories, but are navigable in fact by any type of boat:

Tatum v. Sawyer, 9 NC 226 (1822), recognized the English common law doctrine of public trust in waters subject to the ebb and flow of the tide and public trust ownership of the underlying lands. It applied the doctrine to a title case concerning ownership of a tidal marsh and mudflat.

Wilson v. Forbes, 13 NC 30 (1828), in effect expanded North Carolina's public trust doctrine to include the beds of non-tidal waters that were navigable by sea vessels. Technically, the issue in Wilson was construction of the term "navigable streams" as it appeared in the state's entry and grant statute. The term was first employed in 1711 and continued to appear in the statutes until 1836. The statute directed that where the entered lands abutted on a navigable stream, the edge of the water should form one boundary of the survey (in other words, lands beneath navigable streams were not subject to entry and grant). In Wilson, the court held that lands beneath a non-tidal creek which appeared to be "wide enough and deep enough for sea vessels to navigate, and without any obstruction to this navigation from its mouth to the ocean" constituted the bed of a "navigable stream". The court noted that under the definition of "navigable" established by the English ebb and flow rule, "Albemarle and Pamlico Sounds, which are inland seas would not be deemed navigable waters and would be subject to private property." But while reading "navigable" more expansively than the English ebb and flow rule would allow, the court did not either abandon the English rule entirely or attempt to engraft the sea vessel test onto it.

State v. Glen, 52 NC 321 (1859), contains the first explicit recognition of the English common law rule that a public trust easement exists for navigation purposes on waters that are neither tidal nor navigable by sea vessels, but are navigable by other boats. While the bed of these streams may be privately owned, the owner may not obstruct

navigation. Glen also contains the most complete statement of North Carolina's public trust doctrine:

> 1. All the bays and inlets on our coast, where the tide from the sea ebbs and flows, and all other waters, whether sounds, rivers or creeks, which can be navigated by sea vessels are called navigable, in a technical sense, are altogether public juris, and the soil under them cannot be entered and a grant taken for it under the entry law...
>
> Where the tide ebbs and flows, the shore, between the high and low water, is also within the prohibition of private appropriation, under the general entry law, but may be the subject of a direct, special legislative grant. Ward v. Willis, 51 NC 183.
>
> 2. All the rivers, creeks and other water-courses not embraced in the above description, but which are, in fact, sufficiently wide and deep to be navigable by boats, flats and rafts, are technically styled unnavigable, and are open to be appropriated by individuals, by grants from the State, under the entry law.

The Glen decision recognized a public trust easement on the waters described in (2) above. Subsequent cases held that the public trust easement exists even on streams that are "floatable" only on a seasonal basis. See e.g. Burke County v. Catawba Lumber Co., 116 NC 420 (1895). The tests for navigability of waters in these easement cases is variously stated as "capacity for substantial use," State v. Narrows Island Club, 100 NC 147 (1888); "navigability in fact", State v. Baum, 128 NC 443 (1901); and "capacity for use in the customary modes", State v. Twiford, 136 NC 603 (1904).

Under North Carolina law, if some part of a waterbody is navigable under either the ebb and flow or sea vessels test, the waterbody is legally considered to be navigable to its margins (that is, to mean high water). Swan Island Hunt Club v. White, 114 F.Supp 95 (E.D.N.C. 1953).

Note: There is one confusing digression in North Carolina's expansion of the public trust doctrine. In 1833, the General Assembly authorized a complete recodification of the state statutes intended to "digest and consolidate into one act all the various state laws relating to one subject" Ch. 21 1833 NC Session Laws. The Revised Code inadvertently omitted from the entry and grant statutes the requirement that grants must be set off from navigable waters and when the Revised Code was enacted in 1836 all prior statutes were repealed.

In 1846, the omission became an issue in Hatfield v. Grimstead, 29 NC (7 Ire.) 139 (1846), which concerned two 1839 state grants to lands under the non-tidal waters of Currituck Sound. The court treated its earlier decision in Wilson v. Forbes, supra, as mere statutory construction, rather than as an expansion of the common law public trust doctrine. The court held that since there was no longer a statutory requirement that grants be set off from navigable waters (construed in Wilson v. Forbes to include waters navigable by sea vessels as well as tidal waters) and since Currituck Sound, being non-tidal, was not considered to be "navigable waters" under the common law, the grants were valid because the public trust doctrine did not apply. The import of Hatfield was to return to a strict ebb and flow rule.

In response to the Hatfield decision, the General Assembly immediately reinstated the omitted entry and grant provision. Ch. 35 1846 N.C. Session Laws. Although Hatfield has never been expressly overruled, subsequent cases (beginning with State v. Glen, supra) returned to a dual public trust test to include tidal waters and/or waters navigable by sea vessels. But because Hatfield has never been overruled, questions still remain as to the validity of grants issued between 1836 and 1846 in waters that are non-tidal but navigable by sea vessels.

WHAT IS THE UPPER BOUNDARY OF PUBLIC TRUST LANDS?

The upper boundary of public trust lands is mean high water.

Lewis and Jackson v. Keeling, 46 NC 299 (1854): boundary of land on a navigable river "stops at the high-water mark, leaving the water and the beach, between high and low water mark for a public highway."

Kelly v. King, 225 NC 709 (1945): boundary on a nonnavigable tidal sound will be the high water mark.

Carolina Beach Fishing Pier v. Town of Carolina Beach, 277 NC 297 (1970): boundary of grants bordering the ocean is the high tide mark (since codified at N.C. G.S. 77-20).

DOES THE PUBLIC HAVE ANY RIGHTS OF ACCESS OVER LAND IMMEDIATELY UPLAND OR ADJACENT TO PUBLIC TRUST LANDS?

In North Carolina, the dry sand beach (that is, the beach between mean high water and the vegetation line) has traditionally been used by the public. At least two North Carolina statutes implicitly recognize a public trust easement on the ocean beaches between mean high water and the vegetation line. In G.S. 146-6(f), the legislature provided that title to lands raised in or along the Atlantic

Ocean as a result of publicly financed beach nourishment projects vests in the state; title to lands raised as a result of privately funded nourishment projects vests in the adjacent littoral proprietor. The statute then provides that "All such raised lands shall remain open to the free use and enjoyment of the people of the State, consistent with the public trust rights in ocean beaches, which rights are part of the common heritage of the people of this State." (Emphasis added). When this language is read in conjunction with Article XIV Section 5 of the State's Constitution, which recognizes a "common heritage" in the State's beaches, and G.S. 1-45.1, which defines "public trust rights" to include use of the beaches, the public's right to use the dry sand beach can be said to have constitutional protection.

G.S. 113A-134.1, in stating the legislative findings in support of creation of a state beach access program to acquire and develop property to provide access to the beach, notes:

> The public has traditionally fully enjoyed the State's ocean and estuarine beaches and public access to and use of the beaches. The beaches provide a recreational resource of great importance to North Carolina and its citizens and this makes a significant contribution to the economic well-being of the State. The ocean and estuarine beaches are resources of statewide significance and have been customarily freely used and enjoyed by people throughout the state.

WHAT IS THE STATE'S LEGAL POSITION CONCERNING THE ADDITION OR LOSS OF PUBLIC TRUST LANDS?

1. Natural Changes

If erosion results in submersion of the littoral landowner's property, title to the land covered by the ebb and flow of the tide vests in the State. Carolina Beach Fishing Pier v. Town of Carolina Beach, 277 NC 297 (1970).

Where forces of accretion gradually add to a tract of land, the riparian owner is entitled to the increase. State v. Johnson, 278 NC 126, 179 SE2d 371 (1971). See also N.C. General Statute 146-6(a) which states that title to land raised as a result of natural forces vests in the littoral property owner.

If the gain or loss is caused by a sudden, powerful natural event, such as flood or hurricane, no change in title results; Murray v. Sermon, 8 NC 56 (1820); State v. Johnson, supra.

Where the waters recede "gradually and invisibly" the riparian owner gains title to the land. Murray v. Sermon, supra.

2. Man-Induced Changes

N.C. General Statute 146-6 addresses the issue of title to lands raised from navigable waters by act of man:

Title to land raised above the high watermark as a result of the erection of a pier, jetty or breakwater vests in the riparian property owner. The area gained includes only the area in front of the formerly riparian tract and within the extended property lines.

Title to land raised by filling vests in the State except when:

1. the filling is to reclaim land previously lost to erosion; or

2. the land was raised within the bounds of a conveyance made by the State Board of Education which included regularly-flooded estuarine marshlands or lands beneath navigable waters; or

3. the land was raised under permits issued pursuant to G.S. 113-229 (Dredge and Fill Act) or G.S. 113A-100 et seq (the Coastal Area Management Act).

Note: Under present State Dredge and Fill Act/Coastal Area Management Act rules, filling below mean high water is strictly limited.

When lands are raised by filling pursuant to an easement to fill issued by the State, the State may, at the request of the easement-holder, issue a quitclaim deed to the filled area. Again, in coastal waters the opportunities to take advantage of this subsection are limited by Dredge and Fill/CAMA regulations.

If land is raised as a result of the deposit of spoil from a State or Federal navigation project on privately owned lands, any additions to the private property will accrue to the owner. Title to land in or immediately along the Atlantic Ocean that is raised above mean high water as a result of a publicly financed beach nourishment project, however, vests in the State. Title to lands raised as a result of a privately financed beach nourishment project vests in the adjacent littoral property owner, but those lands are subject to a public trust easement.

DOES STATE LAW EXEMPT ANY LANDS FROM THE PUBLIC TRUST DOCTRINE THAT OTHERWISE WOULD BE PUBLIC TRUST LAND?

Certain tidal marshes conveyed by the State Board of Education are exempt from the ownership element of the public trust doctrine, although they remain subject to a public trust easement. By an act of 1836, the legislature vested title to the vacant and unappropriated "swamplands" of the state in the State Literary Fund in trust as a public fund for education. A later amendment included marshlands in the definition of "swampland." Over a period of years, the State Literary Fund (and its successor, the State Board of Education) sold vast tracts of marshland and tideland particularly in Onslow, Pender and New Hanover Counties.

It is not at all clear that the legislature intended for "swampland" to include estuarine salt marshes below mean high water, but the North Carolina Attorney General issued two opinions in the 1920's finding that the Board of Education (BOE) did own and could convey tidal salt marshes. (In the same time period, however, the Attorney General issued an opinion concerning sand bars that concluded no private title could validly issue to lands below mean high water.) Between 1920 and 1959, the Board of Education issued deeds for most of the estuarine areas between the barrier islands and the mainland in Onslow, Pender and New Hanover Counties - including areas legally considered navigable by sea vessels.

The North Carolina Supreme Court decided a number of cases concerning title to saltmarshes and tidal flats claimed under BOE deeds between 1938 and 1954 and reached results which are difficult, if not impossible, to reconcile.

Home Real Estate & Insurance Co. v. Parmele, 214 NC 63 (1938). Upheld a BOE deed to salt marsh in Myrtle Grove Sound which was tidal but not navigable by sea vessels.

Kelly v. King, 225 NC 709 (1945) Upheld a BOE deed to tidal marsh in Myrtle Grove Sound again on the grounds that the waters were not navigable under the sea vessel test.

Resort Development Co. v. Parmele, 235 NC 689 (1952). The facts were similar to those of Insurance Co. v. Parmele, but the Court came to the opposite conclusion, holding that salt marshes covered at high tide are lands under navigable waters and therefore not subject to entry and grant. The Court also held that salt marshes were not "swamp lands" within the meaning of G.S. 146-4 (vesting title to swamp lands in the BOE) and therefore the BOE deed was invalid.

Parmele v. Eaton, 240 NC 539 (1954). Upheld a BOE grant of salt marsh covered at high tide. Returned to a holding consistent with Insurance Co. v. Parmele and completely inconsistent with Resort Development Co. v. Parmele. The area contested in this case included some of the same salt marsh at issue in Resort Development Co.

These seemingly irreconcilable decisions make more sense when viewed in light of one additional fact. In the three cases upholding BOE deeds to tidal marsh, the area granted had been filled and was either already developed or about to be developed; an adverse decision would have affected a number of established property interests. In the single case that invalidated a BOE deed to tidal marsh, the area granted had not been filled.

In 1985, prompted in large part by the confusing case law and a desire to clarify the title issue, the legislature validated all conveyances of swamplands, including regularly flooded estuarine marshland, by the Literary Fund or the State Board of Education. G.S. 146-20.1. The statute provides, however, that "areas of regularly flooded estuarine marshlands within conveyances validated by subsection (a) remain subject to all public trust rights." The same package of amendments specifically confirmed the title to lands raised within the bounds of BOE deeds and removed any potential cloud on those titles. G.S. 146-6(b). Thus the legislature codified the Court's recognition of private title in regularly flooded marshes while providing continued protection for public trust uses in unfilled salt marshes.

WHAT USES ARE PROTECTED BY NORTH CAROLINA'S PUBLIC TRUST DOCTRINE?

North Carolina recognizes the historical uses of commerce, navigation and fishing in public trust lands. In Tatum v. Sawyer, 9 NC (2 Hawks) 226, 229 (1822), the land covered by navigable water was held not subject to private ownership since such waters were "necessary for public purposes as common highways for the convenience of all." In State v. Baum, 128 NC 600, 604, 38 SE 900, 901 (1901), the Court stated, "the public have the right to the unobstructed navigation as a public highway for all purposes of pleasure or profit, of all watercourses, whether tidal or inland, that are in their natural condition capable of such use." The right of the public to fish in public trust waters was established in Collins v. Benbury, 25 NC (3 Ire.) 277 (1842). These rights have been recognized in numerous subsequent cases. Most recently, in State v. Credle, 86 NC App 633, 359 SE2d 45, disc. rev. granted, 321 NC 300, 363 SE2d 183 (1987), the Court of Appeals stated that lands under navigable water and the water itself "are held in

trust for the use and benefit of all our people, each of whom, subject to reasonable legislative regulation in the public interest, has a right to navigate, fish and carry on commerce in such waters as he sees fit." These rights are statutorily recognized in G.S. 1-45.1 (discussed below).

No State cases have specifically recognized other protected uses of public trust lands. However, the Federal Courts, construing North Carolina law, concluded in Swan Island Club v. White, 114 F.Supp 95 (EDNC 1953), aff'd sub nom, Swan Island Club. v. Yarbrough, 209 F2d 698 (4th Cir. 1954), that the right to hunt was included within the protected public trust uses.

In 1985 the legislature, in a statute prohibiting adverse possession of property subject to public trust rights, defined those rights as follows:

> As used in this section, "public trust rights" means those rights held in trust by the State for the use and benefit of the people of the State in common. They are established by common law as interpreted by the courts of this State. They include, but are not limited to, the right to navigate, swim, hunt, fish, and enjoy all recreational activities in the watercourses of the State and the right to freely use and enjoy the State's ocean and estuarine beaches and public access to the beaches. G.S. 1-45.1.

WHAT, IF ANY, PUBLIC RIGHTS REMAIN WHEN PUBLIC TRUST LANDS ARE CONVEYED TO PRIVATE OWNERSHIP?

Public trust lands which have been conveyed to private ownership are subject to an easement for all public trust uses which are not inconsistent with the private rights conveyed by the State. When first enunciated, the easement was specifically limited to the right of navigation and excluded the right to fish in waters over privately owned beds. State v. Glen, 52 NC 521 (1859); State v. Narrows Island Club, 100 NC 477 (1888). However, later cases had extended the easement to other public use rights. State v. Twiford, 136 NC 603 (1904); Swan Island Club v. White, 114 F.Supp 95 (E.D.N.C. 1953), aff'd. sub nom, Swan Island Club v. Yarborough, 209 F.2d 698 (4th Cir. 1954). The early cases recognized no public rights, not even that of navigation, on inland waters that were not navigable for purposes of commerce. Within 30 years, that element of the common law had been overridden by later cases which effectively found that a public trust easement of navigation existed on all waters capable of floating a vessel or other article of commerce.

The most far-reaching of these cases established what may be called the "floatability doctrine." At issue was the right to float logs to market when spring freshets caused

streams not otherwise navigable to support rafting logs to market. The Supreme Court found a public trust right to navigate those streams. Commissioners of Burke County v. Catawba Lumber Co., 116 NC 731, 21 SE 941 (1895); State v. White Oak River Corp., 111 NC 661, 16 SE 331 (1892); Gwaltney v. Scottish Carolina Timber and Land Co., 111 NC 547, 16 SE 692 (1892).

The public trust right to fish in all natural streams and rivers of the State underwent a similar revolution. In the 1859 decision, the right to harvest fish in waters where the bed was privately owned belonged exclusively to the owner of the bed. State v. Glen. That rule applied in waters where there was a public trust right of navigation as well as in non-navigable streams and creeks. The most explicit legislative expansion of the public's right to fish in all the natural waters of the State's streams and rivers was embodied in the 1965 rewrite of the wildlife laws. G.S. 113-129(11), 113-129(17) and 113-131. The expanded public trust doctrine regarding fishing was judicially recognized in Springer v. Joseph Schlitz Brewing Co., 510 F.2d 468 (4th Cir. 1975). Access to the non-navigable waters remains the most significant impediment to the exercise of the public trust right to fish in those waters.

With regards to lands conveyed pursuant to Board of Education deeds, the legislature enacted a statute in 1985 that such lands remain "subject to all public trust rights." G.S. 146-20.1(b).

WHAT CONSTITUTIONAL AND STATUTORY PROVISIONS PERTAIN TO THE PUBLIC TRUST DOCTRINE?

There are two North Carolina Constitutional provisions which are relevant to the Public Trust Doctrine. Article IX, Section 6, entitled "State School Fund", provides, in pertinent part, that "the net proceeds of all sales of the swamp lands belonging to the State...shall be paid to the State Treasury and...shall be faithfully appropriated and used exclusively for establishing and maintaining a uniform system of free public schools."

Article XIV, Section 5, entitled Conservation of Natural Resources, provides, in pertinent part:

> It shall be the policy of this State to conserve and protect its lands and waters for the benefit of all its citizenry and to this end it shall be a proper function of the State of North Carolina and its political subdivisions to acquire and preserve park, recreational, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other

> appropriate way to preserve as a part of the common heritage of this State its forests, wetlands, estuaries, beaches, historical sites, openlands, and places of beauty.

The "common heritage" rights of the citizens referred to in this provision include public trust rights as demonstrated by the language of G.S. 146-6(f), G.S. 1-45.1, and G.S. 113-131 which are discussed below.

Chapter 146 of the General Statutes of North Carolina, entitled "State Lands," contains several provisions relevant to public trust issues. G.S. 146-3 provides that no submerged lands owned by the State may be conveyed in fee, but that easements therein may be granted. "Submerged lands" and "swamplands" are defined in G.S. 146-64. More recent interpretations of the proper relationship between those statutes hold that the BOE "swamplands" available for sale do not include regularly flooded salt marshes. Earlier interpretations to the contrary resulted in the sale of large areas of salt marshes. Grants of swamplands conveyed under Board of Education deeds are recognized and validated by G.S. 146-20.1 with the proviso that such lands remained subject to public trust rights when they were originally conveyed. Thus, unless the BOE salt marshes have been filled, they remain subject to all public trust rights of use and access.

G.S. 113-205 required registration of all claims to lands underlying navigable waters in the coastal counties prior to January 1, 1970; claims not filed by that date were deemed extinguished. G.S. 113-206(f) provides that the Secretary of the Department of Natural Resources and Community Development will resolve such claims by December 31, 1990 and "favor public trust ownership of submerged lands and public trust rights."

G.S. 146-6(f) provides that title to lands raised along the Atlantic Ocean by publicly financed projects vests in the State and will be open to the citizens "consistent with the public trust rights in ocean beaches, which rights are part of the common heritage of the people of this State." This provision equates "public trust rights" with the "common heritage" rights protected by Article XIV, Section 5 of the State Constitution set out above.

G.S. 1-45.1, set out above, defines public trust rights to include navigation and recreation uses and prohibits adverse possession of lands subject to such rights. This definition of public trust rights is incorporated by reference into G.S. 113-131 which provides for injunctive actions to protect public trust rights.

G.S. 77-20(a) establishes the mean high water mark as the boundary for all property adjoining the ocean which is not owned by the State unless the State specifically granted title below the high water mark.

Land Area Covered by the Public Trust Doctrine

Our best estimate of submerged lands in North Carolina is 2.2 million acres, excluding the territorial sea.

PREPARED BY ROBIN W. SMITH AND PHILIP A. TELFER, ATTORNEY GENERAL'S OFFICE, NORTH CAROLINA DEPARTMENT OF JUSTICE.

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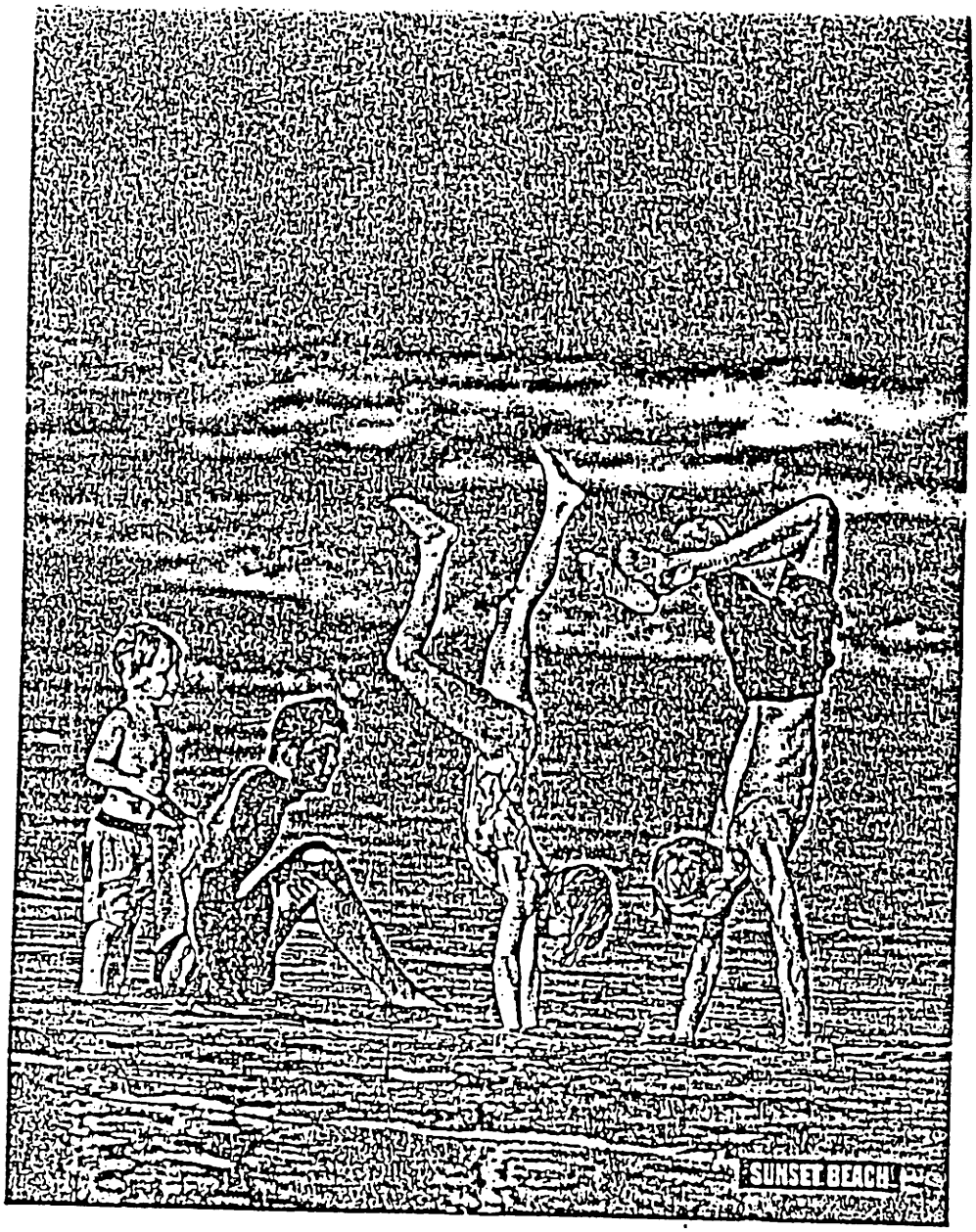
Cover photograph by Gary Clark

This issue of *Carolina Living: People & Places* was coordinated by Dianne Young, Gary Clark, and Melissa Bigner, and designed by Lane Gregory.



WRITTEN ON THE WATER

North Carolina's long shoreline is the stuff of daydreams and memories. Here, some of our state's fine writers tell of the places and moments that best portray the coastal spots they have come to love.

Slow Speed at Sunset
with Lee Smith

"You know, Sunset is my ideal Carolina beach. With just sand and sun and water, it's simple, beautiful. There are no honky-tonks, or much of anything else going on. It's a family place, where everyone is forced to talk to one another, where you can play board games and read books. It's a great place to build sandcastles, walk on the beach, and read really long English novels.

"I guess it could sound pretty boring to some folks, but that's really my idea of a great time at the coast. Sunset is about total relaxation; that's what I like about it. We don't go there to have a social life; we go to escape."

—*Lee Smith recently won a Lila Wallace*-Readers Digest *Writers Award. Her eighth novel, out this year, is* Saving Grace.

Carolina Dreaming

If you think you have to go to the West Coast to watch the sun drop over the ocean, you're wrong. You can go to Sunset Beach—assuming you can get over the bridge By Adam Seessel

Sunset Beach, N.C., is a place to reflect, and to revel in the feel of wet sand between your toes. From the mainland, the New Capt. Jim departs Calabash on half-day excursions, with Sunset over the bow, and passengers' cares left astern.

Sunset Beach is an island, but it's not really an island. It's connected to the mainland by a bridge, though the bridge is a pontoon bridge, protected by old tires, a ridiculous thing from another era that the Northerners complain about. But that's what's wonderful about it, the fact that Northerners complain, and that you have to stop your car to wait for the bridge to swing open like a barn door to let a boat go through. Your gaze is forced to shift off the blacktop for a while and into the middle distance, where it finds the pale green of the coastal marsh and the hump of the dunes beyond, their sawed sea oats standing on top, until finally your eye lands on the flat, chromatic line of the sea, where everything is gray-green, and you have nothing to do but stop, and say, enough, I am through traveling, I can rest.

IT MAY BE that no man is an island, but Sunset Beach is the perfect place to sustain the illusion for a few days. Unlike nearly every other affordable beach on the East Coast, its attractions are not of the boardwalk, neon or wet T-shirt contest variety. There are plenty of beaches in North Carolina like that. Go to them if you want excitement.

If it's serenity and her twin brother, tranquillity, you want, drive south to the final beach before the South Carolina border and turn left onto the little road with the pontoon bridge.

On Sunset Beach there are two convenience stores, a single unmarked hotel, a place to rent bicycles and about 900 single-family homes, none of them taller than 35 feet, as prescribed by town ordinance. Most of these houses are available for rent for a night, a week, a month, or however long you plan to stay. They can be had for as little as $65 a night; even during peak summer weekends, a three-story, six-bed-

PHOTOGRAPHS BY JIM BRIDGES

BEYOND THE BEACH: ADVENTURES ON THE MAINLAND

●

Though Sunset Beach is a place to get away from it all, there are plenty of distractions close by.

Calabash, a small coastal town that's justly famous for the way it deep-fries the local catch, is 15 minutes to the west. Just about every other building in town is a restaurant, and it's hard to go wrong in selecting one. The many all-you-can-eat seafood bars on the strip are big and glitzy; we prefer Beck's, an old-timey luncheonette where many of the locals go, or Captain Nance's, down by the Intracoastal Waterway, where fat cats (real ones) hang out by the shrimp boats. It's always a good idea to run down to Calabash, buy a few pounds of shrimp from the shrimpers, and then go back to Sunset and cook them up yourself.

Forty-five minutes northeast of Sunset is Wilmington, the largest port on the North Carolina coast and home of the battleship bearing the state's name. The Wilmington area also boasts Wrightsville, the state's biggest meet-market beach. If you get tired of watching gulls and waves at Sunset, go to Wrightsville for the neon bikinis and the hard bodies of both genders.

The coast's crown jewel of tackiness, however, is Myrtle Beach, just over the South Carolina line. Myrtle Beach is the home of Hawaiian Rumble Golf, Mr. Wizard's fireworks and the Crazy Horse nightclubs. Between the pawnshops and the five-and-tens (dollars) selling pet crabs, you will also find Dolly Parton's new theme park-cum-restaurant, Dixie Stampede.

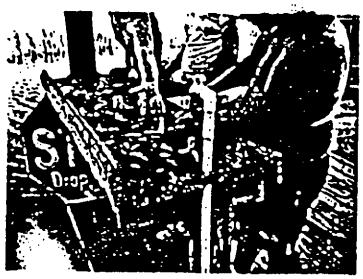
There are some nice places in Myrtle Beach, especially the restaurants. Flo's, in North Myrtle Beach, has excellent seafood, a nice view of an estuary, plus an excellent collection of hats suspended from the ceiling.

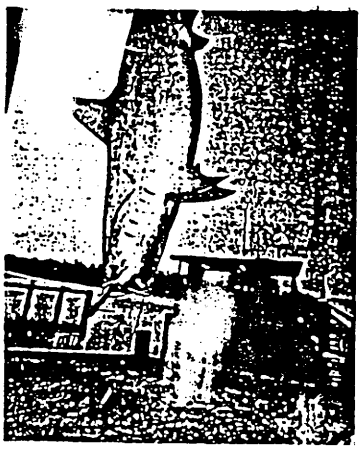
The most beautiful place within reach of Sunset Beach, besides the beach itself, is Brookgreen Gardens, a former plantation that in the 1930s was converted by a wealthy couple into the nation's first public sculpture garden. The sculpture is nothing special—the founders required that all artwork be figurative, so everything is and dully true to life—but the gardens themselves are exquisite. Oaks covered with Spanish moss, lovely topiary. More unexpectedly, there are lovely nature walks through the lowlands and by the freshwater river that has tidal swings of up to six feet. Even just a casual stroll through the garden can afford you sights of water snakes and chameleons and spiders spinning huge, intricate webs among the flagstones. —A.S.

room home a few blocks' walk from the beach goes for little more than $100 a night.

There are no restaurants, no golf courses, no blinking arcades. People come here for the absence of stimulation—or, to put it more precisely, for the absence of *man-made* stimulation, for the calm, abundant presence of the natural world. It is one of the few islands whose development has been guided by, rather than opposed to, the elements. It is a beach made to let the elements in. Standing alone there at sunset, I understand the lines of the poet A.R. Ammons, who grew up in a small community 45 minutes inland:

So I said I am Ezra
and the wind whipped my throat
gaming for the sounds of my voice
I listened to the wind
go over my head and up into the night
Turning to the sea I said
I am Ezra
but there were no echoes from the waves
The words were swallowed up
in the voice of the surf





Fishermen clean their catch in nearby Calabash. At Capt. Jim's Marina, there's a fish market and charter service — look for the man-eating fiberglass shark.

To the north is the marsh, full of egrets, herons, peepers, whispering insects. To the west are Mad Inlet, Bird Island and South Carolina. And to the south, of course, is the ocean itself. This is yet another disorienting thing about Sunset Beach: Unlike almost every other barrier island on the East Coast, it runs east-west, so that looking out from the beach you face south. Most evenings, off to the southwest, you can see the sun go down in the Atlantic Ocean—which is why, of course, they call the beach Sunset.

IF YOU GO to Sunset Beach, for God's sake, don't take the main roads. Interstate 95 is fine until about Benson, N.C., but don't take Interstate 40 to Wilmington and then U.S. 17 down to Sunset. That's the wrong way, that's too direct. Take the back roads—it doesn't matter which ones, just look at the map and choose the series of cobwebs that will bring you there. Any way you travel, it's sure to take you down a peculiar capillary of America.

My wife and I usually go through Dunn; we saw Anita Bryant perform there at a "God and Country" rally one Fourth of July a few years ago. Taking N.C. Route 242 southward, you pass through Spivey's Corner, home of the national hollering festival, and Salemburg and Roseboro. In time you're among the puffy white pines of Bladen Lakes State Forest, where you have to watch for lumber trucks, and then Elizabethtown, where my wife introduced me to the best hamburgers in the South, at Melvin's. From there you're in the heart of tobacco country, where shady men have been accused of burning each others' tobacco warehouses for revenge and their own warehouses for insurance money. By the time you are in Old Dock, you can feel the beach nearby; there's Freeland, where you can buy creosote, and then Ash, and from then on it's a series of winding roads that have no name that lead you past the little strip of shops and the two restaurants on the mainland and down to the old pontoon bridge, where you have to put your car in park, and put your feet out the window, and adjust your eyes to the gray-green marshlands while the pontoon bridge lets a sailboat pass through.

THE BRIDGE IS THE KEY to Sunset Beach: It is what keeps it connected, but because it's so small it is also what sets Sunset apart from the main. Built in 1957 by Mannon Gore, the man who developed the island, to this day it can hold only a single lane of cars. It's also not

continued on page 34

SUNSET BEACH

continued from page 20

strong enough to carry big loads of concrete or drainpipe for development, and the houses that have gone up on the island have been perforce modest. Today, though every chain from Holiday Inn on wants a piece of Sunset Beach, the residents simply won't let them have it. They want to keep the island as it is.

This attitude in itself isolates most of the people of Sunset Beach from the rest of the United States. Their satisfaction and repose are in fact downright un-American. It would be different if this were a rich and exclusive community, but it's not. Most of the cars you see here are late-model Buicks and mini-vans.

Several years ago, the state tried to force a mile-long, million-dollar new bridge down the throats of the residents of Sunset Beach. They successfully fought it, and continue to fight all efforts to overdevelop their island. The notion that they should sell their property and thus get rich does not seem abhorrent so much as it seems not to have occurred to them. I asked several people about it. Some gave me strange, quizzical looks; others admitted to having thought about selling before passing the thought by. "We don't want to be like everybody else," the woman at the rental place told me. "We've seen what they've done to Wrightsville Beach, Myrtle Beach—we don't want that to happen here."

There are no breakwaters, no monuments to the indomitable human will. The pier out into the ocean is diminutive, almost humble, as though in even the slightest hurricane it would gladly blow into the ocean. Perhaps as a reward for their restraint, for their refusal to do anything major to the island except let it be itself, the people of Sunset Beach inhabit the only barrier island in North Carolina not afflicted with coastal erosion. Indeed, Sunset Beach is blessed with the contrary: It is the state's only barrier island to be actually accumulating sand rather than losing it, to be piling it up as the Atlantic currents move it along, growing and expanding into the ocean.

GOING THE BACK roads prepares you well for the feeling you get when you get on Sunset Beach, which is one of mild, pleasant disorientation. My wife and I returned here on the first days of our honeymoon. The public ceremony, all the toasting and feasting, had exhausted us; we needed a quiet place to escape and recuperate. We slept; we went back over the bridge and down the road to Calabash and bought fresh-caught shrimp from the shrimpers; we held each other in the tide pools that once a day divide the island of Sunset Beach into two islands.

On an average day on Sunset Beach, you can see dozens of ghost crabs, their bodies a frail and translucent white, pushing up from the sand's ooze. You can see terns and seagulls and pelicans trolling the coastline for food, and herons and egrets in the marshes between the island and the mainland. On a good day, you can see dolphins swimming past the island, their bodies and fins moving in a calm, circular motion. On afternoons when the ocean is still, you can wade out into the water, and if it's September it's as tepid as bathwater, and you can watch as the waves, backlit by the sun, carry entire schools of fish, dozens of hard slippery bodies, in the crests. The fish are very brave, and as they move in the wave toward your body they will not break their course until the last possible instant; never once have I have been hit by one. One day I even saw a hawk of some kind, a raptor, make his way from the marshlands into the ocean environment and begin to dive-bomb fish and seabirds with a ferocity that was decidedly non-gentle, non-meditative—which is to say, of the mainland rather than of the shore.

The best part of the entire island, however, is its diurnal splitting in two. Every day, at high tide, the ocean overruns Sun-

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set Beach on the western end and the island actually becomes two islands: Sunset Beach, the place where the houses are, and Bird Island, which is nothing but a spit of land. Bird Island's not an especially poetic name, but it captures the essence of the place, for it's completely uninhabited except by nesting seabirds and turtles. Bird Island is privately owned but has been an unofficial wildlife sanctuary for years now; there are snow fences and little warning signs telling people to stay out of the nesting areas. It is quite all right, however, to walk down Bird Island; my wife and I do it all the time.

My favorite part of the island's daily splitting—its creation of two from one, like the elemental growth of an amoeba or a cell—is not the walks but the time we spend in the tidal river, lolling in the eddies, swimming up the current and letting the tide take us back down. Often we take turns cradling each other in our arms. When it's my turn to be cradled, I let my head go back into the water, and my wife holds the vulnerable elastic part of my neck so that the water covers my ears but not my eyes or mouth. I can't hear anything, and at these times, surrounded by sand and saltwater, I think that this is what it must feel like to be in a sensory-deprivation chamber, although that sort of clinical experience doesn't begin to capture the mood. I feel like a newly baptized member of a church.

Once I kept everything submerged but the moon of my face. I looked up, and there in the early evening sky was the moon, and somewhere high in the sky behind the crown of my head I could hear the drone of an airplane, just barely.

It often takes several days to attune, to let the filters of human sound drop away when you go to Sunset Beach.

The last time we were there I went for a run on our first night. It was getting dark, and running west on the beach I could see the sun set into the ocean. Returning home, it was nearly dark and I thought I heard someone cough behind me. I turned around, and in the dusk, at the edge of the marsh, I could vaguely make out the shape of an egret, and I realized that it had been calling to its mate. Late that night, I was awakened by what I thought was the sound of a dog barking somewhere on another part of the island. This annoyed me—this is what I had come here to escape—but when I got up and opened our picture window onto the sleeping beach I heard nothing, and saw only a cloud of stars covered by a salty night film of marsh smells. Going downstairs, I heard the sound grow louder, and then I realized that it was not a dog at all, but the sound of the kitchen faucet, regularly dripping water every few seconds into the steel sink. ■

Sunset Beach is 7½ to 8 hours from Washington by car. To get there take Interstate 95 south. From there, you have choices: Interstate 40 to U.S. 17 and thence to Sunset Beach is the most efficient way. Good back routes include: I-95 to Exit 79 at N.C. Route 242, south to Elizabethtown, pick up U.S. 701 to Whiteville, then N.C. Route 130 and N.C. Route 905 through Bughill; N.C. Route 904 to Longwood, then to the coast and Sunset Beach—or variations thereon. Don't worry if Sunset Beach isn't on the map. Just head for the last barrier island in North Carolina and the signs will take you the rest of the way.

The best months to go are May and September—less crowded, cheaper, better selection of homes. July and August are often booked a year in advance. Houses rent for as little as $55 per night in the off-season and as much as $1,600 or so per week during the peak. Rental agencies are: the Odom Co., 428 Sunset Blvd., Sunset Beach, N.C. 28468 (910-579-3515); Sunset Vacations, 401 S. Sunset Blvd., Sunset Beach, N.C. 28468 (910-579-9000); Sunset Properties, 419 Sunset Blvd., Sunset Beach, N.C. 28468 (910-579-9900).

Adam Seessel is currently at work on a book about the extinction of the grizzly bear in the American Southwest.

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Information:

from the National Trust for Historic Preservation

Saving Historic Bridges

Beginning in the early 1970s, public interest in the value and significance of America's historic bridges began growing in many parts of the United States. Led by enthusiasts interested in wooden covered bridges and their evocation of Americana, this concern was for historic bridges of all types, not just the picturesque. Historic bridges were seen as artifacts representing important developments in structural technology and as vital components of larger historic districts and regions. Concurrently, the transportation programs concerned with upgrading the infrastructure of America's highway system expanded and preservationists became aware of the enormous number of historic bridges scheduled for demolition using both state and federal funds. The operation of a safe and comprehensive national highway system is an issue with broad political support, and this concern has resulted in initiatives such as the Federal Highway Administration's Special Bridge Replacement Program and its successor, the Highway Bridge Replacement and Rehabilitation Program. Highway industry spokespersons often say bridges have a lifespan of 50 years and, according to recent estimates by the Federal Highway Administration, more than 250,000 bridges in America (out of a total of more than 560,000 spans) are considered deficient and are eligible therefore to be replaced or substantially upgraded.

The purpose of this Information sheet is to assist people interested in preserving historic bridges in their city, region or state. As with other aspects of historic preservation, the circumstances surrounding the preservation of specific bridges are often unique. There are, however, certain issues and principles relevant to a wide range of preservation situations involving bridges. The most important element in the successful, long-term preservation of historic bridges is strong local support; and, because most of the laws relating to these preservation issues concern activities funded or authorized by the federal government, this support must be of sufficient visibility to impress regional, state and federal officials. An understanding of the importance of historic bridges, combined with active public support for using federal programs to encourage preservation, can be the key to increasing rehabilitation and reuse of historic bridges.

Historical Significance of Bridges

Once people begin to examine bridges, they are often amazed by the wide variety of structural forms built to carry human commerce over natural barriers. The type of bridge selected for a crossing depends upon many factors, including the geologic and topographic conditions at the site, the nature of traffic intended for the span, the skills and availability of local workers, the price and availability of structural materials, the political influence of local suppliers and contractors and the visual prominence of the setting. Even very stable communities can offer a wide variety in types of bridges. This variation is one of the most interesting aspects of studying local bridge history. Bridges of all eras tell us something about the development of our built environment, and attention should not be focused solely on the oldest or quaintest examples.

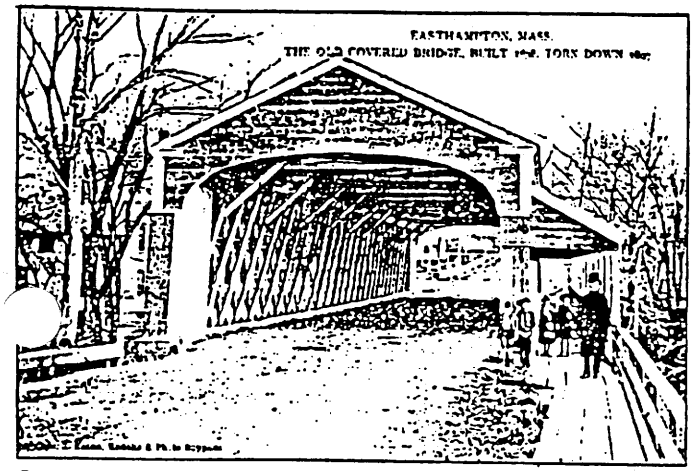
The history of American bridge building began in the Colonial era, but almost none of the wooden and masonry bridges built in America prior to 1800 survives. There are, however, numerous 19th-century stone arch bridges still standing in the eastern United States. Although the tradition of masonry building

Whipple bowstring-arch truss bridge in the midst of a small town commercial center (c. 1905). Bridges can be important technologically and for their aesthetic and environmental contribution to the surrounding area. (Collection of Donald C. Jackson)

Information sheet Number 36. © 1984 National Trust for Historic Preservation in the United States.

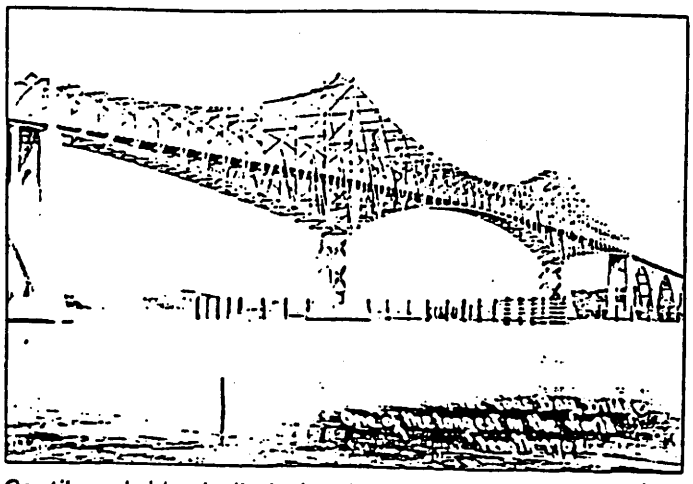
continued until the turn of the 20th century in many regions, by the middle of the 19th century stone arch bridges were being rapidly eclipsed by more readily built wood and metal structures.

Covered wooden truss bridges have always had a broad popular appeal in bridge preservation efforts. Wooden truss bridges were built throughout the 19th century but, starting in the 1840s, combination wood and iron trusses and, later, all-metal trusses began to supplant them in popularity. Today there are several hundred covered bridges still standing with most dating to the post-Civil War era. Preservation problems associated with these bridges usually are not related to public appreciation but instead concern the physical condition of the structures. Other major types of early-19th-century highway spans included iron suspension bridges and wooden arch bridges. Although these were much less popular than wooden trusses, they were used often for particularly wide crossings.



Produced over 10 years after the Town Lattice truss bridge was demolished, this c. 1910 postcard indicates that even 70 years ago covered bridges were revered sentimentally. (Collection of Donald C. Jackson)

By the middle of the 19th century, America's burgeoning railroad and highway systems required the construction of many new bridges. To meet this demand, the all-metal truss gradually developed into the most popular form of American bridge during the late 19th and early 20th century. Although most 19th-century metal truss bridges no longer exist, there are still a substantial number surviving in several states. Other types of steel bridges built during the late 19th and early 20th century often resemble truss bridges, but, because of specific design features, they are structurally different. These include a variety of movable bridges and certain types of cantilever or continuous spans. The long-span steel arch was used at many crossings; however, for the longest spans, the modern suspension bridge continues to reign as the most economically feasible to build. For short-span bridges the steel girder has found wide use and is still used extensively on many major highways. In the near future tens



Cantilever bridge built during the 1930s on the Oregon Coast Highway. Although similar to regular truss bridges, cantilever structures are distinguished by their increased depth over the piers. (Collection of Donald C. Jackson)

of thousands of these early to mid-20th-century movable, cantilever, arch, suspension and girder bridges will be scheduled for removal from the highway system.

The last major type of span threatened with wide-scale replacement is the reinforced concrete bridge. Small spans of this type began appearing in the late 1890s, and during the early 20th century they were built in profusion. For short spans, the reinforced concrete girder found some favor, but most reinforced concrete bridges employed the structural form of the arch. The most common types were the deck arch, in which the roadway is carried above the structure's arch, and the rainbow arch, in which the roadway is suspended from arches extending above the deck. Although a reinforced concrete bridge was usually more expensive to construct than a comparable steel truss bridge, local authorities were attracted to this type of structure because of lower maintenance costs and because locally produced materials could be used in construction. Reinforced concrete is a very strong material but if corrosive substances such as salt water or chemical deicers are allowed to reach the reinforcing steel, rapid deterioration can occur. Although many reinforced concrete bridges are being considered for replacement because of structural problems, there are also many others considered inadequate because of insufficient width or alignment.

Tens of thousands of bridges of all ages will be replaced during the next 10 to 15 years, and bridges built in the 1920s and 1930s will soon be among the oldest examples surviving in many regions. This was dramatically illustrated by a recent inventory of metal truss bridges in North Carolina where it was discovered that the state retained only one metal truss bridge predating 1900. North Carolina must therefore focus almost all its preservation interest on 20th-century structures. Similarly, preservation efforts in other states and regions must be tailored to the particular types of bridges that still survive.

Federal Bridge Programs

Federal support for the development of America's highway system first appeared in the early 20th century. Research into the durability of various highway components and the development of standards for state and local engineers to follow in highway construction projects were early concerns of the Bureau of Public Roads (now the Federal Highway Administration). With World War II and the expansion of America's car culture, highway growth became inextricably associated with both defense needs and the general health of the national economy. Since the 1950s and the initial construction of the Interstate Highway System, the Federal Highway Administration (FHWA) has administered all aspects of the federal-aid highway system in conjunction with state highway departments.

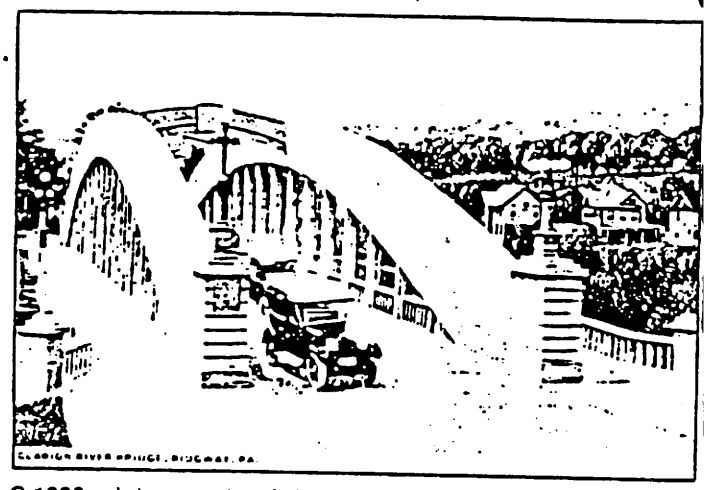
The problem of bridge replacement did not receive special attention until the 1967 collapse of the Point Pleasant Bridge over the Ohio River in which 46 people died. The publicity generated by this bridge failure is often credited with providing a strong justification for the inclusion of a Special Bridge Replacement Program in the Federal-Aid Highway Act of 1970 (23 U.S.C., Section 144), which provided for demolition of substandard, unsafe bridges and the subsequent construction of new ones. It provided no funds for the rehabilitation or restoration of existing structures.

In 1978 Congress added funding for rehabilitation through the creation of the Highway Bridge Replacement and Rehabilitation Program (hereinafter referred to as HBRRP or the "bridge program"). From 1979 through 1982 this program made $4.2 billion available to replace or rehabilitate bridges both on and off the federal-aid highway system. Although the name of this program appears to imply that it might be used to help keep historic bridges in operation, it is important to understand that the word "rehabilitation" has taken on a more specific definition for highway engineers. In the regulations implementing the HBRRP, "rehabilitation" is defined as:

> "The major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects." [23 CFR Section 650.403(c)]

Highway engineers almost always interpret this to mean that rehabilitation of a bridge requires it be brought in line with standards developed by the American Association of State Highway and Transportation Officials (AASHTO). In order to correct major safety defects, it is also usually believed that a rehabilitated span should conform closely to design standards for totally new bridges. AASHTO standards usually require that a new bridge's roadway deck exceed 30 feet in width, that it be capable of carrying heavy truck traffic and that its approaches and alignment be as close to a straight line as possible. It is very difficult for a historic bridge to be rehabilitated in accordance with such standards, and almost all projects funded by FHWA's bridge program have totally replaced older spans with new structures.

With the recent enactment of the Highway Improvement Act of 1982, the threat to surviving historic bridges has become even more serious. This act, which reauthorizes all the federal highway programs, provided the bridge program a funding level of $1.3 billion for 1983, increasing gradually to $1.8 billion in 1986. Revenue for these huge expenditures is generated by a five cents-per-gallon federal gasoline tax.



C.1920 rainbow arch reinforced concrete design that would be unlikely to meet modern width standards. (Collection of Donald C. Jackson)

How the Bridge Program Works

Regulations implementing HBRRP (23 CFR Part 650, Subpart D) provide that states may participate in the bridge program by conducting bridge inspections and submitting inventories to the secretary of the U.S. Department of Transportation through the division administrator of the Federal Highway Administration. The standards used for the inspections and inventories are generally those developed and published by AASHTO in its "Manual for Maintenance Inspection of Bridges 1978."

Upon receipt and evaluation of bridge inventories by the Department of Transportation, a numerical sufficiency rating from zero to 100 is assigned to each bridge in accordance with a formula developed by FHWA and sanctioned by AASHTO. This rating is calculated according to the bridge's perceived degree of structural adequacy and safety, essentiality for public use, serviceability and functional obsolescence, and it is used in establishing eligibility for replacement or rehabilitation. Any bridge rated less than 80 is eligible for the bridge program, but states are not required to give priority to lower rated structures in their selection of projects. A bridge selected as a potential project under HBRRP can either be replaced with a structure that meets current standards or be rehabilitated.

Despite the flexibility allowed by FHWA regulations, in many instances highway officials have determined that HBRRP funds could not be used to upgrade a historic bridge unless the proposed work would bring it up to AASHTO standards. Not surprisingly, the practical effect of strictly applying AASHTO standards has been to encourage the demolition of historic structures, although this is not the necessary result of the requirements of the federal bridge program. FHWA regulations specifically allow for exceptions, on a project-by-project basis, for designs that do not conform to the minimum AASHTO design criteria. Appeals for exceptions can be made to the FHWA state administrator through the state department of transportation. The regulations also state that:

> "The determination to approve a project design that does not conform to the minimum criteria is to be made only after due consideration is given to all project conditions such as maximum service and safety benefits for the dollar invested, compatibility with adjacent sections of unimproved roadway, and the probable time before reconstruction of the section due to increased traffic demands or changed conditions." [23 CFR Section 625.5(2)]

Clearly these exceptions can apply to historic bridges. A 1980 Department of Transportation report on a meeting of representatives of FHWA, the National Trust for Historic Preservation and the Advisory Council on Historic Preservation states that "FHWA Division Administrators are well aware of the opportunity to waive highway standards on a case-by-case basis when historic preservation needs justify such action." In making such decisions, "the historic significance of the bridge and the determination of acceptable standards must be reviewed in conjunction with the safety at the bridge site and its relationship to the overall highway system of which the bridge is a part."

Therefore, those involved in efforts to preserve bridges should remember that compliance with AASHTO standards is not mandatory in order to receive HBRRP funding and that such standards can be applied flexibly when historic bridges are involved. However, the development of convincing and educated arguments regarding safety of both the bridge and the highway it serves is a critical aspect of any bridge preservation effort. As with building codes, highway officials are reluctant to step outside the accepted standards without a strong conviction that the alternative is safe. In addition, cost comparisons between demolition and replacement versus rehabilitation of the existing structure may be a critical element of the decision to apply the standards flexibly, and as the examples cited later indicate, the cost savings of the rehabilitation alternative can at times be substantial. Because many highway officials believe that rehabilitation alternatives are often more expensive to design, construct and maintain, the financial desirability of rehabilitation must be assessed and justified on a case-by-case basis.

In addition, the construction of a new bridge does not require demolition of the old nor prohibit funding of its refurbishment for another use. The regulations provide that:

> "Whenever a deficient bridge is replaced or its deficiency alleviated by a new bridge under the bridge program, the deficient bridge shall either be dismantled or demolished or its use limited to the type and volume of traffic the structure can safely service over its remaining life. For example, if the only deficiency of the existing structure is inadequate roadway width and the combination of the new and existing structures can be made to meet current standards for the volume of traffic the facility will carry over its design life, the existing bridge may remain in place and be incorporated into the system." [23 CFR Section 650.411(c)(2)]

Clearly, HBRRP funds can be used to upgrade or rehabilitate the existing bridge to a new limited use. As the example in the regulation suggests, this use might be carrying one direction of traffic or providing a safe and separate way for pedestrians and nonmotorized traffic. It might even be possible under the present law to use HBRRP funds to move and store a bridge for a later use at a new site. But for any of these possibilities to prove fruitful and practical, both the FHWA and the proper state highway department must support the initiative.

Legal Tools for Preservation

Legislation adopted by Congress directs federal agencies to consider the impact that their programs and activities have on historic and cultural resources. In the case of the federal bridge program, three separate pieces of legislation apply:

Section 106 of the National Historic Preservation Act of 1966, as amended, 16 U.S.C. Section 470 et seq. (1980) (hereinafter NHPA), requires federal agencies to take into account the effect of their proposed undertakings on properties listed in or eligible for inclusion in the National Register before the expenditure of federal funds or the issuance of any licenses. The federal agency must also allow the Advisory Council on Historic Preservation, a 19-member body established by the NHPA to advise the president and Congress on matters relating to historic preservation, a reasonable opportunity to comment. In addition, agencies whose actions may directly and adversely affect a National Historic Landmark must make every effort to minimize this harm.

Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended, 49 U.S.C. Section 1653(f) and Section 18(a) of the Federal-Aid Highway Act of 1968, 23 U.S.C. Section 138 (hereinafter referred to jointly as Section 4(f) of the DOT act), provides that the secretary of Transportation shall not approve any program or project that requires the use of any land from a historic site of national,

state or local significance unless there is no feasible and prudent alternative to the use of such land and all possible efforts are made to minimize harm to the historic site.

The National Environmental Policy Act, 42 U.S.C. Section 4321 et seq. (hereinafter NEPA), is best known for its requirement of an environmental impact statement (EIS) on proposed major federal actions that will significantly affect the quality of the environment, including important historic, cultural and natural aspects of our national heritage. The resource need not necessarily be listed in or eligible for listing in the National Register in order to trigger the requirement for an impact statement. In addition, NEPA imposes a substantive duty upon all federal agencies to integrate the protection of such environmental resources into agency actions and decision making. Even outside the context of preparing an EIS, NEPA requires that every federal agency's policies, regulations and public laws be interpreted and administered to the fullest extent possible in accordance with NEPA's substantive goals, including historic preservation.

It should be noted that in implementing the national preservation policy, Congress has chosen to impose much more stringent requirements for federal highway projects than other types of federally funded activities. In addition to NHPA's Section 106 and NEPA, which apply to all federal projects, the transportation act's Section 4(f) applies to highway projects. As noted above, Section 106 requires the federal agency to take into account the effect of the undertaking on any structure included in or eligible for inclusion in the National Register and to engage in a consultation process to afford the Advisory Council a reasonable opportunity to comment. NEPA, while requiring consideration of alternatives to a project, does not require an agency to choose the least damaging alternatives. In contrast, Section 4(f) bars the use of federal funds unless there is no feasible and prudent alternative and all possible planning to minimize harm has occurred. Section 4(f) invokes a much higher standard and indicates Congress's special concern for the effect of federal highway construction programs upon our nation's historic resources.

In spite of their apparent strength, NHPA, Section 4(f) of the DOT act and NEPA have often proved ineffective in halting the demolition of historic bridges using HBRRP funds. In many cases this weakness may be jointly attributed to paper compliance by the federal agency and the failure of preservationists to use the laws effectively. The procedural mechanisms provide for the participation and involvement of individuals, organizations and governmental entities in the federal planning and decision-making process. Consequently, effective use of these procedural tools requires that preservationists get involved early in order to help shape the ultimate decision.

If the federal agency does not comply with the letter and intent of the law in a way that provides for meaningful input, a legal challenge can be made to stop or delay a replacement project. However, several things should be remembered about litigation:

- Legal action requires much time, energy and money.
- To maintain credibility, preservationists must make sure they have a fairly good chance of winning on the legal points raised before making a decision to file suit.
- If a good foundation has not been well established early-on through participation in the process, delay of demolition is often all that will result.
- It is often the threat of litigation and fear of accompanying delays and expenses that do the most to ensure good faith compliance with the laws.

To be taken seriously, preservationists must be willing to enforce compliance through the judicial system in the appropriate circumstances.

Bridge Preservation Checklist

The following efforts are crucial to making the best use of the legal mechanisms mentioned above to prevent the loss of historic bridges:

- Identify early important resources that may be threatened and have them listed or declared eligible for listing in the National Register as well as the state and local registers. As discussed in the case examples, the HBRRP provides funding for state transportation departments to survey bridges to identify those of historic significance.
- Build strong local support and coalitions and make sure such support is visible to public sector decision makers through lobbying efforts and the news media.
- Examine alternatives and develop a preservation plan. An effective way to accomplish this is an engineering feasibility study. It is critical that a strong economic and technical case be made for saving a historic bridge, either in combination with a new structure or on its own. It is highly desirable that such studies document the financial savings that can accompany the reuse of a historic span. This would be the appropriate context in which to consider and propose flexible application of the AASHTO standards.
- Work closely, even before demolition is proposed, with local government staff and officials, the state highway department, the state historic preservation officer (SHPO) and any other relevant state or federal agencies to gain support for preservation plans.
- Participate actively and effectively in the NHP Section 4(f) and NEPA processes, making su that all of the information gathered, alternatives developed and arguments structured are made a part of the Section 106 process, the

Section 4(f) evaluation and statement and the environmental impact statement. These data must be incorporated into the EIS and 4(f) statement when they are written, not after the documents become final.

Beyond working with federal legislation and guidelines as now written, supporting changes in laws and guidelines will increase the possibility of upgrading and reusing historic bridges. Perhaps most useful would be changes in the law authorizing the HBRRP that would explicitly clarify that federal funds could be used to upgrade historic bridges even though the refurbished span would not meet AASHTO standards. Efforts to restructure highway legislation so that historic bridges are given special consideration should prove of great value to the long-term preservation of historic bridges.

Early identification, planning and building of local support and coalitions have led to a number of successful bridge reuse and restoration projects throughout the country. The following case examples show that creativity, compromise and commitment can help prevent the loss of important resources and offer positive solutions for the protection, maintenance and reuse of historic bridges.

Case Examples: Inventory and Planning

Until very recently, one of the most difficult obstacles to bridge preservation efforts was a lack of knowledge about the actual number and nature of historic bridges in a state or region. Bridge inventories undertaken to assess bridges' historic significance (as opposed to their structural adequacy) can yield useful information in determining which bridges warrant preservation interest.

To date, all states, with the exceptions of Alaska, Connecticut, District of Columbia, Missouri, Nebraska, Oklahoma, South Dakota, Texas and Utah, have begun or completed inventories of their historic bridges. Most surveys currently being undertaken are cooperative efforts between state highway agencies and state historic preservation offices, sometimes with the assistance of a professional historian of technology and/or the Historic American Engineering Record (HAER). Many states have established multiagency, multidisciplinary advisory committees to oversee the process. For example, a council on historic bridges was established in West Virginia by recommendation of the governor's task force for the Wheeling Suspension Bridge. This council includes members of the Department of Highways, the Department of Culture and History (SHPO), the Department of Natural Resources, the survey consultant and members of a citizen's advisory committee. The goals of this cooperative body include developing an evaluation procedure and priority list of historic bridges that are in need of restoration and preservation; nominating bridges to the National Register; reviewing and approving maintenance and restoration plans for all bridges designated for preservation; and providing professional services in the development and implementation of bridge preservation work.

Bridge surveys have been undertaken using a wide variety of methodologies and goals. Usually the scope of the survey is limited in some way, such as by bridge type (metal truss, covered wooden), or by construction date (50 years or older) or by the type of highway facility on which a structure is located (federal aid, state aid). After the parameters have been established, a pilot project can be undertaken in a defined geographic area to refine inventory methods. The following two examples illustrate types of surveys conducted at the state and county level.

Virginia Metal Truss Bridge Inventory

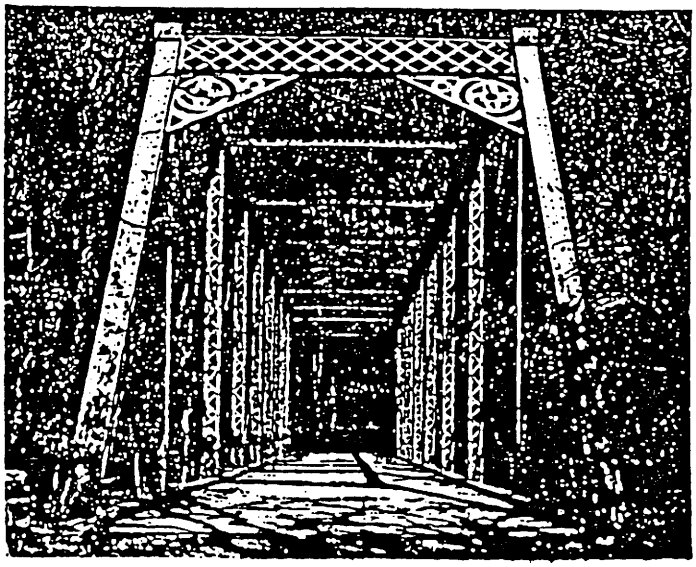
A statewide truss bridge inventory project was undertaken by the Virginia Highway and Transportation Research Council (VHTRC) in the early 1970s. Over 500 metal truss bridges were inventoried and the results disseminated in a series of illustrated publications. Because the VHTRC is associated officially with both the University of Virginia and the State Highway and Transportation Commission, its study of metal truss bridges was respected by highway officials. This respect was translated into action when the commission officially supported the nomination of seven truss bridges to the National Register of Historic Places and acknowledged that another 20 to 30 more were of considerable historic significance and warranted special consideration in terms of replacement or rehabilitation.

Virginia's historic bridge inventory played a major role in focusing attention on the large number of historic bridges that face demolition and on the difficulties that state highway departments can have in reconciling historical interests with safety needs. The inventory also demonstrated that state highway departments could work to help preserve historically significant bridges. This example became even more important following passage of the 1978 Surface Transportation Assistance Act. This act authorized the state transportation departments to spend part of their federal bridge replacement and rehabilitation allocation on historic bridge inventories if they so desire. Although FHWA cannot force a state to undertake a bridge survey, Virginia's successful inventory work demonstrates the advantages of looking at historic bridges on a statewide, rather than a case-by-case, basis.

Bridge Inventory, Frederick County, Md.

The value of a local or regional historic bridge inventory is demonstrated by efforts in Frederick County, Md. Located about 50 miles northwest of Washington, D.C., and encompassing over 600 square miles, Frederick County comprises a productive agricultural center that is rapidly becoming a residential satellite of metropolitan areas to the east. In 1977, the local county historic preservation commission (with financial support from the Maryland Historical Trust) became concerned about the future of its historic bridges and initiated an inventory of metal truss bridges throughout the county. This inventory identified over 40 metal truss

bridges dating from the 1870s through the 1930s. The inventory coordinator met with the county engineer to discuss future highway bridge construction plans in the region and consulted with the Historic American Engineering Record on the historic significance of the bridges identified by the inventory. Because of the county's interest in retaining its rural ambiance and the intensive field work that had been conducted, the county engineer and the county historic preservation office were able to agree on a plan allowing for the preservation and maintenance of many historic bridges under the county's jurisdiction. At the same time, it was agreed that several historically significant bridges would need to be replaced because of their structural condition or because planned highway construction projects would render them obsolete. In essence, a compromise was reached allowing the county engineer to maintain a safe and efficient highway system while also providing for the long-term preservation of many historic bridges on roads that are not critical components of the region's highway system. The bridge preservation experience in Frederick County serves as an example of the mutual benefits when local highway officials and preservationists work together to produce a plan without endangering the motoring public or the area's cultural and aesthetic qualities.



Fabricated in 1878 by the Penn Bridge Company and listed in the National Register of Historic Places, the Poffenberger Road Bridge in Frederick County, Md., is a surviving example of an early double intersection Pratt through truss. (Jet Lowe, HAER)

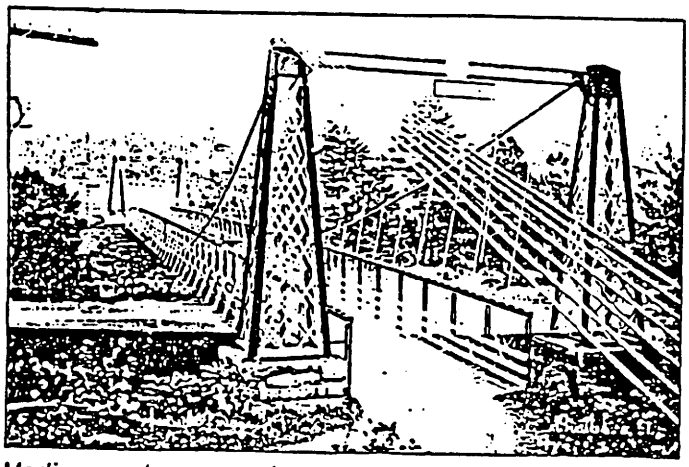
Inventories and the Planning Process

Whether historic bridge inventories are carried out o a countywide or statewide basis, by preservationists or highway officials, they can be very useful planning tools. They can provide a context for evaluating the historical significance of various bridge types found in a region or of a particular bridge company's product. They allow preservation efforts to be focused on the most significant structures within a county, region or state, and they help determine which examples of a specific type of bridge may be feasible to preserve. Historic bridge inventories are tools used to influence transportation decisions, but they are also tools that highway officials can use to justify their actions. Although inventories are not a panacea for bridge preservation problems, state highway departments should be encouraged to undertake such work and then widely disseminate the results.

The identification of historic resources is only the first step in the bridge preservation process and it must be followed by an analysis focusing both on what bridges are desirable to preserve and what bridges are feasible to preserve. Unfortunately, these two categories do not always coincide neatly, but an inventory establishes a context in which to make rational preservation decisions. Developing a bridge evaluation system that makes the collected information useful for the state departments of transportation has been a problem for statewide surveys. The problem breaks dowr into two issues: deciding what bridges are significan and deciding how to present the data. The first question is being resolved in one of two ways by most states. Some, such as Georgia, use National Register criteria and nominate all those which the state believes qualify. In other states, numerical rating systems are used. Virginia was the first to devise a numerical system for inventoried bridges. The goal was to define a scale by which to weigh each bridge for its relative historic significance. Many states, such as Ohio, have followed Virginia's lead, and variations in the systems tend to reflect differences in state history rather than differences of categories or weighted values of categories. Ratings are usually based on construction date, builder, technological significance, geometry, configuration, aesthetics and integrity. Considerable importance is usually given to rare surviving examples of a given bridge type in each state. Ohio's rating system also includes a category for preservation potential, which evaluates the condition, maintenance and bypass potential of each bridge.

The form in which inventory data is presented and stored also varies from state to state. Ideally, information is keyed in with computerized, structural adequacy inventories to ensure a uniform collection of data, but, in most cases, information is summarized in written reports and individual inventory cards are stored in state repositories. In spite of these problems inventories are an important means of gathering much-needed information related to historic bridges. They can be used as a basis for thematic or individual nominations to the National Register as well as state

and local registers and the data collected can be used to develop comprehensive historic bridge preservation plans. Federal and state protective legislation for historic resources can only be useful if, early on in the process, a resource is recognized as important.



Medium-scale suspension bridge built by the Berlin Iron Bridge Company in 1889 in Brattleboro, Vt. Although no longer extant, the bridge illustrates that suspension bridges were not always built on the massive scale of the Brooklyn Bridge. (Collection of Donald C. Jackson)

Case Examples: Federal Funds for Rehabilitation and Restoration

Elm Street Bridge, Woodstock, Vt.

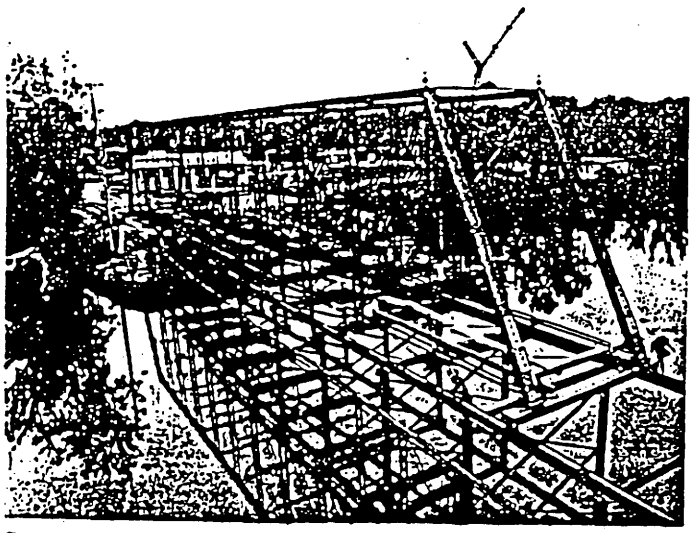
Historic bridge inventories are not always necessary for individual historic bridges to be included in a community's long-term transportation system. A good example is the Elm Street Bridge in Woodstock, Vt., an 1870 Parker-patent truss. In 1975-76 it became the focus of a confrontation between preservationists and highway interests and the compromise decision related to its replacement served to promote the feasibility of historic bridge preservation on a wider scale. Located within a National Register historic district, the span highlighted the importance that communities can assign to historic bridges and demonstrated the impact that organized citizens can have on the highway planning process.

The controversy surrounding the bridge occurred because its width and alignment did not meet modern highway design standards. Because the bridge was listed in the National Register and the state planned to use federal money for its demolition or alteration, compliance with Section 106 of the NHPA, NEPA and Section 4(f) of the DOT act was necessary. Through the processes set up by these laws, alternatives allowing retention of the bridge were considered. A memorandum of agreement between the Advisory Council on Historic Preservation, FHWA and the SHPO resulted in a precedent-setting compromise solution. The bridge and original stone abutments were widened enough to satisfy highway officials, although not enough to meet AASHTO standards. Four-foot steel girders were inserted beneath the deck to increase its load-bearing capacity, and the original trusses were mounted on the new deck of the bridge. New details were designed carefully to complement the old. Although the design solution was expensive, total cost was less than that estimated for completely new construction.

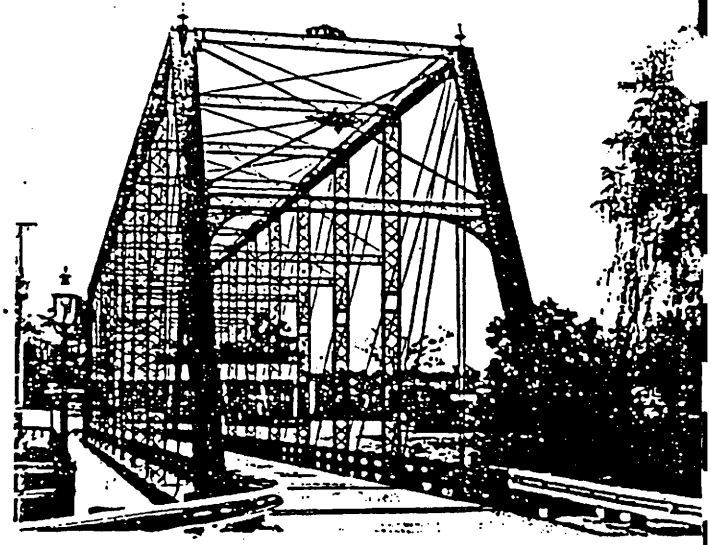
As mentioned previously, the current standards for highways as outlined in the federal regulations do allow for deviations from the AASHTO standards, where unusual conditions warrant. However, the Elm Street Bridge was the first case in which FHWA funds were used on a project that did not meet AASHTO standards and the waiver was granted because of historical considerations. According to the former Vermont SHPO, William Pinney, this occurred because preservation proponents were able to make a strong argument for the functional importance of a smaller bridge that would sufficiently slow highway traffic into town and the narrow village streets. Studies of the safety record of the 18-foot-wide bridge showed that it was unusually safe—no fatalities in over 100 years and few accidents. Strong, well-organized local support, as well as the comments from the Advisory Council, convinced state and federal highway officials that this was a case where standards could be waived without endangering the motoring public. From a purist point-of-view the historic integrity of the bridge suffered substantially when it was upgraded, but these alterations did not destroy its visual qualities, especially as seen from the roadway. This case highlights the importance of a town's political clout in influencing the decisions of a state agency and the potential value of the Advisory Council's consultation process.

Second Street Bridge, Allegan, Mich.

The use of federal preservation legislation is not always necessary to save a historic bridge. At times successful political pressure can be brought to bear in other ways, as was the case with the Second Street Bridge in Allegan, Mich., a single-span double intersection Pratt through truss fabricated by the King Iron Bridge and Manufacturing Company in 1886. Located near the town's central business district, the Second Street Bridge is not a component in any major transportation corridor. Instead, it serves only as a release valve for local traffic leaving the downtown. Because the bridge carries a relatively small amount of traffic, in the late 1970s city officials did not see the need for totally replacing the 1886 span with a new structure. To them it made more sense to restore the 18-foot-wide bridge for one-way traffic in a manner that ensured its safety while at the same time utilizing as many of the bridge's original members as possible. Such a restoration would be cheaper than a new bridge and would meet the public's needs. However, this restoration would not meet AASHTO standards and, consequently, it did not appear that federal funding from FHWA could be obtained for the project.



Restoration of the Second Street Bridge in Allegan, Mich., required rolling the structure onto land for disassembly and checking all members to ensure their structural integrity. (Grand Rapids Press)



The completed restoration of the Second Street Bridge. (Allegan County News and Gazette)

Convinced that restoration rather than replacement of the Second Street Bridge was in the public's best interest, the city of Allegan developed a case to support the plan. Under the leadership of city manager Joanne Wrench, the city contracted for a structural study of the bridge and an analysis of the bridge's role in the city's transportation system. This study by a prominent engineering firm within the state became a very powerful tool for the city because it documented the structural integrity of the span and revealed that the city did not require anything more than a one-lane bridge at the site. Armed with these studies, and in the absence of any local interests actively promoting a new bridge, the city was able to marshal political support and persuade the state department of transportation that restoration of the bridge in a safe, yet historically sensitive, manner was appropriate. Following this, pressure was then placed on the Federal Highway Administration to allow expenditure of federal funds on the project even though it would not meet AASHTO standards. The city finally received approval from both state and federal highway departments for the restoration. Interestingly, when FHWA did approve the project in 1981, it stipulated that funding would not come from the HBRRP, but instead would come from the smaller and less well-known Rural Secondary Road Fund.

Although this funding switch clouded the meaning of FHWA's Allegan decision in relation to the expenditure of HBRRP funds, it did little to dampen the spirits of Allegan residents in the wake of their victory. Restoration of the Second Street Bridge cost $627,500 (versus an estimated $1.2 million for a new structure), and it is clear that the city considers preservation of the historic span an important concern. The project involved moving the entire bridge on to dry land and then disassembling all its members so their structural integrity could be checked. The structure was then repainted, reassembled and moved back to its original location where it was reopened to traffic. The restoration involved the replacement of all vertical compression members with new steel members designed in a historically sensitive manner, but many other major iron components from the 1886 structure did not need to be replaced. In June 1983, the city celebrated the restoration of its historic span with a three-day civic bridge fest, and the structure will soon begin its second century of duty. Following the reopening, the century-old tradition of motorists' taking turns driving in opposite directions across the bridge continued, although the agreement for the refurbishing required that bridge traffic be one-way out of town. To mitigate the chance of accidents, the city is planning to install a traffic light system to control bi-directional use of the bridge.

In retrospect, three important lessons can be learned from the Second Street Bridge story:

- In bridge preservation cases it is very important to enlist the services of an engineering firm that will analyze a historic bridge's assets. In addition, traffic studies can be useful in documenting why a historic bridge will adequately meet a region's transportation needs.
- Engineering studies can be effectively used to influence political decisions related to the approval of federal funds for bridge projects not meeting AASHTO standards. This is especially true when there is little local resistance to preserving a historic bridge.
- Often, certain parts of 19th-century iron bridges can be in much better structural condition than their 20th-century steel counterparts. This is because wrought iron is much less susceptible to rust and corrosion than steel. For example, the many 97-year-old iron pins used to connect the structural members of the Second Street Bridge were in excellent condition and were reused within the restored structure.

Case Examples: Organizing Support for Bridge Preservation

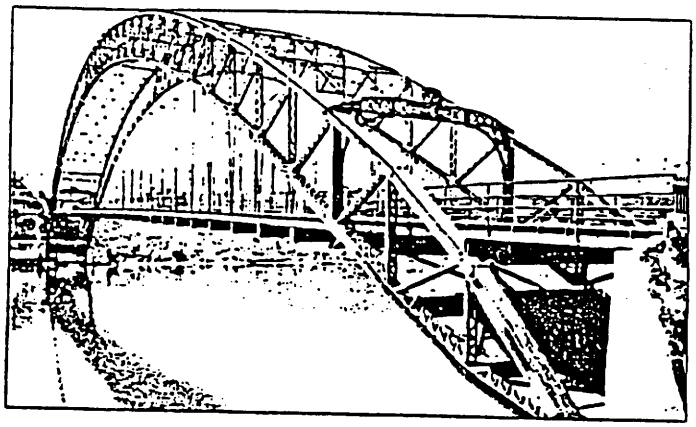
Bellows Falls Arch Bridge, Bellows Falls, Vt.

In contrast to the positive outcome in Allegan, the recent demolition of the Bellows Falls Arch Bridge provided dramatic evidence that structural and traffic engineering studies documenting the future utility of a historic bridge will not necessarily ensure its preservation. Built in 1905 to provide a highway link between North Walpole, N.H., and Bellows Falls, Vt., the Arch Bridge was the longest through-arch in the United States when it was built.

Altered in the 1930s, the bridge functioned adequately until 1971 when a study by a large bridge engineering firm recommended its closure because of a deteriorated deck. At this time the New Hampshire Department of Public Works and Highways, which owned 83 percent of the span, restricted the structure to only pedestrian traffic. During the next several years the local communities on both sides of the bridge were repeatedly told of its structural inadequacy and assured that the only remedy was a completely new span. As a result, little community interest developed in support of saving the Arch Bridge, especially because this alternative seemingly would have cost more in state tax dollars.

In 1978, seven years after its closure, new hope for saving the bridge arose with implementation of the HBRRP. It appeared that federal money could be spent to rehabilitate the bridge, especially if AASHTO standards could be waived slightly for width and loading requirements. At this time, the Society for Industrial Archeology and the National Trust for Historic Preservation sponsored an engineering study of the bridge's structural condition and a study of the region's traffic conditions to determine how the historic span might continue to serve the local population. The first study indicated that the structure could be rehabilitated to carry either heavy one-way traffic or moderately heavy two-way traffic at a cost of about $1.1 million. The traffic analysis indicated that the bridge could be integrated within a regional transportation system so that heavy truck traffic could be routed away from the downtown Bellows Falls National Register historic district. Best of all, reuse of the historic bridge offered potential financial savings of over $3-million.

Unfortunately, the New Hampshire public works department was apparently not interested in any plan to save the bridge. The agency maintained that federal funds could not be used for rehabilitation and that its policies prohibited the use of state funds for either rehabilitation or maintenance of any bridge that could not meet AASHTO standards or that was not a part of the state-aid maintenance system. The department would agree to the rehabilitation of the bridge only if the two municipalities would take full responsibility both for its rehabilitation and future maintenance. In essence, the local communities at each end of the bridge were told they must pick up the entire bill for saving the bridge. Given that the communities had been told for almost a decade how decrepit the historic span was and, given their already strained ability to generate local revenue, it is not surprising that they declined the department's offer.



Bellows Falls Arch Bridge was the longest through arch in the United States when it was built in 1905. (Collection of Donald C. Jackson)

The bridge was determined eligible for the National Register of Historic Places but neither the consultation process with the Advisory Council on Historic Preservation nor the review required by Section 4(f) prevented its demolition. In this instance, the Advisory Council decreed that their Section 106 requirements could only be met if the FHWA met its Section 4(f) requirement of finding no prudent or feasible alternative to demolition. This tying-in of Section 106 to Section 4(f) appeared to offer a reasonable hope of preservation because it created a prudent and feasible alternative. However, FHWA and the state public works department did not recognize any alternatives to demolition, and they issued a Section 4(f) report indicating that total replacement was required. Community interest in challenging this assertion was insufficient to fund a legal battle and in December 1982, the bridge was demolished with explosives. Both funding and staffing of the bridge preservation effort were insufficient to overcome public attitudes and the large amount of public money that had already been invested in replacement plans.

Pasco-Kennewick Bridge, Wash.

At Bellows Falls the Section 4(f) report on the replacement of the Arch Bridge asserted that there were no prudent or feasible alternatives to total demolition. The validity of this conclusion was never put to a legal test. However, in another recent historic bridge controversy, a similar assertion—that there were no alternatives to demolition—was successfully challenged in court by a dedicated group of local citizens. This case concerned the replacement of the Pasco-Kennewick Bridge over the Columbia River in eastern Washington State. Built in 1922, this cantilever through truss is an excellent example of a long-span highway bridge designed during the early years of the automotive era. The bridge is historically significant within the context of the state's commercial development.

In the early 1970s, federal funds were provided to the cities of Pasco and Kennewick for construction of a

replacement bridge, which was completed in 1978. Shortly thereafter, the old bridge was declared eligible for inclusion in the National Register of Historic Places and the requirements of Section 106 of the National Historic Preservation Act and Section 4(f) of the DOT act were triggered. A memorandum of agreement was executed in 1980 by the Advisory Council on Historic Preservation, the Washington state historic preservation office and the FHWA. The memorandum of agreement provided that the FHWA would not approve funds for demolition if a majority of the votes of the citizens of the two cities opposed demolition and that the secretary of the U.S. Department of Transportation through FHWA would conduct a review of the demolition, pursuant to Section 4(f), to determine if a feasible and prudent alternative existed. The citizens of both cities voted in favor of demolition. In response to a draft 4(f) statement, the U.S. Department of the Interior comments recommended that FHWA engage in concerted federal and local planning for development of an adaptive use plan for the old bridge. Preservationists proposed alternatives based on a feasibility study funded in part by the National Trust. In spite of these recommendations, FHWA found none of the alternatives feasible and prudent. Preservationists were forced either to take legal action to challenge or to accept the findings of FHWA.

The U.S. District Court of the Eastern District of Washington upheld the 4(f) determination apparently accepting, without reviewing, the FHWA determination that maintenance by the city was the only alternative to demolition. This district court then went on to agree with FHWA that this alternative was neither feasible nor prudent. Preservationists appealed the decision to the U.S. Court of Appeals for the Ninth Circuit. To prevent demolition before the appeal could be heard, Virginia Devine, an active member of the local preservation group, personally posted most of the required $75,000 bond that extended the injunction prohibiting demolition. Due in large part to the extraordinary commitment of one individual, preservationists were able to marshal their efforts in the Ninth Circuit.

The Ninth Circuit held that the secretary of the U.S. Department of Transportation acted arbitrarily in concluding there were no feasible and prudent alternatives to demolition. The court found the 4(f) determination inadequate because it discussed only funding of alternatives by the cities or the local preservation organization but failed to consider the availability of federal funds for rehabilitation or preservation. The decision should require the secretary to consider, in future situations, the use of federal funds both for rehabilitation of a historic bridge and for construction of a new bridge as a part of the same project. The court also affirmed conclusions reached in other 4(f) cases on the following issues:

- The results of a ballot measure should not be the sole factor in the federal agency's evaluation. The court also pointed out that the meaning of the ballot measure in this case was limited because the voters were not presented with sufficient options.
- The cost of a rehabilitation alternative and community disruption are factors to be considered, but except for unusual circumstances, these should not suggest a particular result.

The Ninth Circuit ordered the case remanded to the district court for a new 4(f) determination by the secretary of the Interior Department. As a result of this ruling the bridge has been given a major reprieve and there is new hope that a means can be found for preserving the historic span. While the long-term preservation of the bridge may still be in doubt, what is not in doubt is the power that bridge preservationists can wield in forcing the U.S. Department of Transportation to address the legal requirements of Section 4(f).

Note: The decision of the U.S. Court of Appeals for the Ninth Circuit is officially cited as *Benton Franklin Riverfront Trailway and Bridge Committee v. Lewis*, 701 F.2d 784 (9th Cir. 1983).

Conclusion

The preceding examples represent only select instances in which historic bridges have been the focus of preservation interest. Some historic spans, such as the Lyons Ferry/Snake River Bridge in Vantage, Wash., have been stored and reused later on a new site. Others have been restricted in the type of traffic they carry often being reused for one-way traffic or as pedestria or bicycle bridges. Although the solutions vary, preservation efforts have been most successful when they have been based on well-developed and well-informed public support. The importance of public support in an ongoing effort to save a historic span is perhaps nowhere more evident than in Pasadena, Calif., where the local private, nonprofit preservation group and the city have worked together in a long-term effort to preserve the Colorado Street Bridge. As the case examples also illustrate, many historic bridges have been lost and more will be demolished, especially if public awareness and local support are not strong and are not used effectively to advocate the preservation of historic bridges. The following resource list provides information on public agencies and private organizations involved in issues related to bridge preservation. These groups can provide information on and assistance in dealing with bridge preservation issues.

Bridge Preservation Resource List

Public agencies

Advisory Council on Historic Preservation, Old Post Office Building, 1100 Pennsylvania Avenue, N.W., Suite 809, Washington, D.C. 20005 (202) 786-0503.

The Advisory Council on Historic Preservation is an independent agency of the federal government, established by the National Historic Preservation Act of 1966. It advises the president and Congress on matters pertaining to the preservation of historic, archeological, architectural and cultural resources. A principal responsibility is reviewing and commenting on federal, federally assisted and federally licensed projects affecting properties listed in or eligble for the National Register of Historic Places. The purpose of the review is to determine what is in the public interest. The Advisory Council has been involved with numerous historic bridges threatened with demolition by Federal Highway Administration-funded projects.

Federal Highway Administration (FHWA), U.S. Department of Transportation, 400 7th Street, S.W., Washington, D.C. 20590 (202) 426-0062.

The FHWA sets functional safety standards for the design, construction and maintenance of the nation's highways. It administers the federal-aid highway program, which distributes federal funds to states to construct and improve urban and rural highway systems. FHWA maintains 10 regional offices to coordinate the administration's work in each of the 50 states and U.S. territories.

Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, Washington, D.C. 20240 (202) 343-9606.

HAER was established in 1969 by a tripartite agreement among the National Park Service (NPS), the American Society of Civil Engineers (ASCE) and the Library of Congress. HAER is staffed by engineers, architects and historians and, in conjunction with National Park Service regional offices, conducts a nationwide program of documenting sites, structures and objects related to the history of engineering and technology within the United States. This documentation is undertaken in cooperation with state and local governments, professional societies, universities, preservation groups and other interested parties. The HAER staff is knowledgeable about many aspects of historic bridge preservation and is available for advice and consultation about specific problems related to historic bridge issues.

National Register of Historic Places, National Park Service, U.S. Department of the Interior, Washington, D.C. 20240 (202) 343-9536.

The National Register is the official list of America's cultural resources worthy of preservation. It includes districts, buildings, sites, structures and objects significant in American history, architecture, archeology, engineering and culture. Properties listed may be of local, state or national significance. The National Register is administered by the National Park Service within its Interagency Resources Management Division. Nonfederal nominations to the National Register come primarily from state historic preservation officers (SHPO). Nominations are first reviewed by the staff of the SHPO and generally must be approved by a state review board whose members are professionals in the fields of architecture, architectural history, history and archeology. After review, qualified nominations are signed by the SHPO and sent to the National Register office in Washington, D.C. Eligibility and listing provide protection by triggering legal considerations contained in NHPA, NEPA and Section 4(f) of the DOT act regardless of who nominates the site. However, listing will not automatically prevent the demolition of the properties. An annual list of properties added to the National Register is published in the Federal Register. Monthly additions appear in the Federal Register on the first Tuesday of each month.

State Departments of Transportation

State transportation departments are responsible for highway transportation projects within a given state except for those carried out by county or municipal authorities. All federal highway funds are channeled through the appropriate state transportation department and the allocation of these funds is largely determined by that department. The internal organization of these state agencies varies widely depending upon regional economic and political factors.

State Historic Preservation Officer (SHPO)

The SHPO is appointed by the governor of each state, territory and the Commonwealth of Puerto Rico and is in charge of historic preservation activities at the state level. Among other things, the SHPO serves as the link between communities and the federal government. The SHPO is responsible for the nomination of nonfederal properties to the National Register of Historic Places and for reviewing federal projects that have an impact on historic properties. The SHPO staff can provide assistance in bridge preservation efforts through coordination and consultation with state and federal transportation agencies and local governments.

Private Organizations

American Association for State and Local History (AASLH), 708 Berry Road, Nashville, Tenn. 37204 (615) 383-5991.

AASLH is a national organization dedicated to the advancement of local history in the United States and Canada and publishes a series of technical leaflets and the monthly magazine, *History News*.

American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, N.W., Washington, D.C. 20001 (202) 624-5800.

AASHTO is composed of representatives of state highway agencies and the Federal Highway Administration. It promotes a nationwide integrated highway

system and develops technical standards to foster the proper use of public transportation funds and to ensure uniformity and safety on our federal highway system. The AASHTO standards are used as a model for the design and maintenance of highways and highway structures. AASHTO usually has little interest in promoting historic bridge preservation.

American Society of Civil Engineers (ASCE), 345 East 47th Street, New York, N.Y. 10017 (212) 644-7496.

The ASCE was founded in 1852 and is the major professional society for civil engineers. The basic goals and objectives of the society are to conduct research, develop codes and standards on engineering technology with the American National Standards Institute. ASCE sponsors semiannual conferences, presents awards, sponsors competitions and publishes *Civil Engineering*, a monthly magazine, which occasionally has articles on bridge technology, both past and present. ASCE has a history and heritage committee, which can be helpful to bridge preservationists, and it has landmark designation programs at both the national and chapter levels. The committee can also assist with the formulation of arguments for saving historic bridges and may be able to assist by proposing engineering solutions for rehabilitation of bridges without damaging their integrity. However, this committee is also sensitive to the nonpreservation interests of the civil engineering profession and may be hesitant to become involved in difficult controversies.

National Trust for Historic Preservation, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036 (202) 673-4000.

The National Trust is a private, nonprofit membership organization chartered by Congress in 1949 to preserve historically significant properties and to encourage public participation in the preservation of buildings, sites and objects significant in American history and culture. The Trust's monthly newspaper, *Preservation News*, and bimonthly magazine, *Historic Preservation*, are sources of case study examples as well as forums for current issues. Small matching grants for consultant services are available for reuse feasibility studies, legal aid or bringing in other outside expertise as needed. Regional office staff are available to assist on a broad range of issues relating to bridge preservation.

Northeast Regional Office, Old City Hall, Second Floor, Boston, Mass. 02108 (617) 223-7754. (Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont)

Mid-Atlantic Regional Office, Cliveden, 6401 Germantown Avenue, Philadelphia, Pa. 19144 (215) 438-2886. (Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, Puerto Rico, Virgin Islands, Virginia, West Virginia)

Southern Regional Office, 456 King Street, Charleston, S.C. 29403 (803) 724-4711. (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee)

Midwest Regional Office, 407 South Dearborn, #710, Chicago, Ill. 60605 (312) 353-3419/3424. (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin)

Mountains/Plains Regional Office, 1407 Larimer Street, #200, Denver, Colo. 80202 (303) 837-2245. (Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Oklahoma, Wyoming)

Texas/New Mexico Field Office, 500 Main Street, Suite 606, Fort Worth, Tex. 76102 (817) 334-2061. (New Mexico, Texas)

Western Regional Office, 681 Market Street, Suite 859, San Francisco, Calif. 94105 (415) 974-8420. (Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Utah, Washington, Guam, Micronesia)

Society for Industrial Archeology (SIA), National Museum of American History, Room 5020, Smithsonian Institution, Washington, D.C. 20560 (202) 357-2058.

The SIA is a national membership organization focused on increasing public understanding of America's technological heritage. Its regular newsletter frequently includes articles on historic bridges, and the organization is a good networking resource.

Transportation Research Board (TRB), National Academy of Sciences, 2100 Pennsylvania Avenue, N.W., Washington, D.C. 20037 (800) 424-9818 or (202) 387-6335. Mailing address: 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

The TRB is a unit of the National Academy of Sciences. It acts as a national clearinghouse for research activities and information on transportation technology. The agency studies transportation systems and their interrelationships with other aspects of society. The TRB produces technical publications; maintains a number of standing committees; sponsors conferences, workshops and seminars; maintains a library; and presents annual awards for distinguished service and outstanding papers in the field. Although most TRB activities are unrelated to preservation, certain committees have been active in the effort to help preserve and protect historic bridges.

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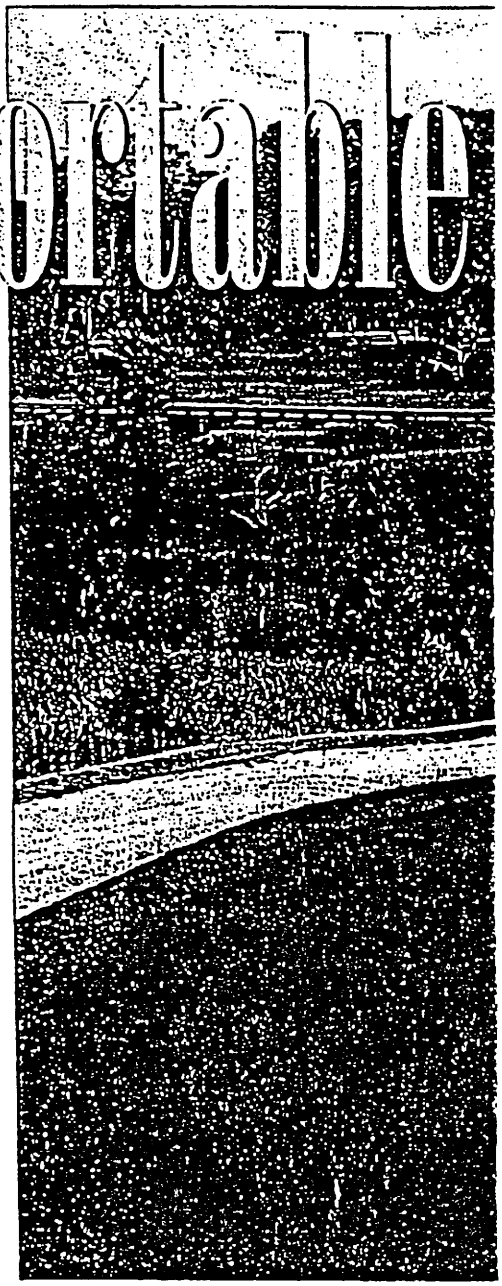
The opinions expressed in this Information sheet are not necessarily those of the National Trust or the U.S. Department of the Interior.

The National Trust for Historic Preservation is the only national, private nonprofit organization chartered by Congress with the responsibility for encouraging the preservation of sites, buildings and objects significant in American history and culture. Support for the National Trust is provided by membership dues, endowment funds, contributions and matching grants from federal agencies, including the U.S. Department of the Interior, National Park Service, under provisions of the National Historic Preservation Act of 1966. For information about membership in the National Trust, write Office of Membership Development, National Trust for Historic Preservation, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036. Dues start at $15.

GOLF COURSE & REAL ESTATE

Southern Comfortable



No. 9 on Fazio's Deer Creek course at the Landings on Skidaway Island, GA (large photo above); Fripp Island, SC (right); and Grand Harbor, FL (far right)

Ford's Colony

Inspired by America's original planned community, Ford's Colony has been developed to preserve the colonial heritage of nearby Williamsburg with a discernible commitment to the standards of gracious living.

Residents of Ford's Colony are in one of the nation's most desirable areas, with mountains, coastline and major metropolitan cities within easy reach. Two and a half hours from Washington, D.C., 45 minutes from Richmond, and a short drive from the stately James River plantations, Ford's Colony boasts 36 holes of the nation's best golf, a spectacular clubhouse and the opportunity for relaxing solitude among miles of nature trails.

With more than half of its 2,500 acres of woodlands protected from development, Ford's Colony residents are assured ample privacy, whether they choose a home with a fairway or water view, or one near the extensive wildlife preserve. Homesites begin at $49,500; townhomes are priced from $185,000, and four- and five-bedroom resales start at $225,000. All homes are built to preserve the Colonial heritage of nearby Williamsburg; in fact, the only architectural styles to be found at Ford's Colony are Colonial, Georgian, Federal, and Greek Revival.

The 36 golf holes at Ford's Colony, all designed by Dan Maples, are well trapped and in many cases well protected by water. Generally regarded as one of the top five courses in Virginia, Ford's Colony covers 6,755 yards from the blue tees and is rated 72.3 with a 126 slope rating. Maples calls it "a player's course, with the flexibility to challenge at the professional level as well as to provide enjoyment at all amateur levels." Another 18 holes are also on the drawing board for the late '90s. Other amenities include four all-weather tennis courts and an outdoor Olympic-size pool.

The architectural centerpiece and social focal point of the community is the Ford's Colony Country Club. Built in the Greek Revival style of bygone eras, the Country Club features the elegant Dining Room restaurant, known as one of Virginia's finest. For more information, call (800) 334-6033.

Ocean Ridge Plantation

Since the first settlers arrived more than 350 years ago, those who pursued farming, fishing and oystering off North Carolina's barrier islands have lived in harmony with their surroundings. Now, at Ocean Ridge Plantation, the coastal Carolina way of life finds a refined complement and an ideal setting for an active retirement or relaxing vacation lifestyle.

Ocean Ridge Plantation is 45 minutes from Wilmington, NC, 25 minutes from Myrtle Beach, SC, and only minutes (via single-lane pontoon bridge) from Sunset Beach, NC, one of the loveliest of the barrier islands.

Golf at Ocean Ridge gets even better this fall with the opening of the second nine at Panther's Run, giving the development 36 holes. Panther's Run will play a challenging 7,086 yards from the back tees, but also features four other sets of tees. In contrast to Tim Cate's Panther's Run, Willard Byrd offers the 7,035-yard Lion's Paw, a contrast in itself. The front nine takes you through the Carolina pines and requires accuracy off the tee. The back nine opens up to wide expanses of rolling fairways reminiscent of an English links course. You'll be hard pressed to find a single tree after No. 13; when ocean breezes kick in, an easy par is equally difficult to find.

The gentle rolling topography, unusual for this area, creates not only some interesting elevation changes for golfers, but also presents dramatic homesite possibilities, which begin at $47,900. For more information, call (800) 556-6570.

Fripp Island

Only 15 miles by boat, but far removed from the faster pace of Hilton Head Island,

SUNSET BEACH

Quaint swing bridge will be preserved — on film, at least

By CLAUDINE R. WILLIAMS
Staff Writer

Though the fate of Sunset Beach's single-lane swing bridge will not be determined for a while, the bridge may be immortalized on the silver screen.

Movie location scout Beth Christian plans to use the tiny bridge to help create a 1947 setting for the movie *Lolita*. Ms. Christian says she chose the one-lane wooden bridge because it's one of the few vintage structures left in the state.

"I have scouted every road within an hour and a half of Wilmington, and our culture is gone," said Ms. Christian. "It's getting harder and harder to find period locations."

Since the state has plans to build a high-rise replacement for the old bridge, Ms. Christian likes the idea of including it in the movie.

"With all of the controversies surrounding the bridge, it will be real nice to preserve it on film," she said.

For more than 10 years, the Sunset Beach Taxpayers Association has fought the state's replacement plans. Association members say a modern bridge will bring unwanted traffic and congestion.

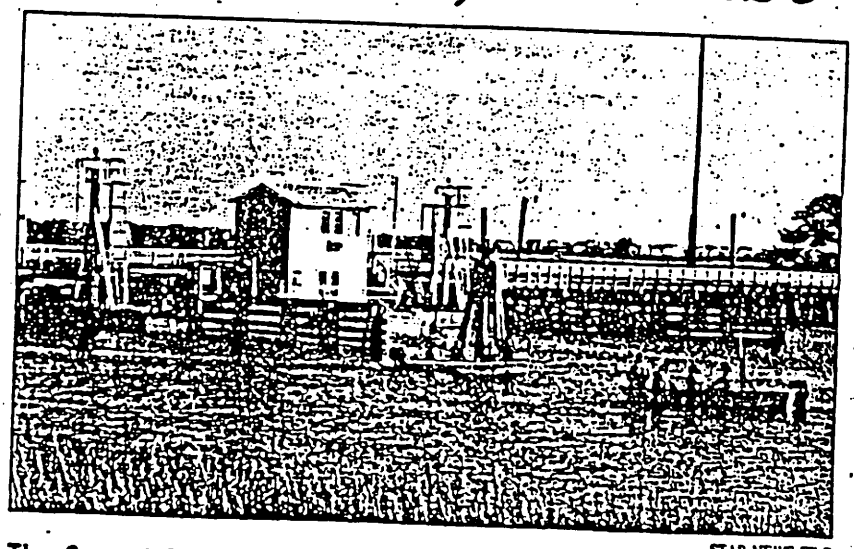
In any case, chances are moviegoers will get a glimpse of the bridge in the movie *Lolita*, starring newcomer Dominique Swain, Jeremy Irons and Melanie Griffith.

Set in 1947, the movie is based on Vladimir Nabokov's best-selling novel about a man's passion for a young girl.

The bridge was built in 1958, said Bob McCarley, a bridge worker for the Department of Transporation. The state took control of it in 1961.

With a little imagination and plenty of props, the bridge may lend itself to an era before its time. Ms. Christian will erect a billboard and remove or cover modern road signs.

The scene will be shot Oct. 2.



STAR-NEWS FILE

The Sunset Beach bridge might be the bain of travelers' existence, but a location scout thinks it's just the ticket for a scene in a new film.

Want to attend?

The N.C. Department of Transportion will hold a public hearing on its plans to replace the Sunset Beach bridge. The meeting will give residents a final chance to voice their opinion before the department settles on a replacement plan.

When and where: 7:30 Tuesday night in the Jones-Byrd Clubhouse.

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Sunset's old bridge: Not without its charms

Modern may not be the latest thing.

At Sunset Beach the argument continues over what's to become of the one-lane pontoon bridge that joins the island community with the mainland. Little wonder. This is a controversy without an easy solution.

The bridge is not a technological marvel. North Carolina beach areas tend to be a montage of shanties and miniature golf courses, aging house trailers and strip shopping centers, anchored, inevitably it seems, by the ubiquitous real estate agency.

In this incongruous collection of old and new, the Sunset bridge is in the former category. Built in 1953, it is a wood cookstove in the microwave age. It opens once an hour for pleasure craft, on demand for commercial vessels. At either end of the one-lane span is a traffic light. Entering and leaving the island is not for the impatient. But then vacations are not for the impatient.

The state Department of Transportation is dying to replace the pontoons with a modern high-rise number like the one at nearby Ocean Isle or the arching rainbow of a bridge 25 miles up the coast at Holden Beach. A new bridge would let both waterway and highway traffic flow freely.

The DOT has argued for years that a better bridge is needed to avoid a disaster in the event the island needs to be evacuated. That's not a consideration to take lightly. Three major hurricanes are predicted for this year alone.

The old bridge has defenders among year-round residents, who have fought for years to save it. The locals have long held that replacing the single-lane bridge with a multi-lane span would increase development.

Doesn't it stand to reason that an island that's more accessible would be more inviting to vacationers, and hence, to developers? Well, maybe and maybe not.

These shifting barrier islands were never meant to play host to wall-to-wall housing. Local opposition has bought time for the old bridge, which was first scheduled for replacement back in 1979. A federal judge rightly ordered an environmental impact study in 1990, which has just now been completed.

The $675,000 study's conclusion won't please pontoon bridge partisans. A draft of that study argues that rather than increasing development, replacing the bridge would stabilize the island's population by making it more attractive to year-round residents. The report says growth would not be boosted considerably by a new bridge.

There are problems. Any of the several options for building a new bridge would destroy some salt marsh and evergreen forest. The most destructive option would claim a few houses and business establishments. But the study casts some doubt on the automatic assumption that a big bridge would mean big growth.

Local residents will have an opportunity to challenge the report at a public hearing in September. Maybe they can forestall the inevitable a bit longer.

Waiting in line at the bridge, an inland visitor is struck instinctively by its anachronistic quality. Across the waterway, vacation cottages blanket large sections of the island. The pontoon bridge is a fragile link to the safety of the mainland. Yet with uninterrupted one-way traffic off the island, evacuation shouldn't take too long.

The bridge is an annoyance to yachtsmen who arrive five minutes late and have to wait an hour, or for the next commercial traffic. But that's not the worst thing in the world.

As for motorists caught by the red light, it's a good excuse to turn the ignition off, roll down the windows and let the salt sea breeze in. It's a few minutes to get out and walk around, visit with neighbors, look at the boats, ponder the tidal marshes and maybe daydream about yachts. The go-carts will still be there.

It's a good way to lower your blood pressure; isn't that what vacations are about?

BEACON

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WORK COULD BEGIN QUICKLY

Approval Likely This Week For I-74 In Brunswick

BY ERIC CARLSON

Approval of a 20-mile stretch of interstate highway through Brunswick County is "practically a done deal," with construction likely to begin within a few years, a spokesman for Congressman Charlie Rose said this week.

By Friday, President Clinton is expected to sign the Ground Transportation Act of 1995, which authorizes construction of U.S. Interstate 74 through the Carolinas from Virginia to Charleston, Rose's Chief of Staff John Merritt said Tuesday.

Outlined in the legislation is a general route for the new highway that will take it along U.S. 74 from Rockingham to U.S. 76 near Whiteville and then on "to the South Carolina line in Brunswick County."

Final determination of the highway's route through the county will be left up to the state, "to give maximum flexibility for crossing wetlands," Merritt said.

The most likely path for Interstate 74 would be along a new roadbed extending south from U.S. 74/76 near Whiteville, passing between Nakina and Old Dock in Columbus County.

If the right-of-way continues in that general direction, the highway would enter Brunswick County between Ash and Regan before passing through the Wet Ash Swamp and heading southward between N.C. 904 and N.C. 130 to join U.S. 17 near Ocean Isle Beach (Four Mile) Road.

The southernmost portion of U.S. 17 in Brunswick County would become Interstate 74 between the newly constructed section of highway and South Carolina.

Also under consideration is a route that could take Interstate 74 further east along the existing U.S. 74/76 past Whiteville to Bolton. From there it would turn south and follow N.C. 211 to Supply, a plan that would add considerable mileage to the amount of new highway passing through Brunswick County, Merritt said.

"That would be the most desirable route from an economic development standpoint," said Merritt. "However, that would take us through some areas where there might be environmental concerns. We don't want to end up in court because someone gets worried about a red cockaded woodpecker living in a canoe out there.

"Time is going to be the biggest consideration," he said.

The N.C. Department of Transportation has committed to begin purchasing right-of-way property for the new interstate as soon as the environmental questions are answered and the final route is established, Merritt said.

That means there is a good chance the first section of Interstate 74 to be completed in the Carolinas will be the new highway through Brunswick and Columbus counties. The area has both political considerations and economic factors in its favor.

Garland Garrett, the former DOT district engineer for Southeastern North Carolina now serves as Secretary of Transportation under Gov. Jim Hunt. Brunswick County developer Odell Williamson of Ocean Isle Beach, a strong Hunt supporter, is a member of the N.C. Board of Transportation.

"I know this seems hard to believe, but it's actually cheaper to build a new road than to upgrade an old one (to interstate level)," Merritt said. "Knowing the commitment Garland Garrett has to this highway, there is every reason to believe I-74 between Calabash and Winston-Salem will be completed in less than 10 years.

"It's likely the new sections will

(See HIGHWAY, Page 2-A)

Highway Bill Authorizing I-74 Expected To Pass Soon

(Continued From Page 1-A)

be done first," he said.

The Interstate 73/74 corridor will originate in northern Michigan and pass through Ohio, Kentucky, West Virginia and Virginia on its way to the Carolinas. The highway will become a combined route between Greensboro and Rockingham, where I-73 will continue south along an undetermined route through South Carolina before joining I-74 again in Charleston.

North Carolina is prepared to move ahead quickly with its portion of the interstate because it has a large reserve of highway funds accumulated through an increased tax on gasoline implemented for that purpose in the 1980s.

"That decision to tax ourselves a number of years ago allowed us to build new infrastructure around every city in North Carolina," Merritt said. "Now it's going to give Brunswick and Columbus counties a new interstate because we're flush with cash while South Carolina is broke."

The new federal transportation bill was approved by the U.S. House of Representatives last week and was expected to be considered in a joint congressional conference this week. At issue is a disagreement over whether to allow states to set speed limits above 55 miles per hour.

Merritt said if there is no controversy in Congress about the highway portion of the bill. He said it appears "90 percent certain" the entire package will be signed by the president once it gets approval from the conference committee.

Facing The Future In Sunset Beach

Take a good look at the bridge on our cover this month. It's the only span of its kind left in North Carolina, and its days are numbered.

In the next year or so, the state Department of Transportation expects to start work to replace the Sunset Beach bridge, the last floating pontoon-type drawbridge in North Carolina. By sometime in 1991, the state expects to have finished a high-rise bridge to handle traffic from the mainland across the Intracoastal Waterway to Sunset Beach.

When the work is done, pontoon ving bridges like this will be just a mory here, preserved only in snapshots or in paintings like the one on our cover by Virginia Ryan Lauzon of nearby Shallotte.

Part-time residents of Sunset Beach like Lillian Henderson understand the reasons for the state's action. They know that if a hurricane were to threaten the area, the single-lane, 508-foot-6-inch-long bridge might not be able to handle the evacuation of the 200 or 300 people who could be on the island at the time.

But still, for Mrs. Henderson and other people who live on or regularly visit Sunset Beach, the bridge is special.

Visitors have depended on such bridges since Mannon C. Gore of Sunset Beach built the original one in 1958. That span was privately maintained, and the island's oldest visitors probably recall that those who wanted to use the bridge at night then had to shine a ht into Gore's window so he would the bridge. It was normally left open for the boats on the Waterway.

The Department of Transportation replaced that span in 1961 and put in a third bridge in 1974. The fourth and last steel-barge swing span was built by Bridge Maintenance in Wilmington in 1984.

Today, four state employees tend the bridge 24 hours a day, seven days a week, 365 days a year. In an average month, they swing the bridge open for some 1,600 boats and then close it up again.

For Mrs. Henderson and others, the opening and closing of the bridge isn't an inconvenience. It's part of the fabric of life in a small community made up of only a few hundred cottages, a couple of simple hotels, a single grocery store and several small shops.

In fact, the existing bridge produces a feeling of security, Mrs. Henderson says. The island's few dozen residents and its regular visitors — who come from all over the eastern half of the country and even from points farther west — tend to know each other. They fear that might change when a new span is open for folks to dash in and out of their community.

For Mrs. Henderson and the others, the fight against the new bridge is over. Now, she's simply spreading the word that those who want to see this last remaining bridge of its type have only a short while left as she and the others wait to see what the future holds for their very special place.

The Cover: Virginia Ryan Lauzon of Shallotte has painted the Sunset Beach bridge several times. A limited edition print of one painting sold out in 1985, and 375 prints of a second painting of the bridge were issued in 1987. The remaining prints, which are signed and numbered in pencil, are available for $25 each, plus postage and handling, from the Calabash Gallery, Calabash, N.C. 28459.

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470
FAX: 910-579-6993

SUNSET BEACH BRIDGE POLL

The members attending the last Labor Day meeting of the SBTA passed a motion to poll the entire membership as to their wishes concerning the bridge to Sunset Beach Island. Below is the polling form. Please complete and return as soon as possible. We plan to use the results of this poll in discussions with DOT and the Governor's Office.

I favor the following alternative:

[ ] Keep old bridge as is, with routine maintenance.

[ ] New one lane pontoon barge, with 16 foot high fixed-span approaches in approximately the present location.
(This would be a essentially the same bridge but with greater clearence for boats, allowing a much greater number of pleasure boats to pass under without having to open the bridge.

[ ] New two lane pontoon barge, with 16 foot high fixed-span approaches in approximately the present location.

[ ] 15 foot high bascule (drawbridge type).

[ ] 35 foot high bascule (drawbridge type).

[ ] 65 foot high fixed-span .

NAME: _____

ADDRESS: _____

_____

SUNSET ADDRESS: _____

SIGNATURES: _____

DATE: _____

Please return to : SBTA
P. O. Box 6053
Sunset Beach, NC 28470

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470
FAX: 910-579-6993

April 21, 1995

Mr. Garland Garrett
Deputy Assistant to the Secretary of Transportation
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Dear Mr. Garrett,

We appreciate the opportunity to meet with you on April 28 at 11:00 to discuss the kind of bridge needed to serve the island of Sunset Beach.

Sunset Beach is the smallest developed island in Brunswick County, less than two miles long and a half mile wide with only 2.4 miles of state maintained roads. It is home to about 120 year-round residents. The primary business on the island is vacation cottage rentals. With about 1,000 dwellings and an increasing number of day tripppers from nearby mainland development, the summer population swells to 8,000 plus. This influx of population creates the problem of summer traffic jams of cars and boats as the Sunset Beach one lane pontoon bridge opens and closes to accommodate car and boat traffic.

No one argues that the current situation should not be improved. However we are concerned that DOT appears to be heading in the direction of a high rise bridge. While we acknowledge that a high rise bridge would provide a short term solution to traffic problems (as would other bridge options) , we believe this bridge option will create both immediate and long-term problems.

These are our concerns: A high rise bridge will have a detrimental impact on the environment, on our way of life, and on our primary business of vacation cottage rentals.

1. There is no need for a high rise bridge at Sunset Beach. The island is many times smaller than any other developed island on the North Carolina coast. While it will relieve traffic problem at the bridge, it will create traffic and parking problems on the island. Building a high rise bridge to the island of Sunset Beach is tantamount to building a high volume highway into a cul-de-sac.

2. Less than 25 percent of the property owners and residents support a high rise bridge; 75 percent want some other solution.

3. Sunset Beach island is a uniquely beautiful, family-oriented beach. People come to Sunset Beach to get away from "business as usual", to enjoy the dunes, the shore birds, and the quiet atmosphere. In a poll taken during the 1994 tourist season less than 20 out of 1300 visitors favored a high rise bridge.

4. The Governor's Coastal Agenda as outlined in Charting a Course for our Coast, (1) recommends a coastal development policy that stresses maintaining

the unique quality of our coastal environment, and (2) clearly requires a study of environmental impacts prior to any decision:

> "The department of Transportation and commerce, in consultation with DEHNR should analyze the environmental impacts of their major projects, including the construction of new highways, and bridges and the location of large industries, before pursuing such projects in the coastal region." (p. 76)

These concerns lead to questions to which we hope to receive answers during our meeting:

1. Why have the choices for replacement of our bridge been narrowed to three high rise and one thirty-five foot bascule before the Environmental Impact Statement was completed and reviewed by the public? Clearly, the type of bridge constructed will influence significantly the impact felt by both the human and the natural environment of this small island.

2. Why has an improved two lane pontoon bridge never been considered as an option? This is the alternative that has been consistently endorsed by the Sunset Beach Taxpayers Association (SBTA) , a group of 1500 Sunset Beach property owners.

We look forward to a productive meeting and that answers to these questions will frame a discussion that will provide a plan for the Sunset Beach bridge that will be more consistent with the desires of the local populace, with maintaining our vigorous tourist industry, with the unique quality of this tiny island, and, finally, with the Governor's Coastal Agenda. We are sure that neither the DOT nor the Governor wants to force on a community a bridge that will adversely affect property values and the quality of life of residents and visitors.

Sincerely,

Barry Lentz, President
Sunset Beach Taxpayers Association

Also sent to: Dr. Larry Goode, State Highway Administrator

cc: R. Samuel Hunt III, Secretary of Transportation

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

DIVISION OF HIGHWAYS
P.O. BOX 25201 RALEIGH, N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

September 19, 1995

Ms. Minnie K. Hunt, Secretary
Sunset Beach Taxpayers Association
P. O. Box 6053
Sunset Beach, North Carolina 28470

Dear Ms. Hunt:

SUBJECT: Replacement of Bridge No. 198 on SR 1172 over Intracoastal Waterway in Sunset Beach, Brunswick County, Federal Aid Project BRS-1813(1), State Project No. 8.2230101, TIP No. B-682

This is to acknowledge receipt of your request to extend the comment period for the subject project from September 23, 1995 to October 5, 1995. In order to provide additional time for review of the Draft Environmental Impact Statement and associated technical memoranda, we will extend the comment period; however, it is essential that we receive your comments no later than October 5, 1995 in order to review comments and give them due consideration during the post hearing meeting, which is scheduled for the following week.

We appreciate your review of the Draft Environmental Impact Statement and look forward to receiving your comments.

Sincerely,

H. Franklin Vick, P. E., Manager
Planning and Environmental Branch

HFV/jh

cc: Mr. Nicholas Graf, P. E., FHWA
Mr. Bill Garrett, P. E., NCDOT
Ms. Julie Hunkins, P. E., NCDOT

SEP-19-'95 TUE 15:11 ID:NC DOT PLANNIG & ENV TEL NO: #130 P02

August 19, 1995

Mr. H. Franklin Vick, P.E.
Manager, Planning and Environmental Branch
NCDOT
PO Box 25201
Raleigh, NC 27611

Dear Mr. Vick:

Please read this letter at the September 5 hearing if our children are not able to be there to read it to the group themselves.

The purpose of this letter is to vote in favor of rehabilitating the existing bridge to Sunset Beach. As an alternative, we would favor a small drawbridge. We vehemently oppose either of the proprosals which would provide 65' of vertical clearance over the channel. These two proposals would have a negative impact on the area, both physically and aesthetically, and destroy the whole atmosphere of the area, in our opinion.

We purchased a home on beautiful Sunset Beach Island this year because of the unique, quaint, and quiet qualities of the island and its beaches and marshes. It serves as a restful, remote getaway from the fast pace of our workaday world. We rejected homes at Ocean Isle and Holden Beach because of the ugly concrete gateways to those islands announcing "PROGRESS/HIGH RISE". We knowingly opted for an island with an antique bridge for which you may have a wait to open and close. It is part of the unique quality of the island. Our children and grandchildren remember their vacations ever so much more memorably because of the drawbridge.

We want a bridge which would be safe and reliable transportation between the mainland and the island. We don't want our vacation homes to be subjected to the onslaught that a 65' high bridge would invite. Oftentimes we regret the things that we do in the name of "progress". Let not the destruction of the bridge be one of those things!

Thank you for listening. Sincerely yours,

Margaret and Richard Dickey
407 28th St
Sunset Beach, NC.

Kirsten Ducey Moore
read on behalf
of Parents

PUBLIC INVOLVEMENT
RECEIVED

SEP 14 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Shelley Hatfield Edwards

ADDRESS: 404 Thirty-Third St. Sunset Beach, NC

COMMENTS AND/OR QUESTIONS: Sunset Beach has been a part of our lives for approximately fifteen years. Our family, after visiting beaches up and down both the North Carolina/South Carolina coast, was entranced w/the quaint atmosphere that Sunset Beach offers. The swing bridge is what gives Sunset it's charm. Putting in a high rise bridge will absolutely destroy the character and integrity of the island which is why we bought here. My parents plan to retire here and my husband and I plan to buy another home for vacation and our retirement also. The pontoon swing bridge is what attracts everyone to this island. Coming here is like taking a step back in time which is what attracts many vacationers as well. Sunset is a safe family beach (another attraction to vacationers

→over

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

and putting in a high rise bridge will eventually destroy that as well. In my opinion and that of everyone I talk to, is that erecting a high rise bridge will affect Sunset Beach greatly in such a negative way that many current homeowners will move, future homeowners will reconsider buying here, and vacationers will try and find another quaint, little family beach to visit - (one like Sunset used to be.)

Therefore the only alternative is C3R. Rehabilitate the current bridge. I would further suggest to widen it to a two-lane pontoon/swing bridge to help w/ congestion the occurs during the busier months.

PUBLIC INVOLVEMENT
RECEIVED
SEP 5 1995

Sunset Bridge
Mr. WA Garrett PE
POB 25201
Raleigh, NC 27611

August 31, 1995

Dear Mr. Garrett,

We live in the Extraterritorial of Sunset Beach and are property owners since 1987. We love it down here but get harassed at the Beach. Rental Units & Rental Homes. The Golf Courses alone made traffic to the Island worse in the last years. Golfers & their families are renting Beach Homes. Yes it is really good, because there are no shopping Malls close or industries in this small area. It seems the Rich are ruining everything with their Big Boats (+ NO Tax) and the water pressure and septics which will not last for all these families who rent & do their Laundry & showers everyday. Yes they do buy Gas & some food but not like us taxpayers do, I don't think.

I wonder just how many of the Residence in North Carolina (in the Beach area) really go to the Islands.

We would not mind if they made the Sunset Beach a toll Bridge instead of putting it on Tax payers who can't afford it and don't even use it that much. We go with our children or relatives or friends for a little while when they come down. We've been on the Ohio Turn Pike and $1.25 to $3.75 was worth the better drive & safety of our Trip.

2

I have another thought about a State Road which we live on. The (state man) that does the cutting by the Heritage Haven Subdivision sign cannot cut that corner nice with the sign and the home (which I think is abandoned) mailbox is also in the way of the cutting. I believe these 2 (Heritage Haven Sign) + the (mailbox) of the, (looks like) abandoned home should be removed. We have a nice Road sign & the head of the POA does not clear around these obstacles of the cutting man!

Could people please have a cat lease to keep on leashes. A neighbors cat was locked in

have been, because there was a mess in the garage, also they have been going to the bathroom in the house also pits. The dogs (2) are running and not on leashes & the kittens are on our porch sometimes).

The neighbors keep their garbage in their truck and we've had a rat under our home. These are people with the cats & dogs, from North Carolina!! HAVENCTSU

Bridge - If they dredge ALL of the Calabash River maybe the water will be lower. There is also NO Calabash River Sign by the River to let people know it is

Sorry I cannot make the meeting but wanted to try to give my point of view of things in North Carolina.

Thank you for listening and God bless America.

Mrs. Kathryn Devins
9247 Heritage Dr SW
Calabash, NC 28467
Sunset Beach Extra-territorial

Jeff Spencer
Myrl D. Spencer
8728 Bald Eagle Lane
Wilmington, NC 28405

PUBLIC INVOLVEMENT
RECEIVED
SEP 7 1995

Mr Garrett,

I live in New Hanover County, But the Sunset Bride has created big problems for me several times

You See, I have a sailboat That is very slow. There are no places To Stop Between Southport & Little River Inlet except @ Marinas.

While Traveling North last year, we arrived 5 minutes Late, It was late in The evening, after waiting an Hour, It was after Dark Before We reached Duck Thomas Creek To Anchor. By sheer luck we found the creek for a safe anchorage

If The people of Sunset Beach wish To Keep Their Bridge There Please Remove all openings Restrictions Thank You

PUBLIC INVOLVEMENT
RECEIVED

SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Mary Mooryian

ADDRESS: 507 Shutteline Dr East Sunset Beach

COMMENTS AND/OR QUESTIONS: Bridge Project B-682

I request that for C. Yellow
it Fixed Span Center Corridor

More + more people are coming To this area - the bridge is not safe! People on the island are only thinking of their peace on the island not of other people Why get a smaller bridge and have to be replaced later on.

Thank You

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

Rocking off
Corner
Corded
going up
more & more
Regard to
Corner —
2 Years little Baby
Still will hold up

PUBLIC INVOLVEMENT
RECEIVED

SEP 7 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: ALBERT E. LEWIS

ADDRESS: 203 AZALEA CIRCLE S.W. SUNSET BEACH, N.C. 28468

COMMENTS AND/OR QUESTIONS: MY WIFE AND I RETIRED AND MOVED TO SUNSET BEACH MORE THAN 10 YEARS AGO. WE LIVE ON THE MAINLAND AND HAVE NO VOTE IN LOCAL ELECTIONS. WE ATTENDED LAST EVENINGS MEETING ~~WITH~~ WITH THE IDEA THAT WE MIGHT HAVE SOME KNOWLEDGE IN THE SELECTION OF A NEW BRIGE FOR SUNSET BEACH. WE WERE AMAZED THAT THE ONLY PEOPLE SPEAKING FOR A 65 FOOT HIGH BRIDGE WERE LOCAL POLITICIANS OR COMMISSIONERS, EVERYONE ELSE FAVORED REPAIRS TO THE EXISTING STRUCTURE OR A NEW 2 LANE LOW RISE BRIDGE.

D.O.T. OR SOMEONE HAS RATED OUR CURRENT BRIDGE AS A 4 ON A SCALE OF 1 TO 100 THEREFORE, IT IS SIGNIFICANT THAT WE SHOULD ALREADY BE GETTING REPAIRS OR A NEW BRIDGE WITHOUT DELAY OR FORTHER STUDY.

THE TWO MILE LONG SUNSET BEACH IS ALREADY 70% OCCUPIED, THEREFORE A 65 FOOT HIGH MONSTROSITY OR AN $18,000. BRIDGE IS NOT THE CURE WE NEED PROMPTLY.

WE ALL LOVE SUNSET BEACH AND KNOW THERE MUST BE REPAIRS OR A 2 LANE BRIDGE THAT DOES NOT COST $18,000.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

Albert E. Lewis

9/6/95

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SEP 7 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Mary P. Jones

ADDRESS: 600 Kings Tr. Sunset Beach NC. 28468

COMMENTS AND/OR QUESTIONS:

I feel the 30' bridge (Bascule) would Satisfy the people who live on the Island plus the people on the mainland; also 62% of the boat traffic.

The esthetics would be acceptable and besides we would keep the bridge attendants with a job.

With the 30' bridge it wouldn't have to be closed down with high winds, a bycicle lane and pedestrian crossing would be gauranteed.

The gov. traffic would still have the right of way. The shrimp boats and fishing vessels ~~would~~ less than thirty feet would just go under the bridge. Besides they go out early in the morning. The large yatch — rich mans boats might have to wait a few minutes. So What? Lets not get emotional over a large concrete bridge that in fact might be longer than the Island.

Sincerely
Mary Jones

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
RECEIVED

SEP 7 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Robert L. and Colleen L. Hendricks

ADDRESS: 316 Dogwood Dr. SW. Sunset Beach, N.C. 28468

COMMENTS AND/OR QUESTIONS:

We attended the meeting on 9-5-95, held at Jones-Byrd Club House, Sunset Beach. As for a new hi-rise bridge — we are for it. The old bridge is pretty, it's different, etc. etc. But, it isn't practical, nor safe, nor convenient. We were "caught" on the beach in 1994 for seven hours when a cable snapped. Our granddaughter was with us. She is a "brittle" diabetic and also an epileptic. No insulin, no pills, "no nothing" for her use. The only shop with food to sale had extravagant prices, needless to say. When we approached a policeman with our problem, he merely shrugged and told us "don't worry about it!" What if we had happened had two more hours passed and she had no insulin or her other medicine? Only God could tell us that. (The policeman just happened to be out on the beach when the cable broke).

It is too dangerous — for us as well as safety use / health use — to have a bridge that breaks down or that must be shut down in bad weather. Our vote: FOR a new Hi Rise Bridge !!

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

(probably W-1)

Colleen L. Hendricks

Robert & Colleen Hendricks
316 Dogwood Dr. SW
Sunset Beach, NC
28468

PUBLIC INVOLVEMENT
RECEIVED

SEP 8 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: MR + MRS JOS. CARPINELLO

ADDRESS: 690 FAIRWAY DR. E, SUNSET BEACH NC 28468

COMMENTS AND/OR QUESTIONS:

BASED ON THE MANY COMMENTS I HAVE HEARD AND THE PAST SURVEYS, IT WOULD APPEAR THE 65' BRIDGE IS NOT WANTED. WE AGREE WITH THIS POSITION. A TWO LANE PONTOON BRIDGE IS THE BEST AND MOST POPULAR CHOICE. THE 65' BRIDGE IS IN FACT OVER KILL. IT ALSO APPEARS TO US, THAT NO MATTER WHAT THE PEOPLE WISH OR WANT – THE GOVERNMENT – WILL DO AS THEY PLEASE.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
RECEIVED
SEP 8 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Gerthel Linkous

ADDRESS: 1106 Japonica Lane SW, Sunset Beach 28468

COMMENTS AND/OR QUESTIONS:

My opinion:

We definitely need a bridge replacement. We do not need alternative C4. I have long been concerned about safety on the Island, with a drawbridge for the only access.

I hope a bridge will soon be built.

Sincerely,

Gerthe Linkous

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
RECEIVED

SEP 8 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

CONTRARY TO APPEARANCES AT THE RECENT PUBLIC HEARING, THE MAJORITY OF SUNSET BEACH RESIDENTS ARE SANE, RESPONSIBLE CITIZENS WHO ARE CONCERNED ABOUT THEIR SAFETY AND THAT OF THE VISITORS WHO TRAVEL HERE. MOST OF TUESDAY'S SPEAKERS, WHO OPPOSED A NEW BRIDGE, WERE NOT RESIDENTS, BUT PEOPLE WHO OWN PROPERTY HERE, LIVE ELSEWHERE AND HAVE A FEW CUPS OF COFFEE HERE EACH YEAR. AS SUCH THEY HAVE NO QUALMS ABOUT PUTTING RESIDENTS AND VISITORS AT RISK ON THE ISLAND, ON OUR ROADS AND ON THE WATERWAY. THE SCENE, NEAR OUR BRIDGE, OF CARS AND BOATS LINED UP IN EVERY DIRECTION AND MAKING ALL KINDS OF MANEUVERS, IN AN ATTEMPT TO FREE THEMSELVES FROM THE TIE-UP, IS COMMONPLACE THROUGHOUT THE SUMMER. ONE NEED ONLY EXPERIENCE IT ONCE TO REALIZE THAT IT MUST BE ELIMINATED. EVERYONE RECOGNIZES THAT A TWO LANE, HIGH RISE BRIDGE WOULD BE THE ONLY EFFECTIVE SOLUTION. THE DISSENTERS RECOGNIZE THIS BETTER THAN ANYONE; THEIR OBJECTION IS BASED UPON THE DESIRE TO MAINTAIN THIS CONGESTION WITH THE INTENTION OF DISCOURAGING VISITORS FROM " THEIR ISLAND ". SO LONG AS THEY ARE FACING POTENTIAL DANGER, THEY ARE PREPARED TO ENDURE, AND TO ALLOW OTHERS TO ENDURE, ANY RISK TO ACCOMPLISH THAT. I SUSPECT, HOWEVER, THAT SHOULD A TRUE DISASTER OCCUR, THESE WILL BE THE FIRST TO TAKE LEGAL ACTION AGAINST THE TOWN, COUNTY, STATE AND D.O.T. FOR FAILING TO WARN THEM AND TO PROVIDE ADEQUATE PROTECTION.

YOU CAN PUT AN END TO THE SPECULATION AS TO THE WISHES OF THE MAJORITY. AT THE UPCOMING NOVEMBER ELECTIONS HAVE A SEPARATE BALLOT DISTRIBUTED AND COLLECTED BY THE REGISTRARS. THIS NEED ONLY ASK TWO QUESTIONS.

DO YOU WANT A NEW BRIDGE?

WHICH OF THE D.O.T. OPTIONS DO YOU PREFER?

THANK YOU FOR THE OUTSTANDING EFFORT YOU'VE GIVEN TO THIS PROJECT. PLEASE HELP US IMPLEMENT IT.

ALBERT CONSALVI
505 CAMELLIA LN.
SUNSET BEACH, NC
28468

PUBLIC INVOLVEMENT
RECEIVED

SEP 8 1995

Ref: 8.2230101
B-682

Wolfgang Furstenau
2108 E. Yacht Drive
Long Beach, NC 28465
Tel. 910-278-4050
September 6, 1995

Mr. W.A. Garrett, Jr., P.E.
Department of Transportation
P.O. Box 25201
Raleigh, NC 27611

Dear sir,

I am writing to comment on the proposed high-level bridge over the Atlantic Intracoastal Water Way at Sunset Beach in Brunswick County.

I am a past member of the United States Power Squadrons, a private organization dedicated to boating safety. For waterway traffic, a high-level bridge is inherently safer than any other structure. In particular this is so for sailing vessels transiting the AIWW, due to their limited ability to maneuver.

A personal experience may illustrate the point. As master of the 39 foot sailing vessel *Lotus* I approached a bridge, not unlike the present structure at Sunset Beach, on the AIWW in Florida. At the time a squall (thunderstorm) was passing over the area. Just as we approached the open bridge, the bridge tender gave the closing signal. We were forced to anchor in the narrow channel, as our auxiliary engine would not provide sufficient maneuverability in those circumstances. In the process of anchoring in these extreme conditions - the wind gusting to perhaps 35 knots - an anchor line became caught on the propeller shaft. Diving under the bouncing boat I freed the line, but not before severely slicing my hand on a propeller blade.

I have traversed the AIWW a number of times. Boats jockeying for position while awaiting a bridge opening always face a high risk of collision.

A high level bridge would go a long way to make the AIWW safer for all waterway traffic.

Sincerely,

Wolfgang Furstenau

WOLFGANG FURSTENAU

PUBLIC INVOLVEMENT
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SEP 8 1995

Harbor Inn

AAA ◆◆◆

Sept 7, 1995

Mr. W. A Garrett
Dept. of Transportation
P.O. Box 25201
Raleigh N.C. 27611

Dear Mr. Garrett.

We, full time residents of Sunset Beach, are very much in favor of replacing the existing bridge with either a high rise or mid rise bridge.

The floating bridge is a disaster waiting to happen and the out-of-town opponents to the new bridge are totally blind to reality. The State of N.C. and the citizens of Sunset Beach have catered to their reactionaries long enough. Let's move on!

Yours truly,
Gerald W McCumby
Rhyne L. McCumby

Gerald W. + Rhyne L McCumby
513 Lakeshore Dr
Sunset Beach NC 28468
(910) 579-8583

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SEP 12 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: WILLIAM F + MARIE T. MUNN

ADDRESS: 722 LONG LEAF DR SUNSET BEACH, N.C. 28468

COMMENTS AND/OR QUESTIONS:

WE BELIEVE THE CENTER MID-LEVEL BASCULE BRIDGE IS THE MOST ATTRATIVE BRIDGE AND SAFEST DURING HIGH WINDS.

W Munn
FULL TIME RESIDENT

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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SEP 12 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Robert Mylroie

ADDRESS: 404 Northshore Dr Sunset Beach NC 28468

COMMENTS AND/OR QUESTIONS:

The size of Sunset Beach Island does not justify a high rise bridge. Rehabilitation of the present structure to encopass two way traffic or a low level Bascule would be mre appropriate. The majority of the island residents DO NOT favor a high rise structure.

Robert Mylroie

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
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SEP 12 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Jane R. Davis

ADDRESS: 2400 Rock Creek Dr.
Charlotte, NC 28226

COMMENTS AND/OR QUESTIONS:

Replace existing bridge with 2 lane draw bridge (or swinging bridge)- Removing traffic light and police will aid in moving traffic through then-

No high rise!!!!!! Improve 904 instead if you have to spend the money!

Jane R Davis
Sunset Beach tax payer

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

You might consider spending that money on a bypass around Rockingham!

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SEP 11 1995

Herbert H. Klinker, **Councilman, Town of Sunset Beach**

Telephone 910 579-4105

602 North Shore Drive
Sunset Beach, NC 28468

September 6, 1995

Mr. W. A. Garrett
Department of Transportation
P.O. Box 25201
Raleigh, NC 27611

My name is Herb Klinker. I live at 602 North Shore Drive, on Sunset Beach Island. I have been a permanent resident for three years and a property owner for 15 years. I am presently a councilman on the Sunset Beach Town Council.

I want to speak for the majority of residents and property owners of Sunset Beach in opposition to any of the high rise bridge options. I am well aware that the Town Council passed a resolution on February 6, 1995, supporting the high rise bridge concept and I stated at the time that the majority of the residents and property owners were not in favor of the high rise concept and that is the reason I voted against the resolution. That position was verified last night at the DEIS Public Hearing held a Sea Trail Plantation. About 80% of the 350-400 people in attendance stood in opposition to any high rise bridge to Sunset Beach.

I know I am speaking for the majority of the residents because when I ran for office in 1993, I knocked on every door in town soliciting support and I have discussed bridge options with many residents and property owners (and vacationers) since being in office. The bridge is one of the most important issues on people's minds. Very few I have spoken to favor a high rise bridge. The vast majority are against it. Most want some sort of relief that would allow traffic to flow both ways when the bridge is open to vehicular traffic and be more reliable than the current bridge, but not a high rise. Some favor renovation of the existing bridge and some favor the mid height bascule option. You are also aware of the vacationers comments gathered a year ago, stating they were in favor of keeping the existing bridge. They want to keep the island just as it is, a quiet place for them to come with their families.

We have been told that the high rise option is best for two main reasons and they are:

1. Least expensive
2. Safest

The high rise is only least expensive when you add in 40 years of operations and maintenance costs for the other options and it is not less expensive than renovation of the existing structure. It may surprise you to know that many people would gladly pay a bridge toll to keep a high rise out and help amortize the operations and maintenance costs of the

other options. The safety factor is also questionable. We all know that the Ocean Isle high rise and others were closed during the March 13, 1993, "Storm of the Century" because high winds made them unsafe. And we also know that barges can knock down high rises just as they can damage other bridges. I believe last night's public hearing easily showed that those who use the safety reason for a high rise are nearly all mainland residents and using that argument as a cover for a different agenda. So the safety argument is very subjective.

And both of these reasons are insignificant when compared with the damage that will be caused to Sunset Beach Island by connecting it to the mainland with such an obtrusive, soaring structure that has such a high negative aesthetic value and profile. Please drive over and look at the area under the Ocean Isle bridge if you want to see a waste of space and an ugly use of waterway shoreline. Sunset Beach Island is the smallest of the Brunswick Barrier Islands with only 1.8 miles of roadway East to West. It cannot support a 65 foot monster structure and expect it to blend in with the 35 foot building height restriction on the island itself.

So, if the residents, property owners and vacationers are opposed to a high rise, who, then, supports it? In a word, the Developers and those who support them for whatever reasons. We all know that developers favor the use of public funds to further their ends in lieu of spending their own funds. They have the political clout and financial means to support those efforts.

And what do Developers have to gain by a high rise? Well, for example, it is not unreasonable to assume that unlimited waterway access to the Little River Inlet would have a positive impact on the property values of Ocean Isle canal lots because bigger boats could get to the ocean more easily. (It could also have a negative impact on property values near the high rise, including property on Sunset Beach Island itself.) It was this Ocean Isle developer who said at the December bridge DOT open house that the general public was not capable of making the decision as to what bridge was best for Sunset Beach and that they, the developers, would have to do it for us. And he says he favors the high rise for safety reasons.

Even though the EIS says not, it is not hard to envision that unlimited access to Sunset Beach Island would bring insurmountable pressures for new development in the form of additional hotels and motels to accommodate those who want to stay there. And I can see pressure being brought to eliminate the 35 foot building height restriction in favor of high rise buildings which will be in heavy demand and easily built because heavy equipment and materials can be easily transported over the new bridge. In the political environment in which we live at Sunset Beach, I can see the 35 foot restriction being easily voted out. I can see pressures to develop more arcades, miniature golf courses and other honky tonk amenities to support the building boom. And there goes the Sunset Beach we all know and love.

I did not get a positive feeling at last night's public hearing that the public sentiment of Sunset Beach residents is going to have much of an effect on the DOT bridge decision even

though I'm sure you know now what that sentiment is. I have the feeling that you all feel a high rise is the right thing to do because it's what you've done everywhere else and you can't deviate from what you feel is a successful track record. You are also getting political pressure from the developer contingent I referred to earlier and that only tends to cement your thinking.

It is for these reasons that I am opposed to a high rise bridge to Sunset Beach.

Sincerely,

Robert W. Kluiber

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SEP 14 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Derrick Edwards

ADDRESS: 404 33rd, Sunset Beach, NC

COMMENTS AND/OR QUESTIONS:

C3R (Two lane pontoon/swing bridge)

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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SEP 14 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Geraldine B. Moore

ADDRESS: 510 Fairway Dr Sunset Beach, NC 28468

COMMENTS AND/OR QUESTIONS:

After attending the Corridor Public Hearing on Sep. 5, 1995, my sense is that my ink and Stam are wasted. But my plea is that we/ leav our tiny Community as close /You to it's Current State. Changing this Smal area in the name of progress is an unconscionable Act.

In the name of Safety and expedience, Please Consider ALT. C4, midlevel, Center Bascule Bridge.

Please leave us with ~~with~~ as much of our "face" as possible.

Thank You

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
RECEIVED

SEP 14 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Paul & Louise Purgason

ADDRESS: 1500 Friendly Chp. Rd. Greensboro N.C. 27406

COMMENTS AND/OR QUESTIONS:

We own Property at 515 Live Oak Dr. Just across the waterway. We would like to see the High rise Bridge put in, We love to go over to the beach, but there are so many times we have to wait in a long line of traffic to get over, and when you get ready to leave you can never tell if the Bridge is going to be out and can not get its boat in, I think the Bridge is unsafe. and in case of an emergency we need to be able to go right off the island. It could mean a matter of life or death to someone or even us.

Paul & Louise Purgason
515 Live oak Dr.
Sunset Beach N.C.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

The Sunset Beach Bridge

OUR MOST VALUABLE COMMON ASSET

My name is Albert N. Wells.

I have owned a house at Sunset Beach for 35 years.

I have been both a part time and a full time resident.

Now, I spend summers here & winters in service elsewhere.

I have moved many times in my ministerial life;

Sunset has been a stable place for me and my family,

the closest thing to a "homeplace" we have had.

Long since I have come to love Sunset and to form conclusions about what seems to me its true character value.

My case tonight is short & sweet: OUR ONE LANE, FLOATING BRIDGE IS OUR MVCA, OUR MOST VALUABLE COMMON ASSET.

- not because it's a picturesque relic from yesterday -

- a quaint conversation piece, an objet d'art that appears in nearly all promotional literature -

- and in paintings that adorn nearly every living room -

but for sound social, economic, environmental, developmental and spiritual reasons, our one-lane floating bridge is the most valuable asset we have together.

I have three points to prove it:

1) When Margaret and I bought our little 50 foot oceanfront lot 35 years ago, Sunset was brand new.

- There was the bridge, the causeway and one street on the ocean front, now Main Street: Main West, 1/2 Main East.

In its own unique way, that bridge has helped to shape the character of Sunset.

It has helped to channel progress, and that too helps to make it our MVCA.

I hate to think what Sunset would be like today if a 65 foot high rise bridge had been in place 35 years ago, if there had been UNLIMITED ACCESS, RUNAWAY development like we see south and west of us.

Let no one doubt how different things could be!

Contrary to often-heard myth, there have been precious few times when the bridge has been a threat to public safety or hindered emergency evacuation.

Several times this summer emergency vehicles have come screaming by our house on their way to rescue some visitor who didn't know how dangerous Tubbs Inlet can be on an outgoing tide -

Maintenance outages on the bridge have historically been brief and infrequent - maintenance is simple and quick because the bridge itself is simple!

Damage from the much-publicized barge accident some months back was repaired in a fraction of the predicted time and traffic restored -

And mark this: Sunset Beach has THE MOST EFFECTIVE HURRICANE EVACUATION PLAN ON THE COAST. It too is simple:

Just put out the deadline for EVERYBODY:

It was unpaved, and you always carried a shovel in the trunk - and often had to use it.

The island was mostly covered with myrtles, "murkles", the locals called them.

Ours was the 12th house on the beach - one of only a very few original oceanfront homes now left.

It seemed an awful extravagance then, and I'm almost ashamed to tell you what we paid for it.

Today there are nearly 1,000 attractive homes and beach cottages, owned by 1,000's of citizens from near &far.

~~Friends~~, every bit of that remarkable development - every load of building material - every stick of furniture - every truckful of fill dirt - had to come across that little one lane bridge.

There was no other way - and there still isn't.

That bridge accommodated every board and beam, stove & fridge, every TV and washing machine at Sunset Beach.

Let no one say that our floating bridge has hindered development and progress.

It has ENABLED development - the whole of Sunset Island is there to prove it.

Furthermore, it is reliable enough to enable every bit of <u>future development</u> that needs to take place here.

2) Along with <u>enabling</u> development, our bridge has <u>PACED</u> development - structured development -

I listen for the gulls & marshhens, count the herons, egrets, ospreys, wood storks, and other wild friends. Sunset fosters a life style where THE MOST NOTABLE SOCIAL EVENTS are volley ball games on the beach, ~~and~~ a nature walk to Bird Island and the "Kindred Spirit" mailbox; and [illegible] Sunday morning

It's a lifestyle that has helped to make Sunset the TOP-RATED BEACH on the coast, promoted in national magazines, attracting vacationers from thousands of miles away, enhancing those family values everyone is groping to find & preserve today.

That's why people come here!

Sure it's tough on the 4th, Memorial Day, Labor Day. Show me a vacation spot that isn't glutted on holidays!

It's "part of the deal", the strategy, to have to plan your trip - learn when traffic is light - don't leave home between 10 of and 10 after -

Do your frozen food shopping at off-peak hours!

And what a great excuse when you're late for the meeting!

"Mr. Wells," Mr. Mannon Gore said to me 36 uears ago this month, "I want a beach of small, single family homes - that will bring people together and help them stay together".

"Get off - or ELSE!"

When you open the bridge - there's no going back!

You can't get more effective, more decisive than that!

That's how Mr. Mannon Gore did it in the early days, I was here one time when he evacuated, and it worked!

3) But mainly, our bridge is our MVCA by reason of THE LIFE STYLE it has promoted:

- a slow-speed life style far too rare in our high-pressure, fast-paced world.
- a life style beautifully pictured in parents stopping their cars and carrying children on their shoulders to watch the bridge open and the boats go through -
- a life style I exult in every time I have to wait:

I roll down the windows, turn off the engine if time permits -

and just smell the marshes, the most valuable land on the coast, by the way -

ponder that marvelous <u>spartina alterna flora</u> marsh grass that thrives so luxuriantly in salt water and provides a nursery for all kinds of marine and bird life -

Friends, that was a worthy vision - and when you look around today and see our society,

he was right on target.

My plea is, Leave the bridge in place!

Choose the least expensive option, the least environmentally damaging option, the most distinctive option.

Re-habilitation, improving, up-grading, fine-tuning, yes -

That the bridge can certainly stand,

But not replacement.

DON'T KILL THE GOOSE THAT LAID THE GOLDEN EGG!

In effect, leave Sunset Beach in place!

That's what you'll do if you leave the bridge in place.

"If it ain't broke, don't fix it!"

The most desirable vacation mecca in coastal Carolina doesn't need "fixing", thank you.

So hear it once again, please:

Our one-lane bridge is our Most Valuable Common Asset.

For the sake of present and future,

let's hold on to that worthy, sturdy relic of the past.

It's too valuable, too economical,

too reliable, to do without.

Thank you.

Sunset Beach Bridge Public Hearing

Tuesday, September 5, 1995.

Albert N. Wells, 908 E. Main Street, Sunset Beach, NC 28468

(910) 579-2417.

Winter: (904) 724-6523

TOWN OF SUNSET BEACH . 220 SHORELINE DRIVE WEST, SUNSET BEACH, NC 28468

September 5, 1995

David A. Griffin, C.E.P.
Project Manager
Greiner, Inc.
4630 Paragon Park Road
Raleigh, N. C. 27604

Dear David:

I have seen first hand the danger to public safety that the present pontoon bridge poses to the community and I do not know of anything that can be done to it that will even begin to address the risks associated with it.

Sunset Beach , in conjunction with the county, maintains a volunteer fire department on the mainland. It not only serves the town but the outlying areas. Not one of the volunteers associated with the fire department or the first responder team resides on the island, so even if we had the resources to place equipment over there, there would be no one to man it. To divide the equipment between the two locations would imperil those on the mainland and still we would have no one to man it when the bridge is impassable.

We have been very fortunate that we have been able to deal with the emergencies that have arisen but we have had some close calls. How long our luck will hold out is anybody's guess, however, we can be sure it will not last forever. The bridge has been disabled several times by being hit by barges, there is a constant demand for maintenance, the cables snap and the astronomical high tides make it impassable and then in heavy wind storms it has to be tied back. There are numerous times during a year when the island is isolated and without the availability of emergency services.

Once summer renters fully comprehend the risks they and their families run because of the vulnerability of the old bridge, I expect they will not want to in peril themselves or their families.

A bascule bridge would still be subject to mechanical failures and so leaving those on the island marooned and without emergency services. It will also continue the back up of traffic on state road 179. It is only a partial solution to the problem.

I favor a solution that will provide the maximum safety at the minimum cost. Lets do something that will most fully protect the people and at the same time be more economical. The western high rise will give us the maximum safety at the minimum cost.

We are on borrowed time, let this project move forth with speed.

Sincerely,

M. Mason Barber, Jr., Mayor

PUBLIC INVOLVEMENT
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SEP 26 1995

SEP 26 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: KATHRYN CHARLES McCOY

ADDRESS: 1107 WEST MAIN STREET, SUNSET BEACH, N.C. 28459

COMMENTS AND/OR QUESTIONS:

If it is not feasible to rehabilitate the existing bridge to Sunset Beach I would like to go on record in favor of the state's deciding to replace it with Alternative C4, the Center Bascule. I am very much opposed to the erection of either alternative W1 or Alternative C1 - They are entirely inappropriate and unnecessary to serve an area as small as Sunset Beach Island, and would change forever the unique character and nature of this resort island -

The Center Bascule bridge will sufficiently relieve the problems presented by the single lane pontoon bridge and will be far less disruptive to the natural & human resources than either of the other two alternatives. This will preserve for us and for some the rapidly vanishing pleasure of experiencing nature in its most natural form. Sunset Beach, as it exists now, has proved to be one of North

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

Carolina's most valuable assets, both economic and recreational - Please preserve this natural heritage for all to treasure. Thank you for your attention -

Sincerely,
Kathryn Charles McCoy

Sunset Beach N.C. Future Citizens.

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SEP. 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: David M. Kiser

ADDRESS: 400 Robmont Rd
Charlotte NC 28270

COMMENTS AND/OR QUESTIONS:

Alternative W1 will damage the Big Narrows and eventually negatively impact the eco-system of the entire marsh area behind the island.

W1 must not ever be built.

C1 is slightly "better" than W1.

C4 is the only people/place alternative that fits this area & meets the needs of the future for all NC residents.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

Thank you

D Kiser 9/5

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Patricia King

ADDRESS: 4001 Robmont Rd. Charlotte N.C. 28270

COMMENTS AND/OR QUESTIONS:

(1) Favor of alternative C4

(2) C1

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
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September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Leonard A Steiner Sea Tra. I Plant.

ADDRESS: 613 Kings Trail

COMMENTS AND/OR QUESTIONS:

Prefer C-1 as it causes less traffic congestion and a more direct access to the beach from 179 for the South bound traffic. Also C-1 causes less disruption to existing recreation and open spaces already existing in the area.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: JERE AND JAN SOMERMAN

ADDRESS: 420 31st ST. SUNSET BEACH N.C.

COMMENTS AND/OR QUESTIONS:

We do not want a high rise bridge to the Intracoastal Canal. The construction of such a bridge will drastically change - harm the island for ever.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Mitchell Ray Davis (1610-B Sunset Blvd-Main

ADDRESS: 1051 Fox Lake Dr. Winston-Salem NC 27106

COMMENTS AND/OR QUESTIONS:

Build W-1- As soon as possible. Hazards abound with the present bridge.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Larry S. Spainhour

ADDRESS: 402 34th St. Sunset Beach N.C.

COMMENTS AND/OR QUESTIONS:

What I really want is C3R, but I realize that will never happen. In order to keep the beach as close to what we have, I would recommend C4. This would allow safe traffic flow and keep the uniqueness of Sunset Beach. I first came to Sunset 10 years ago. Yes, I have waited in traffic but I am very content to turn off my engine and take in the beauty. Please do not put in a bridge that is almost as long as the island itself!!

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Bill Ducker

ADDRESS: 1420 Inlet Drive-Sunset Beach, NC.

910-579-3655 | 28468

COMMENTS AND/OR QUESTIONS:

I feel the introduction of any bridge that would bring additional vehicular traffic to Sunset Beach Island will inhibit/make unsafe greatly the present and future pedestrian traffic. This will in fact change the ~~present~~ safe atmosphere that residents and guest enjoy. - Our road system is too small to introduce additional ~~vehicular~~ traf-

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

P.S. Please consider the facts ~~that~~ our road space is Limited and public parking is extremely sm[all] for the traffic [now] / + No expansion is possi[ble]

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Mrs. Mitchell Ray Davis (Sarah S.)

ADDRESS: 1051 Tortall Drive, Winston-Salem, N.C. 27106

COMMENTS AND/OR QUESTIONS:

Property-owner,

for alternative C3R-

Rehabilitation will maintain the very essence of what makes Sunset Beach a very special place.

C3R could appropriately serve the one week vacationers during the summer season and leave the present atmosphere intact throughout the rest of the year.

The traffic backup is minimal for a minimal amount of time compared to any city backups in ~~N.C.~~ other parts of North Carolina.

I have followed this study for a number of years, and less is best to keep our beach a special place. Twenty-seven years ago we crossed the bridge with three children who loved this place and we have never gone elsewhere (September 5th, 1995) And yes, the grandchildren now claim it.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

The tree on the right of the bridge and keep a

This is a plea to upgrade a much loved & appreciated lifestyle at Sunset.

Thank you,

Sarah S. Davis

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Ray Wilson

ADDRESS: 424 Lakeshore Dr. Sunset Beach, NC

COMMENTS AND/OR QUESTIONS:

(1) Yes, The Old Bridge is Nice + if it were At All possible To maintain it + insure Access - 24 hr. On The Island Then We Should Keep it.

(2) We Need a New Bridge + it Should be Done NOW!

(3) I Am Not Sure no Weigh Which Option!

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Rebecca Spainhour

ADDRESS: 402 W. 34th Street Sunset Bch.

COMMENTS AND/OR QUESTIONS:

My preference is Alternative C4 Bridge as this seems to be more in keeping with the area and would give Sunset Beach easy access and also give the small boaters a way to get there easily. We will need more policemen to patrol Sunset Bch and protect the homes, people and our beautiful beach. Vandalism is increasing on all N.C. islands! And easy access to Sunset Bch means more accessibility for vandals and thieves.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Kathryn M. Kakos

ADDRESS: 616 Oyster Bay Dr Sunset Beach, NC 28468

COMMENTS AND/OR QUESTIONS:

I support the bascule bridge. It would give me 2 lanes to facilitate traffic flow.

As you reported, 85% of marine traffic could pass under the bridge without it being opened. This is a very high percentage.

Our high tourist traffic is only 3 months out of the year (June, July & August.) The rest of the year traffic is minimal, as your findings show.

We would like to retain our Community image and I believe this could be accomplished with the

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

bascule bridge keeping safety auto traffic flow and marine traffic at the best possible level.

Thank you

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SEP 15 1995

Fenwick D. Loomer
433 Lake Shore Drive • Sunset Beach, NC 28468 • Telephone (910) 579-6185

Mr. H. Franklin Vick, P.E.
Manager
Planning and Environmental Branch
NCDOT
PO Box 25201
Raleigh, NC 27611

Dear Mr. Vick,

We strongly support the immediate replacement of the present bridge with

ALTERNATIVE W1 (West High-Level).

Please proceed as soon as possible.

Thank you for your consideration.

Sincerely,

Janet Loomer
Fen Loomer

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: BARNEY McKINNEY

ADDRESS: 407 Dolphin Sunset Beach 28468

COMMENTS AND/OR QUESTIONS:

No Bridge period — waste of money for a few people. The only packers is about 12 to 15 weeks per year —

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Benjie Hester

ADDRESS: 2111 [illegible] Dr. Raleigh N.C. 27608

COMMENTS AND/OR QUESTIONS:

The present pontoon bridge serving [illegible] needs [illegible] badly. If it must be replaced by anything other than a pontoon bridge, I favor no [illegible] bridges.

A [illegible] bridge should not be needed in the [illegible].

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: P R M Kennedy

ADDRESS: 402 Dr Johnson St S.B NC 28468

COMMENTS AND/OR QUESTIONS:

~~The~~ I think CH Carter Bascule bridge will adequately serve both vehicular & pedestrian traffic. I can see no reason to destroy the historic ambiance of S.B with a high rise

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over ~~the~~ Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Brooke E. Triplett

ADDRESS: 418 30th St. Sunset Beach NC 28468

COMMENTS AND/OR QUESTIONS:

The visual, environmental and noise impacts should be given strong consideration. The bridge should be attractive and provide an entrance which is fitting to a beautiful North Carolina beach.

Last, I am in favor of a bridge with the highest ~~from~~ height possible. Why wasn't a two lane pontoon bridge proposed and contrasted? Third, a high rise bridge does not guarantee emergency access to the island. The 9/1/95 Wilmington Star Report as well as the closings of the Cape Fear Bridge due to high winds are proof of this. Has this type of cost been included in the DOT studies? Of course not, due to the fact that it's impossible to predict. But please don't use "safety" as an argument for high rises.

Thank you for requesting our feedback at this

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Lois S. Mercer

ADDRESS: 404 Dolphin St - Sunset Beach - NC - 284

COMMENTS AND/OR QUESTIONS:

If we have to have a new bridge
I would strongly advocate:
Alternative C-4 - Center Pier - Steel Ba.
I cannot think of such a high-rise
bridge that would affect our fragile land —

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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SEP 7 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Helen Lewis

ADDRESS: 263 Azalea Circle SW. Sunset Beach N.C. 28468

COMMENTS AND/OR QUESTIONS:

Attn- WA GARRETT-JR.

I attended the meeting concerning the Sunset Bridge. I was at awe to think that the Mid-Level Basqeule Bridge with 10 pilings & the West High level with 26 pilings would cost the tax payer 2 million more. These huge monstrosities would be built to go to a 2 mile long I.S! As far as safety f. the I.S. dwellers. I can't understand why they can't have a fire station including E.M.T or derby with volunteers from the island. I think we should look up & not be taken by the politicians and the money men. and keep the Island with antiquity & reconstruct the bridge.

Thank you.
Helen M. Lewis

P.S. We would also be employing 4 men & give them jobs & not lining the millionaires pockets

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
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SEP 7 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Merlin L. Boone

ADDRESS: 418 W 35th St Sunset Beach, NC 28468

COMMENTS AND/OR QUESTIONS:

Dear Sirs

I must compliment you on the conducting of the public hearing 9/5/95 Very well done.

Several comments:

1. Seems strange that opposing facts can be stated. 90% bought because of the Bridge 69% polled – where & who was polled But the state must prove factually everything ie Environmental Impact study.
2. Most of us bought because of the Beach not the bridge. Move this bridge to Lake Norman & Lake Jordan and there would be a mass exodus from Sunset.

My conclusion: we need a two lane bridge to access and egress from the Island. More people could enjoy our beach - the finest in N.C.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

Thank you
Merlin L. Boone

P.S. In the Statement to- THAT WAS NOT A PLACE - there was a [illegible]

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SEP 7 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Julie Boone

ADDRESS: 418 W. 35th St. Sunset Beach, N.C. 28468

COMMENTS AND/OR QUESTIONS:

As a permanent resident on S.S. Beach I feel the question of safety for all who cross the bridge is the one most important factor in determing whether we get a new bridge. Therefore in my opinion we need a bridge that would allow Traffic to cross at any time safely. I would recommend that the D.O.T. with their expertise determine what is best long range for us.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 12 1995

Fenwick D. Loomer
433 Lake Shore Drive • Sunset Beach, NC 28468 • Telephone (910) 579-6185
September 11, 1995

Mr. W. A. Garrett, Jr. P.E.
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, North Carolina 27611

Dear Mr. Garrett, Jr.

Re: Sunset Beach Bridge

With the realization that you are searching for public opinion pertaining to options for the Sunset Bridge, I have enclosed an editorial from The Sun News, Myrtle Beach, S.C.

Myrtle Beach is just a few minutes away from Sunset Beach, and the residents and visitors of both areas constantly travel back and forth to enjoy, and benefit from, the attractions of each others communities.

We strongly urge you to go ahead with Alternative W1 (Center High-Level) Bridge.

Thank you for your patience in this long drawn out procedure.

Sincerely,

Fen Loomer

Gwen R. Fowler / *Managing Editor/Days*
Robert G. Bestler / *Managing Editor/Nights*

Editorials

For Sunset Beach, a high-rise bridge

The controversy ebbs and flows like the tide in the Intracoastal Waterway between the Brunswick County mainland and the rest of the Town of Sunset Beach: What about *the* bridge?

Replacement of a flimsy one-way pontoon bridge that is often broken by severe storms and boating mishaps is the issue that gets more juices flowing than breakfast in a pancake house. The bridge is the only way to get to and from the Sunset Beach island. When it's broken, boats alone substitute.

In summary
Sunset Beach endangered by old bridge when new one is available

That's just not safe. When the bridge is broken down, fire trucks cannot get on the island to protect it against fires. When the bridge is broken down, an ambulance with paramedics cannot reach the heart attack victim except by boat. When there is a criminal emergency, law enforcement officer access can be hindered.

In short, the pontoon bridge has outlived its quaintness and its usefulness. North Carolina wants to build a new bridge at a cost of up to $18 million. But the controversy just won't go away, primarily because growth vs. no growth is the unseen issue. The bridge is only one incarnation of that growing division in Brunswick, Horry and Georgetown counties.

Surely, if the issue could really be scraped down to safety, no one would disagree about the bridge's need. That is the case, but some folks just won't let go. If they do, they seem to fear, they will open the floodgates to island growth. But what about the dangers caused by a 37-year-old bridge to those already on the island?

The anti-growth crowd ought not to want the dangers of the existing bridge hung round its neck like a millstone. Yet, to make their anti-growth point, they seem too willing to risk it.

If Brunswick County and Sunset Beach want to impose no-growth as public policy, then let elected officials so decide in writing. The safety needs of a new bridge transcend such a policy in any event.

Why?

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SEP 15 1995

9/5/95

As a resident of Sunset Beach I have studied all the alternatives for the bridge rehabilitation & replacement. Weighing all the factors and loving the way things are now, I would recommend the Bascule bridge as the best compromise. A large spanning bridge to this tiny island seems like such overkill. The maintenance will be worth the aesthetic value of this beautiful place.

Sarah G. Williams
203 Shoreline Dr. E.
Sunset Beach NC
28468

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SEP. 27 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Monroe & Gail Tickle

ADDRESS: 404 Gary Rd. Carrboro N.C. 27510 also 425 34th St. Sunset Beach N.C.

COMMENTS AND/OR QUESTIONS:

The people that were at the (1) Sunset Bridge meeting on Sept. 5, 1995 represented more homeowner on Sunset Beach Island or future resident of Sunset Beach Island.

I have talked with a number of people that are property owner and Summer time renters, these people have rented homes on Sunset Beach for Years. They Do Not Want a High Rise of Any Kind.

You are elected officals by the people so I don't see how, Seven or Eight people can dictate to D.O.T. what goes on about the Bridge.

We are Voters, Homeowners and Tax payers of Sunset Beach and North Carolina.

Please Refurbish our portion Bridge that is here or widen it to a Two lane portion Bridge

Thank for Listing
Monroe & Gail Tickle

MEMBER NAED

COMMENTS

Please use this space to record your comments about the project.

Mail to: Mr. H. Franklin Vick, P.E.
Manager
Planning and Environmental Branch
NCDOT
PO Box 25201
Raleigh, NC 27611

We are in favor of the WEST HIGH-LEVEL 65' W 1, and are happy to know that the DEIS has been completed and progress on a much needed new bridge may begin.

For the past ten years we have resided on property ajoining the Intra= coastal Waterway, within sight of the current Sunset Beach Bridge. We have witnessed several accidents involving vessels at the bridge site, causing land and water traffic to be haulted for long periods. There have been many times during high tides that the bridge must be closed to automobile traffic. Numerous breakdowns of the bridge or the cables halt waterway and land traffic. The one way traffic during busy tourist season keeps the roads blocked for long periods.

WE DESPERATELY NEED A SAFE BRIDGE FOR EMERGENCY VEHICLES, FIRE VEHICLES, FOR LAND TRAFFIC AND FOR BOAT TRAFFIC. IT WILL DO MORE TO PROTECT OUR ENVIROMENT, ON THE WATER AND ON THE LAND, THAN ANY FURTHER STUDIES THAT CAN BE MADE.

Jack and Julia Thomas

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SEP 15 1995

Jack & Julia Thomas
212 Shoreline Dr. E.
Sunset Beach, NC
28468-6724

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SEP 15 1995

SUNSET BEACH BRIDGE

My name is Julia Thomas. I have been a permanent resident of the town of Sunset Beach for sixteen years. I have been actively involved in volunteer work in this community since 1980,which includes five years with the Sunset Beach VFD, Garden Club Beautification work, Community Watch, POA Officer and am serving my sixth year as a member of the Sunset Beach Town Council. My husband and I live on property ajoining the Intracoastal Waterway, within sight of the present bridge.

I would like to make a comment at the September 5,1995, Public Hearing, but I am submitting more detailed comments in this letter as to why I favor building a SAFE BRIDGE WITHOUT FURTHER DELAY. I have scanned the DEIS Manual, but have not studied all sections in detail. I have kept a file on news items and other information pertaining to the bridge, dating back to 1982. I attended one of the early Public Hearings in 1985.

My preference is the 65' High Level Span Bridge, Alternative W1. I prefer the W1 design, because it will involve less disruption of present businesses. It is also my understanding that right-of-way options for W1 have been previously studied and planned. It appears to be a better route, with less rerouting of current roads.

We are now entering the 11th year of controversy over.....

"TO BUILD OR NOT TO BUILD" and if we build "WHAT KIND OF BRIDGE TO BUILD".

Now that the SEIS has shown no danger to the area and marshland....

My motto is: "BUILD A SAFE BRIDGE THAT MAY SAVE A LIFE".

May we go back for a look at the early history of the Sunset Beach Bridge, which I think really gives us an understanding of the changes that have taken place.

The original bridge, privately owned, was built in 1958, normally left open at night for waterway boat traffic. The Department of Transportation replaced this with a second bridge in 1961, a third bridge in 1974. The fourth and current steel barge swing span bridge was installed in 1984. With the approximate life span of this type bridge,along with the much increased traffic, we are overdue for a replacement. Of particular interest is the need for four full time bridge tenders, seven days a week operation, twenty-four hours daily, 365 days per year. There is much wear and tear on a bridge that must open and close hourly for boat traffic. In August 1988, seven years ago the bridge opened and closed for some 1600boats. We must wonder how this figure compares with the increased traffic of 1995.

We do realize that the past several years have brought tremendous population growth to both the island and mainland, as well as increased traffic on the waterway. We lost the opportunity for a new "high rise bridge" in 1985, when Federal and State funds were available and the cost was $5,200,000. We have been further delayed by a small group of people, representing the Sunset Beach Tax Payers Association, who convinced Judge Britt that an in depth EIS should be done. This group advocated that a "high rise bridge" would bring increased development to the island, bring high rise structures to the island and would endanger the enviroment. What this delay actu-

actually did was increase the cost to three times the original price and this cost must now be borne by the tax payers.

Strange that over the ten years of delay, the tourist trade has increased tremendously, population growth has continued to rise on the island and the mainland, waterway traffic has greatly increased and the enviroment has not shown improvement. ALL OF THIS GROWTH CAME WITH THE OLD BRIDGE.

There is still much work to be done and decisions to be made before construction begins. I repeat my hope for the 65' W l Bridge.

LETS BUILD THIS BRIDGE FOR SAFETY ON THE WATERWAY AND FOR THE PEOPLE.

Sincerely,

Julia Thomas

J. J. Thomas
212 Shoreline Dr. E.
Sunset Beach, NC
28468-6724

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SEP. 15 1995

9-5-95

Subject: Sunset Beach Replacement Project

One of the two High level (65' clearance) should be built.

The primary reason being for safety reasons. Is someone going to have to die before some people wake-up?

Even when the bridge (existing) is in its best working order, it can not close when the tide is unusually high. It has remained open for several hours for this reason on many occasions. It has also been unoperational for several days due to damage.

In short, a small group of people have held-up the bridge replacement for their own selfish motive, with complete disregard to the general publics safety etc.

Buddie Hodges
526 Dogwood Drive

RECEIVED
SEP 25 1995

JOHN E. HALL
ATTORNEY AND COUNSELOR AT LAW

(910) 667-1111
(910) 667-1112
FAX (910) 667-4761

STREET ADDRESS
105 WEST MAIN STREET
WILKESBORO, NC 28697-0029

MAILING ADDRESS
P.O. BOX 29
WILKESBORO, NC 28697-0029

September 20, 1995

Mr. W. A. Garrett, Jr., P.E.
N. C. Department of Transportation
P. O. Box 25201
Raleigh, North Carolina

Re: Project 8.2230101
TIP-B 682
Proposed replacement of bridge at Sunset Beach

Dear Mr. Garrett:

My wife and I own a house on the island at Sunset Beach. We were present for the hearing on September 5, 1995, at the room provided by Sea Trails.

My wife and I have been going to Sunset Beach since 1975 and we purchased a home there in 1982. We frequent Sunset Beach and enjoy our stay there principally because the island is quiet, has no excessive auto traffic, has no high-rise buildings, and the beach is still with dunes, sea oats and is still wide.

We had intended to speak at the meeting on the 5th of September, but because of the enormous amount of people who were speaking, we decided to write you a letter.

We very much oppose the high-rise bridge and if we can't keep what we have, we would prefer that the bridge only be widened and not increased in height.

The first experience we had at Sunset Beach, and it was the first trip, we were already prepared to leave the beach about 8:00 one morning when the tide was high. The bridge would not meet and, therefore, it was closed until the tide receded. We got to know several people by reason of that, and they are friends of ours today. One of the persons stated that this was the most exciting thing about Sunset Beach, the bridge being out. We have grown to accept that statement and we always experience good things when the bridge is out.

There have never been any catastrophies at Sunset Beach that we are aware of. The most exciting thing I can remember was when the ambulance went roaring by our house one day with police cars and first responders following. I got on my bicycle and followed the sounds

which led to a house on Canal Street where a large number of people had gathered. I asked a lady what happened. Her response was that a lady police officer had gone to visit this person whose wife was going to be gone a day or two and the person the lady had gone to visit had a heart attack during some type of encounter. I am saying that this is a very unassuming place where all of the ups and downs of life do not occur.

I fear a high-rise bridge for Sunset Beach for the reason that it will bring in traffic and the thieves will know they have an exit without having to go across a drawbridge and, incidentally, as far as we know, there have never been any major thefts or break-ins at Sunset Beach. I think this speaks very highly of the bridge. I am very well aware of politics and influential people and whether politics is involved, I am not aware; but I hope it is not. I hope that the Department of Transportation will accede to the wishes of the vast majority of home-owners on the island and will not impose on us a high-rise bridge.

Thanking you for giving us this opportunity to respond.

Yours very truly,

John E. Hall

Katherine B. Hall

JEH/lc

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SEP 15 1995

North Carolina Department of Transportation
Office of Public Affairs
Highway Building! South Wilmington Street
Raleigh, NC 27601

September 13,1995

Dear Sirs:
I wish to comment on the proposed bridge at SUNSET BEACH. I am a property owner of 1007 E. Main Street and have owned property at Sunset Beach for 10 years. I am a part-time resident of the Town.. When I purchased property on the island I was told that a new bridge would soon be built by the NCDOT.

In the last decade I have seen enough of the present bridge to the island to absolutely convince me that it is a very dangerous structure that is long over due for replacement. I will try to give you just a few examples of problems I have encountered,or seen, with the bridge in recent years.

Example 1. In the spring of 1994 I was in line at the bridge waiting to cross to the island. The bridge was getting ready to close when down the road came the Sunset Beach fire trucks with sirens blasting away and red lights blazing. The bridge tender totally ignored the trucks and opened the bridge allowing several boats to pass, in this group was a slow sail boat. After 16 minutes had passed the bridge opened and the fire trucks roared across the bridge to the fire. It was like a venture from the Key Stone Cops. If my home had been on fire and lost due to the bridge folly I expect that any lawyer would like to represent me in a law suit against the NCDOT.

Example 2. On 8/8/95 I was crossing the bridge around 6:00 PM and the center part of the bridge was so so high that the bottom of my car (1995 Toyota Camry) was damaged by the bridge. I seriously doubt that a fire truck could have made it over the bridge at that time.

Example 3. In March of 1993 when we had the so called "Great Blizzard" I woke up in the early morning hours to find that heavy unforecasted wind had compleatly close the Sunset Bridge. In fact the bridge was closed, I think for 9 1/2 hours that Saturday. I shutter to think what would have happened if a fire would have broken out with winds on the island reported to be over 100 miles per hour, or if a serious medical emergency would have occurred. It's just plain stupid to put thousands of people on an island in that type of jeopardy.

Example 4. Numerous times I have missed appointments due to problems at the bridge caused by bridge repairs, grounded boats around the bridge, high winds closing the bridge, massive traffic jams, wrecks and other tie ups to numerous for me to remember.

These are only a few of the problems I have seen or encountered over the past decade. Add to this list the large number of complaints you already have on record, and the need for a new bridge to be quickly built is obvious.

Thank you for allowing me to register my concerns over the existing SUNSET BRIDGE.

Sincerely,

Lindsay W. Cox

Lindsay W. Cox
4924 Starmount Drive

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SEP 18 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Mitzi and Tom Tzouvelekas

ADDRESS: 205 Rockmont Road, Greenville, SC 29615

COMMENTS AND/OR QUESTIONS:

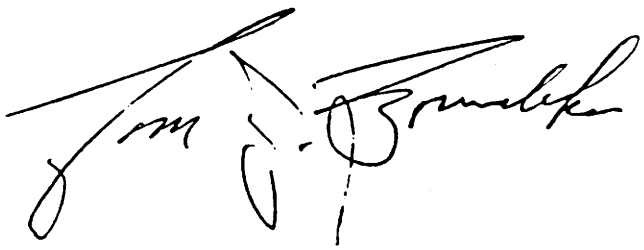
We have had a place at Seaside Station since November 1984, with Greenville, SC being our permanent home.

Having attended the Sept. 5th meeting at Sea Trails, we have empathy with the views on both sides of the bridge issue. We also have loved the quaint bridge but in our opinion, we feel the 65' high rise is the only ultimate solution for the future years. Although we respect the opinion of the island residents, we feel that the population on the mainland also has a right to access and safety when visiting the beach, which belongs to everyone.

Knowing how the total cost has already risen so much in the past few years, why would we even consider spending so much at this time on only putting a bandaid on the problem when eventually the bridge will be a necessity? 16 million now or 50 million later!!!?

Thank you for hearing our opinion. We will respect and support your decision--whatever it may be.

Tom and Mitzi Tzouvelekas
205 Rockmont Road
Greenville, SC 29615
and
305 Live Oak Dr. SW
Sunset Beach, NC 28468



Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 18 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Linda Pifer

ADDRESS: 501 Appaloosa Trail Bahama NC 27503

COMMENTS AND/OR QUESTIONS:

Sunset Beach is a small Island and a high rise bridge is not Justified. A Bascule bridge or modificaton of current bridge for two land traffic would suffice/

Linda Pifer

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

September 14, 1995

Mr. W. A. Garrett, Jr., P.E.
NC DOT
PO Box 25201
Raleigh, NC 27611

1. I will refrain from being emotional.

2. I am against a high rise bridge.

3. I am for efficiency and safety.

4. I am for a rehabilitation of the swing bridge and making it a two lane bridge. I am sure our engineers can design such a bridge.

5. Sunset Beach is less than two miles long. It is approximately 1/4 to 1/3 the size of Ocean Isle Beach. A two lane swing bridge will effectively solve the congested traffic problem that exists on busy weekends and three months in summer. It will also greatly improve any safety problems.

6. A high rise bridge will increase traffic to the island which will increase the traffic problem on the island and thus increase the number of accidents and make safety a bigger problem.

7. The majority of the people and homeowners do not want a high rise bridge. The majority of the businesses and developers want a high rise bridge.

8. I believe the facts favor the two lane swing bridge and not a high rise.

Harold B. Hatfield Jr

Harold B. Hatfield, Jr.

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SEP 18 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Harold B. Hatfield Jr.

ADDRESS: 404 - 33 RD Street, Sunset Beach, N.C 28459

COMMENTS AND/OR QUESTIONS:

See attached letter.

Thanks.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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SEP. 19. 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Elise W. McCracken

ADDRESS: 202 Greenview Dr. Waynesville N.C. 28786

COMMENTS AND/OR QUESTIONS:

The following concernes reguarding the bridge construction for Sunset Beach are the ones that offend me most, However it seemes most unfair that the majority of taxpayers on the island have no official way to voice just how strong our objections are.

- High Level Bridge - will bring much more traffic on the small island.
- It would make crime much more easily committe
- Lots of tax money would be used to change a way of life that is so enjoyed now.

Please just improve (if you must) what we have and want to keep.

8/28/95 Elise W McCracken

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
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SEP 19 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Harry R. McCracken, Sr.
503 Longview Dr.
ADDRESS: Waynesville, N.C. 28786

COMMENTS AND/OR QUESTIONS: 9/12/95

My Response to your Meeting Sept. 5, 1995 that I could not attend is Replace Present Bridge with the Mid-Level (30') or Improve Existing Bridge. The High Level Bridge (65') would Destroy the Present Island Atmosphere we Now Enjoy. We are Completing our 11th year Having Beach House on Sunset Island.

Thanks,

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 20 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Byron G. & Gwendolyn E. Wauters

ADDRESS: 671 Kings Trail Sunset Beach NC 28468

COMMENTS AND/OR QUESTIONS:

We are in favor of a two lane pontoon bridge on SR 1172 over the Intracoastal Waterway at Sunset Beach NC. We were in attendance at the meeting on Sept. 5th and in agreement with 70 percent of the speakers who spoke against a high-rise bridge.

For an island the size of Sunset Beach, a 65 foot high rise bridge would be overkill and a needless expense to NC taxpayers.

We understand the emergency concerns but there has never been a major problem and proper planning by resident's and vacationers and Emergency personnel should eliminate future concerns.

If a two lane pontoon bridge is not possible, then the 30 foot drawbridge option would be our alternative.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

Please listen to the people that live here and visit here. Don't be swayed by commercial interests. Preserve the character of Sunset Beach.

Byron G. Wauters
Gwendolyn E. Wauters

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SEP 19 1995
DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

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SEP 20 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: DR. & MRS. ROBERT J. MACAULAY
ADDRESS: 3417 WOODLAWN RD.
ROCKY MOUNT, N.C. 27804

COMMENTS AND/OR QUESTIONS:

AS OWNERS OF PROPERTY ON SUNSET BEACH ISLAND FOR OVER 15 YEARS, WE STRONGLY OPPOSE THE CONSTRUCTION OF A HIGH-RISE BRIDGE TO THE ISLAND. THE SURVEYS AND PUBLIC HEARINGS REGARDING THIS ISSUE INDICATE THAT 70% TO 80% OF THE OTHER PROPERTY OWNERS AND VISITORS ALSO SHARE OUR OPPOSITION.

EVEN THOUGH WE STAY AT OUR BEACH COTTAGE ONLY 2 WEEKS EACH MONTH, THIS FACT IN NO WAY VOIDS OR EVEN LESSENS OUR RIGHT TO EXPRESS OUR DESIRE TO PROTECT AND PRESERVE THE BEAUTY AND UNIQUENESS OF THE ISLAND. (WE PAY TAXES ON THE SAME YEARLY BASIS AS ALL FULL-TIME RESIDENTS.) AND WE HAVE DETERMINED THAT A HIGH-RISE BRIDGE WOULD CERTAINLY HAVE A DEVASTATING EFFECT ON THE RAL AND HUMAN ENVIRONMENT OF THE ISLAND.

THE "SAFETY AND RELIABLE TRANSPORTATION" FACTORS, WHICH STATE OFFICIALS AND PROPONENTS OF A HIGH-RISE CLAIM ARE THE PRIMARY CONSIDERATIONS IN PROPOSING THE BRIDGE PROJECT — FACTORS WHICH MAINLAND RESIDENTS AND OFFICIALS SEEM TO BE MORE CONCERNED ABOUT THAN THE ISLANDERS — WOULD NOT BE COMPROMISED WITH A STRUCTURE CONSIDERABLY SMALLER AND LESS OBTRUSIVE THAN A HIGH-LEVEL FIXED SPAN BRIDGE..... 65-FOOT MASS OF CONCRETE!

A MORE FAIR SOLUTION WOULD BE TO COMPROMISE WITH SOME ALTERNATIVE TO A HIGH-RISE BRIDGE. PLEASE CONSIDER THIS SUGGESTION IN YOUR DECISION.

Robert J Macaulay
Barbara C. Macaulay
9/15/95

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
RECEIVED

SEP 19 1995

September 18, 1995

Mr. W.A. Garrett, Jr., P.E.
P.O. Box 25201
Raleigh, North Carolina 27611

Dear Mr. Garrett:

Subject: Project No. 8.2230101 (B-682)

Being unable to attend the public hearing on September 5, 1995 at Sunset Beach, I am writing my concerns and comments concerning the proposed bridge construction. As a resident and business owner for the last 15 years at Sunset I have seen all the problems that the existing bridge can cause and the horror stories that could occur in the future. Based on my experience in the area and my observations I strongly favor a new bridge. It should have happened when it was 10 million dollars less.

My concern however is the proposed routes. I strongly favor alternative W1 - the original route that right of way has been acquired for. Rather than go into great detail I will mention my reasons in brief. First off the right of way has been acquired which is the only good thing that happened with the original plan that was stopped. Secondly the W1 route disrupts no existing businesses in our "business district". Both other routes will in effect destroy our water way businesses as they exist. The comment in the report mentions that the other two routes will displace 3 businesses - I find this a fallacy. By my tabulation eight (8) ongoing businesses will be destroyed and what quaintness exists around the existing bridge forever changed. The businesses in question: Twin Lakes Restaurant, The Italian Fisherman, Sunset Beach Grill, Oyster Bay Resort Sales office, The Sunset Beach ABC Store, Par Harbour Miniature Golf Course, Bills Seafood, and Crabby Oddwaters Restaurant. Surely the cost of such acquisitions plus the estimated costs in the report would remove both other routings from any recommendations forthcoming.

In summary, I do favor W1. It is the only alternative that makes good economic sense..

Sincerely,

Alan L. Morrison
417 39th St.
Sunset Beach, N.C.
28468

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SEP 20 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: CAROL & DICK GOOD

ADDRESS: 401 SHORELINE DR. E., SUNSET BEACH NC 28468

COMMENTS AND/OR QUESTIONS:

HAVING LIVED AT SUNSET BEACH FOR NEARLY 14 YRS., WE ARE QUITE FAMILIAR WITH THE PROBLEMS AND POTENTIAL HAZARDS CREATED BY THE PRESENT ONE-LANE PONTOON BRIDGE.

WE BELIEVE THAT A HIGH-RISE BRIDGE IS NEEDED TO PROVIDE SAFE, UNINTERRUPTED FLOW OF TRAFFIC BETWEEN THE ISLAND AND THE MAINLAND AND TO PERMIT WATERWAY TRAFFIC TO MOVE WITHOUT DELAY. ACCORDING TO THE FINANCIAL DATA PROVIDED THE WESTERN HIGH-RISE BRIDGE APPEARS TO BE THE MOST ECONOMICAL AND TO DISRUPT THE FEWEST BUSINESSES. THEREFORE, WE URGE APPROVAL AND CONSTRUCTION OF THE WESTERN HIGH-RISE BRIDGE AS SOON AS POSSIBLE.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
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SEP 22 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2290101 B -682 Brunswick County

NAME: HELEN C. KRZYWICKI

ADDRESS: PO BOX 268, LANDENBERG, PA 19350

COMMENTS AND/OR QUESTIONS:

Property owner at 902 Northshore Drive, Sunset Beach, NC

A case study analyzed land use and economic conditions on Holden Beach and Ocean Isle relative to the replacement of their bridges with high level bridges. However, no where in the study analysis is there any concern relative to the people who own or owned homes there. Such as, what effect has the high bridges wrought upon their island living.

Sunset Beach, not the total town, is a very small island. Control of access to it helps maintain the total aura of the island. Life here tends to be slower paced, so far, and a good bit more friendly (concern for others) than areas with free access.

I cannot believe that a "true" study of the impact of a high rise would discount the fact that a high rise bridge with easy access would increase the traffic (if only from people sightseeing), increase the possibility of crime and accidents; and destroy the total harmony of the community. An open access bridge, however, would increase the prospects for financial gain for the few businesses on the island.(ie. realtors).

Perhaps the pontoon bridge will soon be "out of date" and a new bridge will be necessary. At that time, the only replacement that would serve to limit access but accomplish the safety and 2 lane criteria would be a center bascule bridge.

Helen C. Krzywicki

bridge." (News and Observer, September 9, 1994). The very next sentence reads: "By next spring, the state hopes to issue building permits, but it would still be several years before a new bridge is completed." What is going on? I think the obvious conclusion is that it's a "done deal"! This is absolutely not the manner in which any level of government should operate.

Nevertheless, the "no-build" option (if indeed it is an option) of rehabilitating the present bridge would seem to be feasible considering CAMA's coastal policies and The Coastal Futures Committee's call for "...drastic measures to further shield the state's sand from ruinous overbuilding." (News and Observer, September 8, 1994) Rehabilitation would also appear to be economically expedient at a time when the state's need for more school classrooms and prison cells is urgent.

I am genuinely convinced that a new bridge at Sunset Beach would change forever a beautiful and picturesque island into an overbuilt, overcommercialized and overly congested area from end to end.

We, the ordinary citizens who wish to preserve the naturalness and uniqueness of Sunset Beach island, need your help desperately.

Sincerely,

Robert J. Macaulay, Jr., M.D.

cc: Representative E. David Redwine
Senator R.C.Sole, Jr.

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SEP 25 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: _____

ADDRESS: _____

COMMENTS AND/OR QUESTIONS:

A 65 ft bridge to Sunset Beach is unnecessary to service the small island. I am not in favor of the high-rise bridge. I would rather see a proposal for modification of the pontoon bridge concept to allow a ~~bar~~ two lane pontoon/floating bridge. That would carry traffic in both directions except when the bridge opened for waterway traffic.

Thank you.

S Lupo

Susan E. Lupo
1400 Linda Lane
Charlotte, NC 28211

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 25 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: A S Taylor

ADDRESS: 420 & 320 40th St. Sunset Beach, NC.

COMMENTS AND/OR QUESTIONS:

Stay as close to the present bridge as possible!

- Build something low, quaint, unique, 2 lanes or more & fast (that can open & shut fast) and improve the accesses (4 lanes).

AST

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Mary A. Barton (Permanent Resident)

ADDRESS: 406 - 33rd St., Sunset Beach, NC 28468

COMMENTS AND/OR QUESTIONS:

Tuesday, September 5, 1995 I (as a permanent resident)attended the "Bridge" hearing at Jones/Byrd Clubhouse at Sea Trail Plantation. Needless to say I was very impressed with the presentation and the layout pictures of the three replacement options. It was excellent

I respect the opinions of my fellow residents of Sunset Beach whether they be part-time or permanent. I have lived on Sunset Beach Island for the past 11 years, eight of thos years, widowed. Yes, and I love the slow speed lifestyle, along with the quaint bridge and pristine view I experience everyday of my life at Sunset!

However, I do not believe the that a 16ft wide, 2 car access of a rehabilitated bridge the answer. It will still break-down, it will still open for all boats in a high tide situation.

As for the High Rise (65ft fixed span along the existing (C-1) or the western corridor (W1) is over kill for me!!

I would prefer the option of the mid-level (30ft) drawbridge (bascule) along the existing corridor (C4) costing 18 mil$. This bridge would have two (2) lanes to let the cars flow smoothly and would only cause delays to open up for the large boats to pass. There are two times of the year that large boats pass--the fall and the spring onto or coming from Florida; the 50 footers. It will allow a greater margin of safety.
I am in favor of the Bascule (C4).

As I have stated, I have lived at Sunset Beach for 11 years, had the ambulance come twice for my husband, evacuated 3 times, survived Dianna in September of 1985 (the hurricane --and, Mr. Albert N. Wells said it so well, "we have the best plan ever "get off or else."

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

**Ms. Mary A. Barton
406 33rd Street
Sunset Beach, NC 28468
(910) 579-9297 H
(910) 754-6900-ext 389 W

PUBLIC COMMENT
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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Barbara Payne

ADDRESS: 307 Blane Ct. Sunset Beach N.C. 28468

COMMENTS AND/OR QUESTIONS:

My husband & I built a home on the mainland in Sunset Beach and moved in in January, 1995. We chose Sunset Beach over many other beach communities because of its quaintness - mainly our wonderful bridge. Why can't we just make it a 2 lane bridge and leave it as is? We're not asking for a new 65' and any other kind of bridge - we love our bridge. Listen to the people that live in Sunset Beach - leave our bridge alone!!

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

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SEP 15 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

September 9, 1995

NAME: Miriam I. Harris (Mrs. T. B. Harris)

ADDRESS: 6912 Park South Drive, Charlotte, NC 28210 (704) 554-6497
419 38th Street, Sunset Beach, NC 28468 (910) 579-3734

COMMENTS AND/OR QUESTIONS:

Why do you feel like you need another Public Hearing after the September 5, 1995 hearing?

Evidently, the "majority rules" is no longer important to you. Not only do residents of Sunset Beach want to keep our pontoon bridge, but I understand from your report, the survey taken during the summer while vacationers were here showed 90% of the visitors wanted to keep the bridge as is.

Why has no one specifically said that this is a deal for the "developers?" I think so.

Most of all, I want to inform you as a taxpayer of Sunset Beach, I am for a two-lane pontoon bridge, if we have to have an improvement, but certainly not a 65 foot high span for a three-mile island! After all, the tourist season and the majority of boat traffic are only three months out of the year.

Please just leave us alone. Between the Sunset Beach bridge and development of Bird Island, which I am against, you are giving us ulcers.

Miriam I. Harris

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

W.A. Garrett, Jr., P.E.,
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, NC 27611

Re: Project 8.2230101 Sunset Beach Bridge

Dear Mr. Garrett,

I am writing to urge you and the Department of Transportation to listen to the majority of the residents of Sunset Beach regarding the renovation/replacement of the Sunset Beach Bridge. I am sure that you are aware of the views expressed by the majority of the attendees at the Public Hearing held on September 5, 1995 to renovate the existing bridge, or secondly replace with a two lane bridge or thirdly the 35 foot bascule bridge.

I wish to go on record as being in favor these options in the order listed above. I do not wish to have a 65 foot span bridge to replace the existing bridge. As you aware, the existing bridge not only has permitted the growth that we have on the island but is a unique bridge that has been the focal point of the charm and beauty at Sunset.

We have heard of the "dangers" of living on Sunset. The people who own property on the island and those who visit for vacation are well aware of the limited dangers that could occur in an extreme situation. All of life is associated with danger and balancing of risks versus pleasures. Those who do not wish to "take such a risk" have other options such as living off the island and visiting the beaches at Ocean Isle or Holden but they should not have the option of determining what pleasures others wish to have.

I thank you for your attention to this matter and urge you to listen to the residents of the island. PLEASE DO NOT REPLACE THIS BRIDGE WITH A 65 FOOT MONSTROSITY.

Thank you.

Kathleen R. Westhausen

Kathleen R. Westhausen
401 5th Street
Sunset Beach, NC 28468

September 12, 1995

SEP 15 1995

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PUBLIC INVOLVEMENT
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SEP 20 1995

ORIGINATOR:	HELEN J. HATFIELD
DATE:	9/18/94
SENT TO:	MR W.A. GARRETT, JR., P.E. NCDOT P. O. BOX 25201 RALEIGH, NC 27611
PHONE: FAX:	919-250-4092 919-250-4208
SUBJECT:	Comments Concerning Bridge Replacement Over Intracoastal Waterway at Sunset Beach, NC
NUMBER OF PAGES:	Six (6) including cover sheet.

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SEP 11 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: JOHN W. EWART

ADDRESS: 500 FAIRWAY DRIVE, SUNSET BEACH, N.C. 28468

COMMENTS AND/OR QUESTIONS:

I FAVOR THE W1 HIGH LEVEL (65') FIXED SPAN BRIDGE TO REPLACE THE EXISTING SINGLE LANE PONTOON BRIDGE AT SUNSET BEACH, N.C.

AT THE MEETING HELD AT SEA TRAIL ON SEPT. 5, 1995, I HEARD MANY SPEECHES FROM ISLAND RESIDENTS WHO PU THEIR OWN SELFISH INTERESTS AHEAD OF THE BEST INTERES OF THE RESIDENTS OF SUNSET BEACH. THE "ISLANDERS" WANT TO KEEP THE ISLAND AS THEIR OWN PERSONAL PROPERTY AND TO EXCLUDE ANY ONE ELSE AS OUTSIDERS.

THEY PASS OFF THE DANGERS OF FIRE, HURRICAINE, HIGH WIN & HIGH TIDES AS A PRICE THEY ARE WILLING TO PAY FOR THE PRIVILEDGE OF LIVING THE "QUIET LIFE" ON SUNSET BEACH.

UNTIL A REAL DISASTER STRIKES, THESE PEOPLE WILL CONTIN TO BELIEVE THEY ARE RIGHT.

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

John W. Ewart

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SEP 11 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the
Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: Lois R Armfield

ADDRESS: 4119 Bryanwood Dr. - Greensboro, N.C. 27410-5607

COMMENTS AND/OR QUESTIONS:

Dear Sir,

We purchased our property at 112 Hickory Ave Sunset Beach in 1968 and built on it in 1969. We chose Sunset Beach because it was a quiet family beach - not commercialized. We love the location and especially the bridge.

We are opposed to a high rise bridge as it will increase traffic, noise and detract from the beauty of the area. We have a 2 lane boat over bridge.

In the open forum almost all the people who opposed a high rise lived on the island and did not mind an occasional wait for the bridge.

I hope you will give careful consideration to the talks made at the open meeting.

Thanks, Lois Armfield

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT,
P. O. Box 25201, Raleigh, NC 27611.

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SEP 11 1995

COMMENT SHEET

Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Waterway at Sunset Beach, NC
September 5, 1995

Project 8.2230101 B-682 Brunswick County

NAME: RON OTTEN

ADDRESS: 408 EGRET DR SUNSET BEACH, NC 28468

COMMENTS AND/OR QUESTIONS:

IT WAS OBVIOUS TO ME, AFTER ATTENDING THE PUBLIC HEARIN AND LISTENING TO MR GARRETTS COMMENTS DURING THE NIGHT, THA SUNSET BEACH WILL GET A HIGH RISE BRIDGE REGARDLESS OF THE MAJORITY WISHES.

SITTING IN THE BACK OF THE OVERFLOW CROWD ROOM, AND LISTENING TO CROWD APPLAUSE, RAISED HAND POLL, AND NUMEROUS STE IT WAS OBVIOUS THAT THE MAJORITY OF THE PEOPLE WANT THE EXIST BRIDGE REHABILITATED.

I LIVE ON THE MAINLAND, AND I CANT UNDERSTAND WHY THE STATE IS TRYING TO FORCE THIS BRIDGE DOWN THE THROATS OF THE ISLANDERS FOR SAFETY REASONS WHEN THESE VERY SAME PEOPLE SATISFIED WITH THE PRESENT CONDITIONS.

IS IT TO APPEASE A FEW RICH LAND DEVELOPERS IN THE AREA GREED?

I ASK YOU - CAN YOU PICTURE THE BRIDGE AT OCEAN ISL CROSSING OVER AT TINY SUNSET BEACH OR THE DANGER TO TH MANY PEDESTRIANS ON THE STREETS OF THE BEACH FROM THE GREATLY INCREASED FLOW OF CARS?

I'M SURE THE STATE OF N.C. COULD PUT THE $2000,000 TO BETTER USE, TO ENHANCE THE SAFETY OF A LARGER NUMBER OF ITS CITIZENS.

WHAT WILL IT COST THE STATE TO BUY A PORTION OF THE CH ONSLOW SEA TRAIL MARLES GOLF COURSE FOR RIGHT OF WAY WHICH WILL BENEFIT A FEW RICH LAND DEVELOPERS?

Comments may be mailed to: W. A. Garrett, Jr., P.E., NC DOT, P. O. Box 25201, Raleigh, NC 27611.

PUBLIC INVOLVEMENT
RECEIVED

SEP 11 1995

September 7, 1995

Mr. W. A. Garrett
DOT
P.O. Box 25201
Raleigh, NC 27611

Dear Mr. Garrett,

I am writing as a part time resident of Sunset Beach; I am one of those upon whom taxation without representation is imposed. I would like to take this opportunity to register my satisfaction with our present bridge. We have owned property on Sunset Beach for almost twenty years; the bridge has always been a part of what makes our beach attractive. Our reputation for being a family beach, peaceful and uncrowded was earned while we had this bridge.

My strongest dissatisfaction would be with a high rise bridge; I would favor a two lane draw bridge on the existing site if there had to be a replacement.

After the bridge failure in Wilmington this past weekend, it would seem the DOT needs to pay closer attention to maintenance of our existing bridges - a backlog of more than one hundred million dollars in maintenance admitted by the state should prompt some thoughts on taking care of what we already have. The political agenda propelling a new bridge at Sunset needs to be examined; somehow only a high rise bridge will satisfy the current elected officials.

Sincerely,

Barbara H. Rounds

P.O. Box 594
Buies Creek, NC 27506

PUBLIC INVOLVEM
RECEIVED

SEP 11 1995

September 7, 1995

Mr. W. A. Garrett
DOT
P.O. Box 25201
Raleigh, NC 27611

Dear Mr. Garrett,

I am writing as a part time resident of Sunset Beach; I am one of those upon whom taxation without representation is imposed. I would like to take this opportunity to register my satisfaction with our present bridge. We have owned property on Sunset Beach for almost twenty years; the bridge has always been a part of what makes our beach attractive. Our reputation for being a family beach, peaceful and uncrowded was earned while we had this bridge.

My strongest dissatisfaction would be with a high rise bridge; I would favor a two lane draw bridge on the existing site if there had to be a replacement.

After the bridge failure in Wilmington this past weekend, it would seem the DOT needs to pay closer attention to maintenance of our existing bridges - a backlog of more than one hundred million dollars in maintenance admitted by the state should prompt some thoughts on taking care of what we already have. The political agenda propelling a new bridge at Sunset needs to be examined; somehow only a high rise bridge will satisfy the current elected officials.

Sincerely,

Mary Faircloth

P.O. Box 594
Buies Creek, NC 27506

ROCKY MOUNT UROLOGY ASSOCIATES, P.A.
180 Foy Drive
Rocky Mount, NC 27804
(919)443-3136 (919) 443-3847 FAX

Robert J. Macaulay, Jr., M.D.
Joseph D. Whisnant, Jr., M.D.

Gordon L. Mathes, Jr., M.D.
Robert B. Whitmore, III, M.D.
Frederick A. Frohbose, M.D.

September 19, 1994

COPY

The Honorable Governor Jim Hunt
State Capital
Capital Square
Raleigh, North Carolina 27601-2905

Dear Governor Hunt:

An article in the September 8, 1994, News and Observer, regarding the 1974 Coastal Area Management Act and the more recent proposals by the Coastal Futures Committee for stricter, expanded guidelines for the North Carolina coastal areas ("...expansion of CAMA guidelines to cover whole regions of the coastal area with regard to water quality and development...") has prompted this written expression of my concerns regarding the matters of growth and development and preservation of our North Carolina seashore. Stricter guidelines to protect our coast should become state policy, should be known to all public and private sectors, and these policies should be rigidly enforced.

As an owner of property on Sunset Beach island in Brunswick County for fifteen years, I am particularly disturbed and frustrated with the apparent successful efforts of developers - with the aid of politicians, state officials and appointees - to replace the Sunset Beach pontoon bridge with a multimillion-dollar high-rise bridge, a bridge that will likely be as long as the island itself, and a bridge that the majority of the island residents have vigorously opposed for a number of years.

A new bridge would be for the benefit and accommodation of developers, builders and other businessmen in the area whose primary interests are not in preserving the natural beauty of the island's setting or the non-commercial surroundings, or the delightful family vacation environs - the very assets which indeed were most influential in determining for individuals like myself to invest in a single property on the island. These appealing aspects of the island also attract many vacationers who have become disillusioned with the commercialization and crowded conditions of so many other beaches.

Sunset Beach island is the only barrier island on the North Carolina coast whose town boundaries include a significant mainland portion. The mainland section of Sunset Beach and the adjoining areas are already being saturated with golf courses, condominiums, cluster housing, strip malls, mobile homes, etc., - and the present bridge represents to many the only barrier left that may deter more and more concentrated development on the island. As one island resident put it, "Obviously the island and the mainland are quite different in geography, in ecology and in the interest of the residents. At times the interests of each side are not only different but opposed to one another."

Some building codes and zoning restrictions for the island are in place at this time. However, a few facts that might appear to be inconsequential to an uninvolved observer loom greatly in the minds of islanders and are critical components of the problem: (1) the registered island voters are outnumbered and outvoted (approximately 4 to 1) by the mainland majority - which steadily increases as the town council continues to annex additional mainland areas; (2) the island provides approximately 65% of the town's income; (3) the mayor who presides over the town council meetings, public hearings, and workshops, resides on the mainland; (4) the five-member town council is composed of three mainland representatives, the area's major developer and one other member who resides on the island (on island issues the vote is invariably 4 to 1); (5) the three-member Sunset Beach contingent to the South Brunswick Water and Sewer Authority, appointed by the town council, has no island representative; (6) the seven member Planning Board, appointed by the town council, has one island member.

As stated earlier, there are presently building codes and zoning ordinances for the island, but with approval from the state for a huge multimillion-dollar concrete fixed-span bridge, the town council will have further incentive to alter building codes and rezone for whatever purposes they choose. They obviously have the control and ability to do so.

The island residents and property owner who oppose the proposed new bridge (a bridge that would allow the transport of girders to the island, i.e., replacing single - family dwellings with high rise development) do not now have nor are we presently hopeful we shall have in the future, any determination over the destiny of the island. Nevertheless, to permit anyone or any group to destroy a beautiful, small island with commercialization and overdevelopment is, quite simply, wrong, wrong, wrong!

The mayor of Sunset Beach was quoted recently that, "It's not fair for the islanders who came to Sunset Beach from as far away as California to close the doors behind them...If they came, why can they say no one else can come?" (News and Observer, September 12, 1994.) It makes no difference from where we originate; what is important though is our common desire to preserve and protect the island from commercial intrusion and overcrowding. There have to be limits at some point. Unfortunately, mainland officials appear to have an opposing agenda.

We are not alone in our concerns and misgivings regarding overcrowding areas and the subsequent harmful effects. Officials of our national parks (Yellowstone, Grand Canyon, Acadia, etc., each covering hundreds of thousands of acres), have voiced their apprehension that the current problems of overcrowding the parks threaten the ecosystem of the parks. Measures to regulate the number of visitors/tourists/vacationers have been implemented. For example: park campgrounds admit people on a first come, first served basis, with limits on the length of stay and the number of persons allowed; large vehicles, especially trailers and RV's are not permitted on some stretches of many roads; reservations, which are limited in number, are required well in advance for entrance into some areas. The concensus of the park officials is that limiting the number of people at any one time is the first step to a solution.

The point of this is to stress the significant fact that Sunset Beach island is just that - a small piece of land bounded on all sides by water. Unless the developers intend to fill the surrounding wetlands (Heaven forbid!), the only path to increased capacity is up! This can be prevented, and it should be prevented from happening.

State officials and DOT spokespersons have stated they plan to discuss three options regarding the Sunset bridge with the public in October. "In addition to the three options, state officials say they'll consider a `no-build' option and look at rehabilitating the (pontoon)

bridge." (News and Observer, September 9, 1994). The very next sentence reads: "By next spring, the state hopes to issue building permits, but it would still be several years before a new bridge is completed." What is going on? I think the obvious conclusion is that it's a "done deal"! This is absolutely not the manner in which any level of government should operate.

Nevertheless, the "no-build" option (if indeed it is an option) of rehabilitating the present bridge would seem to be feasible considering CAMA's coastal policies and The Coastal Futures Committee's call for "...drastic measures to further shield the state's sand from ruinous overbuilding." (News and Observer, September 8, 1994) Rehabilitation would also appear to be economically expedient at a time when the state's need for more school classrooms and prison cells is urgent.

I am genuinely convinced that a new bridge at Sunset Beach would change forever a beautiful and picturesque island into an overbuilt, overcommercialized and overly congested area from end to end.

We, the ordinary citizens who wish to preserve the naturalness and uniqueness of Sunset Beach island, need your help desperately.

Sincerely,

Robert J. Macaulay, Jr., M.D.

cc: Representative E. David Redwine
Senator R.C.Sole, Jr.

APPENDIX G

PART V

RESPONSES TO SUNSET BEACH TAXPAYERS ASSOCIATION COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Note: *The Sunset Beach Taxpayers Association's (SBTA) letter dated October 3, 1995 is included as part of the Public Transcript of the September 5, 1995 Public Hearing on the Draft EIS. This public transcript is contained in Appendix G, Part IV. Paragraphs of the SBTA comment letter were numbered by hand (as displayed in Appendix G, Part IV) and addressed in the following table (Appendix G, Part V), by paragraph number.*

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RESPONSES TO COMMENTS
FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION
LETTER DATED OCTOBER 3, 1995

Paragraph Number	Comment
Cover Letter/General Response	
	Issues raised in the cover letter are addressed in various responses to comments made in the main body of the Sunset Beach Taxpayers Association's (SBTA) submittal. The Draft Environmental Impact Statement (DEIS) and associated technical memorandum were prepared in strict accordance with the National Environmental Policy Act (NEPA) regulations and related guidelines. Opportunities for public involvement were provided throughout the DEIS process in conformance with NEPA. The DEIS defines the project purpose and need and describes the extent to which each of the alternatives, including no-build, rehabilitation and three builds, satisfies them. The DEIS is not intended to advocate, promote or identify a preferred alternative, rather it presents the potential impacts, both adverse and beneficial, of each of the alternatives considered. However, the DEIS makes an apparent conclusion that the no-build and rehabilitation alternatives do not improve the reliability nor the safety of the Intracoastal Waterway crossing and, therefore, do not satisfy the purpose or need for the project.
1	Comment noted.
2	Opinion noted.
3	Opinion noted.
4	See responses to comments 68 through 101.
5	Opinion noted.
6	Responses to specific statements in this paragraph can be found throughout this document.
7	Opinion noted.

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Development/Redevelopment	
8	Comment noted - quote from DEIS.
9	Opinion/comment noted. As stated on page 3-18, Holden Beach and Ocean Isle were selected for a comparative analysis for several reasons: these beaches are all located in southeastern Brunswick County, they share a regional tourist-driven economy, and development in all three towns was initiated by a single principal landowner/developer. In addition, Holden Beach and Ocean Isle recently had their low-level, one- to two-lane bridges replaced by high-level bridges. As stated on pages 1-22 and 2-7, the existing Sunset Beach pontoon bridge opens on average 10 times per day in the summer and 11 times per day in the fall. A low-level bridge would open with about the same frequency; 6-7 times per day in the summer and 10-11 times per day in the fall.
10	Comment noted.
11	Comment noted.
12	Comment/opinion noted.
13	Comment noted.
14	Comment noted.
15	With respect to rate and type of development anticipated on Sunset Beach island, consideration is given to the proposed central sewer system. However, the future land development patterns and projected traffic volumes, (which contribute to secondary, indirect and cumulative impacts), provided in the Draft EIS were based on the build-out level of the project area as presented in the Town of Sunset Beach Land Use Plan, zoning ordinances and site plan submittals. (See page 4-25 and Section 4.5 of the DEIS.)
16	Comment/opinion noted.

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17	The DEIS recognizes and discusses the development that has taken place to date in Sunset Beach, and development which has taken place in Holden Beach and Ocean Isle before and after bridge replacements, as presented in information related to the case study of beach communities similar to Sunset Beach. With regard to oceanfront lots in Sunset Beach, the original BR-1 zoning designation was adopted by the Town in 1972. A comparison of BR-1 zoning restrictions in 1972 and in 1996 reveals that: both single-family and two-family dwellings have always been permitted in the BR-1 zone; the minimum lot size has always been 7,500 square feet; and the minimum required floor space has always been 1,250 square feet. Most of the zoning changes to the BR-1 district over the 24 years of zoning administration have been to clarify dimensional requirements, to restrict building to "framed-on-the-job" construction, and to specify the exact number of bedrooms allowed per unit. The first zoning change stipulating that the maximum number of bedrooms per structure would be eight was adopted by the Town on January 5, 1981. The objective of this amendment was to set a limit to the number of bedrooms, thereby clarifying an ambiguity of the original ordinance.
18	Comment noted. The DEIS recognizes the statement and agrees that economics as well as other parameters will drive the development, not the replacement of the bridge structure across the Intracoastal Waterway (ICWW).
19	As stated on page 3-23, the Ocean Point condominiums had been in the planning stage for several years prior to the completion of the high-level bridge on Ocean Isle. A package treatment plant had been planned for the project, and would have been less expensive than connecting to Town sewer. Demand was cited by the developer of the project as the most important factor for constructing the condominiums, not the type of bridge access. The planning for the Ocean Point high-rise project began in the early 1980's, as stated by one of the developers and the Ocean Point project manager and verified by the Town of Ocean Isle building inspector. Town records are only kept for five years and are no longer available.
20	Opinion noted. Also, please see response to Comment #9.
Day Visitors	
21	The proposed central sewer system is discussed in the DEIS; however, Interstate Highway 74 (I-74) was still being discussed in Congress at the time of the release of the DEIS. The I-74 interstate project is not included in the 1996-2002 North Carolina *Transportation Improvement Program* (TIP).

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22	As stated on page 4-4, the DEIS recognizes that the number of day visitors to all beaches in North Carolina will continue to increase as the population of coastal counties and mainland communities continues to grow. Traffic volumes, which will include day visitors, are projected to increase independently of the type of bridge access to the island. The availability of parking on the island will be the greatest influence on the number of day visitors to the island. Traffic signals, which will be present with any of the proposed alternatives, can also deter casual visitation. Also, please see responses to Comment #'s 26 and 54.
23	The DEIS does address the proposed central sewer system for South Brunswick County; however, this project is independent of the bridge replacement project and is discussed in that nature. The DEIS recognizes the influence of mainland development in Sunset Beach. On DEIS page 4-10, it is stated that mainland areas have had a substantial influence on growth rates in Sunset Beach and that since 1986, the major focus of mainland development has been Sea Trail Plantation. Based on case studies, the DEIS also recognizes (pages 3-21 and 3-25) that since 1986, the presence of high-level bridges has had little influence on development in Holden Beach and Ocean Isle.
24	Comment/opinion noted.
25	Comment noted.
26	It is expected that I-74 will have no direct influence on traffic volumes crossing the ICWW to the island of Sunset Beach. The amenities described in Comment #26 are not restricted by the current bridge or current access to Sunset Beach. As population increases and resort tourism increases, it is expected that day visitors to the Island of Sunset Beach will increase as well. (See page S-12 of the DEIS. Also, please see responses to Comments #22 and #54.)
27	Comment noted - quote from Technical Memorandum.
28	Comment noted. The DEIS includes analyses of the socioeconomic and secondary land use impacts attributable to the proposed project. It is the responsibility of the local government to determine appropriate zoning and development policies for their area. There is always the possibility that the local government will change zoning and development ordinances, but this possibility exists regardless of the type of bridge access provided over the Intracoastal Waterway. As stated in the DEIS, the Town of Sunset Beach has maintained relatively consistent land use policies over the past decade. (See page 3-15). To predict that the Town's land use and development policies would be drastically relaxed or restricted is speculative and is not supported by the Town's past actions. Also, please see response to Comment #17.

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29	For purposes of the EIS, a year-round resident is defined as a person who resides within Sunset Beach for at least six-months of the year. (*Land Use Impact Report*, p.4) This is the same definition which is used for the *1992 Town of Sunset Beach Land Use Plan Update* which was approved by the Town Council on March 15, 1993. The Town Council approved this definition of year-round resident which is a common definition used in CAMA Land Use Plans because this definition is a better indicator for the demand of public services and utilities. The EIS population estimate is an updated estimate based on the same methodology approved by the Town Council.
30	Page 4-3 of the DEIS states that one person interviewed by Apogee Research felt that even when no public parking is available on the island, visitors still come and park illegally. As stated on page 4-3, those interviewees who felt that Sunset Beach had a liberal policy on non-resident on-street parking also felt that convenient parking was at a maximum on the island. For clarification, no mention is made in the DEIS that Sunset Beach is the only island of the three (referring to Holden Beach and Ocean Isle) that permits parking on both sides of the street the entire length of the ocean front road, nor does it state that Sunset Beach has the most liberal parking policy and beach access of any of the three islands discussed. Main Street (SR 1177) and Sunset Boulevard (SR 1172) are State-maintained streets. NCDOT allows parking on their roads provided driveways and entrance ways are not blocked. The Town does not prohibit parking along these streets.
31	Comment noted. Parking lots are permitted by the Town of Sunset Beach in areas zoned for commercial use, including the island's commercial area along SR 1172. In the island commercial area, two parking lots have been permitted for private use by residents of Sea Trail and Ocean Ridge. The Town ordinance pertaining to the size of parking spaces was changed to 9' x 18', applicable to future parking areas. This ordinance was adopted in September 1995, after DEIS approval, distribution, and public availability. The Purpose Statement of the Off-Street Parking ordinance is "to provide standards that will alleviate congestion in the streets and allow for the efficient parking of motor vehicles while concurrently reducing any adverse environmental impacts to the business areas." The size of the parking spaces was reduced from 10' by 20' to 9' by 18'. The reduction of parking space size is in keeping with current planning and stormwater management practices and is viewed as an effective measure to reduce stormwater run off and provide a more efficient parking layout for the trend towards compact cars. For example, the City of Wilmington, NC sets a minimum parking space size of 8.5' by 18' and New Hanover County, NC uses the same dimensions recently adopted by the Town of Sunset Beach. These off-street parking regulations, as well as the landscaping regulations, impose further restrictions which effectively limit the number of parking spaces as well as the amount of land which can be used for parking.

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Public Trust Tidal Marshes and Water	
32	The DEIS examines impacts to tidal waters and marshes around Sunset Beach island, but not in relation to Section 4(f) rules and regulations for several reasons stated on page 4-73. Table 4.11 lists the impacts to natural resources, including surface water and salt marsh, which are expected to occur under each project alternative. Section 4.3.1.4 discusses the impacts to wetlands and Section 4.3.2 discusses impacts to fisheries resources. Mitigation for these impacts is also addressed in the same sections. Impacts to the boat ramp are addressed in Section 4.1.1.5.
33	Comment noted - quote from DEIS.
34	The Town of Sunset Beach Tax Maps indicate that certain of the wetlands referred to in the DEIS may be privately owned. Tidal marsh wetlands, whether privately owned or completely submerged, may be subject to state public trust ownership or easement. The federal court concluded, however, that as a matter of law these tidal marsh wetlands, even if public trust property, were not subject to Section 4(f) requirements.
35	Comment noted.
36	Please see response to Comment #32 above.
37	The DEIS discusses the impacts to tidal marshes which would be caused by each build alternative more specifically on page 4-59 of the DEIS.
38	Comment noted - quote from DEIS. However, on page 4-35 of the DEIS, it is stated that "if selected, Alternative W1 would be designed to maintain the hydraulic conveyance and navigational characteristics of the Big Narrows Channel." This information is given under the mitigation portion of that section, Section 4.2.1.1. The NCDOT is also looking additional ways to avoid or minimize impacts to water quality, navigability, and salt marsh habitat in the vicinity of Big Narrows which would be created by Alternative W1. The Final EIS will include a discussion of any feasible measures found to avoid or minimize these impacts.
39	See response to Comment #38. It should also be noted that the area around Sunset Beach has been closed to shellfishing due to elevated levels of fecal coliform (DEIS page 3-32). A report prepared by Powell and Associates (1993) notes that high fecal coliform counts were measured in estuarine waters at several locations around the island, with a likely source being breakout from island septic tanks.

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40	On page 4-35 of the DEIS, it is stated that "if selected, Alternative W1 would be designed to maintain the hydraulic conveyance and navigational characteristics of the Big Narrows Channel." Also, this alternative provides 65 feet of clearance over the ICWW at mean high tide. Therefore, Alternative W1 would be consistent with the CAMA Land Use Plan Policy. Also, please see response to Comment #38.
41	Impacts to the boat ramp are addressed in Section 4.1.1.5. As stated on page 4-15, should a build alternative be selected the NCDOT commits to conducting a study during the final design phase of the project to determine the feasibility and practicability of replacing or relocating this informal boat ramp. All of the build alternatives allow unrestricted boat access to Big Narrows channel with regard to height clearances. Alternatives C1 and C4 have no direct effect on the Big Narrows; however, Alternative W1 will involve the relocation of the channel in order to allow for hydrological parameters as well as passage of watercraft in and out of the Big Narrows. It should also be noted that the federal court concluded that the boat ramp is not subject to Section 4(f) requirements. (Also, please see Response to Comment #163.)
42	Most of the boat ramp lies above the mean high tide water line. The ramp is, for the most part, located within NCDOT right of way. The primary use of the NCDOT right of way is not recreational and there is no public agency that regularly maintains, accepts liability for or oversees/administers the boat ramp facility. In order for the boat ramp to be subject to Section 4(f) requirements, it must be designated and administered for a purpose specified in Section 4(f). As previously mentioned, the federal court concluded that no such designation has ever been made with regard to the boat ramp and it is, therefore, not subject to Section 4(f) requirements. It should be further noted that access to navigable waters and any public trust tidal marsh areas will not be affected by any of the build alternatives. None of the build alternatives will restrict navigation along the Atlantic Intracoastal Waterway nor will access to and from the Big Narrows channel be restricted. (Also, please see response to Comment #163.)
Public Safety and Transportation Efficiency	
43	Comment noted.
44	Comment noted - quote from DEIS.
45	Comment noted. The island causeway would not be raised under the No-Build or Rehabilitation Alternatives. The build alternatives would include raising the causeway six inches, which would lessen the frequency of flooding on the causeway.

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46	Comment noted. During the March 13, 1993 storm, the Ocean Isle bridge was closed to vehicular traffic from 10:30 a.m. until 1:30 p.m. for a total of three hours whereas the Sunset Beach bridge was closed to vehicular traffic from 11:30 a.m. until 9:45 p.m. for emergency vehicles and until 10:45 p.m. for private vehicles for a total of 10 to 11 hours. (*Social Impact Report*, p.14-16.)
47	Comment noted.
48	At the present time volunteer firemen reside on the mainland either in the Town of Sunset Beach, Calabash, or in nearby portions of Brunswick County. Currently there are no volunteer firemen residing on the island. It is also noted that there are expenses associated with stationing a fire truck on the island at all times. The Town Council recently voted to fund a salary for a Fire Chief for 1996, but the rest of the department will be volunteer. The North Carolina Department of Insurance specifies minimum requirements for a fire department substation pursuant to G.S. 58-2-40 and G.S. 58-36-10. Substations are required to meet the same building and equipment standards as the main station and all volunteers must meet the same training requirements of at least 36 hours of drills and meetings per year. A State Fire Inspector stated the Sunset Beach Volunteer Fire Department had difficulty in meeting the minimum equipment and manpower standards during its past inspection and it would be straining the resources of this department to operate a substation.
49	The DEIS explains that all build alternatives will improve traffic efficiency and queues or traffic tie-ups in the project area. It will also facilitate and expedite response time to the island from the emergency response team headquarters. It is noted that a heliport landing area on the island would be costly and would have its own share of environmental impacts. Furthermore, on several occasions severe winds have prevented helicopters from being deployed in emergency situations. Heliport emergency medical services in North and South Carolina are located in Winston-Salem, Chapel Hill, Charlotte, Dare County, Greenville, Durham, Asheville, Charleston, and Columbia. Heliport medical services would have at least a one-hour response time to Sunset Beach, if available. Operational costs range from $600 to $1,000 per hour. Moreover, FAA regulations mandate that helicopters must have forward visibility in order to fly, and these services would be severely restricted during storm conditions, such as hurricanes or the March 13 storm. The NC Office of Emergency Services stated that dependable medical ground services are essential in order to provide basic emergency services and that heliport operations should be used for extreme medical situations.

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50	Comment noted. Most coastal islands use roadblocks at bridges to control access to the islands during hurricane evacuations. Thus, the ability to control access will not be diminished if the pontoon bridge is replaced. Although high winds could hamper evacuation efforts across a high-level bridge, advanced warnings typically allow for ample time to evacuate before any threat to life or property.
51	Comment noted.
52	Comment noted.
53	While a low-level bascule bridge would improve vehicular access to Sunset Beach island, it would not substantially improve access for vessels traveling the ICWW. As stated on page 2-7, a low-level structure with 15 feet of vertical clearance would allow only about 34% of the waterway traffic to pass without opening the bridge. Likewise, a higher rate of required bridge openings for waterway traffic, as compared to the build alternatives evaluated in the DEIS, would also result in greater vehicular delays during opening events.
54	Traffic projections prepared by the NCDOT indicate that future traffic volumes on the island are expected to increase in the future and be the same under all alternatives, including the No-Build Alternative. The one exception, as stated on page 2-27, would occur during the summer peak hours when delays would be greatest. During this time period, future traffic volumes under the No-Build Alternative could be about 10-15% lower than traffic volumes under the Build Alternatives since some discretionary trips may be postponed due to traffic congestion. This estimate is based on studies conducted by the NCDOT for waterway crossings proposed at Oak Island and Currituck Sound in North Carolina.
Public Opinion and Surveys	
55	In order to provide complete information to readers of the DEIS, the circumstances under which all public opinion surveys were conducted were reported.
56	The DEIS provides summaries of all comments received through public workshops, mail, and telephone, including comments submitted by the SBTA in 1994, which was the survey at the Island Marketplace.
57	Comment/opinion noted.
58	Comment/opinion noted.
59	Comment/opinion noted.

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FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION
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Island Economic Impacts	
60	Comment noted.
61	See response to Comment #14 above. Although Myrtle Beach is a beach community with nearby golf courses, Myrtle Beach is not a suitable comparison for showing the impact of a bridge-replacement because Myrtle Beach is not a coastal barrier island; therefore, there is no singular bridge access to this mainland beach resort, which is crossed by both US 17 and its bypass. Myrtle Beach also has a larger population. Moreover, Myrtle Beach is located in South Carolina and is subjected to different state regulations than Sunset Beach. Ocean Isle and Holden Beach are only accessible by one bridge access, as is the island of Sunset Beach. Both of these beaches are located only three to twenty miles, respectively, from Sunset Beach. All three beach towns are located in Brunswick County and are subject to the same county and state environmental and planning regulations. Other similarities are noted in the response to Comment #9.
62	Comment noted.
63	Comment/opinion noted.
64	As discussed in Section 4.1.2 of the DEIS, the *Economic Impact Analysis* prepared by Apogee Research, Inc. analyzed the impacts of replacing the existing bridge in terms of its economic effects on mainland commercial activity, mainland property development, expenditures by day visitors, island property values, Town finances, opportunities for house salvaging, and cost of doing business on the island. As discussed in response to Comment #65 below, it is difficult to objectively address the "character" and "charm" that some individuals feel the existing bridge offers to the desirability of living in or visiting the area. In contrast to the positive aspects some people attribute to the bridge, others have commented during the DEIS public review period that the existing bridge is dangerous, inconvenient, and ugly. Based on the widely varying opinions regarding the existing pontoon bridge, it is difficult to place a monetary value on how much the nature of the existing bridge and the feelings it invokes contribute to, or inhibit, the island's ability to attract vacationers and maintain property values. The *Economic Impact Analysis* concludes that "there are not likely to be significant economic effects attributable to bridge-induced development on Sunset Beach island," nor would there be any negative effects on mainland development and commercial activity.

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65	On page 3-12, the DEIS recognizes that the "existing Sunset Beach bridge itself serves as a tourist attraction to some degree. People will travel to the bridge to watch it open and to take photographs." Admittedly, it is difficult to objectively address the "character" and "charm" that some individuals feel the existing bridge offers. On the other hand, some comments received through the public involvement program and from several day visitor survey respondents stated that the Sunset Beach bridge was "scary," "stupid," and "ugly" and actually served as a deterrent for them to visit Sunset Beach.
66	Comment noted. Reference is made to page 31 of the Economic Impact Analysis.
67	Comment/opinion noted.
Bridge Alternatives and Recommendations	
68	The alternatives evaluated in the DEIS were selected for analysis through a preliminary alternatives analysis process. During the preliminary alternatives evaluation process, 11 different alternatives were studied. Opportunity for comments and suggestions from the public and state and local officials was provided during this phase of the project. As discussed in the *Preliminary Alternatives Report*, a Citizens Informational Workshop was held and written information was distributed in a project newsletter, the Town's newsletter, and the SBTA's newsletter.
69	Comment noted. In accordance with NEPA, the DEIS defines the project purpose and need and describes the extent to which each of the alternatives, including no-build, rehabilitation and three builds, satisfies them.
70	Comment noted. However, page 4-35 of the DEIS addresses potential mitigation for impacts that might result from the construction of Alternative W1. Also, please see response to Comment #38.
71	Please see response to Comment #38.
72	Comment noted.
73	Comment noted.
74	Comment noted.
75	Comment noted.
76	Comment noted.

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77	Comment noted.
78	Page 2-42 of the DEIS provides a table describing the costs associated with all of the alternatives, including the three build alternatives (W1, C1, and C4). Although Alternative W1 might be the most expensive high-level bridge alternative with regard to initial construction costs, ($11.4 million versus $11 million for Alternative C1), it is not the most expensive high rise alternative with regard to total costs. Alternative C1's total costs are approximately $16.3 million, while Alternative W1's total costs are approximately $14.3 million. This is due primarily to right-of-way costs as well as maintenance costs. Alternative C1 involves the displacement of three residences and three businesses, while no displacements are required with Alternative W1. Maintenance costs are slightly higher for Alternative C1 because it is a longer structure and there are costs associated with deck replacement.
79	Comment noted.
80	As discussed in Section 7.2.5 of the DEIS, comments have been received in support of all of the alternatives evaluated in the DEIS, including the No-Build, Rehabilitation, and all three of the proposed Build Alternatives.
81	Comment noted. W1 is a viable alternative for many reasons, which include the lowest cost (construction, right-of-way, and 40-year maintenance costs), the fewest residential and business relocations, and the fewest potential hazardous materials sites (zero) of the three build alternatives. Also, please see response to Comment #83.
82	Of the eleven bids received by NCDOT, six were for $9,100,000 or less. The low bid for the project was $8,394,819.55, which is considerably less than $10,000,000. The high bid for the project was $12,204,172.80. The average of all bids received is $8,892,000. The current cost estimate for Alternative W1, which is similar to the western corridor bridge proposed for construction in 1990, is $11,400,000. This amount is 28% higher than the average bid received in 1990 and reflects an increase of 5.1% per year in the construction cost. The Consumer Price Index has been increasing between 3% and 5% during the past five years. This is congruent with the current cost estimate for W1. See response to Comment #81.
83	The estimates for the present day values of the land required for right of way for W1 are included in the acquisition costs for this alternative. These costs were developed by NCDOT right-of-way and relocation specialists on February 8, 1995, and represent the total cost of the present day value of the land, relocation assistance, utilities, and acquisition costs. Right-of-way strip maps and right-of-way areas were prepared by Greiner and used by NCDOT to develop these costs.

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84	Comment noted. The DEIS evaluated many other factors in addition to cost, and there are several factors which will enter into the decision-making process.
85	Comment/opinion noted.
86	Comment noted.
87	Comment noted.
88	Comment noted.
89	Comment noted.
90	Comment noted. Please see response to Comment #80.
91	Comment noted - quote from DEIS.

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92	A two-lane pontoon bridge would operate in a manner very similar to the low-level bascule alternatives evaluated in the Preliminary Alternatives Report. It should be noted that the existing bridge could not be "rehabilitated" to two lanes. A new two-lane pontoon bridge would have to be constructed and this alternative is considered one of the "Build" options. With a two-lane bridge (bascule or pontoon), queuing times would be less than they are with the one-lane bridge. However, as discussed in the Preliminary Alternatives Report, the low-level drawbridges were eliminated from further consideration because they would not accommodate waterway traffic as well as the mid-level drawbridges. A two-lane pontoon bridge would have to open even more frequently than a 15-foot low-level bascule bridge because there would be no vertical clearance under the pontoon bridge. A two-lane pontoon bridge likely would cost more than the Rehabilitation Alternative, but less than a bascule alternative. The proposed two-lane floating pontoon bridge alternative would still be vulnerable to closing during extreme high and low tide conditions, as is a common problem for the existing bridge. As shown on Table 1.3 in the *Social Impact Report*, high water conditions caused the current bridge to close 16 times for at least one to ten hours between January 1992 through June 1994. The elevation differences between the pontoon and approach spans during high and low tides could also inhibit emergency vehicle access to the island, even during fair weather. Other safety problems inherent with the existing pontoon bridge, as described in DEIS Sections 1.3.3, 1.5.1.2, and 1.6, would also exist with a two-lane pontoon bridge. Like the No-Build and Rehabilitation Alternatives, a two-lane pontoon bridge alternative would not satisfy the purpose and need for the project (see Section 1.7). The NCDOT is currently conducting research on the feasibility and practicability of two-lane pontoon bridges. The Final EIS will include a discussion of two-lane pontoon bridges.
93	Comment noted.
94	It is stated on page 2-8 that, due to the nature of the single-lane pontoon bridge, it can not be rehabilitated to federally acceptable standards. Rehabilitating the existing pontoon bridge would also not relieve the existing vehicular and waterway traffic congestion problems described in Section 1.5 of the DEIS. Please see response to Comment #92 regarding the feasibility of a two-lane pontoon bridge.
95	Please see responses to Comments #92 and #223.
96	Comment noted.
97	Comment noted. Please see responses to Comments #92 and #94.

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98	Comment noted.
99	Comment noted.
100	Comment noted. It is likely that a two-lane pontoon bridge would be more expensive than the Rehabilitation Alternative, but less expensive than a bascule or high-level alternative. However, cost is not the only factor considered in the DEIS, nor is it the only factor considered when the NCDOT selects an alternative to implement. Also, please see response to Comment #94.
101	Comment/opinion noted. The basis for this conclusion is not provided.
Conclusion	
102	Comment/opinion noted.
103	The direct and indirect impacts to tidal marshes and the boat ramp are addressed in the DEIS. See pages 4-15, 4-59, 4-60, and 4-61 of the DEIS.
104	The comparative analysis conducted by Hayes and Associates began by selecting beach communities which existed under circumstances as similar to Sunset Beach's as possible prior to construction of replacement bridges. Only then were the effects of replacement bridges on these other communities evaluated and compared to potential impacts at Sunset Beach. It was not the intent of the DEIS to select a site for a comparison of impacts with another site by predetermining the impacts. Also, please see response to Comment #9.
105	The DEIS addresses the central sewer system as an activity that is planned and programmed for the area. However, the DEIS concludes that this project is independent of the bridge replacement proposal and that the bridge project will not result in any substantial change in the rate or type of development on the island as a replacement to an existing facility.
106	Comment noted.
107	Section 1.7 of the DEIS describes the purpose and need of the proposed project. Measures to protect the environment and to mitigate for project-related environmental impacts are discussed throughout Chapter 4 of the DEIS and summarized in Section 4.11.
(Concludes Letter)	

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Addendum I	
Preliminary Alternatives Report	
108	Comment noted - quote from DEIS.
109	The purpose of the Preliminary Alternatives Report is to discuss the discuss build or construction-related alternatives. The no-build option or no-build alternative is discussed in detail in the DEIS. However, the purpose of the Preliminary Alternatives Report is to identify the various and potential forms of construction type alternatives for bridge replacements, thereby allowing the project study team to develop reasonable and feasible alternatives that can be carried into the DEIS for further and more detailed studies. The No-Build and Rehabilitation Alternatives are addressed directly or as part of the category "all proposed alternatives" in the following sections on environmental consequences: Section 4.1.1.2 - Relocation and Direct Land Use Impacts, Section 4.1.1.4 - Land Use Planning, Section 4.1.1.5 - Impacts to Community Facilities and Services, 4.1.1.6 - Pedestrian and Bicycle Considerations, Section 4.1.1.7 - Other Community Issues, Section 4.1.2.1 - Mainland Economic Impacts, Section 4.1.2.3 - Other Economic Impacts, Section 4.1.3 - Utilities, Section 4.1.4 - Visual Environment, Section 4.1.6 - Energy, Section 4.2.1 - Hydrology, Section 4.2.2 - Water Quality, Section 4.2.3.1 - Geology and Soils, Section 4.2.4 - Hazardous Materials, Table 4.7 - Air Quality Modeling Results, Table 4.9 - Summary of Projected Traffic Noise Impacts, Section 4.3.1 - Biotic Communities, Section 4.3.2 - Fisheries Resources, and Section 4.4 - Construction Impacts.
110	See response to Comment #109. Also, it should be noted that the Rehabilitation Alternative is not considered a bridge replacement alternative. It is a rehabilitation of the existing structure and is considered a form of a no-build option since it is an "in-kind replacement." The Rehabilitation Alternative and No-Build Alternative do not include modifications to the approach roadway. Raising the approach roadway on the island would necessitate total reconstruction of the timber approach on the island side to connect the raised grade of the road to the bridge approach. Additionally, lane management will not improve structurally deficient and functionally obsolete problems associated with the existing bridge. Lane management will also not lead to improving the safety and reliability of the existing bridge. For these reasons, lane management would not satisfy the primary purposes and need for the replacement of the existing bridge.
111	Comment/opinion noted.
112	Reference is made to "Alternative C3I" which is a two-lane pontoon bridge. Please see responses to Comment #'s 92 and 95.

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113	Although not specifically mentioned in the DEIS, NCDOT's projections of future traffic in the project area took into account the improvement and extension to Georgetown Road, and all other projects as proposed in the Transportation Improvement Program and the approved Brunswick County Thoroughfare Plan.
114	The purpose of the *Preliminary Alternatives Report* is to discuss the build or construction-related alternatives. The No-Build and Rehabilitation Alternatives are discussed fully in the DEIS.
115	Subsequent to the *Preliminary Alternatives Report*, more detailed traffic studies were conducted and the results of these studies are summarized in the DEIS. As stated on page 2-34 of the DEIS, "without widening NC 179, future levels of service under the build alternatives would generally be the same or better than future levels of service under the No-Build Alternative." The queuing analysis described in Section 2.3.1.4 concludes that queue lengths would be greatest for the No-Build and Rehabilitation Alternatives.
116	Comment noted.
117	Comment noted.
118	At the time the *Preliminary Alternatives Report* was completed, the following was also concluded about Alternative C1 (see page 31 of the report): it is the least costly of the alternatives, operations and maintenance costs are low, involves no roadway fill in salt marsh, and it provides uninterrupted travel service for vehicular and waterway traffic.
119	The comment does not specify or identify the four conclusions it refers to. However, information regarding anticipated impacts to protected species is presented on page 20 of the *Preliminary Alternatives Report*. Again, the *Preliminary Alternatives Report* serves as a tool for comparing various build alternatives developed during the early phase of the study. The woodstork was the only species identified in the project area that might be affected directly as a result of the project. Other protected species in the project vicinity were evaluated in terms of potential secondary impacts. During the course of the alternatives evaluation and selection process, none of the build alternatives were expected to adversely affect any protected species.
120	The criteria used to evaluate the preliminary alternatives were selected based on the data available at the time of the study. Reasons for the elimination or combination of criteria are given on pages 25 and 26 of the *Preliminary Alternatives Report*. All of the criteria listed in this section of the report were re-evaluated for each of the build alternatives during more detailed studies conducted subsequent to the *Preliminary Alternatives Report* the results of which are summarized in the DEIS.

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121	The Sunset Beach bridge is not listed on the National Register of Historic Places. In a letter dated October 15, 1994, the North Carolina Department of Cultural Resources concurred with the determination that the existing bridge is not eligible for listing on the National Register of Historic Places.
122	This criterion refers primarily to publicly owned parks and was eliminated because there are no such public facilities in the project study area that would be directly impacted by the alternatives evaluated. It was assumed that any public facilities that exist in the project vicinity would be equally affected by any of the alternatives. This is the case with the publicly owned beach and gazebo parking area (addressed as Section 4(f) resources in the DEIS). The public trust waters and marsh are addressed as natural resources. The informal boat ramp/launch area on the causeway would be equally impacted by all of the alternatives considered in this analysis.
123	The "Public Involvement" section of the *Preliminary Alternatives Report* was included to advise the reader of public involvement activities and opportunities. Comments received at the project Scoping Meeting and Citizens Informational Workshops were considered during the process to select and develop alternatives for further study during preparation of the DEIS.
124	Weighting factors were not assigned to any of the selection criteria or selection parameters since individuals may view or weight each parameter differently. During this phase of preliminary alternative evaluation, it was determined that there was no basis for providing weight to the various selection criteria. Therefore, they were discussed in general terms by assigning them an advantage or disadvantage rating. The purpose of this analysis is to determine if there are significant issues regarding any one alternative and to be able to provide a broad comparison of the alternatives under consideration.
Visual Impact Assessment Report	
125	Comment noted - quote from the *Visual Impact Analysis.*
126	Comment noted.

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127	Comment/opinion noted. Page 14 of the *Visual Impact Analysis* report describes the methodology used to develop the Levels of Visual Quality. As shown on Form 4 in Appendix B of the *Visual Impact Analysis* report, the existence of Public Trust Waters is accounted for under the heading "Land Use," which is given the highest value (3) due to the Public Trust Waters. The presence of scenic views in the area is also accounted for on Form 4 by the assignment of the highest value (3) to the heading "Special Considerations." As defined by the US Army Corps of Engineers in their *Visual Resources Assessment Procedure* (1988), the heading "User Activity" is used to define the types and frequency of uses of the area (i.e., water recreation, river viewing, residential). The heading "Water Resources" is used in the *Assessment Procedure* to define the types and conditions of water resources in the area (i.e., a swift-moving river or a polluted stream). Also as defined in the *Assessment Procedure*, the Management Class "Preservation" is used for areas which are "highly valued and are often protected by Federal and State laws. These areas include wilderness areas, some natural areas, portions of wild and scenic rivers, historic sites and districts, and similar situations where changes to existing resources are restricted." The "Retention" class is assigned to areas which "are regionally recognized as having distinct visual quality, but may not be institutionally protected." As concluded in the *Visual Impact Analysis* report, the area surrounding the existing pontoon bridge is best defined by the "Retention" class.
128	Comment/opinion noted. The evaluations included in Form 6 are based upon the dominance that the project (in this case the proposed bridge) would have in the landscape view and against the horizon. The island locations are distant to the point where a new bridge would not dominate the viewshed area. Computer enhanced images were created for four of the eight views evaluated (1-IE, 4-MC, 7-MC and 8-ME). Computer enhanced images were not prepared for views 2-IC, 3-IW, 5-IC, and 6-MW.
129	Comment/opinion noted.
130	Comment noted - quote from *Visual Impact Analysis*.
131	Comment/opinion noted.
132	Comment/opinion noted.

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133	The lighting proposed for any of the build alternatives is limited to navigational lighting mounted on the bridge to aid watercraft operators in locating and identifying the navigable waterway in the vicinity of the bridge. The effects of bridge night lighting on wildlife in the project vicinity are discussed throughout Section 4.3 of the DEIS. The conclusion reached is that bridge night lighting would not have an adverse impact on wildlife. The minimal bridge night lighting would also not create an adverse visual impact for humans. A statement regarding the visual impacts of bridge night lighting on humans will be included in the Final EIS.
Cost Effectiveness/Life Cycle Analysis Report	
134	Comment noted - quote from the *Preliminary Alternatives Analysis.*
135	Comment noted - table adapted from the *Cost Effectiveness/Life Cycle Analysis* report.
136	The public agency initial costs, which consist of right-of-way and construction costs, are supported by documentation and correspondence contained in the project files and referenced in Chapter 5 of the DEIS. Greiner prepared quantity estimates for the construction items necessary to build the project and developed areas for the required right-of-way. These quantities were forwarded to NCDOT, and NCDOT utilized extensive background data to develop the current costs for each quantity. A list of the major quantities and associated costs is included in Table 2.9 of the DEIS. NCDOT maintains a database of the unit costs of all construction items. This database is set up to track and estimate costs based on similar types of projects and locations. This database is the best means for estimating the cost of ground transportation projects in North Carolina. The right-of-way costs were developed from areas taken from current tax maps provided by the Town of Sunset Beach. NCDOT right-of-way agents used the areas to develop the land acquisition costs. The Relocation Reports are included in Appendix D of the DEIS. Additionally, a summary of the right-of-way, relocations, utilities, and acquisition costs for the three build alternatives is located in the project files.
137	Comment noted. See also response to Comment #82.
138	Comment/opinion noted.
Noise Impact Assessment Report	
139	Comment noted - quote from DEIS.
140	Comment noted - quote from DEIS.

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141	Comment noted - quote from DEIS.
142	Comment noted.
143	A noise analysis was not conducted for sites on the island for two reasons: 1) island residences are too far from the proposed bridge alternatives and associated relocated roadways, and 2) traffic volumes on the island are not projected to substantially change as a direct result of the proposed project. The proposed bridge alternatives would be located at least 2,000 feet from the nearest island residences. Noise levels would substantially attenuate over this distance. Future traffic volumes on the island are projected to be the same under the No-Build and Rehabilitation Alternatives as they would be under the Build Alternatives, with the exception of a 10-15% possible reduction in peak-hour summertime trips under the No-Build and Rehabilitation Alternatives due to postponement of some discretionary trips. A 10-15% difference in traffic volumes results in a difference in hourly average noise levels of less than one decibel. Noise analyses are site-specific and noise levels depend on the traffic volumes, speeds, locations of noise-sensitive receivers, and unique geography/topography at each site. In regards to noise, comparisons to other sites are not appropriate.
Queuing Analysis	
144	The purpose of the queuing analysis was to investigate the affects of bridge openings on vehicular flow. The queuing analysis was not performed to analyze the operational effect of traffic signals at intersections. The signalized intersections were studied separately and are included as a part of the *Traffic Capacity Analysis*. An analysis was performed for each signalized intersection and the number of lanes required to provide an acceptable level of service was determined. The queue lengths for the signalized intersections are used in preliminary and final design to determine storage and turn lane lengths, but this level of detail is not normally expected at the functional design stage. All of the alternatives, including the no-build, are expected to require traffic signals in the future, and the effectiveness of these signals would be decreased by the additional queues caused by bridge openings. Again, the purpose of the queuing analysis was to determine the affects of the bridge openings only on the intersection at SR 1172 and NC 179.
145	Comment/opinion noted.

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146	Comment/opinion noted. The build alternatives retained for evaluation in the DEIS are all considered reasonable and feasible options. Build alternatives not considered reasonable and feasible were eliminated from further consideration during the preliminary alternatives analysis phase of the study. The no-build and rehabilitation options do not meet the purpose and need of the project and were retained for further study for comparative purposes in the design year.
147	Comment noted - quote from DEIS.
148	The DEIS and its associated studies do not support the hypothesis that there will be an increase in the number of vehicles or day visitors to the as a result of a bridge replacement. Admittedly, a new bridge, regardless of the alternative, will result in safer and more reliable access than the existing bridge currently permits. The corrections are appreciated, and it is noted that the Town's ordinance applies only to frontal dunes and that not all public beach accessways have fences or walkways. However, while the Town's dune ordinance may not prohibit walking on the frontal dunes, relocating or disturbing a fraction of a dune, which is prohibited by the ordinance, would be difficult to avoid if the frontal dunes were walked upon.

149	The amounts and types of boat traffic using the Intracoastal Waterway would not change due to the proposed project. Dredging Big Narrows, as proposed with Alternative W1, is not expected to significantly alter the tidal flows or navigability of the channel based on NCDOT's commitment to maintain the hydraulic, hydrologic and tidal regime characteristics of the area. The discussion in Section 4.3.2 of the DEIS acknowledges that the Build and Rehabilitation Alternatives would increase turbidity and siltation when the area is disturbed during construction. The NCDOT proposes to impose a moratorium on excavation and filling in the saltmarsh and surface waters from April 1 to September 30 of any given year in order to protect juvenile shrimp and fin fish populations. A discussion of this moratorium will be included in the Final EIS for the project. If a high-level bridge is constructed, the average speeds of boats traveling through the area could increase, which in turn, could increase wave action along the waterway shoreline in the immediate vicinity of the bridge and cause additional erosion and siltation. Without extensive flow rate, sediment transport and hydrological analyses, it would be difficult to assess the magnitude of impact that the changes in wave or wake activities might yield. It appears as though erosion and sedimentation patterns along the Atlantic Intracoastal Waterway in the vicinity of Sunset Beach are not unlike those near Ocean Isle and Holden Beach. Much of the sediment that is evident in or near inlet areas along the Intracoastal Waterway is likely to have occurred via overland transport as a result of construction and development activities. It should further be noted that commercial waterway traffic is unrestricted at the present time. For pleasure craft, boat speeds would only change in the immediate (several hundred feet in each direction) vicinity of the existing bridge. Big Narrows Channel and Slough Canal are the only inlet areas within this distance of the existing bridge. As stated in Section 4.2.1.1 of the DEIS, the build alternatives (W1, C1, and C4) would require fewer piers in the water spaced farther apart than the existing bridge. The decrease in number of piers and the increase in spacing would decrease the flow resistance in the Intracoastal Waterway, creating better flushing characteristics for the Waterway and secondary channels in the vicinity. In addition, other types of pollutant releases into the area waters which could harm fisheries resources, such as oil, grease, and bilge water may decrease if a build alternative (W1, C1, or C4) is implemented because boats would not idle as frequently or as long in the area as they do under existing conditions.
150	Comment noted - quote from DEIS.

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151	See response to Comment #148. Furthermore, no changes in tidal flow regimes are anticipated due to the dredging of Big Narrows Channel (Alternative W1). Build alternatives that avoid the relocation of Big Narrows Channel have been evaluated and analyzed. Mitigation options for maintaining flows into the Big Narrows Channel can be implemented, if necessary.
152	Comment noted - quote from DEIS.
153	Impacts to the wood stork are discussed on pages 4-63 and 4-64 of the DEIS. Qualified biologists who prepared the Natural Resources Technical Memorandum for the project concluded that the proposed alternatives would not adversely affect the wood stork. The US Fish and Wildlife Service concurs with these findings.
154	Biologists knowledge of animal behavior and previous experience (papers, research, etc.) supports this conclusion. The US Fish and Wildlife Service concurs with these findings. Future traffic volumes on the island and surrounding salt marsh are projected to be the same under the No-Build and Rehabilitation Alternatives as they would be under the Build Alternatives, with the exception of a 10-15% possible reduction in peak-hour summertime trips under the No-Build and Rehabilitation Alternatives due to postponement of some discretionary trips. A 10-15% difference in traffic volumes results in a difference in hourly average noise levels of less than one decibel.
LAND USE IMPACT REPORT (Hayes & Associates)	
155	Comment noted - quote from the *Land Use Impact Report.*
156	See response to Comment #29.
157	Comment noted - quote from the *Land Use Impact Report.*
158	For purposes of the EIS, the extensive marshlands, shorefront, and waterways are designated as undevelopable land. These areas are regulated as Areas of Environmental Concern and are limited from development by both state and local regulations.
159	Correction noted and additional text to be included in Final EIS cited: Another limiting factor is that approximately 60 percent of the island and ***49*** percent of the ***corporate*** mainland have been developed. Most of the vacant land which will be developed over the next 20 years is the mainland extraterritorial area located around two golf courses.

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160	Comment noted. See response to Comment #159.
161	Comment noted - quote from the *Land Use Impact Report.*
162	Comment noted.
163	The boat launching area near the Sunset Beach bridge is not an "official" boat ramp in the sense that it is not owned, operated, or administered as a boat launching facility by any local, county, state, or federal agency. According to the Brunswick County Parks and Recreation Director, the county owns and maintains only the Navassa and Belville boat ramps. The County Operations Department has occasionally deposited marl at the Bonaparte Retreat and Sunset Beach Bridge boat launching areas, as requested by a County Commissioner. This information will be added to the Final EIS. The NCDOT recognizes the boat ramp as a significant resource and, as stated on page 4-96 of the DEIS, the NCDOT will conduct a study during the final engineering design phase to determine the feasibility and practicability of replacing or relocating this ramp.
164	Comment noted - quote from the *Land Use Impact Report.*
165	The day visitor survey was only used to assess factors which influenced day visitors and this survey was not used in conjunction with land development analysis. The conclusion that replacing the existing Sunset Beach pontoon bridge with a more reliable two-lane structure would not greatly accelerate the pace or character of development in Sunset Beach is supported by the extensive case studies conducted for Holden Beach and Ocean Isle. These case studies, summarized in Sections 3.1.2.3 and 4.1.1.3 of the DEIS, analyzed the following three factors: growth trends indicated by historical building permit data, interviews with key people in each community, and examination of the history of each community's CAMA Land Use Plan and land use regulations.
166	In the late 1980's, Mr. Ed Gore donated to the Town of Sunset Beach a 35-acre tract located on the west end of the island with a stipulation that the land be used as parking lot within three years or revert back to private ownership. The Town determined that it was not feasible to build an access road to the parking lot; therefore, the land reverted back to private ownership.
167	Comment noted - quote from the *Land Use Impact Report.*
168	Comment noted - quote from the *Land Use Impact Report.*
169	Comment noted - quote from the *Land Use Impact Report.*
170	Comment/opinion noted.

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171	Correction noted. The sentence will be revised in the Final EIS to read: *"Most of the vacant, developable land has been subdivided which facilitates determining carrying capacity."* The tract north of the bay on the east end (referred by some as Block 40-F) has not yet been subdivided. The maximum potential lots for this tract based on land use regulations were included when determining carrying capacity. All other areas are considered as undevelopable because of both state and local regulations which severely limit development in Areas of Environmental Concern.
172	Comment/opinion noted.
173	The assumptions used to formulate the carrying capacity analysis were based on growth policies stated in the *1992 Town of Sunset Beach CAMA Land Use Plan Update* and as stated on page 16 of the *Land Use Report*. The CAMA Land Use Plan (page 67) specifies the type of residential development desired for both the island and the mainland. All the assumptions are based on the official growth policies adopted by the Town Council. As stated on page 3-15 of the DEIS, the Town has historically maintained a consistent attitudes towards growth.
174	Comment/opinion noted.
175	The number one issue during the 1992 CAMA Land Use Planning Process for both island and mainland residents was preventing high-rise development on the island of Sunset Beach. This issue was the major concern at the March 26, 1992 Land Use Plan Public Meeting as well as in the survey. Both island and mainland survey respondents expressed overwhelming support for limiting building height on the island to 35 feet in questions 6, 10, and 11. (*1992 Land Use Plan Update*, Appendix) For these reasons, the Sunset Beach Town Council petitioned the North Carolina General Assembly to enact legislation which requires a public referendum to change the 35-foot building height requirement which was ratified on June 17, 1993. The voting scenario presented on pages 18 and 19 is based on the premise that the political will of all registered voters in the entire Town, not just the island, would have to change dramatically in order to revoke the 35-foot building height requirement. Furthermore, the referendum requirement may only be abolished by the Town Council petitioning the North Carolina legislature to rescind the referendum legislation.
176	The proposed sewer system to the island is being designed to accommodate single-family development. Major engineering improvements to the sewer system would need to be implemented in order to accommodate denser development.
177	Comment noted.
178	Comment/opinion noted. The M3-3 district applies only to the mainland.
179	Comment noted - quote from the *Land Use Impact Report.*

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180	Comment noted - quote from the technical memorandum titled *Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC.*
181	Comment noted.
182	Comment noted.
183	Comment/opinion noted.
184	Comment noted.
TECHNICAL MEMORANDUM - *"THE INDUCED IMPACT ON LAND USE AS THE RESULT OF HIGH RISE BRIDGE REPLACEMENT AT HOLDEN BEACH AND OCEAN ISLE, NC"* (Hayes & Associates)	
185	Comment/opinion noted.
186	Both the North Topsail and the Bogue Banks bridges were not selected as relevant for case studies for a bridge replacement to Sunset Beach for three reasons: first, both of these bridges were new transportation linkages instead of being replacement bridges; secondly, both of these new bridges provided access to primarily undeveloped areas of larger barrier islands instead of providing access to an existing developed community; and thirdly, the North Topsail bridge is located in Onslow County and the Bogue Banks bridge is located in Carteret County which are more than 90 miles from Sunset Beach, as opposed to the Ocean Isle and Holden Beach Bridges which are three and twenty miles from the Sunset Beach bridge, respectively.
187	Comment/opinion noted. Please see response to Comment #9.
188	Comment noted - quote from the *Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC.*
189	Comment/opinion noted.
190	Comment noted - quote from the *Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC.*
191	Comment/opinion noted.

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192	Comment/opinion noted.
193	Comment noted - quote from the *Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC.* As summarized in page 3-19 of the DEIS, the types of people interviewed included elected officials, town government, real estate, and retail interests.
194	Citation taken out of context. Apogee Research is referring to projections of population composition (i.e. ratios of seasonal and permanent island residents) when they state, "Evidence is impressionistic and not conclusive, however, and we cannot forecast the likely demographic impacts (and associated economic effects) of the proposed bridge replacement." This statement is not intended to refer to the applicability of the interviews.
195	Comment noted - quote from *Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC.*
196	Comment noted.
197	Comment noted - quote from *Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC.*
198	Comment noted - quote from *Induced Impact on Land Use as the Result of High Rise Bridge Replacement at Holden Beach and Ocean Isle, NC.*
199	This document focuses on the development of Holden Beach and Ocean Isle, NC. The Technical Memorandum "*Land Use Impact Report*" discusses the Sunset Beach CAMA Land Use Plan extensively. In particular, Sunset Beach policy statements concerning growth and development are cited on pages 15, 16, and 17.
SOCIAL IMPACT REPORT (Hayes & Associates)	
200	Comment noted - quote from *Social Impact Report.*
201	Comment/opinion noted.
202	Comment noted.
203	Comment noted - quote from *Social Impact Report.*

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204	Comment noted - quote from *Social Impact Report.*
205	Comment noted - quote from *Social Impact Report.*
206	Comment noted.
207	Comment noted - quote from *Social Impact Report.*
208	The conclusions regarding public safety are stated in the Executive Summary and one major finding is stated as follows: "Without exception, all town and public officials who were interviewed regard the current pontoon bridge to be a major threat to public safety and urge that a new bridge access be built as soon as possible." Additionally, accident data were reviewed for the three-year period beginning July 1, 1990, and ending June 30, 1993. These data indicate that no accidents occurred in the vicinity of Ocean Isle bridge and only one accident occurred in the vicinity of the Holden Beach bridge. The accident near the Holden Beach bridge was caused by a failure to yield while making a left turn and was not attributable to the bridge structure, posted speeds, or its two-lane, uninterrupted (by watercraft) service.
209	The traffic projections discussed in the Section 1.5.1.3 of the DEIS are based on projected year 2019 land uses consistent with the CAMA Land Use Plan. Since the traffic projections are based on future land uses, the traffic projections are the same for each project alternative under consideration, with one minor exception. Under the No-Build and Rehabilitation Alternatives, future traffic volumes during the summer peak hours may be 10-15% lower than they would be under the build alternatives since discretionary trips to/from the mainland may not occur as often due to delays and congestion created by frequent pontoon bridge openings (see DEIS page 1-16). These estimates are based on studies conducted by the NCDOT for bridges at Oak Island and Currituck Sound.
210	Comment noted. All bridge replacement alternatives will accommodate bicycle and pedestrian traffic. As discussed in Section 4.1.1.6 of the DEIS, the proposed build alternatives (Alternatives W1, C1, and C4) would provide for safer bicycle/pedestrian travel over the Intracoastal Waterway and along the causeway portion of SR 1172. All three alternatives would include five feet of lateral clearance in both directions on the bridge and four-foot wide paved shoulders on the mainland bridge approach and along the island causeway. Bicycle-safe bridge rails and safe drainage covers would be installed. Alternative C4 would provide more convenient access for pedestrians and bicyclists than Alternatives W1 and C1 since it would not be as high and would require a shorter climb/descent.
211	Comment noted. SBTA poll results noted.

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212	Comment noted.
213	Comment noted. CAMA Land Use Plan citation noted.
214	Comment noted. CAMA Land Use Survey results noted.
215	Comment/opinion noted.
216	See response to Comment #50.
217	Comment/opinion noted.
218	Comment noted. Articles noted.
219	Comment noted. Quote from technical memorandum.
220	The NCDOT does not intend to allow the sewer line to be attached to the bridge due to both the expense from increased design and possible liability issues. Furthermore, neither Alternative C4 nor a rehabilitation option would accommodate a sewer line attachment since the spans are movable. Additionally, the scheduling of the proposed sewer line construction will not necessarily follow the schedule for bridge construction which has yet to be established and, therefore, would not make attaching the sewer line to the bridge desirable. These issues are addressed on page 4-26 of the DEIS and page 4 of the *Water Quality and Sewer Service Technical Memorandum*.
221	See response to Comment #220.
222	Comment noted. Quote from technical memorandum.

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FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION
LETTER DATED OCTOBER 3, 1995

223	The floating pontoon bridge has a weight limit of 16 tons for single vehicles and 21 tons for trucks with trailers. According to the Capital City Ready-Mixed Concrete Company of Raleigh, NC (November 27, 1995), one cubic yard of concrete weighs 2 tons and an empty 10-cubic yard concrete truck weighs about 15 tons. Therefore, a one-third full standard-sized concrete truck would be able to cross the Sunset Beach pontoon bridge. According to the Raleigh Truck Weigh Station (November 27, 1995), small dump trucks and other 2-axle trucks weigh about 20 tons loaded and would also likely be able to cross the bridge. It would be more expensive to transport more numerous, smaller loads across the pontoon bridge and more expensive to design buildings with the bridge weight limit in mind. However, based on the information above and the bridge's current weight limit of 21 tons, it appears possible to deliver to the island the construction materials needed to build multi-level structures. The amount of stormwater runoff due to development on the island is primarily a function of the impervious surfaces on the island. The amount of allowable impervious surface on a developed lot is regulated by Town zoning and is not related to the type of bridge access to the island.
224	Comment noted. Quote from technical memorandum.
225	The Intracoastal Waterway channel is maintained at a depth of 12 feet to accommodate shallow-draft vessels, independent of vessel speed. Please see response to Comment #149.
226	Comment noted. Quote from technical memorandum.
227	Comment noted.
228	Comment noted.
229	Comment/opinion noted.
230	Comment noted.
231	Comment/opinion noted. Increases in day visitors could result in additional needs for policing, trash pickup, and road maintenance. However, the DEIS addresses the conclusions to project studies that indicate there will be no substantial increases to day visitors to the island as a result of a bridge replacement. See also response to Comment #22.
232	Comment noted.
233	Comment/opinion noted.

RESPONSES TO COMMENTS
FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION
LETTER DATED OCTOBER 3, 1995

234	Comment noted.
235	Comment/opinion noted.
236	Comment noted.
237	Comment/opinion noted.
238	Comment noted.
239	Comment noted.
240	Comment noted.
241	Comment/opinion noted.
242	Comment/opinion noted.
243	Attachments noted.

APPENDIX H

APPENDIX H

MITIGATION PLAN

CONCEPTUAL MITIGATION PLAN

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE ATLANTIC INTRACOASTAL WATERWAY
AT
SUNSET BEACH, NORTH CAROLINA

Federal-Aid Project No. BRS-1813(1)
State Project No. 8.2230101
TIP No. B-682

PREPARED FOR:

PLANNING AND ENVIRONMENTAL BRANCH
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PREPARED BY:

GREINER, INC.
RALEIGH, NORTH CAROLINA

June 1997

CONCEPTUAL MITIGATION PLAN

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June 5, 1997

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I. INTRODUCTION

A. Project Description and Need

The proposed action is the replacement of Bridge No. 198 on Secondary Road 1172 (SR 1172) in Brunswick County, North Carolina. Bridge No. 198 spans the Atlantic Intracoastal Waterway (AIWW) and connects the island portion of the Town of Sunset Beach with the mainland portion of the town.

This bridge replacement is identified as Project Number B-682 in the North Carolina Department of Transportation's (NCDOT) 1996-2002 Transportation Improvement Program (TIP). Project B-682 is programmed in the TIP for planning and environmental studies. A schedule for design, right of way, and construction has not been established in the TIP since Project B-682 is the subject of a current US District Court case.

In February 1994, the existing bridge was inspected and determined to be in poor condition. The bridge was given a sufficiency rating of 4.0 on a scale of 0 to 100, with 100 being perfect condition. The purpose of the project is to replace the structurally deficient and functionally obsolete existing bridge. In general, functionally obsolete bridges are those which are narrow, have inadequate underclearances, have insufficient load-carrying capacity, or are poorly aligned with the roadway and can no longer adequately service current traffic. Structurally deficient bridges are those which are in relatively poor condition or have insufficient load-carrying capacity which may be due to original design or to deterioration.

The existing Sunset Beach bridge is a single-lane, floating steel-barge, swing-span draw bridge, with fixed wooden approach spans, which is often referred to as a pontoon bridge. Since the bridge provides only a few feet of vertical clearance under the approach spans, virtually all waterway traffic (except small john boats) is blocked when the bridge is closed to allow roadway traffic to cross.

Replacement of the existing pontoon bridge with a new structure would provide a more reliable means of transportation between the island and the mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures. Furthermore, a new facility would enhance vehicular operations on SR 1172 and watercraft operations on the Intracoastal Waterway.

B. Study Area

The location of the project in relation to the state of North Carolina is presented in Figure 1. Figure 2 shows the project study area, which is located in the Town of Sunset Beach, Brunswick County, in the extreme southeastern part of North Carolina. The general study

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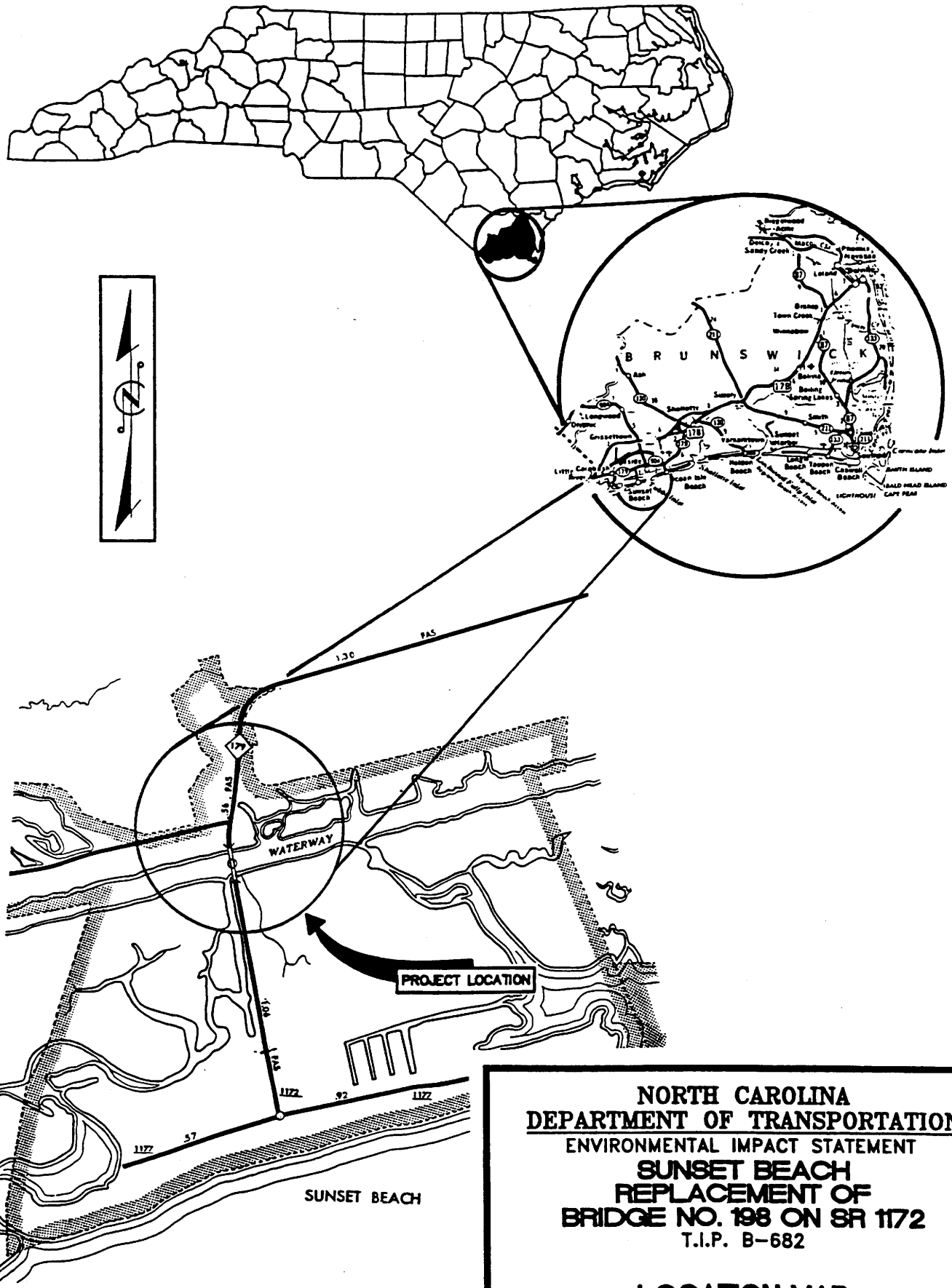


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

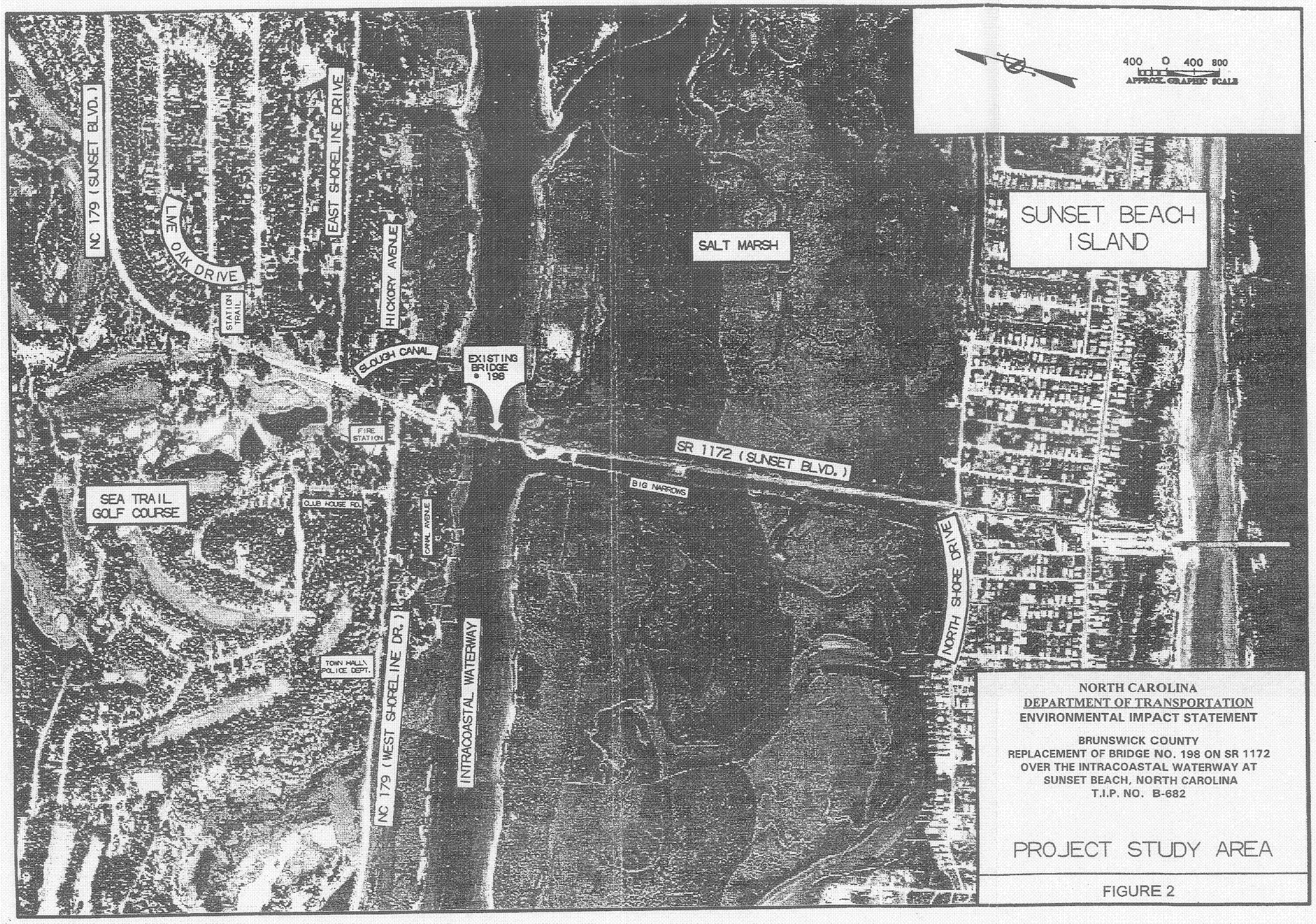
ENVIRONMENTAL IMPACT STATEMENT

SUNSET BEACH REPLACEMENT OF BRIDGE NO. 198 ON SR 1172

T.I.P. B-682

LOCATION MAP

FIGURE 1



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

PROJECT STUDY AREA

FIGURE 2

area includes the area around the existing bridge and SR 1172 that is bounded by North Shore Drive on the island portion of Sunset Beach and Station Trail on the mainland.

Ocean Isle Beach is the next developed beach up the coast from Sunset Beach. Down the coast, the next developed beach is Cherry Grove Beach, South Carolina. The mainland towns of Seaside (up the coast) and Calabash (down the coast) are the towns adjacent to Sunset Beach. The largest municipality in the area is Shallotte, located on US 17, northeast of Sunset Beach.

C. Methodology

Field surveys were undertaken by project team members to evaluate existing plant communities and to determine existing conditions. Additionally, project team members reviewed black and white, color and infrared aerial photography; pre-development (circa 1950) and current US Geological Survey topographic mapping; US Fish and Wildlife Service National Wetland Inventory Maps; and the Natural Resource Conservation Service soil survey for Brunswick County dated 1986. Subsequent to the selection of a Preferred Alternative, site reviews and wetland boundary delineations were undertaken by NCDOT biologists.

A limited number of wetland community types are found in the project study area. They include nonriverine hardwood forest, salt marsh, salt scrub, and freshwater lake fringe. Surface waters, including the Atlantic Intracoastal Waterway, tidal creeks and a small golf course impoundment, are also found within the study area.

Alternative W1R, depicted on Figure 3, involves the construction of a high-level, fixed span bridge over the AIWW, providing a vertical clearance of 19.8 meters (65 feet) above mean high tide. In addition to new bridge construction, improvements to NC 179 and mainland and causeway portions of SR 1172, and minor realignment of East Shoreline Drive, will be made. The island causeway will be raised approximately 13 centimeters (5 inches) to reduce flood overtopping that periodically occurs.

Based on the preliminary design drawings for Alternative W1R, wetland impacts will result from dredging for construction barge access on the mainland, temporary and permanent fill, and shading. Two types of wetlands will be impacted by the preferred alternative: salt marsh and freshwater lake fringe. Salt marshes occur extensively between the mainland and barrier island along the AIWW and SR 1172 causeway to the island. Freshwater lake fringe occurs along the perimeter of a small impoundment located on a mainland golf course.

Tables 1 and 2 provide estimates of natural resource impacts and impacts to waters of the United States, respectively. As shown in these tables, Alternative W1R will permanently impact 0.25 hectare (0.63 acre) of salt marsh community. Approximately 1.73 hectares

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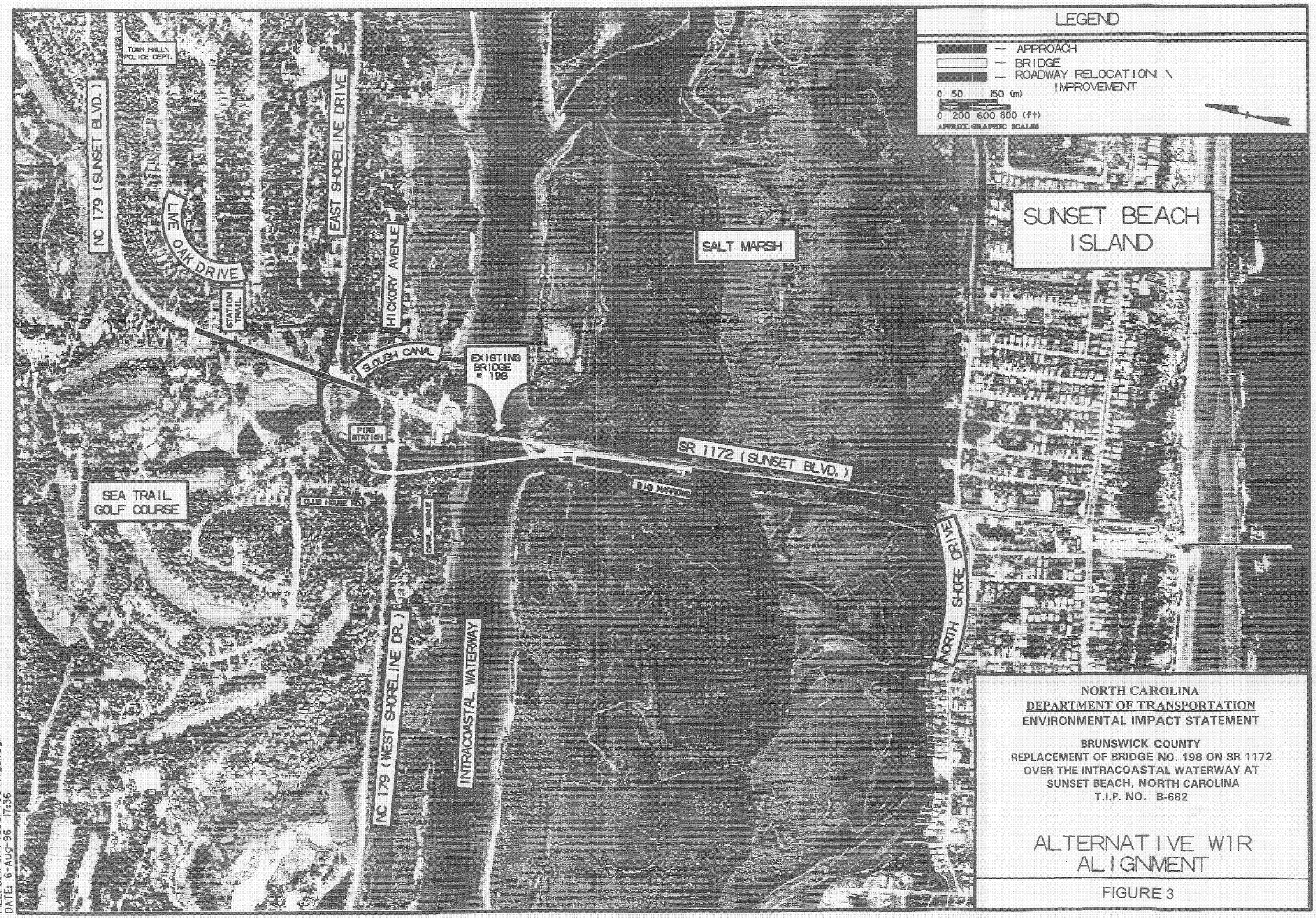

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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL IMPACT STATEMENT

BRUNSWICK COUNTY
REPLACEMENT OF BRIDGE NO. 198 ON SR 1172
OVER THE INTRACOASTAL WATERWAY AT
SUNSET BEACH, NORTH CAROLINA
T.I.P. NO. B-682

ALTERNATIVE W1R ALIGNMENT

FIGURE 3

BLE 1

POTENTIAL NATURAL RESOURCE IMPACTS

NATURAL RESOURCE	PREFERRED HABITAT FOR PROTECTED SPECIES	TYPE OF IMPACT[1]	ALT. W1R hectares (acres)[2]	ALT. W1 hectares (acres)[2]	ALT. C1 hectares (acres)[2]	ALT. C4 hectares (acres)[2]	ALT. C3R hectares (acres)[2]
Salt Marsh	peregrine falcon, bald eagle, wood stork	Dredge	perm. 0.02 (0.06)	perm. 0.15 (0.37)	0	0	0
		Fill	perm. 0.14 (0.35) temp. 1.73 (4.28)	perm. 0.08 (0.20) temp. 0.05 (0.11)	perm. 0.16 (0.39) temp. 0.08 (0.20)	perm. 0.27 (0.67)	0
		Shading [3]	perm. 0.09 (0.22)	perm. 0.08 (0.21)	perm. 0.21 (0.51)	perm. 0.03 (0.08)	0
Surface Water	peregrine falcon, bald eagle, wood stork, loggerhead sea turtle, green sea turtle, leatherback sea turtle, Kemp's ridley sea turtle, shortnose sturgeon, West Indian manatee	Dredge	perm. 0.53 (1.30)	perm. 1.01 (2.49)	0	0	perm. 0.10 (0.24)
		Fill	perm. 0.11 (0.26)	perm. 0.21 (0.53)	perm. 0.07 (0.17)	perm. 0.07 (0.17)	0
		Shading [3]	perm. 0.22 (0.54) temp. 0.02 (0.06)	ND	ND	ND	ND
Nonriverine Wet Hardwood Forest		Fill	0	0	0.11 (0.27)	0	0
Coastal Fringe Evergreen Forest	bald eagle	Fill	perm. 0.63 (1.55)	perm. 0.69 (1.70)	perm. 0.64 (1.58)	perm. 0.18 (0.44)	0
		Clearing	perm. 0.34 (0.85)	perm. 0.34 (0.85)	perm. 0.23 (0.56)	perm. 0.02 (0.04)	0
Man-Dominated Area		Fill	perm. 3.30 (8.15)	perm. 2.70 (6.66) temp. 0.10 (0.25)	perm 2.81 (6.95) temp. 0.05 (0.13)	perm. 2.47 (6.10)	0
		Clearing	perm. 0.04 (0.11)	perm. 0.06 (0.16)	perm. 0.21 (0.52)	perm. 0.14 (0.35)	0
		Excavation [4]	perm. 0.66 (1.64)	perm. 0.66 (1.64)	perm. 0.66 (1.64)	0	0
Total Area (including man-dominated)		Dredge	perm. 0.55 (1.36)	perm. 1.16 (2.86)	0	0	perm. 0.10 (0.24)
		Fill	perm. 4.17 (10.31) temp. 1.73 (4.28)	perm. 3.68 (9.09) temp. 0.15 (0.36)	perm. 3.79 (9.36) temp. 0.13 (0.33)	perm. 2.99 (7.38)	0
		Shading [3]	perm. 0.31 (0.76) temp. 0.02 (0.06)	perm. 0.08 (0.21)	perm. 0.21 (0.51)	perm. 0.03 (0.08)	0
		Clearing	perm. 0.39 (0.96)	perm. 0.41 (1.01)	perm. 0.44 (1.08)	perm. 0.16 (0.39)	0
		Excavation [4]	perm. 0.66 (1.64)	perm. 0.66 (1.64)	perm. 0.66 (1.64)	0	0
		TOTAL	**perm. 6.08 (15.03)** **temp. 1.76 (4.34)**	**perm. 5.99 (14.81)** **temp. 0.15 (0.36)**	**perm. 5.10 (12.59)** **temp. 0.13 (0.33)**	**perm. 3.18 (7.85)**	**perm. 0.10 (0.24)**

TABLE 1 (Continued)

POTENTIAL NATURAL RESOURCE IMPACTS

NATURAL RESOURCE	PREFERRED HABITAT FOR PROTECTED SPECIES	TYPE OF IMPACT	ALT. W1R hectares (acres)*	ALT. W1 hectares (acres)*	ALT. C1 hectares (acres)*	ALT. C4 hectares (acres)*	ALT. C3R hectares (acres)*
Total Area (less man-dominated)		Dredge	perm. 0.55 (1.36)	perm. 1.16 (2.86)	0	0	perm. 0.24
		Fill	perm. 0.87 (2.16) temp. 1.73 (4.28)	perm. 0.98 (2.43) temp. 0.04 (0.11)	perm.0.98 (2.41) temp. 0.08 (0.20)	perm. 0.52 (1.28)	0
		Shading [3]	perm. 0.31 (0.76) temp. 0.02 (0.06)	perm. 0.08 (0.21)	perm. 0.21 (0.51)	perm. 0.03 (0.08)	0
		Clearing	perm. 0.34 (0.85)	perm. 0.34 (0.85)	perm. 0.23 (0.56)	perm. 0.02 (0.04)	0
		TOTAL	**perm. 2.08 (5.13)** **temp. 1.76 (4.34)**	**perm. 2.57 (6.35)** **temp. 0.04 (0.11)**	**perm. 1.41 (3.48)** **temp. 0.08 (0.20)**	**perm. 0.56 (1.38)**	**perm. 0.10 (0.24)**

Notes: [1]*Dredge* impacts refer to the areal extent of surface water bottom and wetlands that would be disturbed by clamshell and bucket dredging activities.

Fill impacts refer to the areal extent that would be covered by borrow material necessary to increase the elevation of the land.

Temporary Fill impacts refer to areal extent of fill needed for the temporary staging area and work bridge, and for the temporary detour road for vehicular traffic. Although the area under the temporary work bridge would be impacted only by temporary, driven piles and shading from the structure, this area was assumed to be affected by fill for conservative impact predictions. Temporary fill material would be removed and deposited on upland areas chosen by the contractor after construction is complete.

Shading impacts refer to the areas located directly under the proposed bridge structure that would be affected by shade from the structure but by no other direct (dredge, fill, clearing, or excavation) impacts.

Temporary Shading impacts refer to the areas affected by shade from the temporary work bridge that would be removed upon completion of construction activities outside of the period between. It should be noted that some of the area included in temporary fill would actually be only temporary shading impacts; however, for conservative estimates, it was assumed that this area would be affected by temporary fill.

Clearing impacts refer to the areal extent that would be cleared of trees and brush in preparation for construction and/or necessary access by construction equipment and personnel. Areas within the construction right-of-way and staging areas would be allowed to revegetate naturally after construction is complete. Although not included in the totals, clearing may also be needed for the temporary construction staging areas on the mainland. Because locations of staging areas on the mainland will be chosen during final design by the contractor, no attempts to estimate any necessary clearing acreage for these areas was made.

Excavation applies only to the removal of the existing causeway on the island to allow this area to revert to salt marsh.

[2]Area was calculated based on the typical sections and preliminary plan views for each alternative. Areas calculated for Alternative W1R are based on the September 1996 Wetland Delineation Report for the Proposed Sunset Beach Bridge, Brunswick County; TIP # B-682; State Work # 8.2230101. (NCDOT, 1996c). "ND" denotes that the estimates were not determined.

[3]Shading impacts were calculated based on the width(s) of the proposed bridge alternatives and width of temporary work bridge.

[4]Excavation quantities are based on the area of causeway that may be removed for salt marsh restoration.

TABLE 2

Impacts to Waters of the United States

Wetlands			Surface Waters		
Sites	**Permanent**	**Temporary**	**Sites**	**Permanent**	**Temporary**
Fill			Fill		
2	0.02		**1***	**0.14**	
3	0.02		2	0.04	
4	0.01		3	0.04	
5	0.01		4	0.04	
6	0.05		Shade		
7	0.12		S1	0.50	
8	0.01		S2	0.03	
9	0.06		S3	0.01	
10	0.02		WBe		0.06
11	0.02		Dredge	1.30	
12*	**0.01**				
Ta		0.72			
Tb		0.74			
WBa		0.59			
WBb		0.68			
WBc		1.08			
WBd		0.47			
Shade					
1	0.03				
S1	0.01				
S2	0.04				
S3	0.05				
S4	0.06				
S5	0.03				
Dredge	0.06				
Total Imp.	**0.63**	**4.28**		**2.10**	**0.06**

***Note:** All sites are associated with impacts likely to occur in estuarine habitats with the exception of sites 12 (wetland site) and 1 (surface water site). Sites 12 and 1 are associated with the golf course pond on the mainland side of the proposed project.

(4.28 acres) of salt marsh will be temporarily impacted by this alternative. Due to size and location, impacts to the freshwater lake fringe were not evaluated in detail.

It is the intent of the NCDOT to mitigate for the permanent loss of wetlands that will result from the preferred alternative. Wetland areas temporarily impacted during project construction will be monitored to insure their recovery. Consequently, the project study area was reviewed for potential sites for use in mitigating the permanent loss of 0.25 hectare (0.63 acre) of salt marsh community.

Because wetland losses are generally limited to salt marsh community, the search for mitigation sites efforts was directed toward the tidal salt marsh community in the immediate project vicinity. After construction of the project is complete, a portion of the existing island causeway will become abandoned. It should be further noted that the entire area was historically (prior to development and construction of the island causeway) salt marsh community. [The island causeway was constructed during the 1950s from dredged salt marsh material which resulted in the creation of what is currently identified as Big Narrows Channel. Historically, Big Narrows Channel traversed the salt marsh in the area now occupied by the causeway.]

Consequently, restoration of the salt marsh community by removal of the abandoned causeway became the focus of the project mitigation efforts.

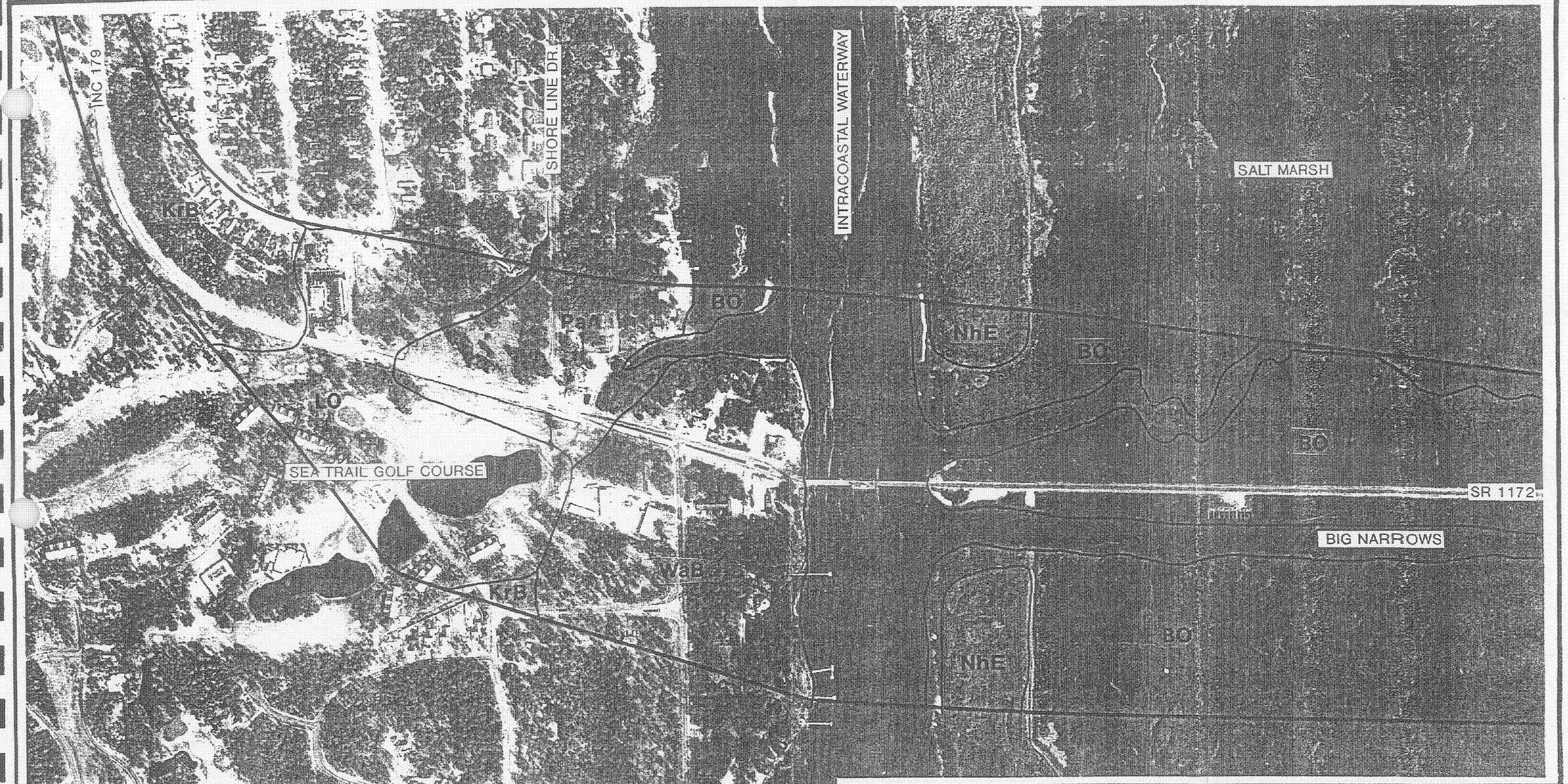
II. EXISTING CONDITIONS

For the purpose of the conceptual mitigation plan, this report focuses on the impacted salt marsh community and the proposed mitigation site, which consists of the abandoned portion of the island causeway.

A. Topography & Soils

Brunswick County is located along the southern boundary of the Tidewater Region of the Coastal Plain. The topography is characterized by a relatively flat plain, which slopes gently southeastwardly and is broken by low escarpments adjacent to stream valleys. Elevations range from sea level to approximately 7.6 meters (25 feet).

As depicted in Figure 4, there are six soil types found with the project study area. These include: Kureb fine sand; Leon fine sand; Pactolus fine sand; Wando fine sand; Bohicket silty clay loam; and Newhan fine sand dredged. With the exception of Newhan fine sand dredged, all of these soil types fall within the Alternative W1R construction limits. Two of these soil types, Leon fine sand and Bohicket silty clay loam, are hydric soils. These soils are poorly drained with high water tables at or near the surface for relatively long durations (USDA 1986). Table 3 below describes the hydric soils found within the project area.



LEGEND

BO	Bohicket silty clay loam. Slopes are less than 1 percent.
KrB	Kureb fine sand. Slopes range from 1 to 8 percent.
LO	Leon fine sand. Slopes are less than 1 percent.
Nhe	Newhan fine sand dredged. Slopes range from 2 to 30 percent.
PaA	Pactolus fine sand. Slopes range from 0 to 2 percent.
WaB	Wando fine sand. Slopes range from 0 to 6 percent.

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SUNSET BEACH, NORTH CAROLINA
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PROJECT AREA SOILS

FIGURE 4

TABLE 3

Map Unit Symbol	Map Unit Name	Soil Description
Lo	Leon fine sand	Nearly level, poorly drained soil. The seasonal high water table is at or near the surface in interstream areas and depressions in undulating areas.
BO	Bohicket silty clay loam	Nearly level, very poorly drained soil. The water table fluctuates with the rise and fall of the daily tides on tidal flats.

Leon fine sand is found on the mainland while the area surrounding the island causeway consists of Bohicket silty clay loam.

B. Water Resources & Hydrology

With the exception of the freshwater golf course impoundment, the waters in the project area, including the AIWW and adjacent tidal creeks and salt marsh communities, are classified as Tidal Salt Waters Class SA: shellfishing for market purposes, primary recreation, aquatic life propagation and survival, fishing, wildlife, and secondary recreation. Tidal surface waters classified as Class SA waters carry a supplemental classification of High Quality Waters (HQW) by the state of North Carolina.

The AIWW is a dredged channel maintained for commercial and recreational maritime traffic. Big Narrows Channel is also a dredged channel, though not maintained for navigation purposes. The remainder of the area consists generally of salt marshes with shallow flushing channels and streams. The entire area between the mainland and the barrier island and surrounding the island causeway are regularly flooded as a result of tidal influences .

Flooding at Sunset Beach is associated with tropical storms and hurricanes. Periodically, however, tidal fluctuations result in an overtopping of the causeway for short periods of time.

C. Plant Communities

All of the impacted wetland areas are salt marsh communities, which are estuarine communities dominated by smooth cordgrass (*Spartina alterniflora*). The island causeway consists of compacted material originating from dredged salt marsh spoil. The pavement

and soil shoulders extend to the top of the slope. A variety of grasses occur in isolated patches along the causeway slopes leading down to the salt marsh. One area of the causeway, now occupied by the boat ramp, has been periodically "resurfaced" with marl.

D. Proposed Mitigation

Because the proposed project is not currently listed in the State TIP, it is unclear when the B-682 will be constructed if approved. Consequently, mitigation details as discussed in this document and in the Final EIS, of which this Mitigation Plan is part, may change in response to unforseen regulatory changes. Nevertheless, any change in the Mitigation Plan will be made in accordance with applicable regulatory requirements and in coordination with interested agencies.

As previously mentioned, wetland mitigation efforts will focus on the restoration of the abandoned island causeway to historical salt marsh community. Restoration of the existing causeway to salt marsh will help ameliorate potential impacts from necessary benthic disturbance by allowing the former causeway to regain its wetland functions, which will be beneficial to the PNAs of the Intracoastal Waterway. All of the causeway area within NCDOT right of way will be restored accordingly. There are a few small upland areas in the vicinity of the SR 1172 causeway that do not fall within NCDOT right of way. If feasible, these areas will be acquired and restored as well.

The successful restoration of the area will be dependent upon: 1) the removal of the compacted dredge material, soil, pavement and debris that currently exists; 2) a properly prepared surface elevation that is conducive to salt marsh plant survival; and 3) monitoring of mitigation site success and remediation of failure as necessary.

As final design progresses, it will become necessary to determine the depth of the causeway material, and to develop a topographic surface map of the surrounding salt marsh community. The causeway material must then be removed and the site prepared consistent with the surface elevations of the adjoining tidal salt marsh. Excavated material from the causeway will be deposited in an approved upland site. For the purposes of this report, a depth of 0.33 meter (1 foot) is estimated. If necessary, the site surface should then be roughened following the removal of the causeway material as it will likely be extremely compacted. Backfilling the site with suitable soil material may also be necessary.

Prior to the time of planting the restoration and other mitigation sites, reference plots will be established in existing, adjacent salt marsh communities to determine vegetative diversity and density. The purpose of these plots will be to determine baseline conditions against which mitigation success can be measured.

A plan will then be developed to revegetate all sites (reference plots, restoration area, and mitigation areas) with a species mix similar to the reference plot. Revegetation with smooth cordgrass is anticipated. Consideration shall be given to planting this species as tuber/rhizomes on 1-meter (3-foot) centers.

After planting the reference plots, restoration area, and the other mitigation areas, sites will be monitored annually at growing season end (typically September or October) for three consecutive years for the purposes of determining the success of mitigation plantings. The success of the mitigation sites will be based on the measured variables in the sample plots falling within 25% of those of the reference plots at the end of these three growing seasons. If the success criteria are not met, then NCDOT personnel will confer with appropriate resource and regulatory agencies to develop an appropriate plan of remediation, if needed.

It is estimated that approximately 0.66 hectare (1.64 acres) of area will be available for restoration following the removal of the abandoned portion of the existing causeway. As described in Section I.C. of this report, Alternative W1R will permanently impact 0.25 hectare (0.63 acre) of salt marsh community, for which mitigation is currently being considered. This would result in a wetland restoration to wetland impact ratio of about 2.6:1. Furthermore, removal of the abandoned portion of the causeway will restore, at least partially, hydrologic connectivity between the salt marsh communities presently located on either side of the causeway. This would mirror the historical hydrological characteristics that were occurring prior to the construction of the causeway. More importantly, restoration of the these areas will allow the former causeway to regain its wetland functions, providing benefits to the PNAs of the Intracoastal Waterway as discussed above.

Based on mitigation costs for other NCDOT projects and the acreage involved, this mitigation plan appears to be reasonable, feasible, and practicable.

III. OTHER CONSIDERATIONS

A. Restoration of Temporarily Impacted Wetland Areas

In order to construct the new bridge, a temporary vehicular detour would be needed as well as a temporary staging area/haul road and temporary work bridge. The temporary detour for vehicular traffic would be constructed with fill and located in the salt marsh on the eastern side of the existing causeway.

The temporary work area will be placed on the west side of the causeway, between the causeway and Big Narrows Channel. The staging area/haul road will consist of the placement of fill confined within temporary sheet piling. The work bridge will consist of wooden piling substructure with a timber superstructure.

Impacts to the salt marsh community adjacent to the causeway will occur as a result of the temporary placement of fill for the temporary detour, staging area/haul road and work bridge. For a conservative estimate, it was assumed that all area under the temporary work bridge (0.63 hectares [1.55 acres]) would be affected by temporary fill. This area, would actually be affected only by temporary, driven piles and shading from the temporary structure. Assuming conservatively that all of this area would be affected by temporary fill, a total of approximately 1.73 hectares (4.28 acres) of salt marsh would be impacted by temporary fill for the construction of a temporary detour, staging area/haul road, and work bridge.

Where practicable, the NCDOT will place fill material on mats to minimize disruption to the salt marsh vegetation. After use, all temporary fill will be excavated and deposited in an approved upland site. Upon removal of the temporary fill material, revegetation with smooth cordgrass, or other plant species as identified through the reference sites, may be needed to prevent intrusion by reeds (*Phragmites* sp.).

For the purposes of determining the restoration success of temporarily impacted areas, annual monitoring of affected sites will be conducted at growing season end for three consecutive years in accordance with the protocol outlined in the Monitoring Plan for the restoration and mitigation activities for this project. Should intrusion by *Phragmites* sp. be evident from these monitoring results, NCDOT will confer with the appropriate regulatory agencies to determine an appropriate plan of remediation to combat this succession.

B. Freshwater Lake Fringe Impacts

As mentioned previously, a small segment of freshwater lake fringe will be impacted by the fill area that traverses the south side of the small golf course impoundment on the mainland. Due to the type, size and location of this impact, specific mitigation measures

are not discussed. However, it should be noted that a new fringe area will occur, although somewhat smaller in size, where the new fill slope interfaces with the ponded surface water. If practicable, NCDOT will develop a wetland fringe shelf during project construction to offset the impacts to the maximum extent practicable.

C. Impacts to the Coastal Fringe Evergreen Forest

Throughout the course of the project study, concern has been expressed by some agency representatives with regard to impacts to the coastal fringe evergreen forest community located on the mainland. The expression of concern was led by representatives of the N.C. Natural Heritage Program.

The coastal fringe evergreen forest is generally a mesic forest located on flat to low hills near the mainland coast. The canopy is dominated by loblolly pine (*Pinus taeda*), live oak (*Quercus virginiana*), and laurel oak (*Q. laurafolia*). Subdominant species include southern red oak (*Q. falcata*), pignut hickory (*Carva glabra*), water oak (*Q. nigra*), and longleaf pine (*P. palustris*). The understory is dominated by yaupon holly (*Ilex vomitoria*), sassafras (*Sassafras albidum*), and red bay (*Persea borbonia*). Common associates identified include wax myrtle (*Myrica cerifera*), red cedar (*Juniperus virginiana*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), and sweetbay magnolia (*Magnolia virginiana*). Ground cover is sparse and low in diversity; however, a few vines such as greenbrier (*Smilax* sp.) and wild grape (*Vitis* sp.) were observed.

Admittedly, the integrity of the coastal fringe evergreen forest community in the project area has been compromised by the clearing of understory and development pressures taking place in the Town of Sunset Beach. Agency representatives have concurred with this observation as well.

A total of 0.97 hectares (2.4 acres) of impact are projected to this community with the construction of Alternative W1R. A majority of the impacts to this community occur between the AIWW and West Shoreline Drive (NC 179) where the new structure is proposed to overpass Canal Avenue and West Shoreline Drive (NC 179). Construction impacts will result from clearing for the construction of pier footings, the bridge superstructure, and construction right of way. Additional long term impacts will result from shading by the new structure. Furthermore, an area west of and adjacent to the alignment, located within existing NCDOT right of way, is proposed to serve as a mainland construction staging area and potential landing for barge construction operations.

The availability of areas that can be used for construction staging purposes is limited, and impacts to the coastal fringe evergreen forest community for these purposes may be unavoidable. However, NCDOT will minimize clearing of this community type to the greatest degree practicable. Possible opportunities for preservation and/or enhancement

of this community type exist in areas within and adjacent to existing and proposed NCDOT's right-of-way limits.

The NCDOT will coordinate with the NC Natural Heritage Program and NC Wildlife Resources Commission during the preparation of final and detailed mitigation plans.

IV. References

US Department of Agriculture (USDA), 1986. Soil Surveys of Brunswick County, North Carolina.

RECORD OF DECISION

U.S. Department of Transportation
Federal Highway Administration

Replacement of Bridge No. 198 on SR 1172 Over the Atlantic Intracoastal Waterway at Sunset Beach, North Carolina

Brunswick County, North Carolina
Federal-Aid Project No. BRS-1813(1)
State Project No. 8.2230101
FHWA-NC-EIS-95-02-F
TIP No. B-682

August 1999

DECISION

The proposed action is the replacement of Bridge No.198 on Secondary Road 1172 (SR 1172) in Sunset Beach, Brunswick County, North Carolina. Bridge No.198 spans the Atlantic Intracoastal Waterway (AIWW) and connects the island and mainland portions of the Town of Sunset Beach.

This bridge replacement is identified as Project Number B-682 in the North Carolina Department of Transportation's (NCDOT) 2000-2006 Transportation Improvement Program (TIP). Project B-682 is programmed in the TIP for planning and environmental studies only. A schedule for design, right-of-way, and construction is not included in the TIP since Project B-682 is currently the subject of a US District Court case.

The existing Sunset Beach bridge is a single-lane, floating steel-barge, swing-span draw bridge, with fixed wooden approach spans, which is often referred to as a pontoon bridge. In May 1996, the existing bridge was inspected and given a sufficiency rating of 7.3 on a scale of 0 to 100, with 100 representing perfect condition. Since the bridge provides only a few feet of vertical clearance under the approach spans, virtually all waterway traffic (except small john boats) is blocked when the bridge is closed to allow roadway traffic to cross. This low visual profile and the narrow opening of the existing bridge also makes the existing bridge more vulnerable to boat collisions than mid- or high-level bridge designs.

Therefore, the replacement of this pontoon bridge with a new structure would provide a reliable means of transportation between the island and the mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures. Furthermore, the new facility would enhance both vehicular operations on SR 1172 and watercraft operations on the Intracoastal Waterway.

ALTERNATIVES CONSIDERED IN FEIS

A set of eleven preliminary construction alternatives was developed in response to the November 19, 1990, court order requiring preparation of an EIS for the Sunset Beach Bridge replacement project. These eleven build alternatives included nine bridge alternatives, consisting of three bridge types (high-level fixed span, mid-level bascule, and low-level bascule) located on three general corridors (center, east, and west) near the existing pontoon bridge. In addition, a ferry alternative and a tunnel alternative were developed. A Transportation System Management (TSM) alternative was also considered.

A screening evaluation was conducted on the eleven preliminary build alternatives in order to identify those build alternatives to be carried forward in the study. Based on the screening procedure, the reasonable and feasible build alternatives were determined to be Alternatives W1 (West Fixed High-Level) (later revised as discussed below [Alternative W1R]), C1 (Center Fixed High-Level) and C4 (Center Mid-Level Bascule).

A No-Build Alternative and a rehabilitation alternative were also considered and carried through to the EIS for further evaluation as reasonable and feasible alternatives.

No-Build Alternative. Under the No-Build Alternative (Alternative C3), the existing structure would not be replaced or improved. Periodic maintenance and/or replacement of parts of the structure and its mechanical components would continue as in the past. No alteration to existing traffic patterns would occur as a result of this scenario. With this alternative, the existing delays would continue to occur from bridge openings and malfunctions; therefore, this alternative would not address the project need for a reliable means of transportation between the island and the mainland and would not offer the greater degree of vehicular operations and watercraft safety that a new facility would.

Alternative C3R: Rehabilitation Alternative. The Rehabilitation Alternative (Alternative C3R) includes improvements to the existing structure. The pontoon, deck, and all of the mechanical components would be replaced under this alternative. No other roadway improvements would be undertaken with this alternative, and no alteration to current traffic patterns would occur other than temporary disruptions in traffic flow during rehabilitation activities. As would be the case with the No-Action Alternative, this alternative would not address the project need for reliable transportation and safety.

Alternative W1R. This alternative is a new high-level, fixed-span bridge located approximately 45.7 meters (150 feet) west of the existing pontoon bridge. Based on comments received on the Draft EIS, the alignment of Alternative W1 was shifted eastward in order to minimize dredging impacts and to avoid relocation of the Big Narrows channel.

The high-level bridge for W1R would be about 723 meters (2,372 feet) in length, which is slightly shorter than the alignment of Alternative W1 (737 meters [2,418 feet]). A minimum vertical clearance of 19.8 meters (65 feet) would be provided over the entirety of the 27.4-meter-wide (90-foot-wide) AIWW navigable channel maintained by the US Army Corps of Engineers (COE). The proposed span over the channel would be of sufficient length to provide a minimum of 54.9 meters (180 feet) of horizontal clearance between the bridge footings. It is anticipated that minimal low-voltage navigational lighting would be used to delineate the 27.4-meter-wide (90-foot-wide) Waterway channel.

East Shoreline Drive would be realigned to provide a four-leg intersection with NC 179 and relocated SR 1172. This alternative would allow for uninterrupted vessel travel along the Intracoastal Waterway.

Alternative C1. This alternative is a new high-level, fixed-span bridge located along the center corridor, immediately east of the existing pontoon bridge. This bridge would be about 826 meters (2,710 feet) in length. A minimum vertical clearance of 19.8 meters (65 feet) would be provided over the entirety of the 27.4-meter-wide (90-foot-wide) AIWW navigable channel maintained by

the COE. The proposed span over the channel would be of sufficient length to provide a minimum of 54.9 meters (180 feet) of horizontal clearance between the bridge footings. It is anticipated that minimal low-voltage navigational lighting would be used to delineate the 27.4-meter-wide (90-foot-wide) Waterway channel.

NC 179 would be relocated to provide a connection with SR 1172. Relocated NC 179 would require a new bridge over Slough Canal. The high-level fixed-span bridge over the Intracoastal Waterway would allow for uninterrupted vessel travel along the Waterway, but the new bridge over Slough Canal would block waterway access to the upper end of the canal.

Alternative C4. This alternative is a new mid-level bascule bridge (drawbridge) located immediately west of the existing pontoon bridge. This bridge would be about 347.5 meters (1,140 feet) in length. A minimum vertical clearance of 9.1 meters (30 feet) would be provided over the entirety of the 27.4-meter-wide (90-foot-wide) AIWW navigable channel maintained by the COE. A 9.1-meter (30-foot) vertical clearance would allow about 63 percent of the waterway vessels to pass under the bridge without requiring the bridge to open. The proposed span over the channel would be of sufficient length to provide for the 27.4-meter (90-foot) channel and fender system. The approximate length of this span between footings would be 32.0 meters (105 feet). It is anticipated that minimal low-voltage navigational lighting would be used to delineate the 27.4-meter-wide (90-foot-wide) Waterway channel.

Comparison Among Alternatives. Of the four reasonable and feasible alternatives (Alternatives W1R, C1, C4, and C3R), the Rehabilitation Alternative (C3R) would require the least funding and have the least impacts; however, as noted, this alternative would not address the purpose and need for the project. Among the remaining reasonable and feasible alternatives (Alternatives W1R, C1, and C4), Alternative C1 is the most expensive ($19.3 million) and Alternative W1R is the least expensive ($15.1 million) over the life cycle of the project. Although the impacts to the environment would be similar among these four alternatives, Alternative C1 would have the greatest impact on the human environment, having three residential and three business relocations, and three identified sensitive noise receptors. Likewise, Alternative C4 would require three business relocations, and this alternative would have a greater potential for encounters with hazardous materials sites than any other alternative. Because of its lower structure height, Alternative C4 would have the least overall adverse visual impact, and because of their similar appearance, Alternative W1R and Alternative C1 would likewise have similar visual impacts to the area. Alternative C4 would have the least impact to surface water and coastal fringe evergreen forest; however, with this alternative, delays for roadway and some waterway traffic would still occur but would be less than what exists with the present bridge. Alternative W1R would have the least permanent impact to salt marsh among Alternatives W1R, C1, and C4, but this alternative would also have the greatest impact to surface waters, mainly associated with dredging. Moreover, as high-level, fixed-span bridges, Alternative W1R and Alternative C1 would have the greatest transportation benefit among all alternatives.

SELECTION OF PREFERRED ALTERNATIVE IN FEIS

NCDOT and Federal Highway Administration (FHWA) representatives met with representatives of interested federal and state agencies on June 19, 1996, in the effort to achieve a consensus on a preferred alternative for the project. All representatives agreed that a new structure was necessary because the rehabilitation and the two-lane pontoon bridge alternatives did not address the basic project goals of public safety and transportation efficiency. Furthermore, representatives agreed that the high-span alternatives (C1 and W1R) provide greater transportation benefits than the mid-level bascule bridge alternative (C4). The final consensus among representatives was that when the safety, traffic, cost, and overall environmental effects were compared among alternatives, the environmentally preferred alternative to address the deficiencies of the Sunset Beach Bridge is Alternative W1R.

ALTERNATIVES CONSIDERED SUBSEQUENT TO FEIS

Correspondence and conversations with representatives from resource and regulatory agencies, the Sunset Beach Taxpayers' Association (SBTA) and the Town of Sunset Beach led to the re-evaluation of alternatives. During the re-evaluation process, an additional alternative was developed for consideration. This alternative (Alternative W1R2) was a mid-level bascule bridge located along the same horizontal alignment as Alternative W1R. It provided a minimum vertical clearance of 9.1 meters (30 feet) over the navigable channel of the AIWW, as well as a grade separation over NC 179 (West Shoreline Drive).

NCDOT and FHWA representatives met with representatives from the Town of Sunset Beach and SBTA on May 10, 1999, to present the impacts and benefits associated with Alternative W1R2 and Alternative W1R. A table showing the summary of impacts associated with each is included in this Record of Decision. A list of project issues and graphic renderings depicting each alternative were also presented. Meeting attendees discussed their positions with regard to the various Alternatives.

PREFERRED ALTERNATIVE IN ROD

Based on these meetings and a final analysis of the environmental effects of Alternatives W1R and W1R2, Alternative W1R was selected as the preferred alternative for the replacement of the Sunset Beach Bridge.

Letters were sent to the Town of Sunset Beach and the SBTA to inform each of the FHWA and NCDOT decision that was rendered. Reasons for the selection of the preferred alternative were provided in these letters, which are included in Appendix B and Appendix C.

MEASURES TO MINIMIZE HARM

Socioeconomic Impacts

Mitigation for Direct Land Use Impacts. It is the policy of the NCDOT to pay fair market value for all lands required for right-of-way. All necessary right-of-way will be acquired by the NCDOT prior to the start of construction activities.

Relocation Assistance. It is the policy of the NCDOT to ensure that comparable replacement housing and business sites be available prior to construction of federally-assisted projects. The NCDOT has three programs available to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments and Rent Supplement.

Community Facilities and Services. Efforts are continuing to relocate the boat ramp that would be displaced under the preferred alternative. Three potentially suitable alternate ramp sites were identified in the vicinity of Sunset Beach. Cooperation and coordination with the North Carolina Wildlife Resources Commission will continue; however, to date, these sites have not been considered adequate for a boat access facility. The NCDOT will continue to evaluate these sites, and others, for feasibility in coordination with other state and federal agencies.

Utilities

NCDOT will coordinate with the Brunswick Electric Membership Cooperative (EMC) for any required relocation or reconfiguration of electrical distribution lines.

Hydrology and Drainage

Because the existing self-flushing capabilities of the Big Narrows channel would be unaffected by the preferred alternative, no mitigation would be necessary to maintain the flow of the channel; however, NCDOT will conduct additional modeling prior to construction, in order to insure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained. (FEIS: Greiner, Inc., 1996a).

Navigable Waterways. The NCDOT will coordinate with the US Coast Guard (USCG), the US Army Corps of Engineers (COE), and other resource agencies to insure that the preferred alternative meets these agencies' standards for bridges over navigable waterways. In accordance with Section 9 of the Rivers and Harbors Act of 1899, the NCDOT will obtain a permit from the USCG for the Alternative W1R bridge over the Intracoastal Waterway. NCDOT will make every effort to maintain navigability of Big Narrows during construction for boats utilizing this waterway.

The NCDOT will work with the COE to develop measures to minimize construction impacts to waters of the US, including wetlands. In accordance with Section 404 of the federal Clean Water Act of 1977, a permit will be obtained for this work from the COE.

Further consultation with the COE will be conducted under Section 10 of the Rivers and Harbors Act of 1899 for any work affecting navigable waterways. The US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) also review Section 10 and Section 404 permits. In addition, a State Dredge and Fill Permit will be obtained from the North Carolina Division of Coastal Management since the project will involve excavation and/or filling activities in estuarine waters, tidelands, and marshlands. For all construction activities associated with the project, Best Management Practices (BMPs) will be implemented, where practicable. A list of relevant NCDOT BMPs is displayed in Section 4.4 of the FEIS.

Floodplains. A systematic hydrological and flood study will be incorporated into the final design of Alternative W1R to insure vertical clearances are adequate to protect the facility from the 100-year flooding event.

All new bridges will be designed to meet federal, state, and local regulations related to flooding, floodplains, and scour protection. A scour analysis will be conducted during final design of the Alternative W1R.

Water Quality

The NCDOT will incorporate measures into the design of Alternative W1R to control non-point source water quality impacts as described in the NCDOT's "BMPs for Protection of Surface Waters" (FEIS: NCDOT, 1991). These measures will be incorporated into the final engineering design of Alternative W1R and will be detailed in an erosion and sedimentation control plan. This plan will be prepared in accordance with the guidelines and requirements of the North Carolina Sedimentation Pollution Control Act (15A NCAC 4B.0001-0027). Selection and implementation of the BMPs will be consistent with the NCDOT's statewide National Pollutant Discharge Elimination System (NPDES) permit and will reflect coordination with the North Carolina Division of Water Quality (NC DWQ).

Since the preferred alternative (W1R) would cross over tidal salt (SA) shellfishing waters designated as Primary Nursery Areas (PNAs), the practicability of providing hazardous spill catch basins will be further investigated in accordance with NCDOT's BMPs. For the same reasons and because the length and the percent grade of the proposed structure allow consideration for such measures, the routing of stormwater from the bridge to dispersion areas on the mainland or island instead of the use of scupper holes will be evaluated for feasibility and practicability. Suitable areas for stormwater detention or flow dispersal are located in the vicinity of the proposed structure on the island side of the project and, therefore, enable this measure to be considered for effectiveness and practicality. Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practicable and feasible. The practicability of routing

stormwater from the bridge's crest northward to the mainland is still under investigation. These mitigation measures will be evaluated fully during final design.

Alternative W1R will be designed to comply with State water quality standards. A Section 401 Water Quality Certificate from the NC DWQ, formerly a part of the North Carolina Division of Environmental Management (DEM), will be obtained prior to construction, in accordance with the 1982 amendments of the Clean Water Act. This certification will be coordinated through the federal Clean Water Act Section 404 dredge and fill permitting process for wetlands and through the CAMA permitting process for major developments (CAMA Major Development Permit).

Geology and Soils

Since Alternative W1R is located very near the alignment of Alternative W1, the results of the 1990 geotechnical survey conducted by Westinghouse Environmental and Geotechnical Services will be used as much as possible in the design of Alternative W1R. The NCDOT will conduct additional geotechnical investigations, if necessary, to further define the soils and geologic conditions in Alternative W1R's corridor.

Soil and geological limitations will be overcome through proper engineering design by incorporating techniques such as soil modification and the use of embankment material meeting NCDOT standard specifications.

Hazardous Materials

During preliminary engineering design, additional investigations will be considered for those sites within the right of way of the preferred alternative. The scope of these investigations, if necessary, will also be determined by the NCDOT during the engineering design phase.

Wetland Biotic Communities and Areas of Environmental Concern

The NCDOT, in consultation with the COE and the North Carolina Division of Coastal Management, will incorporate measures into Alternative W1R's design that will minimize impacts to wetlands and other areas of environmental concern. For all construction activities associated with the project, BMPs will be implemented, where practicable. Through a joint application process, permits will be obtained from the COE pursuant to Section 404 of the Clean Water Act (33 CFR Part 323) and Section 10 of the Rivers and Harbors Act, and from the North Carolina Division of Coastal Management pursuant to CAMA.

A mitigation plan describing the measures that will be implemented to compensate for unavoidable wetland impacts has been prepared. Mitigation requirements are determined on a site-by-site basis. Mitigation efforts for unavoidable wetland impacts of this project will focus on wetland

restoration; however, the final mitigation design may include enhancement of existing wetlands, and other measures, as needed.

Present mitigation policies call for in-kind replacement within the project area (FEIS: Greiner, Inc., 1994g:42). Potential mitigation sites within the project area for the preferred alternative include the segment of the island causeway between the beginning of the new bridge approach and the Intracoastal Waterway. The portion of this segment of the causeway within NCDOT right-of-way will be restored to salt marsh. NCDOT will attempt to acquire and restore the portion of the causeway that is privately owned.

Compensation efforts necessary to minimize net impacts to wetland values will be defined based on the importance of the wetlands affected. Specific mitigation requirements will be determined by the COE during the Section 404 permitting process and will be included as conditions of permit approval.

Fisheries Resources

In order to minimize adverse turbidity impacts to fisheries resources (including the federally endangered shortnose sturgeon), turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method. For all construction activities associated with the project, BMPs will be implemented, where practicable. As noted in the Wetland Biotic Communities and Areas of Environmental Concern commitments section above, NCDOT commits to restoring the portion of the causeway within NCDOT right-of-way to salt marsh. NCDOT will also attempt to acquire and restore the portion of the causeway that is privately owned. Restoration of this area will help ameliorate potential impacts from necessary benthic disturbance by allowing the former causeway to regain its wetland functions, which will be beneficial to the PNAs in the project area.

Protected Species

Consultations with the USFWS and the NMFS under Section 7 of the Endangered Species Act have been completed as part of this project's FEIS (see letters from the NMFS and USFWS in Appendix F-III of the FEIS: 43-47). However, the USFWS and the NMFS will continue their oversight of the construction of Alternative W1R through the Section 404 permitting process.

NCDOT commits to the implementation of High Quality Water erosion control standards for all construction related activities for the project. As noted for the protection of fisheries resources, turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore,

in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method. As committed for fisheries resources, BMPs will be implemented, where practicable, for all construction activities associated with the project. With the implementation of these provisions, it can be concluded that the project construction will have no effect on the shortnose sturgeon (FEIS: NCDOT, 1996d).

NCDOT will also commit to the strict implementation of the precautionary measures noted in the USFWS paper titled "Precautions for General Construction in Areas which may be used by the West Indian Manatee in North Carolina." Therefore, in-water construction activities of the preferred alternative (Alternative W1R) will have no effect on the manatee (FEIS: USFWS, 1996b). However, in the event that a manatee is observed during construction, a may affect scenario would apply and Section 7 Consultation with the USFWS would be initiated to resolve concerns about this species (FEIS: NCDOT, 1996d).

The NCDOT will keep the North Carolina Natural Heritage Program (NHP), the North Carolina Botanical Gardens, and the North Carolina Wildlife Resources Commission (WRC), and other interested agencies informed regarding the status of the proposed project. NCDOT will encourage these agencies to conduct field surveys during project design to determine whether state-listed species are present. If any of these species are found within the project area, the NCDOT will coordinate with these agencies to facilitate the transplantation of affected state-listed communities to suitable relocation sites.

MONITORING AND ENFORCEMENT PROGRAM

The proposed project will be subject to further review by Federal and State agencies and by the Brunswick County and Town of Sunset Beach governments. Several permits will have to be obtained that will require detailed review, namely the Federal Section 404(b)(1) wetlands fill permit, State Section 401 water quality certification, State CAMA major action permit, among others. The review and permit process will ensure that the noted mitigation measures are implemented. In addition to this continued review, NCDOT will develop an independent success monitoring program to evaluate the success of wetland mitigation efforts discussed in the FEIS Wetland Mitigation Plan (Appendix H of the FEIS) and will educate site supervisors and conduct periodic checks to confirm that the commitments to minimize effects to manatees are observed.

COMMENTS AND RESPONSES TO COMMENTS ON FEIS

Letters were received from the following Federal and State regulatory and resource agencies commenting on the Final Environmental Impact Statement:

- United States Army Corps of Engineers – Wilmington District
- United States Environmental Protection Agency
- North Carolina Department of Environment and Natural Resources
  - Division of Water Quality
  - Wildlife Resources Commission
  - Division of Parks and Recreation
  - Division of Emergency Management
- State Historic Preservation Officer

A copy of these letters and the NCDOT responses are included in Appendix A.

Several letters were received from the Town of Sunset Beach and the Sunset Beach Taxpayers Association, a local citizens group, commenting on the FEIS, also. The letters from the Town of Sunset Beach and the NCDOT responses are included in Appendix B. The letters from the Sunset Beach Taxpayers Association and the NCDOT responses are included in Appendix C.

The Town of Sunset Beach has consistently and wholeheartedly supported the high-rise, fixed span bridge alternative. Whereas the Sunset Beach Taxpayers Association (SBTA) has consistently supported rehabilitating the existing pontoon bridge or replacing the existing structure with a low-level, bascule bridge. In their most recent letter, dated June 4, 1999, the SBTA stated their "organization is willing to compromise on a 30-foot, western-corridor drawbridge to the Island provided . . . measures are implemented to mitigate the impact of the new bridge." Eight mitigation measures were included in their letter. These measures and the NCDOT's responses are listed below.

1. Limit island parking to current designated off—road parking lots and special parking for handicapped at handicapped beach access points. If the current off-road parking areas do not provide fair and adequate public parking, more off-road parking should be created- -but not by creating more parking on the island that will contribute to further degradation of island waters. Parking facilities on the mainland with a quaint trolley bus back and forth between the public parking area and beach access point[s] along Main Street would accomplish this.
   Responsibility: Town of Sunset Beach.

2. Install available stormceptor devices in each Island stormwater drain to improve the quality of the stormwater runoff. The SBWSA [South Brunswick Water and Sewer Authority] Water Quality Management Board is currently reviewing proposals to do this on the Island. Since most of these are DOT drainage systems, DOT should share in the cost of installing the devices. The cost should not be placed solely on the property owners of South Brunswick County.
   Responsibility: DOT should install; SBWSA should maintain.

NCDOT Response: As stated previously under "MEASURES TO MINIMIZE HARM – Water Quality," NCDOT will incorporate measures into the design of Alternative W1R to control non-point source water quality impacts as described in the NCDOT's "BMPs for Protection of Surface Waters." Selection and implementation of the BMPs will be consistent with the NCDOT's statewide NPDES permit and will reflect coordination with the NC Division of Water Quality.

3. Create a public park on the mainland where Sunset Boulevard will dead end at the Intracoastal Waterway. The park will serve as a green belt buffer to protect the Intracoastal Waterway from stormwater runoff.
Responsibility: DOT and Town.

NCDOT Response: *The area at the end of Sunset Boulevard adjacent to the Intracoastal Waterway, which is the area where the existing northern bridge approach is located, will be developed into a public park area. The NCDOT will coordinate with the Town of Sunset Beach regarding the planning and design of the park. Stormwater runoff measures consistent with NCDOT's BMPs will be incorporated into the design.*

4. Create hike/bike paths across the bridge and causeway, up Sunset Boulevard, and on both sides of Main Street. The paths should be wide enough to accommodate bikers, roller bladers, walkers, etc. The paths should be lined by vegetation, when possible, that would separate and protect people from cars. In addition, the vegetation would serve to keep stormwater out of the street stormwater drains, and thus out of Island waters.
Responsibility: DOT and Town.

NCDOT Response: *The proposed bridge and approaches will be designed to accommodate bicycle and pedestrian traffic. Along the causeway and on the island, the proposed improvements to Sunset Boulevard end at North Shore Drive. Main Street does not lie within the project limits. However, the NCDOT will explore funding options for providing additional bicycle and pedestrian facilities on Sunset Boulevard, North Shore Drive and Main Street, as deemed appropriate by the Sunset Beach Town Council.*

5. Create speed bumps on Canal Drive and North Shore Drive to slow and discourage sightseers circling the Island.
Responsibility: Town and DOT.

NCDOT Response: *Canal Drive and North Shore Drive are not within the project limits. However, the NCDOT will explore funding options for providing speed bumps on Canal Drive and North Shore Drive, as deemed appropriate by the Sunset Beach Town Council.*

6. Create a new public boat ramp with low tide access to replace the current boat ramp that will be lost with both bridge options.
Responsibility: DOT.

NCDOT Response: The NCDOT will continue to investigate and evaluate potential boat ramp facilities and will coordinate these sites with other federal and state agencies. To date, an acceptable location for a boat ramp facility has not been identified.

7. Enforce parking and landscaping zoning ordinances for all development in the Beach Business District.
Responsibility: Town.

8. Develop and implement an education program to inform the public about the fragile barrier island environment and what they can do to protect it.
Responsibility: Town and SBTA.

The NCDOT also received several hundred letters from permanent and seasonal residents of Sunset Beach, citizens who vacation at Sunset Beach year-after-year and boaters who travel the Atlantic Intracoastal Waterway. These letters and the NCDOT responses are on file at the North Carolina Department of Transportation in Raleigh, North Carolina.

FINAL SECTION 4(f) DETERMINATION

Because of the coastal location and nature of the project, no reasonable and feasible alternative exists that both meets the minimum design standards of the bridge (two-lanes) and avoids the use of Section 4(f) resources. Therefore, it is concluded that there are no feasible and prudent alternatives to the use of the Section 4(f) land.

The preferred alternative has been designed to meet minimum design standards and is, therefore, not built in a way to accommodate excessive growth rates above those presently projected without the proposed bridge (No-Build Alternative). Additionally, there are no alternatives that avoid the use of Section 4(f) lands that also meet these planning criteria. Therefore, it is concluded that the proposed action includes all possible planning to minimize harm to the Section 4(f) resources.

The project should not have significant primary or secondary impacts on areas protected by Section 4(f) of the Department of Transportation Act of 1966. Public comments relating to Section 4(f) resources comprised concerns of increased development and visitation to the public beaches on Sunset Beach. However, the FEIS explains that the rate and type of growth and development will conform to current and projected zoning and land use restrictions and that the proposed action will not substantially affect development trends on the island. Likewise, this FEIS summarizes that the number of day visitors will increase due to population growth in coastal counties and mainland

communities. No other issues or concerns regarding applicable Section 4(f) lands (parking lot, gazebo, beach area, and public access points) were expressed by State agencies or the public.

Based upon the above considerations, there is no prudent and feasible alternative to the constructive use of the public beach at Sunset Beach as defined in the November 19, 1990, Memorandum of Opinion by the U.S. District Court on Mullin v. Skinner, and the project incorporates all possible planning to minimize harm.

CONCLUSION

The final statement is in conformance with applicable provisions of 23 CFR 771 and satisfactorily covers the anticipated environmental impacts, including physiographic and cultural effects. All correspondence received between the FEIS and the date that this ROD was signed has been reviewed (see Appendix for a summary of the agency, Town of Sunset Beach and SBTA letters). Based on this review, we find that there were no new substantive issues or impacts identified; therefore, the FEIS remains valid.

Based on the analysis and evaluation contained in this project's FEIS and after careful consideration of all the social, economic, and environmental factors and input from the public involvement process, it is my decision to adopt the recommended Alternative W1R as the proposed action for this project.

8/27/99
Date

Nicholas L. Graf, P.E.
For Division Administrator
Federal Highway Administration

SUMMARY OF IMPACTS

IMPACT*	Alternative W1R2 (West Mid-Level Bascule Revised)	Alternative W1R (West High-Level Revised)
Approximate Roadway Length	1,454 (4,769)	1,263 (4,143)
Intracoastal Waterway Bridge Length	532 (1,748)**	723 (2,372)
Slough Canal Bridge Length	--	--
Total Length	1,986 (6,517)	1,986 (6,517)
Construction Costs	$21,400,000	$15,300,000
Right-of-Way Costs	$1,378,000	$1,378,000
Operations/Maintenance Costs* **	$3,650,750	$1,564,700
Total Costs	$26,428,750	$18,242,700
Navigable Waterway Crossings	1	1
Residential Relocations	0	0
Business Relocations	0	0
Section 4(f) Resources Evaluated for Constructive Use	3	3
Visual Impact Rating (Rating < -2.0 is adverse)	-1.750 (est.)	-2.124
Hazardous Materials Sites	0	0
Noise Impacted Receptors	2	2
Permanent Salt Marsh Impacts [dredge, fill, shading]	0.29 (0.69)	0.26 (0.63)
Permanent Surface Water Impacts [dredge, fill, shading]	0.85 (2.09)	0.85 (2.10)
Permanent Nonriverine Wet Hardwood Forest Impacts [fill]	0.00	0.00
Permanent Coastal Fringe Evergreen Forest Impacts [fill and clearing]	0.97 (2.40)	0.97 (2.40)
Percentage of Watercraft Which Can Pass Under Bridge	62.5%****	100%

NOTES:

* Length = meters (feet) Area = hectares (acres) Discrepancies may result due to rounding.

** Bridge length includes approximately 60-meter (200-foot) bascule bridge over the Intracoastal Waterway.

*** Operations and maintenance costs are amortized over a 40-year period.

**** Assumes 30 feet of vertical clearance above mean high tide.

APPENDIX A

COMMENTS FROM FEDERAL AND STATE AGENCIES ON THE FEIS AND THE NCDOT RESPONSES

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

February 5, 1998

Regulatory Division

ACTION ID. 199300088, TIP B-682, Replacement of Sunset Beach bridge over the Atlantic Intracoastal Waterway, Brunswick County

RECEIVED
FEB 09 1998
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

Mr. Frank Vick, Manager
Planning and Environmental Branch
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Vick:

Reference your letter dated December 1, 1997, requesting comments on the Final Environmental Impact Statement (FEIS) for the above referenced project. With the exception of our comment below, we feel that you have adequately addressed our concerns, as provided in our letter dated January 22, 1997.

The Corps and other Federal and state agencies are concerned with the amount of "temporary" fill that will be placed into tidal wetlands to allow construction of the proposed bridge. According to the FEIS, approximately 4.8 acres of coastal marsh will be filled for two to three years while the new span is being built. Although the fill would be removed at the termination of construction activities, the short term impacts to aquatic functions provided by the marsh as well as the long term impacts while the area returns to pre-project conditions must be considered. Because of the potential impacts, we request that you study the feasibility of utilizing temporary bridges for construction or traffic needs while the new span is being built and respond in writing at your earliest convenience with your conclusions.

We appreciate the opportunity to provide comments during this stage of the planning process for this project. If you have any questions or comments regarding this correspondence, they may be addressed to me at (910) 251-4725.

Sincerely,

Scott McLendon
Regulatory Project Manager

Copies Furnished:

Mr. John Hefner
US Fish and Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. John Dorney
Division of Water Quality
North Carolina Department of
Environment and Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687

Mr. David Cox
North Carolina Wildlife Resources Commission
1141 I-85 Service Road
Creedmoor, North Carolina 27522

Mrs. Kathryn H. Matthews
Wetlands Section - Region IV
U.S. Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303

REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

RECEIVED
JAN 09 1998
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

4EAD/OEA

Mr. H. Franklin Vick
Chief, Planning and Environmental Branch
Division of Highways
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611

Subject: Final EIS - Replacement of Bridge No. 198 Over the Intracoastal Waterway at Sunset Beach - TIP No. B-682

Dear Mr. Vick:

EPA Region 4 has reviewed the subject document and would like to offer comments in accordance with Section 102(2)(C) of the National Environmental Policy Act, and Section 309 of the Clean Air Act. The following comments focus on NCDOT's responses to EPA's previous comments but will also address the revised alternative W1R now identified as the preferred alternative.

PURPOSE AND NEED FOR ACTION

It is stated that the projections of future traffic demand are based on future land uses consistent with the CAMA plan. We think that the need for transportation improvements at a resort destination normally would also require accurate population growth data. While 1993 data for the island are given, projections for year 2019 could not be found. Also, text on page 1-10 does not agree with population data in Table 3.3. The amount of permanent, seasonal and day-use population should be given.

ALTERNATIVES EVALUATION

The Final EIS addresses a full range of build alternatives including several fixed high-rise configurations, a mid-level bascule and upgrading the present one-lane facility. All but the upgrade alternative would meet the NCDOT reliability and safety criteria. We would like to reiteriate our earlier comment that locales like Sunset Beach could benefit from less intense transportation improvements.

A modification to the center (C1) and west W1 high-level fixed span bridge alternatives was developed and is called W1R. This alignment is the result of coordination with involved environmental agencies, which expressed concern that the high-rise alternatives evaluated in detail could have unwarranted

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adverse impacts to: (1) salt marshes and aquatic areas in Big Narrows channel on the barrier island side of the Intracoastal Waterway, and (2) wetlands and aquatic habitat associated with Slough Canal on the mainland. While EPA still prefers the mid-rise (C4) alternative, we are pleased to see a high rise alternative that would lessen identified environmental impacts compared to the other high-rise bridge alternatives.

Alternatives other than the high-rise fixed span and mid-level bascule (C4) options are addressed in the subject document. Collectively, the Final EIS provides a good alternatives analysis.

ENVIRONMENTAL IMPACTS

1. Socio-Economics

Sunset Beach is a small island community presently numbering less than 300 permanent residents, where seasonal visitation is estimated to swell daily population counts to 10,300. With very few commercial establishments on the island, and unlikely zoning changes from residential to commercial property, alternative W1R should be a major benefit to mainland commerce from island residents making more discretionary shopping trips to the mainland due to reduced travel time. This economic impact should have been stressed in the document.

Removal of the constraint to traffic flow by replacement of the single-lane pontoon bridge and the probable faster speeds of vehicles across the bridge and causeway are factors likely to create major traffic queuing problems at the intersections both north and south of the causeway. We suspect a large part of the operating cost savings assigned to alternative W1R could be lost by need for police and more costly signalization at these intersections. This impact was not defined in the document.

2. Water Quality

NCDOT is committing to the use of the basket/clamshell dredging method. Some of this dredging will be in submerged areas for construction access. We believe such areas should be restored to original water depth and bottom contours for the benefit of water quality and benthic habitat. This action should be easily accommodated in conjunction with the proposed restoration of old causeway area to salt marsh.

The present facility requires large vessels to move slowly through this reach of the Intracoastal Waterway. New alternative W1R would allow higher speeds, unless an enforceable wake law exists. The likely consequences would be excessive erosion of adjacent salt marsh and other land by vessel wakes and would

greatly increase turbidity and reduce marine habitat values. This point was not addressed in the document and some mitigation ought to be considered.

3. Noise

We note that the noise impacts analysis indicates two sensitive receptors on the mainland, a multi-family residence and a single family residence, would be significantly impacted by alternative W1R. Based on its cost-effectiveness analysis, NCDOT found noise mitigation (barriers) to not be practicable. EPA recommends some form of assistance for these residences even if the mitigation would not result in the noise reductions prescribed by DOT regulations.

SUMMARY

EPA's earlier comments on the Draft EIS and the preliminary Final EIS have been responded to satisfactorily. We continue to favor the mid-level bascule bridge (alternative C-4) for balancing transportation needs, socio-economic needs and the desires of Sunset Beach residents. However, the environmental mitigation committed to in this Final EIS (e.g., storm water runoff control, boat ramp relocation and conceptual mitigation plan for wetlands) should make alternative W1R an environmentally acceptable project. Accordingly, EPA has no objections to alternative W1R provided NCDOT adheres to the stated commitments and the final mitigation plan for wetlands is acceptable.

Thank you for providing the Final EIS for review. Mr. Ted Bisterfeld (tel. 404/562-9621) on my staff will remain the primary contact regarding the EPA review of this project.

Sincerely,

Heinz J. Mueller

Heinz J. Mueller
Director, Office of Environmental Review

cc: Roy Shelton, FHWA, Raleigh
John Hefner, USFWS, Raleigh
Melba McGee, NCDENR

Department of Environment
and Natural Resources
Division of Water Quality

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
A. Preston Howard, Jr., P.E., Director

DENR

December 30, 1997

MEMORANDUM

To: Michelle Suverkrubbe

Through: John Dorney

From: Cyndi Bell

Subject: Final Environmental Impact Statement and Final Section 4(f) Evaluation for the Replacement of Bridge No. 198 on SR 1172 over the Intracoastal Waterway at Sunset Beach
Brunswick County
State Project No. 8.2230101, T.I.P. No. B-0682; EHNR #98-0375

The referenced document has been reviewed by this office. The Division of Water Quality (DWQ) is responsible for the issuance of the Section 401 Water Quality Certification for activities which impact waters of the state including wetlands. Construction of NCDOT's Preferred Alternative (W1R) would involve up to 7.07 acres of fill in waters and wetlands (4.28 acres temporary and 2.79 acres permanent). Overall, the FEIS provides most of the information requested in our September 28, 1995 comments on the DEIS. We appreciate DOT's efforts to address stormwater issues, and the modification of Alternative W1 to avoid Big Narrows Channel, resulting in Alternative W1R. We advise DOT to keep the following issues in mind during the upcoming design and permitting phases of this project:

1) DOT has acknowledged that wetland mitigation will be required in the form of in-kind mitigation. We encourage DOT to proceed with the mitigation plan concurrent to the design of the bridge and roadway. Development of the mitigation plan should not be delayed until the permitting phase. Ideally, construction of the mitigation site(s) should be implemented prior to construction of the Sunset Beach Bridge. NCDOT is also advised that, in accordance with DWQ Wetland Rules {15A NCAC 2H.0506(h)(2)}, the Wetland Restoration Program will be available to use for wetland mitigation.

2) DWQ recommends placement of Hazardous Spill Catch Basins at both ends of the new bridge.

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3) NCDOT has provided a thorough discussion of temporary impacts and construction techniques under consideration for this project. DOT is advised that full restoration (including removal of fill material and planting/monitoring of vegetation) of temporary fill areas exceeding 200 square feet for Class SWL wetlands will be required in accordance with Condition #4 of General Certification 3114 (Nationwide Permit 33). All temporary fill material must be removed from construction access areas. On May 27, 1997, DWQ submitted a draft restoration policy for temporary impact areas to DOT. This policy will be finalized prior to construction of this project.

Based upon the wetland impacts described in the FEIS, an Individual 401 Water Quality Certification will be required for this project. Final permit authorization will require formal application by NCDOT and written concurrence from DWQ. Please be aware that this approval will be contingent upon evidence of avoidance and minimization of wetland and stream impacts to the extent practical, and provision of wetland and stream mitigation where necessary.

DWQ appreciates the opportunity to provide comments on the FEIS. DOT is reminded that issuance of a 401 Water Quality Certification requires satisfaction of water quality concerns, to ensure that water quality standards are met and no wetland or stream uses are lost. Questions regarding the 401 Certification should be directed to Cyndi Bell at (919) 733-1786 in DWQ's Water Quality Environmental Sciences Branch.

cc: Scott McLendon, COE, Wilmington
Howard Hall, FWS
David Cox, WRC

B0682FEIS.DOC

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Melba McGee
Office of Intergovernmental and Legislative Affairs, DENR

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: December 30, 1997

SUBJECT: Final Environmental Impact Statement (FEIS) for the replacement of Bridge No. 198 on SR 1172, over the Intracoastal Waterway at Sunset Beach, Brunswick County, North Carolina. TIP No. B-682. SCH Project No. 98-0375.

Staff biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the subject FEIS and are familiar with habitat values in the project area. The purpose of this review was to assess project impacts to fish and wildlife resources. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The proposed project involves replacement of the existing pontoon bridge over the Intracoastal Waterway with a new high-rise fixed-span bridge. Four Build alternatives were studied as well as the Do-nothing and rehabilitation alternatives. The preferred build alternative consists of a high-rise fixed-span structure approximately 150 feet west of the existing pontoon bridge. The W1R alternative is a modification of alternative W1. This involves shifting the alignment of W1 eastward to avoid relocation of the Big Narrows channel. Although W1R will result in slightly higher impacts to some natural communities when compared to other alternatives, we feel that the avoidance of the Big Narrows channel will result in fewer long term water quality and natural community changes.

We have reviewed the responses from NCDOT to our concerns raised on the preliminary FEIS. At this time, we concur with the FEIS for this project. We continue to request that NCDOT locate a site for a public boating access area in the project vicinity. We also request that NCDOT continue efforts to minimize wetland and Coastal Fringe Evergreen Forest impacts during the final design of the project. This should be documented and supplied with the permit applications.

Although very preliminary, we are pleased that the mitigation plan included in the document focused on coastal marsh restoration in the vicinity of the bridge project. We expect an opportunity to review the wetland mitigation proposals for this project during the '404' and CAMA permit reviews.

Thank you for the opportunity to review and comment on this FEIS. If we can further assist your office, please contact, David Cox, Highway Project Coordinator, at (919) 528-9886.

cc: USFWS, Raleigh
Scott McLendon, USACOE, Wilmington

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF PARKS AND RECREATION

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE McDEVITT
SECRETARY

DR. PHILIP K. McKNELLY
DIRECTOR

January 5, 1998

MEMORANDUM

TO: Melba McGee

FROM: Harry LeGrand HL

SUBJECT: FEIS - Replacement of Bridge at Sunset Beach

REFERENCE: 98-0375

The Natural Heritage Program database shows a large population of Carolina atamasco lily (*Zephyranthes* sp. 1) along both sides of NC 179, from the intersection with East Shoreline Drive and extending northward for 0.1- 0.2 mile. This taxon is believed to be a valid, undescribed species. It is considered a State Candidate, with only six known populations in the state, all from Brunswick County. The taxon is known only from this county and two adjacent ones in South Carolina.

Although the FEIS indicates the presence of this taxon in the study area, in Appendix E, Part III, its finding in the study area came after the Program's comments on the DEIS for the project. It appears that construction of the Preferred Alternative -- Alternative W1R -- will impact the southern portion of this population of Carolina atamasco lily.

The Division hopes that impacts to this rare plant population can be minimized. We strongly encourage a survey of the plant population be conducted during the spring season, preferably in late April when the plants are in bloom. Effort should be made to construct the northern terminus of SR 1172 as far south along NC 179 as possible, in order to minimize damage to this population, which is the largest reported population of Carolina atamasco lily in North Carolina.

Enclosures

/HEL

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C, K. Cl. *N. pseudo-narcissus* – F, G, orthographic variant]

Other taxa are under cultivation and may be expected as persistent or escaped in our area. Manuals of cultivated plants and the extensive horticultural literature on *Narcissus* (such as the references listed above) should be consulted by those interested in more information on members of this genus.

Sternbergia Waldst. & Kit. (Winter Daffodil)

• *Sternbergia lutea* (Linnaeus) Ker-Gawler ex Sprengel, Winter Daffodil. Cp (VA): cultivated as an ornamental, persistent and naturalized in lawns, roadsides, woodland borders, and disturbed areas; rare, introduced from Europe. This species has yellow, *Crocus*-like flowers, in the autumn. [= K]

Zephyranthes Herbert (Atamasco-lily, Zephyr-lily, Rain-lily)

1 Flowers (from base of ovary to apex of perianth) 3-5 cm long; stamens 1.5-2.5 cm long; stigma 1, 3-lobed; [introduced species, escaped from cultivation] ..... *Z. candida*

1 Flowers 6-10 cm long; stamens 4.5-8 cm long; stigmas 3; [native species, sometimes also cultivated].

2 Style and stigmas extending beyond the anthers; perianth segments spreading at full anthesis, mostly 3-8 cm long; [plants of moist to wet habitats, widespread in our area] ..... *Z. atamasco*

2 Style and stigma as long as or shorter than the anthers; perianth segments erect-ascending at full anthesis, mostly 3-6 cm long; [plants of dry sand-shell soils in the outer Coastal Plain of NC and SC] ..... *Z. species 1*

Zephyranthes atamasca (Linnaeus) Herbert, Common Atamasco-lily. Cp, Pd (NC, SC, VA), Mt (NC, SC): bottomland forests and adjacent road shoulders, wet meadows; common (rare in VA Piedmont, rare in Mountains). Late March-April; May-June. Ranging from se. and sc. VA south to n. FL, west to s. MS. The related *Z. treatiae* S. Watson is sometimes treated as *Z. atamasca* var. *treatiae* (S. Watson) Meerow; it occurs in s. GA and FL. It differs primarily in having grooved leaves 1-2 mm wide (vs. concave leaves 3-5 mm wide). [*Z. atamasco* – RAB, C, F, G, GW, orthographic variant; *Zephyranthes atamasca* var. *atamasca* – K; *Atamosco atamasco* (Linnaeus) Greene – S, orthographic variant]

• *Zephyranthes candida* (Lindley) Herbert. Cp (NC, SC): cultivated, persistent or spreading from cultivation; rare, introduced from South America. Late September-October. [= RAB, K; *Atamasco candida* (Lindley) Small – S]

Zephyranthes species 1, Carolina Atamasco-lily. Cp (NC, SC): dry to dry-mesic sandy soils (usually with admixture of shell hash) of coastal fringe sandhills or mainland maritime forests, usually associated with *Quercus hemisphaerica*, on barrier islands or within about 10 km of the ocean; rare (NC Watch List). April-May, May-June. This taxon is apparently endemic to the outer Coastal Plain of se. Brunswick County, NC, and Horry and Georgetown counties, SC. There remains some question about its distinctiveness from *Z. simpsonii*. *Z. simpsonii* has flowers pedicelled 3-6 mm (vs. ca. 1 mm long), occurs in moist acidic pinelands in FL and adjacent GA (vs. dry circumneutral soils of hardwood forests), and has a different chromosome number (Flagg, pers. comm.). [*Z. simpsonii* Chapman – RAB, GW, K, misapplied; *Atamasco simpsonii* (Chapman) Greene – S, in part]

ARACEAE (Arum Family)
(also see *ACORACEAE*)

1 Plant a floating aquatic, with gray-green, velvety, cabbage-like leaves ..... *Pistia*

1 Plant rooted (even when growing in water), the leaves various, but not as above.

2 Leaves compound ..... *Arisaema*

2 Leaves simple. *Calocasia*

3 Leaves peltate and cordate-hastate .....

3 Leaves not peltate, either cuneate, rounded, or hastate.

4 Spathe absent or obscure; leaves cuneate at the base, 4-12 (-16) cm wide (the blade usually 2.5–4 × as long as wide) .. .. *Orontium*

4 Spathe present, surrounding spadix; leaves either hastate at the base (*Peltandra*), or rounded and more than 15 cm wide (the blade 1-2.5 × as long as wide) (*Symplocarpus*). ..... *Peltandra*

5 Leaves hastate at base (somewhat arrowhead-shaped); spathe green or white ..... *Symplocarpus*

5 Leaves ovate, rounded at base; spathe purple, or purple flecked with white

Arisaema Martius (Jack-in-the-pulpit, Indian-turnip)

References: Treiber (1980). Key based largely on Treiber (1980) and GW.

1 Leaf with (5-) 7-15 leaflets, arranged pedately on a semicircular axis; spadix 9-20 cm long, long-exserted from the spathe ..... *A. dracontium*

[illegible]: PMLIL0D0E0001NC IDENT: [illegible] FONUM: ELEMENT RANKS: GRANK: G2? SRANK: S2?
COUNTYNAME: BRUNSWICK
SITENAME: SUNSET BEACH WOOD STORK PONDS SITECODE: [illegible]
SURVEYSITE: PRECISION: S WATERSHED: [illegible]

LAT: 333305N	S:	E:	QUADNAME:	QUADCODE:	MARGNUM:	DOTNUM:
LONG: 0783136W	N:	W:	CALABASH	3307885	9	

DIRECTIONS: SUNSET BEACH WOOD STORK PONDS: WEST ON NC 179 FOR 0.45 MILE FROM JUNCTION TO BRIDGE OVER INTRACOASTAL WATERWAY AT SUNSET BEACH, THEN NORTH AND WEST ON LAKE SHORE DRIVE FOR 0.35 MILE (SUBPOP A), 0.6 MILE (SUBPOP B), AND 0.7 MILE (SUBPOP C). SUBPOP D IS LOCATED NEAR THE INTERSECTION OF NC 179 AND LAKE SHORE DRIVE, 1.3 MILES WEST OF THE JUNCTION TO THE BRIDGE. SUBPOP E IS LOCATED ALONG NC 179, 1.5 MILES WEST OF THE JUNCTION TO THE BRIDGE. SUBPOPS A-C OCCUR ALONG THE SOUTH SIDE OF LAKE SHORE DRIVE. SUBPOP D OCCURS ALONG THE EAST SIDE OF LAKE SHORE DRIVE. SUBPOP E OCCURS ALONG THE NORTH SIDE OF NC 179. SUBPOPS A,B AND E ARE PRIMARILY ALONG THE ROAD. SUBPOPS C AND D EXTEND 30-70 FEET INTO REMNANT MARITIME FOREST. SUBPOP F IS LOCATED AT SUNSET BEACH NORTH OF THE INTRACOASTAL WATERWAY, EAST AND WEST SIDE OF NC 179, FROM 0.05 TO 0.25 MILE NORTH OF THE JUNCTION WITH THE ROAD ACROSS THE WATERWAY TO SUNSET BEACH BARRIER ISLAND. AN ABC STORE AND MINIATURE GOLF COURSE ARE LOCATED AT THE SOUTH END OF THE POPULATION ON THE WEST SIDE OF NC 179. [ADDITIONAL COORDINATES 333307N 0783123W; 333302N 0783143W; 0-33525IN 0783200W; 333246N 0783211W]

STATUS:

SURVEYDATE: 1994-04-27 LASTOBS: 1994-04-27 FIRSTOBS: 1994-04-26 EORANK: A EORANKDATE: 1994-04-27
EORANKCOM:
EODATA: TOTAL OF 169 PLANTS IN 6 SUBPOPS; SUBPOP A=1; SUBPOP B=5 OVER 30X10 FEET; SUBPOP C=11 OVER 30X20 FEET; SUBPOP D=9 OVER 50X15 FEET; SUBPOP E=13 OVER 30X10 FEET. INDIVIDUALS ALONG FILTERED TO OPEN ROADSIDE: 1 BUDDING, 13 FLOWERING, 8 FRUITING. INDIVIDUALS WITHIN SHADED FOREST: 7 VEGETATIVE, 5 FLOWERING, 5 FRUITING. SUBPOP F=130 PLANTS OVER 5 ACRES; 35 BUDDING, 80 FLOWERING, 15 FRUITING. OF THESE, INDIVIDUALS SHADED BY THE OAK CANOPY FLOWERED LATER (35 BUDDING, 11 FLOWERING). MAJORITY OF POPULATION ALONG EAST SIDE OF NC 179 (LEBLOND 1994). ALL DATA TAKEN ON 26-27 APRIL 1994 (LEBLOND 1994).

DESCRIPTION:

GENDESC: OPEN TO FILTERED ROADSIDES (SUBPOPS A,B,E) AND SHADED FOREST REMNANTS (SUBPOPS C,D). ROADSIDE ASSOCIATES INCLUDE AESCULUS PAVIA, SMILAX BONA-NOX, ILEX VOMITORIA, PLANTAGO VIRGINICA, AND PARTHENOCISSUS QUINQUEFOLIUS. FOREST REMNANTS HAVE BEEN CLEARED OF UNDERSTORY, BUT RETAIN CANOPY: QUERCUS VIRGINICA, Q. HEMISPHAERICA, PINUS TAEDA, JUNIPERUS VIRGINIANA, AND CELTIS LAEVIGATA, WITH A SPARSE ILEX VOMITORIA SUBCANOPY. SUBPOP F=MOSTLY UNSHADED ROADSIDE (A PORTION WITH QUERCUS HEMISPHAERICA CANOPY), IN DRY SAND WITH HIGH SHELL CONTENT. ELEMENT WITH PLANTAGO VIRGINICA, NOTHOSCORDUM (=ALLIUM) BIVALVE, GNAPHALIUM PURPUREUM VAR. P., VERONICA ARVENSIS, GERANIUM CAROLINIANUM VAR. C., HYDROCOTYLE BONARIENSIS, OPUNTIA COMPRESSA, SMILAX BONA-NOX, MELOTHRIA PENDULA, TRIFOLIUM CAMPESTRE.

ELEV: 5 - 25 SIZE: 5 SIZE COMMENT:

PROTECTION AND OWNERSHIP:

MACODE: MANAME: CONTAINED:

MORELAND: MOREPROT: MOREMGMT: INCINVOLVE:

MGMTCOM: ROADSIDE SUBPOPS VULNERABLE TO ROADSIDE AND YARD MAINTENANCE. FOREST SUBPOPS VULNERABLE TO HOUSE CONSTRUCTION. SITE F IS REGULARLY MOWED, INCLUDING MOWING OF EARLY-SEASON ELEMENT GROWTH. PORTION OF HABITAT ON NORTH SIDE OF ABC STORE EXTIRPATED BY MINIATURE GOLF COURSE AFTER APRIL 1994 VISIT. THIS AREA CONTAINED 45 (34%) OF THE PLANTS SEEN IN THE POPULATION (1994).

PROTCOM: ROADSIDE MOWING SHOULD BE AVOIDED DURING THE SPRING GROWTH PERIOD. THIS IS THE LARGEST KNOWN POPULATION OF THIS ZEPHYRANTHES IN NORTH CAROLINA. OWNERS NEED TO BE CONTACTED. ROLE OF NCDOT IN ROADSIDE DEVELOPMENT NEEDS TO BE DETERMINED. PROTECTION MADE DIFFICULT BY UNNAMED STATUS OF TAXON (1994).

OWNER: PRIVATE & NCDOT OWNERINFO: Y

OWNERCOM: SUBPOPS A-D=LOTS TOO SMALL TO DETERMINE LOCATION ON TAX MAP. SUBPOP E=NCDOT. SUBPOP F=PARCEL 256-BB-43. MICHAEL J. LAZARUS & ET AL., 60 OLD COLONY RD., WELLESLEY, MA 02181. PARCEL 256-BA-26 and 256-2. SEA TRAILS CORP., 211 CLUB HOUSE RD., SUNSET BEACH, NC 28463.

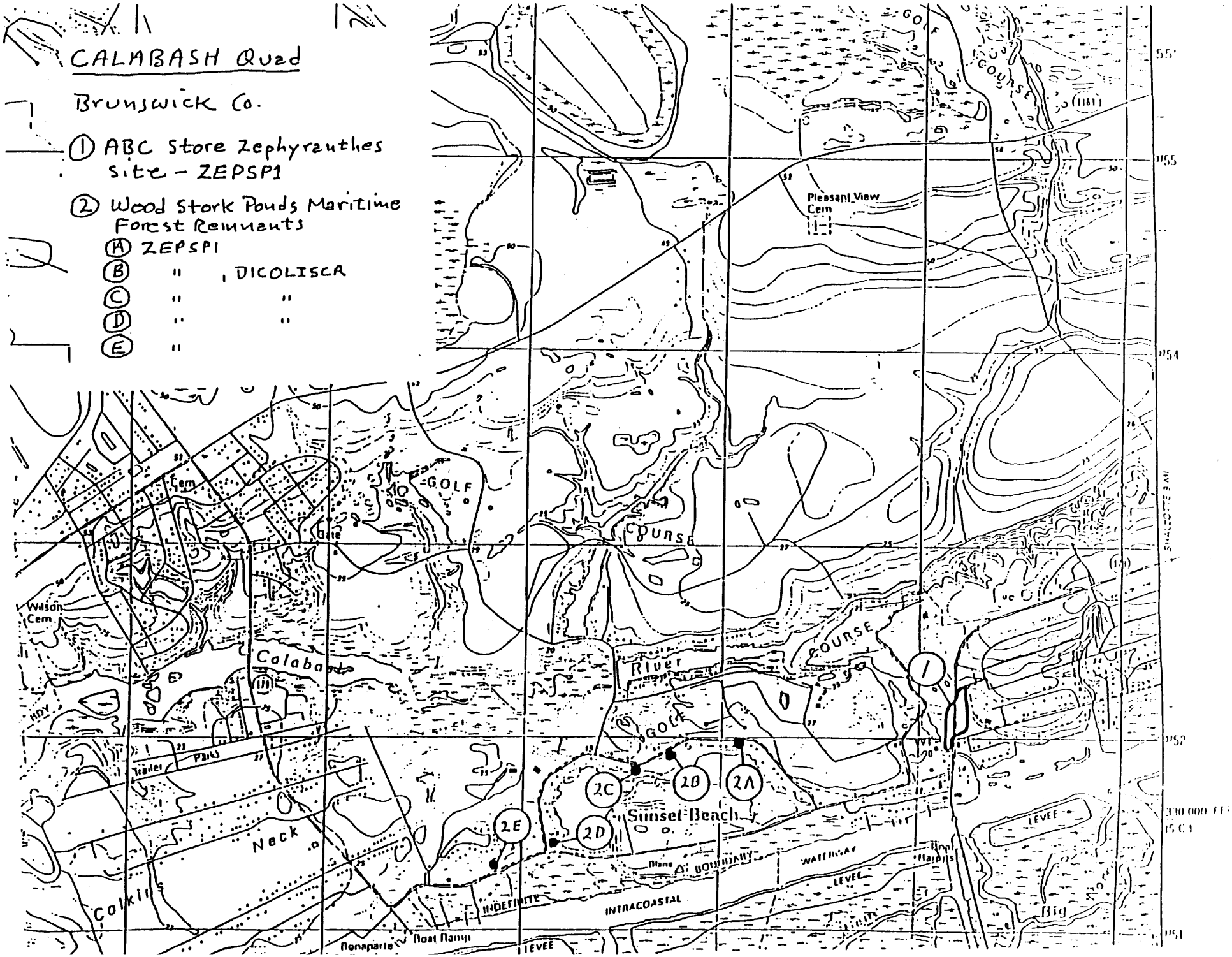
[illegible] DICHANTHELIUM OLIGOSANTHES VAR. SCRIBNERIANUM IN RACFOR. [illegible] INVESTIGATOR OF THE TAXONOMIC STATUS OF DICHANTHELIUM SP. 1. ELEMENT SHOULD BE LOCATED FOR IN OTHER PERMANENT HABITATS FOREST HABITAT DURING LATE APRIL/EARLY MAY (1994).

OPTIONAL FIELDS:
GEOMORPH: CCB GEOL: TRAN SPECSTAT: SURVEY: R
SOIL: WANDO
PACTOLUS

ELEMENTSPP: DICHANTHELIUM OLIGOSANTHES VAR. SCRIBNERIANUM

DOCUMENTATION AND MAINTENANCE: DATASENS: BOUNDARIES: AERIAL PHOTO#:
BESTSOURCE: R.J. LEBLOND, 26-27 APRIL 1994 (BRUNSWICK COUNTY INVENTORY, DISKFILES).

SPECIMENS: HERB.PERS., R.J. LEBLOND (3799), 26 APRIL 1994.
TRANSCRIBER: 94-12-13 MJR MAPPER: 94-12-09 MJR EDITION: 94-12-13 EDAUTHOR: RUSSO CHANGE.DATE: 95-03-01


CALABASH Quad
Brunswick Co.
(1) ABC Store Zephyranthes site - ZEPSP1
(2) Wood Stork Ponds Maritime Forest Remnants
(A) ZEPSP1
(B) " , DICOLISCA
(C) " "
(D) " "
(E) "
Pleasant View Cem
GOLF COURSE
Wilson Cem
Calabash
River
Sunset Beach
Neck
Colkit
INTRACOASTAL WATERWAY
LEVEE
Big
Bonaparte
Boat Ramp
Trailer Park
INDEFINITE BOUNDARY
1
2A
2B
2C
2D
2E

North Carolina Department of Crime Control and Public Safety
Division of Emergency Management

James B. Hunt Jr., Governor — Richard H. Moore, Secretary

Dept of Crime Control & Public Safety
Division of Emergency Management
National Flood Insurance Program

STATE NUMBER:98-E-4220-0375
APPLICANT: N.C. DEPARTMENT OF TRANSPORTATION

DESC: PROPOSED REPLACEMENT OF BRIDGE NO. 198 ON SR 1172 OVER THE INTRACOASTAL INTERWAY AT SUNSET BEACH, NC, BRUNSWICK COUNTY; TIP #B682.

Any portion of the proposed project that affects the regulatory 100 year floodplain as shown on the published Flood Insurance Rate Map (FIRM) must be constructed in accordance with the Local Flood Damage Prevention Ordinance.

Any portion of the proposed project that affects the floodway as determined by firm maps for any specific area should obtain a "No Impact Certification" or a "Conditional Letter of Map Revision" (CLOMR) or must fully comply with part 65.7 of 44 CFR. All CLOMR or LOMR requests must be approved by the local officials prior to being submitted to FEMA.

Division of Emergency Management - NFIP
(919) 733-5392

12/18/97
Date

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

STATE NUMBER: 98-E-4220-0375 F02
DATE RECEIVED: 12/03/1997
AGENCY RESPONSE: 12/29/1997 due 12/22
REVIEW CLOSED: 01/03/1998

Ms. Renee Gledhill-Earley
Clearinghouse Coordinator
Dept. of Cultural Resources
Archives-History Bldg.
Raleigh NC

DEC 1997

REVIEW DISTRIBUTION
Cape Fear Council of Governments
DEHNR - COASTAL MGT
Dept. of Agriculture
Dept. of Crime Cont./ Public Safety
Dept. of Cultural Resources
Dept. of Environment & Natural Res

RWL 12/29/97

NO DLB 12/15/97

PROJECT INFORMATION
APPLICANT: N.C. Department of Transportation
TYPE: National Environmental Policy Act
ERD: Final Environmental Impact Statement
DESC: Proposed Replacement of Bridge No. 198 on SR 1172 Over the Intracoastal Interway at Sunset Beach, NC, Brunswick County; TIP #B682

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date. If additional review time is needed, please contact this office at (919)733-7232.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED:

☒ NO COMMENT

☐ COMMENTS ATTACHED

RECEIVED
JAN 8 1998
N.C. STATE CLEARINGHOUSE

SIGNED BY: Renee Gledhill Earley

DATE: 1/6/98

DEC 1997

RESPONSES TO COMMENTS RECEIVED FROM FEDERAL AND STATE AGENCIES

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682

No.	Comment	Response
North Carolina Department of Administration, January 9, 1998		
1	Attached to this letter are comments made by agencies review this document.	Comment noted.
North Carolina Department of Environment and Natural Resources, January 8, 1998		
1	. . .attached comments for the applicant's information	Comment noted.
North Carolina DENR, Water Quality, December 30, 1998		
1	Overall, the FEIS provides most of the information requested in our September 28, 1995 comments on the DEIS. We appreciate DOT's efforts to address stormwater issues, and the modification of Alternative W1R to avoid Big Narrows Channel, resulting in Alternative W1R.	Comment noted.
2	We encourage DOT to proceed with the mitigation plan concurrent to the design of the bridge and roadway. Development of the mitigation plan should not be delayed until the permitting phase. Ideally, construction of the mitigation site(s) should be implemented prior to construction of the Sunset Beach Bridge. NCDOT is also advised that, in accordance with DWQ Wetland Rules {15A NCAC 2H.0506(h)(2)}, the Wetland Restoration Program will be available to use for wetland mitigation.	The final Mitigation Plan will be prepared during final design, prior to any construction activities in water or wetlands. Because the existing causeway must continue to be used during construction of the proposed bridge to maintain the only transportation corridor to the island, restoration of the existing causeway, the major component in the Mitigation Plan, can not be completed prior to construction.
3	DWQ recommends placement of Hazardous Spill Catch Basins at both ends of the new bridge.	The practicability of providing hazardous spill catch basins will be further investigated in accordance with NCDOT's BMPs.
4	NCDOT has provided a thorough discussion of temporary impacts and construction techniques under consideration for this project. DOT is advised that full restoration (including removal of fill material and planting/monitoring of vegetation)of temporary fill areas exceeding 200 square feet for Class SWL wetlands will be required in accordance with Condition #4 of General Certification 3114 (Nationwide Permit 33). All temporary fill material must be removed from construction access area. On May 278, 1997, DWQ submitted a draft restoration policy for temporary impact areas to DOT. This policy will be finalized prior to construction of this project.	Comment noted.

5	Based upon the wetland impacts described inn the FEIS, an Individual 401 Water Quality Certification will be required for this project. Final permit authorization will require formal application by NCDOT and written concurrence from DWQ. Please be aware that this approval will be contingent upon evidence of avoidance and minimization of wetland and stream impacts to the extent practical, and provision of wetland and stream mitigation where necessary.	Comment noted.
6	DWQ appreciates the opportunity to provide comments on the FEIS. DOT is reminded that issuance of a 401 Water Quality Certification requires satisfaction of water quality concerns, to ensure that water quality standards are met and no wetland or stream uses are lost.	Comment noted.
North Carolina Wildlife Resources Commission, December 30, 1998		
1	The purpose of this review was to assess project impacts to fish and wildlife resources. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).	Comment noted.
2	Although W1R will result in slightly higher impacts to some natural communities when compared to other alternatives, we feel that the avoidance of the Big Narrows channel will result in fewer long term water quality and natural community changes.	Comment noted.
3	At this time, we concur with the FEIS for this project. We continue to request that NCDOT locate a site for a public boating access area in the project vicinity. We also request that NCDOT continue efforts to minimize wetland and Coastal Fringe Evergreen Forest impacts during the final design of the project. This should be documented and supplied with the permit applications.	Comment noted. NCDOT will continue its efforts to locate an alternative site for the boat launch in coordination with state and federal agencies. Wetland and coastal fringe evergreen forest impacts will be avoided where possible, and minimized where unavoidable as described in the Mitigation Plan for this project.
4	Although very preliminary, we are pleased that the mitigation plan included in the document focused on coastal marsh restoration in the vicinity of the bridge project. We expect an opportunity to review the wetland mitigation proposals for this project during the '404' and CAMA permit reviews.	Comment noted. Review of the 404(b)(1) and CAMA permits are arranged through the COE and NC DCM.
North Carolina Department of Environment and Natural Resources, Division of Parks and Recreation, January 5, 1998		

RESPONSES TO COMMENTS RECEIVED FROM FEDERAL AND STATE AGENCIES

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682

1	The Natural Heritage Program database shows a large population of Carolina atamasco lily (Zephyranthewe sp. 1) along both sides of NC 179, from the intersection with East Shoreline Drive and extending northward for 0.1- 0.2 mile. This taxon is believed to be a valid, undescribed species. It is considered a State Candidate, with only six known populations in the state, all from Brunswick County. The taxon is know only from this county and two adjacent ones in South Carolina.	NCDOT will incorporate the location of these populations into the final design where practicable. Unavoidable impacts will be identified as early as possible in the final design. NCDOT will facilitate the transplantation of populations that would otherwise be destroyed by the project.
2	Although the FEIS indicates the presence of this taxon in the study area, in Appendix E, Par III, its finding in the study area came after the Program's comments on the DEIS for the project. It appears that construction of the Preferred Alternative -- Alternative W1R -- will impact the southern potion of this populations of Carolina atamasco lily.	Comment noted.
3	The Division hopes that impacts to this rare plant populations can be minimized. We strongly encourage a survey of the plant population be conducted during the spring season, preferably in late April when the plants are in bloom. Effort should be made to construct the northern terminus of SR 1172 as far south along NC 179 as possible, in order to minimize damage to this population, which is the largest reported population of Carolina atamasco lily in North Carolina.	Comment noted.
North Carolina Department of Cultural Resources, January 6, 1998		
1	No comment on project.	Comment noted.
North Carolina Department of Crime Control and Public Safety, Division of Emergency Management, December 18, 1997		
1	Any portion of the proposed project that affects the regulatory 100 year floodplain as shown on the published Flood Insurance Rate Map (FIRM) must be constructed in accordance with the Local Flood Damage Prevention Ordinance.	Comment noted.
2	Any portion of the proposed project that affects the floodway as determined by firm maps for any specific area should obtain a "No Impact Certification" or a "Conditional Letter of Map Revision" (CLOMR) or must fully comply with part 65.7 of 44 CFR. All CLOMR or LOMR requests must be approved by the local officials prior to being submitted to FEMA.	Comment noted. The proposed bridge is not anticipated to affect coastal flood elevations.

RESPONSES TO COMMENTS RECEIVED FROM FEDERAL AND STATE AGENCIES

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682

U.S. Environmental Protection Agency, January 7, 1998		
1	The following comments focus on NCDOT's responses to EPA's previous comments but will also address the revised alternative W1R now identified as the preferred alternative.	Comment noted.
2	Purpose and Need for Action. It is stated that the projections of future traffic demand are based on future and uses consistent with the CAMA plan. We think that the need for transportation improvements at a resort destination normally would also require accurate population growth data. While 1993 data for the island are given, projections for year 2019 could not be found. Also, text on page 1-10 does not agree with population data in Table 3.3. The amount of permanent, seasonal and day-use population should be given.	Traffic projections for year 2019 incorporate projections for land use, area traffic, and other socioeconomic variables. Moreover, the analysis conducted for the EIS suggests that the rate and type of development on the island and mainland portions of the bridge would not be greatly affected by the type of bridge. Accordingly, detailed population data were not independently generated or provided in the FEIS. The data references on page 1-10 of the report are transposed, and are based on an earlier report. Year-round (permanent), seasonal, and day-user population data are presented in Table 3.3. This table and corresponding section is cross-referenced at the bottom of page 1-10 for the reader.
3	Alternatives Evaluation. The Final EIS addresses a full range of build alternatives including several fixed high-rise configurations, a mid-level bascule and upgrading the present one-lane facility. All but the upgrade alternative would meet the NCDOT reliability and safety criteria. We would like to reiterate our earlier comment that locales like Sunset Beach could benefit from less intense transportation improvements.	Comment noted. The mid-level bascule bridge alternative (Alternative C4) has high operational and maintenance costs that increase the total costs of the project greater than the high-level fixed-span bridge, (Alternative W1R). Combined with the user benefits of avoided vehicular and waterway delays, the cost savings of the preferred alternative makes it the prudent choice for State-allocated transportation funds to meet the project purpose and need.
4	While the EPA still prefers the mid-rise (C4) alternative, we are pleased to see a high rise alternative that would lessen identified environmental impacts compared to the other high-rise bridge alternatives.	Comment noted.
5	Alternatives other than the high-rise fixed span and mid-level bascule (C4) options are addressed in the subject document. Collectively, the Final EIS provides a good alternatives analysis.	Comment noted.

6	Environmental Impacts. 1. Socioeconomics. . . . With very few commercial establishments on the island, and unlikely zoning changes from residential to commercial property., alternative W1R should be a major benefit to mainland commerce from island residents making more discretionary shopping trips to the mainland due to reduced travel time. This economic impact should have been stressed in the document.	This induced benefit to mainland businesses is discussed in Section 4.1.2.1 of the FEIS, Mainland Economic Impacts. Because projected traffic volumes for the No Action or rehabilitation scenarios are only 10-15 percent lower than projected for a new bridge, such induced benefits from a two-lane bridge without delay are anticipated to be relatively minor. Section 4.1.2.2 discusses the results of a non-scientific survey conducted. The survey suggested that the average amount of money that day-visitors spend on the island was approximately $2.60 per vehicle, suggesting the most day visitors bring their own food, drinks, and other personal items.
7	Removal of the constraint to traffic flow by replacement of the single-lane pontoon bridge and the probable faster speeds of vehicles across the bridge and causeway are factors likely to create major traffic queuing problems at the intersections both north and south of the causeway. We suspect a large part of the operating cost savings assigned to alternative W1R could be lost by need for police and more costly signalization at these intersections. This impact was not defined in the document.	As noted, there will continue to be some queuing with the preferred alternative. NCDOT will monitor the main Island intersection to determine if a signal is warranted. However, queuing on either side of the bridge would decrease with the preferred alternative because platooning of vehicles would be minimized. This would directly benefit the level of service for intersections north and south of the bridge. Accordingly, such benefits would augment the anticipated user benefits of the bridge and not negate them.
8	2. Water Quality. NCDOT is committing to the use of the basket/clamshell dredging method. Some of this dredging will be in submerged areas for construction access. We believe such areas should be restored to original water depth and bottom contours for the benefit of water quality and benthic habitat. This action should be easily accommodated in conjunction with the proposed restoration of old causeway areas to salt marsh.	NCDOT commits to the restoration of all in-water dredged areas.
9	The present facility requires large vessels to move slowly through this reach of the Intracoastal Waterway. New alternative W1R would allow higher speeds, unless an enforceable wake law exist. The likely consequences would be excessive erosion of adjacent salt marsh and other land by vessel wakes and would greatly increase turbidity and reduce marine habitat values. This point was not addressed in the document and some mitigation ought to be considered.	The potential for wave erosion is discussed on page 4-62 in Section 4.3.1.4 of the FEIS. This section notes that commercial waterway traffic is presently unrestricted. The only restricted waterway traffic that would be unrestricted with a high level, fixed span bridge would be pleasure craft, which are generally much smaller. Additionally, this section of the FEIS also notes that case studies for the Ocean Isle and Holden Beach bridges showed no definitive correlations between vessel speeds and shoreline erosion.

10	3. Noise. We note that the noise impacts analysis indicates two sensitive receptors on the mainland, a multi-family residence and a single family residence, would be significantly impacted by alternative W1R. Based on its cost-effectiveness analysis, NCDOT found noise mitigation (barriers) to not be practicable. EPA recommends some form of assistance for these residences even if the mitigation would not result in the noise reductions prescribed by DOT regulations.	23 CFR 772 states that federal funds may only be used for noise abatement measures that are feasible, reasonable and cost-effective.
11	Summary. EPA's earlier comments on the Draft EIS and the preliminary Final EIS have been responded to satisfactorily. We continue to favor the mid-level bascule bridge (alternative C-4) for balancing transportation needs, socio-economic needs and the desires of Sunset Beach residents. However, the environmental mitigation committed to in this Final EIS (e.g., storm water runoff control, boat ramp relocation and conceptual mitigation plan for wetlands) should make alternative W1R an environmentally acceptable project. Accordingly, EPA has no objections to alternative W1R provided NCDOT adheres to the stated commitments and the final mitigation plan for wetlands is acceptable.	Comments noted.
	U.S. Army Corps of Engineers, Regulatory Division, February 5, 1998	
1	The Corps and other Federal and state agencies are concerned with the amount of "temporary" fill that will be placed into tidal wetlands to allow construction of the proposed bridge. According to the FEIS, approximately 4.8 acres of coastal marsh will be filled for two to three years while the new span is being built. Although the fill would be removed at the termination of construction activities, the short term impacts to aquatic functions provided by the marsh as well as the long term impacts while the area returns to pre-project conditions must be considered. Because of the potential impacts, we request that you study the feasibility of utilizing temporary bridges for construction or traffic needs while the new span is built and respond in writing at your earliest convenience with your conclusions.	Temporary work bridges are planned for the construction equipment access for the new span of the bridge. The FEIS documents the use of temporary fill to the east of the existing causeway during construction to maintain traffic flow. NCDOT will continue to coordinate with the design engineers and agencies throughout the design and permitting phases in order to minimize both temporary and permanent impacts to the salt marsh where practicable opportunities are identified.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

JAMES B. HUNT JR.
GOVERNOR

E. NORRIS TOLSON
SECRETARY

March 9, 1998

Mr. David Cox
Highway Project Coordinator
Habitat Conservation Program
North Carolina Wildlife Resources Commission
1142 I-85 Service Road
Creedmoor, NC 27522

Dear Mr. Cox:

This is to request a letter of comment from your agency regarding the disposition of the replacement of the informal boat ramp in conjunction with the replacement of Bridge No. 198 on SR 1172 over the Intracoastal Waterway in the Town of Sunset Beach in Brunswick County.

On February 7, 1997, Julie Hunkins, NCDOT Project Manager, met with Gordon Myers, Chief of NCWRC's Division of Engineering Services, to discuss possible sites at which a boat ramp could be constructed. As a result of the meeting, three potential boat ramp sites were identified, and Julie Hunkins provided the following for your agency's use in assessing the feasibility and practicality of several sites: aerial photographs, bottom profiles of the waterway perpendicular to the shoreline, topographic mapping, GIS data, tax maps, and the plan view and profile of the proposed bridge alignment (including tree lines and structures). These three sites (two in the immediate vicinity of the existing and proposed bridges and another located west of the project area) were the only potential sites on the mainland which had been identified during the project development process up to that point in time.

On March 5, 1997, John Wadsworth (FHWA), David Griffin (URS Greiner, Inc.), Gordon Meyers, Don Tobaben (NCWRC), and Julie Hunkins met at the project site to review the three potential boat ramp sites. At that meeting, each site was visited and the pros and cons of each site were discussed, and another potential boat ramp site near the proposed project was identified. Following the meeting, a fifth site (located east of the project area) was identified. In general, the NCWRC indicated that while several of these sites were feasible locations for such a facility (could be engineered at some cost due to their physical characteristics), none of these sites appeared to be practicable (could be

implemented safely with a reasonable expenditure of public monies over the life of the facility). Of particular concern to the NCWRC was: (1) the need for and cost of long-term maintenance dredging in a Primary Nursery Area in order to keep the boat ramp open, especially during low tide; (2) the potential for the boat ramp to become inoperable and unsafe during periods of aggressive wave action from passing boats on the Intracoastal Waterway; and (3) the potential liability associated with such a facility.

In general, the NCWRC staff at that meeting indicated that the NCWRC would not consider the expenditure of public monies prudent to construct and maintain a facility at any of these locations along the Intracoastal Waterway.

Clarification of your agency's official position regarding the assessment of these potential boat ramp locations by March 31, 1998 would be greatly appreciated. If you have any questions, please contact me at (919) 733-3141.

Sincerely,

H. Franklin Vick

H. Franklin Vick, P.E., Manager
Planning and Environmental Branch

HFV/jh

cc: John Wadsworth, FHWA
Gordon Meyers, NCWRC
Don Tobaben, NCWRC
David Griffin, URS Greiner, Inc.

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Julie Hunkins
Project Manager, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: April 5, 1998

SUBJECT: Boat ramp replacement at Sunset Beach

Members of the NCWRC Division of Engineering services have met with NCDOT Planning and Environmental staff to review five sites as possible locations for public boating access to replace the informal access that will be lost on SR 1172. Although the existing site used to launch boats is an "allowed trespass", in our review of the NEPA document we recommended that the public access that would be eliminated by B-682 be replaced with a new boat ramp in the project vicinity.

After the interagency site visit on March 5, 1998 and reviewing the materials supplied by NCDOT, we do not feel that constructing a boating access facility on any of the identified sites would be a prudent expenditure of public funds. Although construction on some sites appeared feasible, none of the sites appeared to be practicable. Some of our concerns were:

1. The impacts from and cost of long-term maintenance dredging in the Intracoastal Waterway which is designated as a Primary Nursery Area.

2. The potential for the boating access area to become inoperable and unsafe during times aggressive wave action from passing boats on the Intracoastal Waterway.

3. The potential liability associated with a facility in these locations.

At this time, we feel that a reasonable search has been conducted for a site to locate a boating access facility. No site has been located that would provide safe public access and would be a practicable expenditure of public moneys. If you have questions please call me at (919) 528-9886.

cc: Gordon Meyers, Chief, Division of Boating

APPENDIX B

COMMENTS FROM TOWN OF SUNSET BEACH AND THE NCDOT RESPONSES

TOWN OF SUNSET BEACH

RECEIVED
DEC 8 1997
STATE HIGHWAY ADMINISTRATOR

December 3, 1997

State of North Carolina
Department Of Transportation
State Highway Administration
Larry R. Goode, PHD. P.E.
P.O. Box 25201
Raleigh. N. C. 27611-5201

Re: Bridge Replacement Project N. C. DOT B-682

Dear Chairman Goode:

Please find enclosed a copy of a Resolution passed by the Town Council of Sunset Beach in a duly called meeting of December 1, 1997.

Sincerely,

Linda Fluegel

Linda Fluegel
Administrator

Enc.

700 Sunset Boulevard North • Sunset Beach, NC 28468
Telephone 910-579-6297 • FAX 910-579-5965

TOWN OF SUNSET BEACH

Bridge Replacement Project N.C. DOT B-682

Whereas, the purpose of the project is to replace the structurally deficient and functionally obsolete existing bridge No. 198 on SR 1172 in Sunset Beach, Brunswick County, North Carolina; and

Whereas, replacement of this pontoon bridge with a new structure would provide a reliable means of transportation between the island and the mainland and would provide the necessary and long sought after degree of public safety by improving emergency response time and emergency evacuation procedures.

Whereas, the N.C. DOT Board voted to replace the pontoon bridge with Alternative WIR High Rise structure and caused an evaluation of the impact to the environment to be done on this alternative; and

Whereas, the final EIS for the proposed replacement has been signed by the Federal Highway Administration.

Now, Therefore, Be It Resolved by the Town Council of Sunset Beach that the Council wishes to reinforce its concurrence with the N.C. DOT Boards selection of Alternative WIR as the preferred replacement of Bridge No. 198 and Further,

Be it resolved that the Town Council urgently requests the N.C. DOT to go forth with the plans for reliable means of transportation between the island and the mainland that would offer public safety by improving emergency response time and emergency evacuation procedures. Furthermore, it will enhance both vehicular operation on SR 1172 and water craft operations on the Intracoastal Waterway.

Adopted this the 1 st Day Of December, 1997

TOWN OF SUNSET BEACH OFFICIAL SEAL N. C.

Town of Sunset Beach

By: C.G. Cheek

C.G. Cheek, Mayor

ATTEST:

Linda Fluegel

Linda Fluegel, Administrator

700 Sunset Boulevard North • Sunset Beach, NC 28468
Telephone 910-579-6297 • [illegible]

TOWN OF SUNSET BEACH

ida Fluegel, Administrator
ry Crim, Asst. Administrator

7/8/98

Secretary E. Norris Tolson
State of North Carolina Department of Transportation
Division of Highways
P.O. Box # 252001
Raleigh, NC 27611-5201

Dear Mr. Tolson,

The Town of Sunset Beach and its residents have been working steadfastly with the State Department of Transportation to resolve the legal, environmental challenge to a High Rise Bridge at Sunset Beach.

Our needs and desire for a High Rise Bridge is in agreement with the long standing recommendation and position of every official in the State Department of Transportation to date.

Every elected official in the Town of Sunset Beach has openly and publicly supported the 65 ft. High Rise Bridge as the only way to address the serious safety issue associated with the present floating swing bridge. The alternatives offered of a dual lane swing bridge or a 35 ft. high bascule bridge do not resolve the serious safety problem.

A 65 ft. High Rise Bridge that allows unrestricted access to and from the island is the only solution to the safety of life and property on the island.

The undersigned elected officials of Sunset Beach, five councilmen and the Mayor, have supported the 65 ft. High Rise Bridge and have been elected by an overwhelming majority of the towns voters. We consider this a mandate from the vast majority of our towns residents to uncompromisingly ask that only a 65 ft. High Rise Bridge be considered to the island.

The Town of Sunset Beach and its residents ask that prompt and early action be taken to proceed with the construction of a 65 ft. High Rise Bridge to the Island.

Sincerely,

Cherri Cheek, Mayor

Ed Gore, Mayor Pro Tem

Carl Bazemore, Councilman

Ed Hughes, Councilman

Cliff Erickson, Councilman

Lloyd Grantham, Councilman

700 Sunset Boulevard North • Sunset Beach, NC 28468
Telephone 910-579-0297 • 910-579-3805 • Fax 910-579-1827

INTRODUCTION

The entire Council of Sunset Beach represents the majority of residents of Sunset Beach and strongly requests the resolution of the bridge issue.

The FEIS was approved in October of 1997 (See Attachment 1). Governor Jim Hunt wholeheartedly supported the West Corridor 65' Fixed Span Bridge in October 1996 (See Attachment 2), saying the Record of Decision was scheduled for the spring of 1997. In November 1997, Linda Fluegel was asked to review the draft Section 4 and she agreed with the DOT that the Alternative WIR was the preferred alternative (See Attachment 3). The published study in July 1996 also supported the Alternative WIR (See Attachment 4).

It's now one year since the FEIS was approved. We have made repeated phone calls, written letters and sent petitions, without results. We have been put off and have recently been notified that the project is to be reevaluated from its original recommended alternative of a 65' high fixed span bridge (See Attachment 1,5,6).

Why is the FEIS recommended alternative being reevaluated? Everything on behalf of the town and the DOT up until 1997 had been done legally, openly and in good faith.

There seems to be intense lobbying behind the scenes by a group that DOES NOT REPRESENT the town and its residents and, at the same time, the local elected officials representing the majority, have been disregarded.

Where is the Record of Decision? If it hasn't been done - why?

The following is a rebuttal of the unsubstantiated allegations of the Sunset Beach Taxpayers Association presented to you on May 4, 1998.

REBUTTAL OF SBTA COMMENTS OF MAY 4, 1998

FICTION:
The access and development limitations imposed by the current pontoon bridge are largely responsible for maintaining the balance of commercial/tourism.

FACT:
It is not the pontoon bridge that is responsible for development limitations. It is the town's zoning and ordinances that are responsible.

FICTION:
The Sunset Beach Taxpayers Association has a membership of approximately 1,500 and represents the majority of island property owners and residents.

FACT:
Their claim of 1,500 members is highly subjective and totally unsubstantiated. No list has ever been produced, when requested, substantiating their membership. No more than 60-70 property owners/residents ever attend their tri-annual membership meetings. They claim all property owners as members, which is not a valid statement. In our discussions with island residents, tourists and property owners, we have discovered that the SBTA really represents the opinions of the Board of Directors of the SBTA and not its supposed membership.

FICTION:
With the advent of a central sewer system, the population of the area is projected to increase from its current peak daily population of 24,000 to approximately 77,000.

FACT:
According to our 1997 Land Use Plan Update, by the year 2002, it is projected that the Planning Area's year round population will be 1,333 with an additional 17,000 seasonal residents for a total peak residential population of 18,333. By the year 2007, the Planning Area's year round population will be 1,649 with an additional 20,344 seasonal residents for a total peak population of 21,993. The SBTA assertion of a peak population of 77,000 is false and ludicrous

FICTION:
Sunset Beach island is the only developed island in the Planning Area.

FACT:
Sunset Beach island is the only one in the 201 sewer authority planning area but not the only one which serves this area.

FICTION:
If the golf resort development interests achieve their goal of using Sunset Beach island as an easily accessible beach amenity for the mainland resorts, the island and the waters around it will experience irreversible environmental deterioration. Island property owners will also see deterioration both in their quality of life in their beach cottage rental businesses and property values.

FACT:
The regional sewer authority will provide the environmental relief necessary to reverse the deterioration of our coastal waters.

FICTION:
The controversy over the bridge replacement at Sunset Beach has been active since 1979 and can be a confusion for anyone unfamiliar with the realities of Sunset Beach politics. In recent years, the lines have been more clearly defined. On one side are those with real estate and development interests; on the other are the majority of residents on and off the island as sell as the majority of island property owners.
The letter sent to Mr. Tolson by the Sunset Beach Town Council asking to proceed with the high rise bridge represents the sentiments of the development interests, not the substantial majority of Sunset Beach residents or property owners.

FACT:
In elections since that time, the political candidates running with the 65' High Span replacement as a platform have without exception, been victorious.

FICTION:
The Town Council has long been under the influence of Mr. Ed Gore, who has sat on the Council for more than 34 years while pursuing his interests as the town's major developer. He is a partner in Sea Trail Plantation and the owner of Ocean Ridge Plantation. Both plantations have established sites for future beach clubs on Sunset Beach island. Mr. Gore stands to profit handsomely from a high rise bridge that will allow him to extend island amenities to his plantation developments on the mainland.

FACT:
With the exception of Mr. Gore being a partner in Sea Trail Plantation and the owner of Ocean Ridge Plantation, this is a bald face lie. Mr. Gore has run for office for the past thirty-four years based on reputation and a concern for the community. He has been victorious because of the respect and trust the people have in him. His interest is the community interest.
The Town Council is not under the influence of Mr. Gore which was made clear in the drilling by Mr. Wallace Bradsher, Jan Harris' attorney representing her in a frivolous law suit against the Council and Mr. Gore. He was unsuccessful in finding any conflict of interest or connections between Mr. Gore and the Council members.

FICTION:
Since the majority of property owners are not year-round residents and thus cannot vote in Sunset Beach elections, they have no voice in town government.

FACT:
The town goes to great lengths to communicate with and get input from absentee property owners. Examples include the Town's Quarterly Newsletter, Mayor Talk, open public hearings and individual responses to concerns expressed to town officials.

FICTION:
In polls and at public hearings, island and mainland residents, property owners and some of the thousands of tourists attracted to our unique resort community every summer overwhelmingly opposed a high rise bridge. Most viewed either a two-lane pontoon bridge or a low bascule bridge as preferred alternatives that would be sensitive to environmental and social concerns.

FACT:
The EIS states that the 65' fixed span is more sensitive to the environment than the other alternatives (See Attachment 1).

FICTION:
The Sunset Beach one-lane pontoon bridge has been safe for its entire 39 years of operation.

FACT:
Traffic safety is not the issue; public safety is the issue.

FICTION:
Repeatedly traffic congestion is used as an excuse for a high rise bridge. Traffic congestion caused by vehicles queuing up to cross the bridge also impairs public safety. Traffic congestion reduces the ability of police, fire and rescue services to respond to emergencies both on the island and mainland, particularly on summer weekends, when traffic congestion and the probability of emergencies is highest. Such assertions are not true.

FACT:
These facts ARE true (See Attachment 7). These facts can be found on your EIS p. 1-30 and 1-31 (See Attachment 8).

FICTION:
The SBTA claims that the EIS does not meet the court ordered requirement to address secondary and cumulative impacts. The SBTA claims a high rise bridge would provide new access to previously inaccessible areas. The area, in practical terms, has been accessible to large heavy trucks carrying the massive construction materials needed to build high rise buildings.

FACT:
High rise buildings are not allowed (See Attachment 9). Also, the EIS states:
Any secondary impacts which may occur...would be due to build out of the island and would not be directly attributable to the proposed project (EIS p. 4-67).
The proposed bridge replacement would not measurably contribute to cumulative impacts to the human or natural environments on the island. The proposed action would not provide new access to a previously inaccessible area, nor would the proposed action expand the parking capacity on the island (EIS p. 4-84).

FICTION:
The SBTA memo concludes:

The extended Sunset Beach community of residents, property owners and visitors does not want a high rise bridge.

A high rise bridge will not improve safety or guarantee traffic efficiency significantly better than other choices.

A high rise bridge will seriously and negatively impact both Sunset Beach and Bird Island.

FACT:
The Sunset Beach community of residents, property owners, and visitors DO WANT and SINCERELY NEED a fixed span bridge for public safety (See Attachment 10,11,12,13).

A fixed span bridge will provide unrestricted access to and from the island that maximizes public safety, and traffic efficiency that no alternative can provide.

A fixed span bridge will not, in itself, seriously and negatively impact Sunset Beach and Bird Island. The build-out of the island, when that occurs, will ultimately determine the factors affecting the island's population, traffic, parking.

JUL

C.G. (Cherri) Cheek, Mayor
Edward M. Gore, Sr., Council
Carl Bazemore, Council
Paul (Ed) Hughes, Council
Lloyd Grantham, Council
Clifford Errickson, Council

30182

ia Fluegel, Administrator
y Crim, Asst. Administrator

7/9/98

E. Norris Tolson, Secretary
North Carolina Department of Transportation
P.O. Box # 25210
Raleigh, NC 27611

Dear Mr. Tolson,

I appreciate your time in meeting with Mr. Ed Gore, my sons and me on June 29. It is truly encouraging to me that you were willing to listen to our views and through my representation, the views of the majority of the citizens of Sunset Beach.

The question of day visitors on the beach and the strand becoming overcrowded due to a high rise bridge caught me by surprise. As I stated, Sunset Beach is a public North Carolina beach and I do not think it should be the direction of a chosen few to dictate who can and cannot enjoy our beautiful strand. It just doesn't seem democratic and I personally think the safety of our residents and visitors should take precedence over any other fact.

The position of the majority of the people in our town is that the only solution for safe and reliable transportation to and from the island is a high rise bridge. The bascule is more costly and the traffic will still be a problem at the times of opening for vessels.

We, too wish for a quick decision to be made. Any help you can give us with regard to moving the EIS along in your department and asking the judge to make his recommendation would be most appreciated.

Again, thank you for your time.

Sincerely,

Cherri Cheek

Cherri Cheek,
Mayor

700 Sunset Boulevard North • Sunset Beach, NC 28468
Telephone 910-579-6297 • 910-579-3808 • Fax 910-579-1840

Linda Fluegel, Administrator
Larry Crim, Asst. Administrator

OCT 15 1998

October 14, 1998

Secretary E. Norris Tolson
State of N. C. Transportation
Division of highways
P.O. Box 252001
Raleigh N. C. 27611-5201

Re: TIP No. B-682

Dear Secretary Tolson:

I have in hand a copy of a document supplied to you by the Sunset Beach Taxpayers Association entitled "Perspective On The North Carolina Department of Transportation Proposal For Replacement of Bridge No. 198 on SR 1172 Over Intracoastal Waterway in Sunset Beach, Brunswick County".

In this document under the heading "Safety and Traffic Efficiency B. Transportation Efficiency" the SBTA state that the traffic congestion caused by vehicles queuing up to cross the bridge does not interfere with the Town Hall and Police Station any longer because the building has been relocated. Even though the Town Hall and Police Station has been relocated we still have to deal with the traffic congestion at the bridge. The Public Works Department and the Police Officers spend many valued hours per week in traffic at the bridge. The time spent waiting in traffic is taxpayer's dollars wasted.

Thank you for allowing me to set the record straight.

Sincerely,

Linda Fluegel

Linda Fluegel
Administrator

[illegible] Sunset Boulevard North • Sunset Beach, NC 28468
[illegible] • [illegible] • [illegible]

TOWN OF
SUNSET BEACH
...da Fluegel, Administrator
...y Crim, Asst. Administrator

11/18/98

E. Norris Tolson, Sec'y
North Carolina Department of Transportation
P.O. Box # 25210
Raleigh, NC 27611

Dear Mr. Tolson,

I want to thank you for your time and for gathering the people involved in the bridge issue to meet with our Town Council on November 4th, 1998.

We, as a Council, felt we needed to sit and talk with you as a group. I appreciate your willingness to be fair and to hear both sides. It is our belief the side of some of the representatives of the SBTA and BEAT has been heard over and over and over.

The representatives of the SBTA claim to be the "silent majority." This is not true. I cannot begin to tell you how frustrating it is to constantly have to battle this group and BEAT in whatever we try to do for our area. They are impacting areas all along our coast. It is not just the elected officials who are tired of the constant ploys to cause trouble and dissension; it is the majority of the people in our communities. Most of these people are in all areas of our work force, many make their living on the water, some are retirees and they will not write to you, but they vote.

I think a good example of the sentiment in Brunswick County was evidenced by the sudden withdrawal of support for Senator Lauch Faircloth in this past election, both monetarily and by votes. An excerpt from his letter to Governor Hunt dated January 1998 was in the article in our local paper about the SBTA pushing for a toll bridge. When the news hit the streets that Senator Faircloth seemed to support SBTA, calls came in from all over the county withdrawing support for his campaign. This was not just in Sunset Beach. His Brunswick County campaign manager questioned her own involvement with him if he was going to support this group. Upset, his office called the Brunswick County campaign manager and me to let both of us know he did not support this group but simply wrote the Governor at their request. Siding with an activist group such as the SBTA or BEAT without knowing how the local people feel is not taken lightly in this county.

Getting back to our meeting, Wade Rawlins wrote an article that was published in the News and Observer on November 5. At the November 4th meeting, he asked me, "Why did you decide to travel to Raleigh to meet with DOT rather than ask them to come to Sunset Beach?" Although he quoted my response correctly in his article, he did not report his own words accurately. He never mentioned, " so residents might participate." Once again, the elected officials are portrayed as unconcerned. This is disappointing to me. I pride myself in knowing I do my best in being fair to all of the residents of Sunset Beach but I do admit it is very difficult to always give to people who constantly try to find fault, criticize without possible solutions and say, "With us, there is no compromise."

...00 Sunset Boulevard North • Sunset Beach, NC ...
Telephone ...

I do not consider myself particularly political. I am a person of principal and it is my opinion there is something wrong with all of the situations concerning the Board of the SBTA and concerning BEAT. I say the Board of the SBTA because I do not believe the full membership wholeheartedly supports them in all they do. This is also true of my position, your position, the position of the Governor and so on. Not every person that supported the election or appointment of any of us is totally supportive of everything we do. We all simply do what we feel is the wish of the majority and what is best for the community as a whole. The claim of the Board of the SBTA as representing 1500 people is ludicrous.

On the bridge issue, it is my opinion the judge should have the chance to review the documents on the bridge and make a decision. Every day this is prolonged, we have a public safety problem. If the decision is to have more studies, so be it. If the decision is to move head with the WTR alternative, so be it. When he makes a decision, I will have something to go to the public with. As David Redwine said " this indecision is causing dissension in our community" and I am convinced that is just what the Board of the SBTA and BEAT want. They would love nothing better than for us to be in a quarrel with our state government. I don't want that.

Let's try to work together. Please let us move ahead on this project. Please let us know where we stand.

Sincerely,

Cherri Cheek,
Mayor

cc: Governor James B. Hunt
Senator R.C. Soles
Representative David Redwine
Representative Dewey Hill

TOWN OF SUNSET BEACH

Linda Fluegel, Administrator
Larry Crim, Asst. Administrator

- 1 1999

5/25/99

E. Norris Tolson, Sec'y
Department of Transportation
P.O. Box # 25201
Raleigh, NC 27611-5201

Dear Secretary Tolson,

I want to thank you again for sharing the bridge options with the Town Council of Sunset Beach. It is encouraging to us to see some definite plans. I do want to reiterate the fact that the Town Council, in representing the people of Sunset Beach, wholeheartedly supports the fixed span bridge. It does not make sense to any of us to support a bridge that will cost the taxpayers of North Carolina more than 8 million dollars in addition to the cost of the fixed span bridge solely for aesthetics, while still impeding both auto and boat traffic.

I have had a couple of conversations with Barry Lentz, and we have tentatively set up a time to discuss again the concerns of the SBTA. He will be out of town from June 3 to June 17. Barry assured me the decision of the SBTA on the bridge alternative they prefer will be in your office by June 16. The Town Council will meet with the SBTA after Barry returns from vacation, probably after July 1. I offered to try to call a meeting for Thursday evening May 27, thinking he would be here for Memorial Day weekend, but his house is rented by incoming tourist and he cannot be here. In the mean time, the SBTA is to get a list of their concerns to me in writing so I can distribute them to the Council.

I look forward to hearing from your after June 16th regarding DOT's decision, and we'll move ahead from that point.

Sincerely,

Cherri Cheek

Cherri Cheek,
Mayor

TOWN OF SUNSET BEACH

nda Fluegel, Administrator
arry Crim, Asst. Administrator

C.G. (Cherri) Cheek, Mayor
Edward M. Gore, Sr., Council
Carl Bazemore, Council
Paul (Ed) Hughes, Council
Lloyd Grantham, Council
Clifford Erickson, Council

6/9/99

David McCoy, Acting Sec'y
Department of Transportation
P.O. Box # 25201
Raleigh, NC 27611

Dear Mr. McCoy,

Both the Town Council and Planning Board of the Town of Sunset Beach, as well as your office, are in receipt of correspondence from the Sunset Beach Taxpayers Association regarding the replacement of the current pontoon bridge. In our meeting with Secretary Tolson last month, the SBTA was instructed to respond to the Secretary with their preferred bridge option from the two final options presented at the meeting (either the mid-level bascule or fixed span alternative). Secretary Tolson also asked the Council to meet with the SBTA to discuss their concerns. An attempt was made to do just that, as discussed at the Raleigh meeting, however, timing was not convenient for the President of the SBTA.

Instead, the SBTA board members, once again voiced support for a low lever bascule bridge, an option that Secretary Tolson told them the DOT would not consider. In addition, they set conditions that must be achieved in order to grudgingly accept the mid-level option. They would want you to think that these "conditions," which SBTA Vice President Sue Weddle stated are "not negotiable," are new items they have come up with. Nothing could be further from the truth. These "conditions" should not be viewed as mandates that encumber the DOT or the Town. Rather most are goals and considerations that the present and past Town Councils have long espoused and which will be addressed at the appropriate time.

We question the presence of the SBTA in any part of this decision making process. They are nothing more that a small vocal minority of local residents and out of town property owners who protect their real numbers. This can be witnessed from the survey you received which lists only percentages of acceptance of bridge options but no numbers. It is impossible to determine how many individuals they actually polled. The SBTA was included in the meetings with Secretary Tolson while excluding all other residents of our town except for their representation by our Council. The only legitimate participation by the SBTA was the filing of legal action asking for an EIS.

Our Town Council, elected by and representing the majority of the citizens of Sunset Beach is duly bound to make the decision for the benefit and protection of all of its citizens and visitors and not a vocal minority. Secretary Tolson stated that he would accept the decision of the local elected body as the final decision of the Town with respect to which of the two bridge options should be chosen. This Town Council unanimously endorses the fixed span option. It is inconceivable to justify the additional expense of $8 million on a bridge option that would still impede water and auto traffic. We would still be left with the same public safety issue, an issue we consider paramount.

We need to move on with a final decision on the bridge. This has gone on way too long.

(Signature Page Attached)

[illegible] Sunset Boulevard North • Sunset Beach, NC 28468
[illegible]

TOWN OF SUNSET BEACH

Signature Page

Letter Date: 6/9/99

TO: Mr. David McCoy, Acting Sec'y

Cherri Cheek, Mayor

Edward Gore, Councilman

* Paul Hughes, Councilman

Carl Bazemore, Councilman

Lloyd Grantham, Councilman

Lynn Crickson for Cliff Crickson
Cliff Errickson, Councilman

Linda Fluegel, Town Administrator

Marc Kaplan, Planning Board Chairman

Jay Kerr, Police Chief

Charlie King, Fire Chief

*Out of Town, Signature To Follow.

TOWN OF SUNSET BEACH

June 25, 1999

North Carolina Department of Transportation
David T. McCoy, Secretary
P.O. Box 25201
Raleigh, N. C. 27611

Dear Secretary McCoy:

At the meeting held by Secretary Norris Tolson and the DOT on May 10, 1999, the Town Council of Sunset Beach and the Sunset Beach Taxpayers Association were presented with two bridge options, a fixed span bridge and a 35 foot bascule bridge.

Secretary Tolson asked the Town Council and the SBTA to meet to discuss the SBTA's perceived concerns of secondary and cumulative impacts on the island of Sunset Beach. It was our understanding Secretary Tolson wanted us to meet to discuss the SBTA's concerns, not the bridge options as we have made it clear in representing the majority of the citizens of Sunset Beach, that the safe and less costly fixed span bridge is the only viable option. An attempt has been made twice to hold this meeting. I tried to call a meeting Memorial Day week and Mr. Lentz, president of SBTA, couldn't attend. We tried again for June 23,24, or 25th and that time was inconvenient but June 30th seemed to be a day that would work.

Yesterday, I spoke with Mr Lentz, unfortunately, he made it clear that if the Town Council would not consider supporting the bascule bridge, there was no reason to meet to discuss their perceived concerns of secondary and cumulative impacts. It was my position that the Council would like to meet to hear their concerns, as we would with any citizens or groups of citizens in Sunset Beach.

I wanted to let you know of our good faith attempt to meet with the SBTA and of their declining to do so. We now ask that you move ahead quickly with a decision so we can get this long awaited project underway. As you know, our bridge is now in an emergency state of repair, and we are anxious to get a safe ingress and egress to the island.

If you have questions or would like to meet with our elected officials, please don't hesitate to call. Good luck with your newly appointed position. We look forward to a good working relationship with you and your staff.

Sincerely,

Cheri Cheek

C. G. Cheek, Mayor

cc: James B. Hunt, Governor
David Redwine, House Representative
Dewey Hill, House Representative
Senator R. C. Soles
Joe Stanley, DOT Board
Louise McCall, DOT Board
Amos Dawson, Attorney at Law
Barry Lentz, President SBTA
Joanne Simmons, Chair BCC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

December 22, 1997

Ms. Linda Fluegel
Administrator
Town of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28468

Dear Ms. Fluegel:

Thank you for submitting the resolution passed by the Sunset Beach Town Council on December 1, 1998 supporting the recommended alternative for the replacement of the Sunset Beach Bridge over the Intracoastal Waterway in Brunswick County.

As you are aware, a Final Environmental Impact Statement was completed in October 1997. The Record of Decision (ROD), the final document required by the National Environmental Policy Act, is anticipated to be completed in March 1998. After the approval of the ROD, the project planning documents and supporting information will be submitted to the federal district court for review and compliance. Only after the injunction is lifted by the federal courts can the project be included in our Transportation Improvement Program for right-of- way acquisition and construction.

I share your concerns about providing safe and reliable transportation access between the island and mainland portions of the Town of Sunset Beach, especially in the event of an emergency. Our Department is making every effort to complete the necessary planning and environmental studies in an efficient manner so that construction of a replacement bridge can begin.

Thank you for your continued support and interest in this important transportation project.

Sincerely,

Daniel H. DeLaney
for
Garland B. Garrett, Jr.

GBG/hfv
cc: Larry R. Goode, Ph.D., P. E., State Highway Administrator

PHONE (919) 733-2520 FAX (919) 733-9150

bc: Calvin W. Leggett, P. E., Director, Planning and Programming
H. Franklin Vick, P. E., Manager, Planning and Environmental Branch
John Wadsworth, P. E., Federal Highway Administrator

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

August 17, 1998

RECEIVED
AUG 20 1998
DIVISION OF HIGHWAYS
PLANNING & ENVIRONMENTAL BRANCH

The Honorable Cherri Cheek
Mayor of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, NC 28468

Dear Mayor Cheek:

Thank you for writing to express your support for Project B-682, which proposes to construct a new bridge at Sunset Beach.

We are currently evaluating the findings of our planning/environmental study along with citizen input. I will forward a copy of your letter to our Planning and Environmental Branch so that your support can be considered as decisions are made.

I appreciate your taking the time to write and express your views regarding this project. If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

E. Norris Tolson

ENT/va

cc: Doug Bowers, P.E., Division 3 Engineer
Bill Gilmore, P.E., Manager, Planning and Environmental Branch

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

September 1, 1998

The Honorable C. G. Cheek
Town of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28470

Dear Mayor Cheek:

As you are aware, the North Carolina Department of Transportation has been working to replace the existing pontoon bridge on SR 1172 over the Intracoastal Waterway in the town of Sunset Beach in Brunswick County. I recently met individually with representatives from both the town of Sunset Beach and the Sunset Beach Taxpayers Association.

I have received input from many individuals and groups about this project. As a result of this input and in consultation with the Federal Highway Administration, we are reconsidering our previous recommendation for the 65-foot high-rise bridge. Two alternatives studied originally, the 65-foot high-rise bridge and the 35-foot mid-level bascule bridge, meet the project's purpose and need which is to provide safe and reliable transportation access across the Intracoastal Waterway. Each of these alternatives has merits that will be considered during the decision-making process. This project is so important that we must give full and equal consideration to both alternatives.

We believe any decision on this project should – and will – be made involving the public and local officials in the decision-making process. We are committed to providing a replacement bridge that is in the best interest of the public and the community of Sunset Beach.

I look forward to your continued interest and involvement in this important bridge replacement project.

Sincerely,

E. Norris Tolson

ENT/wdg

cc: Len A. Sanderson, P. E., State Highway Administrator
Nicholas Graf, P. E., Division Administrator, Federal Highway Administration

bc: Donald R. Morton, P. E., Deputy Highway Administrator-Preconstruction
William D. Gilmore, P. E., Manger, Planning and Environmental Branch

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

November 30, 1998

Ms. Linda Fluegel
Town of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28468

Dear Ms. Fluegel:

Thank you for providing me with the Town of Sunset Beach's comments on the report prepared by the Sunset Beach Taxpayers Association concerning the replacement of the pontoon bridge on SR 1172 over the Atlantic Intracoastal Waterway (TIP No. B-682). I will consider the cost to the town for delays and managing traffic congestion during tourist season in making my decision on how to proceed with this project.

Thank you for your continued input on this project.

Sincerely,

E. Norris Tolson

ENT/wdg

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

January 5, 1999

Ms. Linda Fluegel
Administrator
Town of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28468

Dear Ms. Fluegel:

Thank you for your recent letter and copy of the Resolution concerning the proposed replacement of Bridge No. 198 on SR 1172 over the Atlantic Intracoastal Waterway at Sunset Beach (TIP No. B-682).

The Final Environmental Impact Statement approved for the project in October 1997, recommended replacing the existing pontoon bridge on SR 1172 with a high-rise bridge. The high-rise bridge would provide sixty-five (65) feet of vertical clearance for boats traveling the Waterway and would allow automobile traffic free flow access to the island. However, some citizens have suggested a mid-level drawbridge, with thirty-five (35) feet of vertical clearance, would provide the same automobile traffic service as a high-rise bridge and would allow the majority of the boat traffic to pass under the bridge without delay. In addition, the mid-level bridge would be less intrusive on the scenic beauty of the island. Over the coming months, the department will be evaluating this suggestion. Please be assured all aspects of the project will be carefully considered before a decision is made.

Again, I appreciate your taking the time to express your thoughts and concerns regarding this important highway project. Citizen participation is an integral part of the transportation planning process.

Sincerely,

E. Norris Tolson

ENT/wdg

cc: Len Sanderson, P. E., State Highway Administrator

As we continue a more detailed study of the 30-foot mid-level bascule bridge and consider its merits along with the high-rise bridge option, we will involve interested stakeholders like the Sunset Beach Taxpayers Association in an effort to understand the issues that are important to the Sunset Beach community. We look forward to working with you to that end.

Again, I appreciate your continued interest in this bridge replacement project.

Sincerely,

E. Norris Tolson

ENT/jh

cc: Len Sanderson, P.E., State Highway Administrator
Bill Gilmore, P.E., Manager, Planning and Environmental Branch

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

JAMES B. HUNT JR.
GOVERNOR

E. NORRIS TOLSON
SECRETARY

January 12, 1999

The Honorable Cherri Cheek
Mayor, Town of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28468

Dear Mayor Cheek:

Thank you for your recent letter concerning the proposed replacement of the existing pontoon bridge over the Atlantic Intracoastal Waterway at Sunset Beach (TIP No. B-682). I appreciate your and the Sunset Beach Town Council taking the time to come to Raleigh to meet with me.

I understand your frustration about the delays this project has experienced during the planning process. However, it is the responsibility of the Department of Transportation to ensure that all citizens wishing to participate in the process have the opportunity to be heard and that their comments are given fair and impartial consideration.

In the coming months, the department will make a decision about how to proceed with this project. Please be assured the concerns and wishes of the Town of Sunset Beach will be carefully considered before this decision is made.

Sincerely,

E. Norris Tolson

ENT/wdg

cc: R. C. Soles, North Carolina Senate
David Redwine, North Carolina House of Representatives
Dewey Hill, North Carolina House of Representatives
Louise F. McColl, Member, Board of Transportation

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

January 21, 1999

The Honorable Cherri Cheek
Mayor, Town of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28468

Dear Mayor Cheek:

Thank you for your recent letter concerning the proposed replacement of the existing pontoon bridge over the Atlantic Intracoastal Waterway at Sunset Beach and for the copy of the latest Sunset Beach Taxpayers Association (SBTA) Newsletter.

During November and December, the department received numerous letters from Sunset Beach property owners requesting the existing pontoon bridge be replaced with a low-level bascule (16-foot draw) bridge. My response to these citizens has been the same as my response to the SBTA during our meeting on November 11, 1998. This alternative has approximately the same cost and impact on the human and natural environments as a mid-level or high-rise bridge and would require frequent bridge openings, which would degrade the traffic service to the island. For these reasons, we have eliminated the low-level bascule bridge from further consideration.

However, we are reconsidering our previous recommendation for the high-rise bridge. Two alternatives originally studied, the 65-foot high-rise bridge and the 35-foot mid-level bascule bridge, meet the project's purpose and need, which is to provide safe and reliable transportation access across the Intracoastal Waterway. Each of these alternatives has merits that will be considered during the decision-making process.

We believe any decision on this project should be made in consultation with the public and the local officials. We are committed to providing a replacement bridge that is in the best interest of the public and the Sunset Beach community.

You are welcome to review the project files and make copies of all correspondence sent to the Sunset Beach Taxpayers Association. Please contact Linda Hilton-Cain, Project Development and Environmental Analysis Branch, at 733-3141, to schedule a time to review these files.

I appreciate the continuing cooperation of the Sunset Beach local officials in this important transportation project.

Sincerely,

E. Norris Tolson

ENT/wdg
cc: Louise F. McColl, Member, Board of Transportation

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID MCCOY
SECRETARY

August 31, 1999

The Honorable Cherri Cheek
Mayor of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28468

Dear Mayor Cheek:

During the past twenty years, the North Carolina Department of Transportation has conducted extensive engineering and environmental studies to identify the most reasonable and feasible alternative for the proposed replacement of the existing pontoon bridge over the Atlantic Intracoastal Waterway at Sunset Beach (TIP Project No. B-682). These studies included the evaluation of alternative bridge corridors and the analysis of several bridge types, such as a high-rise fixed-span and a mid-level bascule. During this time the department also conducted comprehensive public involvement and environmental agency coordination programs.

After careful consideration, based on the results of these studies and the input received from the coordination efforts, the Federal Highway Administration (FHWA) and the department have selected the high-rise, fixed-span bridge as the preferred alternative. The department proposes to incorporate into our plans, as appropriate and permissible by law, the eight conditions put forth by the Sunset Beach Taxpayers Association in its letter of June 4, 1999.

Selection of the high-rise, fixed-span bridge was made, in part, for the following reasons:

- The high-rise, fixed-span bridge will allow unimpeded traffic flow along SR 1172 (Sunset Boulevard) and along the Atlantic Intracoastal Waterway.
- Emergency fire, police and rescue response times will be minimized by the uninhibited access, thereby enhancing public safety.
- The costs to the taxpayers of North Carolina for the high-rise, fixed-span structure are significantly less than for a mid-level, bascule bridge.

A more detailed discussion of the FHWA's and the department's analysis and recommendation is set forth in the Final Environmental Impact Statement and the Record of Decision.

As you are aware, the department reevaluated the mid-level bascule bridge alternative following publication of the Final Environmental Impact Statement because of concerns expressed by the Sunset Beach Taxpayers Association (SBTA). These concerns focused on the type and extent of development the proposed project would induce on the island. The SBTA argued that a bridge providing continuous access to the island would lead to uncontrolled development. It further argued that a bascule-type bridge which interrupted traffic flow to the island would discourage development incompatible with the "family atmosphere" of the beach. For these reasons, the SBTA endorsed the mid-level, bascule bridge alternative with eight conditions. The department's analysis does not support this assessment. It is our conclusion that the type and extent of development that occurs on the island will not depend on whether a mid-level bascule bridge or a high-rise, fixed-span bridge is constructed, but on the commitment of the local government to maintain the existing ambiance of the Sunset Beach community. However, we do support the SBTA in its efforts to maintain a "family beach" and have addressed its conditions in the project Record of Decision (ROD). I encourage the Town of Sunset Beach to add its support for implementing these conditions as part of the proposed project.

I appreciate your and the Sunset Beach Town Council's patience during the project planning process. I have enclosed a copy of the ROD for your review and comments. If you have questions or need additional information, please let me know.

Sincerely,

David McCoy

DM/wdg

Enclosure

cc: Joseph Stanley, Board of Transportation Member
Louise McColl, Board of Transportation Member
Barry Lentz, Sunset Beach Taxpayers Association

APPENDIX C

COMMENTS FROM SUNSET BEACH TAXPAYERS ASSOCIATION AND THE NCDOT RESPONSES

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470
FAX: 910-579-6993

DEC - 9 '97

Secretary Garland B. Garrett, Jr.
Board of Transportation Members
Transportation Building
1 South Wilmington St.
Raleigh, NC 27611

December 5, 1997

Dear Secretary Garrett and Members of the Board of Transportation

I write on behalf of the Sunset Beach Taxpayers Association (SBTA), a federation of more than 1500 individuals who own property at Sunset Beach, NC. I understand that the Board has received from the Federal Highway Administration the EIS for the bridge replacement project at Sunset Beach (NC DOT B-682). I understand also that you have received from the Sunset Beach Town Council a resolution urging you to approve this project with all haste. On behalf of our more than 1500 taxpaying members, I urge you to delay approval of this project until the entire process by which it has been brought forth can be examined and a more appropriate bridge upgrade for Sunset Beach can be identified. This request is supported by the following facts.

First, this project has been pushed since its inception by local developers, especially a developer who stands to profit substantially from a high rise bridge, Mr. Odell Williamson. One of Mr. Willilamson's first acts as a new board member for the DOT was to seek funding for a court ordered Environmental Impact Statement for Sunset Beach Island. Mr. Williamson, as you know, was recently the subject of a detailed exposé published in the Raleigh News and Observer. This article alleges that Mr. Williamson abused his position on the NCDOT Board to push projects from which he or members of his direct family would profit at taxpayers' expense. Because of the seriousness of these charges, Mr. Williamson was forced to resign from the DOT Board and his actions are currently under investigation. Certainly, Mr. Bill Krueger, who wrote this article, is aware of the benefit that the planned high rise bridge will bring to "Resort LaDane", which Mr. Williamson's daughter plans to build in Calabash. This huge, luxury resort will require easy access to the nearest beach, which Mr. Williamson's Sunset Beach bridge project will guarantee. While no mention of the Sunset Beach bridge project appears in Mr. Krueger's article, it is worth remembering that the bridge replacement project had not been approved at the time of that article, as had all the projects in which conflict of interest was so clearly demonstrated by Mr. Krueger.

Second, the letter you received from the Sunset Beach Town Council does not represent the sentiments of the substantial majority of Sunset Beach residents or property owners. The majority of property owners are not year-round residents, cannot vote in Sunset Beach elections and, thus have no voice in town government. The Town Council has long been under the controlling influence of Mr. Ed Gore, who has sat on the Council for more than

34 years while pursuing his interests as the town's major developer. Mr. Gore has large land holdings on Sunset Beach Island and is a partner in Seatrail Plantation and owner of Ocean Ridge Plantation, two mainland golf resort developments. Both plantations have established sites for future beach clubs on Sunset Beach Island. Like Mr. Williamson, Mr. Gore stands to profit handsomely from a high rise bridge that will allow him to extend island amenities to his plantation developments on the mainland.

Property owner sentiment is strongly opposed to a high rise bridge to the Island of Sunset Beach. Three polls have been conducted between 1992 and the Public Hearing conducted at Sunset by DOT staff on September 5, 1995. In all three polls and at the Public Hearing, both island and mainland residents, property owners, as well as a sampling of the thousands of tourists attracted to our unique resort community every summer overwhelmingly opposed a high rise bridge. Most view either a low bascule bridge or a two-lane pontoon bridge, as reasonable alternatives that would be sensitive to environmental and social concerns. The two-lane pontoon would likely be much less expensive than either a high rise or a bascule, but, despite our many requests to Secretary Garland Garrett, the DOT DEIS does not even consider or evaluate a two-lane pontoon option.

Third, the EIS that has just been sent to you by the Federal Highway Administration fails to account for the social and economic impact on Sunset Beach residents and property owners of replacing the pontoon bridge with a high-rise. Now that the development plans of the Williamson family and Mr. Gore are becoming public, it is increasingly clear the impact to Sunset Beach Island – social, economic, and environmental – will be enormous. The renown of Sunset Beach as an ecologically sensitive, family oriented resort and residential community depends in large part on its unique bridge and the atmosphere that this bridge helps maintain at Sunset Beach. Loss of this bridge and of Sunset Beach's reputation will adversely affect property values and the rental fees enjoyed by Sunset Beach property owners. These are demonstrably a third higher than on neighboring Holden Beach or Ocean Isle, both of which are linked by high rise bridges to the mainland. A number of property owners have already made plans to sue DOT for loss of property value if the high rise bridge is slated to be built. This would add to the steadily escalating cost of the high rise option, last estimated in 1995 as over $15,000,000, but now informally estimated by staff as approaching $20,000,000.

Finally, the argument is made repeatedly by Mr. Garrett or Messrs. Williamson and Gore that a high rise bridge is needed for public safety and improved transportation to and from Sunset Beach Island. I submit that these needs support the need for bridge replacement (nearly all agree that the old bridge is inadequate), but do not require that the replacement bridge be the high rise option favored by these three gentlemen. A two-lane pontoon or a low bascule bridge would meet both these needs for such a small island (*ca.* 1.5 miles long with less than 100 year-round residents) while avoiding the environmental and social impact that the high rise option will entail. Both these options require a bridge tender, but it would be a simple matter to set up lines of communication between the Sunset Beach police/fire departments that would guarantee emergency access. Indeed, DOT could use some of the funds saved by choosing a two-lane pontoon option to raise substantially the bed of the connecting causeway. This would do even more to guarantee emergency access, since the island would no longer be isolated from mainland two or three times a year during extreme high tides.

In summary, the SBTA sees no reason, except enrichment of a few politically powerful developers, for your Board to approve the Sunset Beach bridge replacement option recommended by staff. To do so would simply open the DOT up to additional charges of unethical conflict of interest and would not serve the taxpayers of our State. In addition, it would adversely affect the majority of those who own property or reside on Sunset Beach Island and will not solve transportation and safety problems any better than would more environmentally, economically, and socially acceptable options. What it will do is enrich the developers who have, for years, used their positions of influence on the DOT Board and the Sunset Beach Town Council to push for an unacceptable high rise bridge.

Thank you for your attention.

Sincerely,

Barry Lentz, President
Sunset Beach Taxpayers Association

cc: Mike Easley, Attorney General

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470
FAX: 910-579-6993

Mr. H. Franklin Vick, P. E.
Manager
Planning and Environmental Branch
NCDOT
P. O . Box 25201
Raleigh, NC 27611

January 15, 1998

RE: Sunset Beach Bridge Replacement Project, TIP No. B-682

Dear Mr. Vick:

The Environmental Impact Statement (EIS) related to the proposed bridge improvement/replacement at Sunset Beach is seriously flawed in several respects as indicated below and detailed in the accompanying documents. We hope these documents and the comments therein will be useful to you in dramatically amending the EIS to produce a more accurate and balanced document.

First, The EIS demonstrates that the proposed W1R Alternative offers no Level of Service improvement over the No-Build alternative in the year 2019, and may actually degrade the ability of public safety providers to deliver service to the Island.

Second, we feel that the consideration given to alternatives that would have a less drastic social, economic, and environmental impact is totally inadequate.

Third, the numerous factual and technical problems found with the DEIS remain in the EIS and are summarized in the attached Addendum to our DEIS Comments (Attachment 8).

Finally, we wish to comment on the objectivity of this EIS. We recognize that any report on an issue as complex as this will inevitably reflect the predisposition of those preparing the report. However, the lack of objectivity in this EIS is remarkable. A glaring misrepresentation of fact allows the impact of a high rise or bascule bridge on the estuary ecosystem and on public access to these public waters to be ignored. A totally fallacious comparison of Sunset Beach to the island communities of Holden Beach and Ocean Isle allows the ludicrous conclusion that a high rise bridge will not significantly impact either development/redevelopment or day traffic on Sunset Beach Island. This misrepresentation and misinterpretation of data along with a failure to make a clear analysis of the obvious economic impact of a high rise allows the EIS to

nearly totally ignore the issue of secondary social impact on island property owners and residents. In addition, the analysis of transportation and public safety issues ignores the most obvious conclusion that the essential change that would impact these issues is replacement of a one-lane with a two-lane bridge. The most glaring omission of the entire report is the lack of consideration of an alternative that could accomplish the goal of NCDOT to improve traffic efficiency without serious disruption of the island ecological and social systems, namely renovation of the existing floating pontoon bridge to include a raised causeway and two-way traffic. This omission is especially glaring given that this is the option favored by the majority of local property owners in a poll that the DOT was given in April of 1995.

In summary, the factual failures and lack of objectivity of the DEIS leave the impression that it was prepared mainly to justify an already predetermined course of action designed to accommodate local and state political and development interests. We feel that State agencies such as the NCDOT have the legal and moral obligation to review such issues objectively and thereby provide redress to the public against such interests. In its current form, we do not consider the EIS to be either a logically or a legally defensible document.

Thank you for your attention.

Sincerely,

Barry R. Lentz, President
Sunset Beach Taxpayers Association

COMMENTS ON

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ENVIRONMENTAL IMPACT STATEMENT

FOR

Replacement of Bridge No. 198 on SR 1172 Over Intracoastal Waterway in Sunset Beach, Brunswick County

TIP No. B-682

Submitted by
The Sunset Beach Taxpayers Association
January 14, 1998

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PURPOSE AND NEED FOR PROJECT

"Replacement of this pontoon bridge with a new structure would provide a reliable means of transportation between the island and the mainland and would offer a greater degree of public safety by improving emergency response time and emergency evacuation procedures. Furthermore, the new facility would enhance both vehicular operations on SR 1172 and water craft operations on the AIWW." (p. S-2)

"NCDOT and FHWA representatives met with representatives of interested federal and state agencies on June 19, 1996, in an effort to achieve a consensus on a preferred alternative for the project. All representatives agreed that a new structure was necessary because the rehabilitation and the two lane pontoon bridge alternatives did not address the basic project goals of public safety and transportation efficiency. Furthermore, representatives agreed that the high-span alternatives (C1 and W1R) provide greater transportation benefits than the mid-level bascule bridge alternative (C4). The final consensus among representatives was that when the safety, traffic, cost, and overall environmental effects were compared among alternatives, the least environmentally damaging practicable alternative to address the deficiencies of the Sunset beach Bridge is the newly revised Alternative W1R," (p. S-8)

The above conclusion is possible only by largely ignoring both the indirect impacts to the human community that makes up the Town of Sunset Beach and the indirect impacts that the increased ability to move heavy equipment and more people onto the island will have on the fragile beach and estuarine environment. It is obvious that the DOT's interpretation of "practicable" is related to cost and convenience, not environmental and cumulative social and economic impacts.

Public Safety And Transportation Efficiency Are The Stated Goals Of This Project.

Public Safety

The Sunset Beach one-lane pontoon bridge has been safe for its entire 39 years of operation.

"Accident data for SR 1172 and NC 179 were also obtained and analyzed (NCDOT, 1993c). The total accident rate for SR 1172, from 1.2 kilometers (0.75 mile) south of the Sunset beach Bridge to NC 179, averaged 48 accidents per 100 MVM for the period July 1990 through June 1993.

"Accident rates for SR 1172 and NC 179 near the project site were well below the average accident rates of 194 accidents per 100 MVM for similar roadways. Speeds on NC 179, which were probably less than those on other rural roadways due to surrounding development and the presence of the

bridge, could have been a factor contributing to the lower accident rates." (p. 1-31)

While safety is, of course, a concern of all, it should not be presented in disingenuous ways to justify the dismissal of direct and indirect impacts that will change the environment forever.

> *"...any access interruption to the island caused by bridge openings, either scheduled or unscheduled, diminishes public safety because it restricts the ability of fire, police and rescue units to respond to an emergency." (p.2-43)*

It is not a perfect world and there are safety concerns in every aspect of our lives. Prudent people take reasonable measures to reduce the chance of mishap in ways that are consistent with the necessities and aspirations of their lives. Such measures could include NCDOT and Town efforts, thus far not evident, to assure effective communication between bridge tenders and the deliverers of emergency services.

Concerns about hurricane evacuation do not reflect reality. The record shows that the ntoon bridge is an effective tool to insure timely evacuation of the island of Sunset Beach. it is necessary to tie the bridge back (closed to vehicular traffic) well before the arrival icane, the island is usually totally evacuated long before danger arrives. A fixed e, by removing the physical imperative, is not so effective since it offers island visitors the false sense of security that they will still have a means of egress time when it too becomes impassable due to high winds.

vey questionnaire taken by Hayes and Associates for the 1992 CAMA t these sentiments. The survey had a 62% return rate for a total of the island, 48 from the mainland, 24 from the ETA and 4 other. qing Drawbridge ranked 7th out of ten as a major issue. The s where Bike Paths, Access to Intracoastal Waterway, and Public Boat Ramps.

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Transportation Efficiency

Transportation efficiency, when applied to such an environment as ours, is a concept that can only be appreciated by transportation enablers, bridge builders, and developers. The current delays associated with the opening of the pontoon bridge are indeed an inconvenience, but no more than the inconvenience of traffic jams experienced by those who choose to live in a large city. The majority of residents, property owners, and visitors to Sunset Beach have repeatedly made it clear that they are willing to accommodate to some inconvenience to maintain the special nature of this community. Were this not the case, the "battle of the bridge" would not have raged for the past twenty years.

A good deal of the inconvenience caused by the traffic congestion could be alleviated by improving the current bridge to a two lane pontoon bridge, a suggestion that we have repeatedly made to the NCDOT. Yet, a two lane pontoon bridge was not an alternative identified in the DEIS and was never available for public review or comment. This alternative was not addressed until after the DEIS comment period was ended (See Attachment 1, April 9, 1996 Greiner letter to Ms. Julie Hunkins from David A. Griffin).

> *"Traffic congestion caused by vehicles queuing up to cross the bridge also impairs public safety. The intersection of NC 179 and SR 1172 sometimes becomes impassable due to traffic congestion. This interferes with access to and from the Sunset Beach Volunteer Fire Department, Town Hall and the Police Station, which are located nearby on NC 179 (see Exhibit 1.2). Consequently, traffic congestion reduces the ability of police, fire, and rescue services to respond to emergencies both on the island and mainland, particularly on summer weekends when traffic congestion and the probability of emergencies is highest."*
> *(p. 1-30 and 1-31)*

There are two misrepresentations in the above statement:

First, the Town Hall and Police Station are now located well away from the bridge on Sunset Boulevard, not on Shoreline Drive West (as is shown on Exhibit 1.2 in the EIS).

Second, the assertion that traffic congestion reduces the ability of public safety services to respond does not hold up under scrutiny. The attached map (Attachment 2) shows the current congestion pattern for the pontoon bridge. Even during times of complete stoppage of traffic there is always a lane clear that offers unimpeded access to the island and the mainland. The route to the island requires only the left turn to leave the station and one right turn on to Sunset Boulevard. The proposed alternative would require three (3) left turns into peak time traffic conditions that is described by the NCDOT definition of Level of Service (p. 1-14) as "*Speed and freedom to maneuver are severely restricted*", at best, to "*Breakdown flow. Traffic is over capacity at points. Queues form behind such locations, which are characterized by extremely unstable stop-and-go waves.* It can, certainly, be argued that congestion patterns offered by the pontoon bridge provide greater reliability of public safety service to the island than would the proposed alternative. (See Level of Service below).

Traffic Volumes / Day Visitors

Exhibit 1.5 (p. 1-18) shows that the DOT projects the traffic volumes to and from the island to double by the year 2019. This projection must be analyzed in relation to the current level of development of the island. The Land Use Impact Report by Hayes & Associates (p. 6) shows the following level of development:

No. Units Developed	*Island*	*Mainland*	*ETA*
Year-round	*120*	*110*	*191*
Seasonal	*882*	*443*	*762*
Conceivable	*649*	*586*	*1779*
Total	*1651*	*1139*	*2735*
% Developed	*60.7*	*48.5*	*35*

With the island only 40% undeveloped, the projected traffic volume increase for the island should be in the 50% increase range. A projection of a 100% increase in traffic volumes can only reflex the anticipation of an exponential increase caused by "efficient access". Yet, NCDOT insists that the project will cause no increase in the number of day visitors to the island.

> *" Any secondary impacts which may occur...would be due to build out of island and would not be directly attributable to the proposed project"* (p. 4-67)

Level of Service

The following definitions of levels of service are taken from Table 1.1(p. 1-14).

> *"D = 25.1 to 40.0 second delay. Many vehicles stop. Individual cycle failures are noticeable. High density, but stable flow. Speed and freedom to maneuver are severely restricted and the driver or pedestrian experiences a poor level of comfort and convenience.*
>
> *E = 40.0 to 60.0 second delay. The limit of acceptable delay. Operating conditions at or near the capacity level, usually unstable. All speeds are reduced to a low but relatively uniform value. Freedom to maneuver is extremely difficult. Comfort and convenience are extremely poor, and driver or pedestrian frustration is generally high.*
>
> *F = Delay in excess of 60.0 seconds. Considered unacceptable to most drivers. Breakdown flow. Traffic is over capacity at points. Queues form behind such locations, which are characterized by extremely unstable stop-and-go waves."*

While the placement and the organization of the Level of Service (LOS) tables made it difficult to compare the level of service provided by all the identified alternatives, the attached table of comparison (Attachment 4) compiled from Table 2.4 and Table 1.3 shows a startling realization. **The No Build Alternative and the W1R alternative offer exactly the same level of service in 2019.** Both alternatives show, during summer peak hours, an F

level of service for highway NC 179, and most of its intersections. Secondary road 1172 show a D level for both alternatives.

Based on the data presented in the EIS, traffic efficiency appears to be an unattainable goal. And, it fact, it demonstrates that we will find ourselves in an exponential increase of traffic congestion related to the construction of a high rise bridge linked with the inevitable growth that follows enhanced "Traffic Efficiency".

It is obvious that the objectives of this project are not public safety and traffic efficiency, as disingenuously presented, but rather to serve the wishes of politically powerful developers such as Odell Williamson who said that he joined the Board of Transportation to push for Interstate 74 through Brunswick County, the 17 loop around Wilmington and new bridges at Oak Island and Sunset Beach. (See Attachment 7.)

OTHER MAJOR ACTIONS IN THE PROJECT VICINITY

As is delineated on page S-3, many significant road improvement are planned or underway that greatly enhance "transportation efficiency" to the Brunswick County beaches.

Other major actions planned, but not mentioned, for the project vicinity which will benefit from the planned high rise bridge are the many projects of LaDane Williamson now in the planning stages, including "Resort LaDane" in Calabash. (See Attachment 3, Wilmington Morning Star article.) These massive developments will require easy, efficient access to the nearest beach, Sunset Beach, which the high rise bridge will guarantee. Sea Trail Corporation and other local Realtors advertise their properties as "only 5 minutes away from Sunset Beach".

The importance to visitors of proximity to Sunset Beach island is best shown in the following response taken from the Land Use Impact Report by Hayes & Associates:

Question 6. Which of these factors influenced your decision to come to (Sunset Beach/ Ocean Isle)

(numbers have been converted to percentages:)

	Sunset Beach	*Ocean Isle*
Proximity	***96%***	***40%***
Parking Facilities	*67%*	*52%*
Restroom Facilities	*11%*	*1%*
Quality of Beach	*96%*	*56%*
Bridge	***7%***	***26%***
Road Conditions	*11%*	*33%*
Always Come to This Beach	*18%*	*44%*
Family Beach	*15%*	*14%*

(Appendix, page 7)

The questions of Proximity and Bridge can easily be interpreted to insure that the residents and visitors of the communities slated to be constructed within close proximity of Sunset Beach island will leap at the opportunity of "efficient" access provided by a high rise bridge.

Despite efforts to cloud the issue with disingenuous statements concerning safety and traffic congestion, the data shows that indirect and cumulative impacts are inevitable.

NOTABLE CHANGES FROM DEIS

The notable changes to the EIS are corrections of inadequacies of the DEIS. Yet, the majority of these changes are nothing more than "Plans to Plan". This strategy allows NCDOT to avoid definition of requirements that will have potential significant direct and indirect impacts. A genuine effort to define these requirements and assess the impacts would be more appropriate in an Environmental Impact Statement.

P. 4-15 Recognition that the boat launching area has been maintained and recognized by Brunswick County.

> *"This traditional small boat launching area is important to many local boaters.... It should be noted that this boat ramp has been "allowed" trespass and had not been officially maintained or recognized by any agency although occasional marl deposits have been made at this launch by Brunswick County at the County Commissioner's request. Efforts are underway to relocate this boat ramp."*

The boat launch has been used by the public for over 30 years. It is on the NCDOT right-of-way and in a public trust tidal marsh and is protected by the State of North Carolina Public Trust doctrine, as well as the CAMA Land Use Plan Policy which states that public access to navigable waters should not be restricted.

There are no suitable alternatives to this launching area. No sites exist in the area with a channel such as Big Narrows, offering low tide accessibility for recreational boaters, small commercial fishermen, and wildlife personnel.

P. 4-35 The W1 Alternative has been replaced by the W1R Alternative to insure the unimpeded hydrology and navigability of the Big Narrows Channel. While this serves to potentially protect the flow of water through Blane Creek, the EIS fails to recognizes the potential increased boat speed will have on the mouth of the channel and the inevitable shoaling that would result, bringing with it future dredging that would be required to keep channel navigable.

> *"Because average speeds of boats traveling through the area could increase with the construction of the high-level preferred alternative (Alternative W1R), wave action and subsequent erosion and situation could increase in the immediate vicinity of the bridge." (p. 4-62)*

P. 4-37 A new section on Floodplain Finding is included.

> *"Pursuant to Executive Order 11988, construction of portions of the Alternative W1R were determined to be within the base floodplain. Encroachments include areas of the 100-year floodplain and High-Hazard Areas. Despite these encroachments, no substantial changes to existing flood heights, floodplain limits, or flood risks are anticipated to occur under implementation of the preferred alternative (Alternative W1R). Therefore, the proposed action would not constitute a significant encroachment."*

The fact that the high rise bridge will serve as the "efficient" gateway to two islands (Sunset Beach and Bird) within the 100-year floodplain is ignored and, again, indirect environmental impact becomes second to cost and convenience.

P. 4-39 Stormwater runoff is recognized and control is intended, but no plans or specifics are supplied.

> *" Stormwater runoff would increase under any of the build alternatives.... This is an unavoidable, long term impact."*

> *"Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practical and feasible. The practicality of routing stormwater from the bridge's crest northward to the mainland is still under investigation."*

The impact of the chosen alternative on the floodplain, the coastal fringe evergreen forest (CFEF), the marsh, and future water quality cannot be accessed without identification of methodology and site locations for stormwater detention and distribution.

P. 4-40 Table 4.4, ESTIMATED AREA OF DISTURBED EARTH, shows 1.7 more acres of disturbed earth for Alternative W1R than for Alternative W1. Would not these figures increase even more if stormwater management figures were also included?

P. 4- 61 An increase in the amount of loss of coastal fringe evergreen forest is discussed. Without the identification of stormwater requirements, the true impact on the CFEF by this project cannot be assessed.

P. 4-62 The potential of increased boat speed is recognized.

> *"Because average speeds of boats traveling through the area could increase with the construction of the high-level preferred alternative (Alternative W1R), wave action and subsequent erosion and situation could increase in the immediate vicinity of the bridge." (p. 4-62)*

While this potential is finally recognized, it is not addressed in relation to effects of increased turbidity on water quality and the resulting need for dredging to maintain navigability of Big Narrows Channel.

MITIGATION OF IMPACTS SPECIFIED BY EIS

HUMAN ENVIRONMENT

The only adverse impact to the human environment determined by the NCDOT was in the visual environment statement, yet no mitigation was specified. (See Attachment 8, p. 18 of 36 of DEIS Comments.)

> *"Alternative W1R would have an* Adverse *visual impact..., although the* VIA *value is outside the range by only 0.124.* (p. 4-30)

The EIS recognizes no other impacts on the human environment. The only mitigation statement is:

> *"The NCDOT will obtain a CAMA Major Development Permit for the preferred alternative, Alternative W1R...."* (p. 4-15)

PHYSICAL ENVIRONMENT

All mitigation measures related to hydrology and water quality can be classified as "Plans to Plan":

> *"...NCDOT will conduct additional hydraulic modeling prior to construction, in order to insure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained.*
>
> *"The NCDOT will incorporate measures into the design of the preferred alternative to control non-point source water quality impacts as described in the NCDOT's 'Best Management Practices for Protection of Surface Waters'".* (p. 4-39)

Without explicit identification of selected BMP's and location and size of site(s) for detention and distribution of stormwater runoff, it is impossible to assess the full environmental impacts of this project.

Tests show that the preferred alternative, W1R, will exceed the FHWA noise abatement criteria (Table 4.9). Yet, no mitigation is intended.

> *"Based on a review of reasonableness and feasibility criteria, consideration or design of noise mitigation measures for Alternative W1R would not be warranted during final design phase."* (p. 4-55)

NATURAL ENVIRONMENT

Barrier Island Communities

Statements about the local zoning ordinance protecting the barrier island dunes are inaccurate.

"Beach access points have been designated at the end of most streets on the island. These access points provide crosswalks over the dunes and have been lined with fences. It is illegal to walk, play in or alter the dunes (Greiner, Inc., 1994g:44)." (p.4-60)

Sunset Beach Town Ordinance (151.06) states:

(a) For the purpose of this section, "FRONTAL DUNES" shall mean the first mounds of sand located north of the Atlantic Ocean.

(g) It shall be illegal for any person to alter, relocate or disturb in any manner any frontal dune or fraction thereof, either by hand, machine or play. This prohibition shall not, however, preclude the repair of any frontal dune provided that prior approval for said repair is received from CAMA or other proper governmental authority for said repairs.

This ordinance does not prohibit walking on the dunes. The fencing on the dunes is not continuous. There has been much discussion as to the desirability of having the Town use a continuous line of sand fence to block access to the beach as is exhibited in the correspondence of See Attachment 5. Such a practice could be very detrimental to the nesting sea turtles.

Wetland Communities

"A Mitigation Plan (Appendix H) has been developed to include all practicable measures to minimize harm to these wetlands. Impacts on wetlands will be further minimizes by the implementation of BMP's during the design and construction phase of the project. Based upon the above considerations, it is determined that there is no practicable alternative to the proposed new constructions in wetlands, and the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use." (p.4-64 & 4-65)

DOT's interpretation of "practicable" is again related to cost and convenience, not environmental and cumulative impacts.

Protected Species

" Any secondary impacts which may occur...would be due to build out of island and would not be directly attributable to the proposed project" (p. 4-67)

All beach based species will suffer from the increase in use of the beach and the dune system. Yet the EIS determines: "no effect" on sea beach amaranth; "not likely to adversely affect" the endangered sea turtles and birds.

Again the NCDOT chooses to ignore the impact of the inevitable increase in use caused by the advantages of "efficient access" , as is demonstrated in traffic counts in discussions above.

CUMULATIVE IMPACTS

"The proposed bridge replacement would not measurably contribute to cumulative impacts to the human or natural environments on the island. The proposed action would not provide new access to a previously unaccessible area, nor would the proposed action expand the parking capacity on the island." (p. 4-84)

"A replacement bridge would not directly encroach upon development areas of the barrier island or the beach. As discussed in Sections 3.1.2, 4.1.1 and 4.1.2 based on case studies in Ocean Isle and Holden Beach, replacement of the existing bridge would not change the rate and type of development on the island of Sunset Beach. The number of day visitors in not expected to increase due to the project (see Sections 3.1.1.2 and 4.1.1.1). Traffic volume projections would generally be the same under any project alternative. (see Section 1.5.1.3)." (p. 4-84)

While the high rise bridge may not appear to be "new access to previously unaccessible area", it is. The current pontoon bridge is a significant limiting factor to efficient access as defined by the NCDOT. Removing that limitation provides new access. The area, in practical terms, has been inaccessible to large heavy trucks carrying the massive construction materials needed to build high rise buildings. Inaccessibility is also a matter of perception of physical comfort. Some people are not comfortable being on a barrier island that does not have high rise access as is shown in the following response taken from the Land Use Impact Report by Hayes & Associates:

Question 6. Which of these factors influenced your decision to come to (Sunset Beach/ Ocean Isle)

(numbers have been converted to percentages:)

	Sunset Beach	*Ocean Isle*
Proximity	*96%*	*40%*
Parking Facilities	*67%*	*52%*
Restroom Facilities	*11%*	*1%*
Quality of Beach	*96%*	*56%*
Bridge	*7%*	*26%*
Road Conditions	*11%*	*33%*
Always Come to This Beach	*18%*	*44%*
Family Beach	*15%*	*14%*

(Appendix, page 7)

SECTION 4(f) EVALUATION

"All of the build options alternatives will provide a more reliable transportation facility between the mainland and the island portions of the

Town of Sunset Beach, which would not diminish access to the resources in the project area protected by Section 4(f), (i. e. The public beach, parking lot, gazebo, Town beach area, and public beach access areas)." (p. 4-97)

The No-Build and Rehabilitation Alternatives " *...will not temporarily incorporate (or take) land or resources protected by Section 4(f). Under this scenario, land use development and growth trends are expected to continue as they have in the past and in conformity with the Town's zoning and land use restrictions and Land Use Plan."* And *"...will not contribute to increased traffic volumes in the design year (2019), but may, in fact result in a 10 to 15 percent reduction in ADT volumes during summer peak season in the design year (2019) due to decreased in the number of discretionary (non-essential) trips."* (p. 4-97 and p. 4-98)

Avoidance of the obvious does not remove the inevitable and certain impact that the bridge will have on both the type of development - as exhibited by the immediate change in the Land Use Plan, and subsequent construction of the high rise condominium following the construction of the Odell Williamson high rise bridge at Ocean Isle (See page 2 of 36 of the DEIS COMMENTS, Attachment 8), and the number of day visitors - which will bring with it inevitable pressures for more parking spaces.

MEASURES TO MINIMIZE HARM / IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

"The build alternatives (W1R, C1, or C4) propose two lanes across the bridge, which is the minimum number needed under NCDOT standards for safety and traffic flow purposes. Based on current design standards, the proposed facility is the minimum facility (two-lanes), which meets the intended purpose and need of the project. Practicable mitigation measures are limited due to the location of the project in relation to protected resources, and by the type of impact. Indirect impacts to aesthetic resources and to utility of beach-use are associated with degree of utilization by users. Accordingly, any mitigative responses to indirect development impacts would limit access to these resources, which would preclude them as practicable mitigation measures. For example, noise walls separating the resource from the proposed alignment of Alternative W1R would be costly and may create a greater aesthetic impact than the positive mitigation effects on anticipated noise impacts." (p. 4-98)

Although the Rehabilitation Alternative would require a lesser irretrievable commitment of resources that the build alternatives (W1R, C1, or C4), this commitment would not be balanced by a corresponding level of anticipated beneficial effects." (p. 4-100)

The most effect measure to minimize harm would be to build a two lane, low level structure in the center corridor. Selecting the most desirable engineering alternative and then eliminating all obstacles in the way, by denying their

impact or deeming them to be too costly, undermines any honest attempt to determine the course of action that would have the least adverse impact on the environment.

CONCLUSION

We know our bridge, we have chosen this community with full knowledge of our bridge. We appreciate the inconveniences associated with such a transportation solution; we also appreciate the benefits that such a bridge affords to our community.

And, yes, we know it requires improvement. The nature of the improvement is what is at issue.

Throughout the history of this process (Attachment 6), the public voiced their opposition and concerns – at public meetings, public hearings and by – only to receive in response the NCDOT position that the bridge is obsolete, unsafe and inefficient.

The unwavering position of the NCDOT, as was voiced by then NCDOT Secretary Harrington in his 1989 letter to Representative Charlie Rose, **"...you will get a high rise bridge or no bridge"** echoes throughout this EIS. It is evident, first, through the continued misrepresentation of fact, whether deliberate or through ignorance, and, second, through the lack of any sincere attempt to assess the indirect environmental, social, and economic impacts of the escalation of activity and development that will inevitably accompany the building of a high rise bridge to this barrier island community.

Throughout the 20-year history of this controversy, there have been two views of the bridge project: One focuses on the architecture, the corridor, and its function as an efficient transportation unit; the other, recognizes the Sunset Beach Bridge as a functioning component of an environmental and cultural dynamic.

These views should not be mutually exclusive. It should be possible, were the NCDOT to attend more to the concerns of local citizens and property owners and less to the wishes of politically powerful developers, to provide our community and its seasonal visitors with more efficient transportation without destroying the cultural and environmental features that attracted us all to Sunset Beach in the first place.

ATTACHMENTS

1. April 9, 1996 Greiner, Inc. letter to Ms. Julie Hunkins from David A. Griffin

2. Map of Existing Bridge Congestion Pattern

3. Wilmington Morning Star Article "Resort LaDane resumes planning"

4. Comparison Table of Level of Service for No-Build and W1R Alternatives

5. Dune Related Correspondence
   - September 23, 1997 letter to Linda Fluegal, Town Administrator from Robin Smith, Assistant Attorney General
   - Town of Sunset Beach Resolution For Shoreline Management
   - Town of Sunset Beach Ordinance 151.06 Alteration of Sand Dunes
   - December 22, 1997 Letter from Mayor Cherri Cheek to Sunset Beach Property Owners
   - Town of Sunset Beach Dune Maintenance Questionnaire

6. History of Sunset beach Bridge Replacement Project

7. Wilmington Morning Star article "Developer forced from state board"

8. SBTA Comments on DEIS, October 1995

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470
FAX: 910-579-6993 E-Mail: sbta@infoave.net

March 1, 1999

Secretary E. Norris Tolson
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Dear Secretary Tolson:

I have read in local newspapers that you are now in the process of a full Environmental Impact Statement on the 30 foot Bascule Alternative C4 for the Sunset Beach bridge replacement. I believe you were sincere in your statement of your September 1, 1998 letter:

> *We believe any decision on this project should - and will - be made involving the public and local officials in the decision-making process. We are committed to providing a replacement bridge that is in the best interest of the public and the community of Sunset Beach.*

Your willingness to weigh community concerns and to consider innovative approaches to solving our State's transportation problems is certainly a welcome change at the DOT.

As I mentioned to you in our recent telephone conversation, the SBTA stands ready to work with you and DOT staff in the hope that we can come to some concurrence at the onset on a plan that will minimize the secondary and cumulative impacts of this bridge replacement. Since I know from that conversation that staff work is at a critical stage on this issue, I felt it best to pass on to you our thoughts in concrete form at this point.

You stated in your letter of October 31, 1998 concerning the elimination of the low-level bascule alternatives from consideration the decision process for the bridge replacement at Sunset Beach:

> *We have evaluated the merits of a 15-foot low-level bascule bridge and have also eliminated it from further consideration. The benefits of a mid-level bascule bridge outweigh the cost differences between the low-level and mid-level bridges. Analyses of the three low-level bascule bridge alternatives studied are contained in the Final Environmental Impact Statement.*

We believe this analysis was flawed and ask the Department of Transportation to consider something less than a 30' bridge. We have found, over the 20 year process of this replacement project, a strong bias toward the construction of a western high rise bridge. Until your refreshing arrival on the scene, this bias has been reiterated to us repeatedly by DOT officials and staff. As a result of this bias, the low level bascule bridge was designed and aligned improperly, and the height was set so low as to preclude it from serious consideration at the very onset of the EIS process.

As you know, our membership favors a two-lane pontoon bridge. As we have discussed, however, we do appreciate the concerns voiced by you and staff over this alternative and are

hoping to be able to support a compromise solution for our community. While we are unalterably opposed to a high-rise bridge, we believe the proposed height and location of the 30' bascule bridge is not the best option. One of oldest, largest live oak trees in town - the subject of many photographs and paintings; the home to the original developer of the island and town - now The Italian Fisherman restaurant; the sites of the first store and the original mainland business district will be displaced by the proposed mid-level bascule. If built as planned, the 30ft bascule bridge, like the high-rise option, will irrevocably alter the quaint, coastal character of the original town center, which is the entrance to the island and has served as that for forty years. In its place will be an unsightly dirt mound and a towering cement structure shadowing what is left (see attached copies of photographs and compute models from Visual Impact Report, January 1995).

We believe that, with creative thinking and consideration of other engineering options, it is possible to construct a low level bascule bridge that would offer all that is needed - two lane traffic over the bridge. This option could leave the original town center essentially intact by lowering the elevation and, thus, shortening the length of the approach to reach the desired height over the waterway. It should be possible to relocate the present barge to a temporary, adjacent corridor, as is currently being done throughout southeaster North Carolina, where new temporary bridges are constructed immediately adjacent to the old bridge so it can be torn down and replaced. This temporary relocation would allow construction of the low-level bridge in essentially the same location as the current pontoon bridge.

This option would reduce right of way costs, further reduce the acres of salt marsh impacted, and all but eliminate the amount of coastal fringe evergreen forest impacted. It could also allow the boat launch on the Big Narrows channel, located on the causeway immediately south of the present bridge, to remain open for use as the only public recreational and commercial low-tide launch in the area.

The concerns about more frequent bridge openings could be address by closer examination and better presentation of the data to determine a height that would allow a greater number of boats to pass under the bridge without opening. This would reduce the congestion during the hourly opening.

In the interest of moving as quickly as possible to a solution, I ask that you request your staff to reexamine such an option. We, for our part, will conduct a poll of our members to assess their willingness to support such a compromise solution. I am hopeful that a path can be found to resolve the bridge replacement issue quickly and without further legal tangles. I look forward to future opportunities to participate in the process that will determine the quality of life both for all of us who live and/or own property on Sunset Beach Island and for those thousands of North Carolinians and other vacationers who visit this tiny island each year.

Sincerely,

Barry Lentz, President
Sunset Beach Taxpayers Association

cc: Len A. Sanderson, P. E., State Highway Administrator
Nicholas Graf, P. E., Division Administrator, Federal Highway Administration

SUNSET BEACH TAXPAYERS ASSOCIATION

P. O. BOX 6053, SUNSET BEACH, NORTH CAROLINA, 28470

FAX: 910-579-6993 E-Mail: sbta@infoave.net

June 4, 1999

TO: David McCoy, Acting Secretary, NC Department of Transportation

FROM: The Board of Directors, Sunset Beach Taxpayers Association

SUBJECT: A REPLACEMENT BRIDGE FOR SUNSET BEACH

On May 10, the North Carolina Department of Transportation (DOT) proposed two bridge options to replace the pontoon bridge at Sunset Beach: (1) a 65-foot high-rise bridge estimated to cost $18 million, and (2) a 30-foot bascule, or drawbridge estimated to cost $25 million - both with long, curving "western corridor" approaches on the mainland. DOT Secretary Norris Tolson asked the Sunset Beach town government and the Sunset Beach Taxpayers Association to try to work out their differences and find a compromise based on one of these two options.

With this letter the SBTA wishes to explain clearly and objectively our position on the bridge and to propose a possible compromise resolution to the conflict that has surrounded this project. We have already contacted Town of Sunset Beach officials to arrange a discussion of this proposal.

PRESERVING THE HUMAN ENVIRONMENT. Sunset Beach truly is unique among coastal communities. Although the island is 90 percent developed, the community has preserved its quiet, non-commercial character despite pressures to increase commercial and residential density. It has a human environment that makes people want to own homes here and to bring their families to the beach every summer. We need to make sure the impact of the new bridge will not ruin our community for residents and visitors. We glimpse the future when our summer population swells to 8,500, which includes 3000-4000 day visitors. The Town hasn't planned well for these visitors. Visitors and residents compete with cars for the use of the Island roads where people are bicycling, roller blading, walking, and playing games. This is summer at the beach, but this competition for use of the roads already creates a threat to public safety. With <u>any</u> increase in traffic from a new bridge, the Island will become choked with traffic and cars. If traffic and parking aren't controlled, the quality of life—and the safety— of residents, homeowners, and visitors will be seriously degraded.

PROTECTING THE NATURAL ENVIRONMENT. Our waters are in trouble. They are designated by the state as "Impaired Waters" and "Not Fully Supporting" their traditional use of shell fishing. The primary cause of the degradation to the waters is scientifically verified to be stormwater runoff, and stormwater runoff from roads and parking lots is a

major source of this pollution. The DOT is the single largest contributor to the degradation of Island waters through its stormwater drainage system for state roads which pipes runoff into the surrounding waters.

We believe DOT is responsible for the secondary and indirect negative impacts to the environment and cannot pursue projects that violate the Clean Water Act without appropriate mitigation measures.

WHO GOVERNS THE ISLAND AND WHO WILL PROTECT IT? Sunset Beach Island is not self-governing. The island is governed by a Town Council elected by mainland residents, who outnumber island residents by more than 10 to 1. With any change from the current bridge to Sunset Beach Island, Island homeowners must be sure the town will take decisive action to ensure quality of life and environmental integrity. We must have mitigative measures that are legally binding.

PROPOSED COMPROMISE WITH MITIGATIVE MEASURES FOR A NEW BRIDGE. Surveys of island homeowners and visitors have recorded strong opposition to a high rise bridge. While a recent poll (See Below) showed Sunset Beach Taxpayers Association members willing to consider different bridge options, the SBTA membership remained unalterably opposed to a high rise bridge. We've always believed this massive structure is wrong for Sunset Beach. With the long curving approach to the waterway required to achieve 65 feet, it will be nearly as long as the 1.5 mile oceanfront drive. It will dominate the landscape, towering over trees and buildings on the mainland side and rising to nearly twice the height of the highest island buildings (limited by law to 35 feet). The Environmental Impact Statement noted that traffic noise on the mainland side will exceed federal noise-pollution standards. This bridge is destructive of the human and natural environment. It will change our community for the worse.

The majority of the SBTA membership believes the right bridge for Sunset Beach is either a low-level drawbridge or a two-lane pontoon bridge that follows the current "center corridor" approach to the waterway. The proposed 30-foot drawbridge bridge is too long, too high, and, most of all, too expensive. We consider such a structure overkill for the short span that must be bridged and not justified to provide service to the Island. The Island can be more than adequately served by a lower, shorter, and much cheaper bridge than either bridge option proposed by the DOT. We have repeatedly urged Secretary Tolson to put forth such an option.

However, Secretary Tolson has said a low, center-corridor bridge is not an option. He has stressed that the 65-foot and 30-foot western corridor bridges are the only options DOT will consider. Given Secretary Tolson's position, the SBTA will make every effort to reach a compromise solution with the understanding that there are two issues that cannot be compromised: 1) Adequate protection for the quality of life for residents, homeowners, and visitors; and 2) Adequate protection for the Island environment and the waters around it.

Our organization is willing to compromise on a 30-foot, western-corridor drawbridge to the Island provided all the following measures are implemented to mitigate the impact of the new bridge:

1. **Limit island parking to current designated off-road parking lots and special parking for handicapped at handicapped beach access points. If the current off-road parking areas do not provide fair and adequate public parking, more off-road parking should be created--but not by creating more parking on the island that will contribute to further degradation of island waters. Parking facilities on the mainland with a quaint trolley bus back and forth between the public parking area and beach access point along Main Street would accomplish this. Responsibility : Town of Sunset Beach.**

2. **Install available stormceptor devices in each Island stormwater drain to improve the quality of the stormwater runoff. The SBWSA Water Quality Management Board is currently reviewing proposals to do this on the Island. Since most of these are DOT drainage systems, DOT should share in the cost of installing the devices. The cost should not be placed solely on the property owners of South Brunswick County. Responsibility: DOT should install; SBWSA should maintain.**

3. **Create a public park on the mainland where Sunset Boulevard will dead end at the Intracoastal Waterway. The park will serve as a green belt buffer to protect the Intracoastal Waterway from stormwater runoff. Responsibility: DOT and Town.**

4. **Create hike/bike paths across the bridge and causeway, up Sunset Boulevard, and on both sides of Main Street. The paths should be wide enough to accommodate bikers, roller bladers, walkers, etc. The paths should be lined by vegetation, when possible, that would separate and protect people from cars. In addition, the vegetation would serve to keep stormwater out of the street stormwater drains, and thus, out of Island waters. Responsibility: DOT and Town**

5. **Create speed bumps on Canal Drive and North Shore Drive to slow and discourage sightseers circling the Island. Responsibility: Town and DOT**

6. **Create a new public boat ramp with low tide access to replace the current boat ramp that will be lost with both bridge options. Responsibility: DOT**

7. **Enforce parking and landscaping zoning ordinances for <u>all</u> development in the Beach Business District. Responsibility: Town**

8. Develop and implement an education program to inform the public about the fragile barrier island environment and what they can do to protect it. Responsibility: Town and SBTA

1999 Sunset Beach Bridge Replacement Poll

	One Lane Pontoon	Two Lane Pontoon	Low Level Bascule	Mid Level Bascule	High Rise
1 Preferred	33.21%	54.68%	36.52%	13.11%	2.67%
2 Acceptable	26.87%	34.74%	54.49%	44.21%	2.67%
3 Unacceptable	39.93%	10.57%	8.99%	42.68%	94.66%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

Poll Conducted By SBTA of its Membership - March 1999

cc: David King, Deputy Secretary, NCDOT
Janet D'Ignazio, Chief Planning & Environmental Officer, NCDOT
Nicholas L. Graf, P. E., Division Administrator, USDOT
Heinz J. Mueller, Chief, Environmental Policy Section, USEPA
Board of Transportation Members
Sunset Beach Town Council & Planning Board Members
Sunset Beach Taxpayers Association Members

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

December 31, 1997

Mr. Barry Lentz, President
Sunset Beach Taxpayers Association
Post Office Box 6053
Sunset Beach, North Carolina 28470

Dear Mr. Lentz:

Thank you for your recent letter regarding the replacement of the Sunset Beach Bridge over the Intracoastal Waterway in Brunswick County.

The purpose of the proposed project is to provide a safe and reliable transportation crossing of the Intracoastal Waterway. Any benefits derived by the public as a result of more efficient access to the island of Sunset Beach would be secondary and are in no way an intended purpose of the proposed bridge replacement.

As you are aware, a Final Environmental Impact Statement (FEIS) was completed in October 1997. The FEIS contains information about the two-lane pontoon bridge, which was requested by your association and other citizens.

The Record of Decision (ROD), the final document required by the National Environmental Policy Act, is anticipated to be completed in March 1998. After approval of the ROD, the project planning documents and supporting information will be submitted to the federal district court for review and compliance. Only after the injunction is lifted by the federal courts can the project be included in our Transportation Improvement Program for right-of-way acquisition and construction.

I share your concerns about providing safe and reliable transportation access between the island and mainland portions of the Town of Sunset Beach, especially in the event of an emergency. We believe the recommended alternate best meets the goals and objectives of this bridge replacement project.

Thank you for your continued interest in this important transportation project.

Sincerely,

for

Garland B. Garrett, Jr.

GBG/hfv
cc: Larry R. Goode, Ph.D., P. E., State Highway Administrator
Grayson Kelley, Senior Deputy Attorney General

PHONE (919) 733-2520 FAX (919) 733-9150

bc: Nicholas Graf, P. E., Federal Highway Administration
Calvin W. Leggett, P. E., Director of Planning and Programming
H. Franklin Vick, P. E., Manager, Planning and Environmental Branch

RESPONSES TO COMMENTS RECEIVED FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION LETTER DATED JANUARY 15, 1998

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682)

Paragraph No.	Response to Comments noted in Paragraph(s) noted
1	The EIS has been completed and approved by the FHWA as a satisfactory document. All commenting agencies have concurred that the document provides sufficient analysis for the purposes of compliance with the regulations promulgated for the National Environmental Policy Act of 1969 (40 CFR Parts 1500-1508).
2	The notes at the bottom of the Levels of Service Tables explain that Levels of Service designations do not apply to one-lane signalized facilities having periods when no vehicular movements are allowed to occur. However, a two-lane facility will increase the capacity and facilitate travel in these areas, decreasing the platooning effect on the northern and southern intersections of the drawbridge delays. That the proposed bridge will increase bridge capacity, facilitate travel, and eliminate queuing from drawbridge delays will only benefit safety providers to deliver service to the area.
3	Eleven preliminary alternatives were evaluated as described in Section 2.0 of the FEIS. In accordance with the National Environmental Policy Act, these preliminary alternatives were evaluated, with some retained for further consideration. The remaining alternatives that were dismissed from further consideration are described with the reasons that they were dismissed in Section 2.0 of the FEIS. The alternatives that were retained met the minimum criteria of fulfilling the transportation and public safety objectives of the project.
4	Responses were prepared to the Comments received from the SBTA in their letter dated October 3, 1995. These responses and the October 3, 1995 letter are included in the FEIS Volume II, Appendices. Incorporation of some comments was completed; however, not all comments were evaluated as necessary for incorporation. All commitments made in the responses to incorporate information have been verified.
5	The FEIS for the Sunset Beach Bridge Replacement project (B-682) was objectively developed. Anticipated impacts from the different alternatives were identified and presented in the report. All interested State and Federal agency comments have been sufficiently addressed with concurrence that the preferred alternative (W1R) is the overall least environmentally damaging alternative. Land development is a locally-governed issue. Presently, new construction is limited to maximum height of 35 feet on the island. Through an approved referendum, this restriction could be changed; however, the State is not the proper venue for such control. Response to comment number three addresses the alternatives that were evaluated and dismissed from further consideration. Among those alternatives were low-level drawbridge and two-lane pontoon options. Section 2.0 of the FEIS addresses the evaluation of both dismissed alternatives and the alternatives retained as reasonable and feasible alternatives. With the commitments noted in the FEIS and ROD and with the implementation of Best Management Practices during construction, the preferred alternative would not effect any significant adverse effects to the island ecology. Letters of concurrence to this effect are cited in the FEIS and ROD for this project. Additionally, the analysis contained in the FEIS addressed secondary land use impacts in Section 4.1.1.3 and economic benefits from the project in Section 4.2.

RESPONSES TO COMMENTS RECEIVED FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION LETTER DATED JANUARY 15, 1998

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682)

6	As a trustee of State funds, the NCDOT concurs that it has the obligation to review allocation of funds objectively. The NEPA project evaluation process is designed for this purpose. Public input is required, requested, and incorporated at many stages of project planning to ensure that all interests are addressed. The subject FEIS and ROD will be presented to the courts for a legal opinion of its sufficiency.
7	Secondary development impacts are addressed in Section 4.1.1.2 of the FEIS. Practicable does not relate to environmental or cumulative social and economic impact. Practicable means prudent and feasible.
8	Comment noted. Accident data are discussed in Section 1.6.3 of the FEIS. This section is not meant to be read independently as a sole justification of the project purpose and need. Section 1.7 provides a summary of the project need.
9	NCDOT has procedures for bridge operations during storms. NCDOT bridge tenders are instructed to observe changes in weather and to call the NCDOT supervisor to assist in determining if the bridge should be secured during adverse weather. If conditions deteriorate, the bridge tenders are instructed to evacuate. Bridges are to remain closed/secured until NCDOT has a report from the weather station that adverse weather conditions have passed, and after the Town Administrator has approved its reopening. The Town Administrator is the local point of contact for such closure decisions. All telephone calls from the bridge tender office are limited to official business and/or emergencies, and it is NCDOT policy to cooperate with local emergency and law enforcement agencies per 33 CFR 117.1(a). This regulation states that when the bridge tender is notified by a reliable source, tenders, ". . . shall take all reasonable measures necessary to have the draw closed at the time the emergency vehicle arrives at the bridge." Although improvements in communication would benefit deliverers of emergency services, such communication improvements can not eliminate delays caused by commercial traffic.
10	Comment noted. NCDOT maintains that the proposed bridge would be a better facility for emergency response (e.g., for hurricanes or other) than the existing bridge.
11	Comment noted.
12	A comparative analysis of the existing bridge, a two-lane pontoon bridge, and the preferred alternative is not provided because most of the pontoon bridges in the country have already been replaced due to their inefficiency and high maintenance costs. Section 2.2.3.5 addresses Alternative C3I, the two-lane pontoon alternative. Delays presently occur from bridge openings, and these delays would be eliminated with the preferred alternative. Provision of emergency services to the island is generally not encumbered by the bridge; however, anecdotal evidence of such delays is provided in Section 1.6.1. Delays of emergency services could result in loss of life and/or property, and must be given the most serious consideration regardless of public perception.
13	Comments noted. That the bridge causes an inconvenience to the public is secondary to the delays that it could cause to emergency services.
14	Comment noted. Section 2.2.3.5 of the FEIS addresses the two-lane pontoon bridge alternative (Alternative C3I). This alternative was not presented in the DEIS for this project. As noted, such bridges are considered frail and obsolete, and have high maintenance costs. Accordingly, such a design was eliminated from further consideration.

RESPONSES TO COMMENTS RECEIVED FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION LETTER DATED JANUARY 15, 1998

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682)

15	Exhibit 1.2 depicts the correct location of the Police Department and Town Hall, the referenced statement should have been revised to clarify the location of the Police Department and Town Hall as described in Section 4.1.1.5 of the FEIS.
16	That traffic congestion does not encumber emergency response is incorrect. Under ideal circumstances where there is a minimal queue at the bridge, fire protection responders could travel more directly across the bridge under the existing traffic configuration. However, under a typical queue, fire department responders may be forced to travel in the opposing lane toward the bridge and be further delayed by getting through the intersection of NC 179/SR 1172 and in waiting for traffic to clear from the bridge. Under the preferred alternative, queues along SR 1172 road would be minimized and replaced by smaller northbound queues for the bridge entrance ramp. This would allow fire protection responders to travel unencumbered to the intersection at NC 179/SR 1172 and northbound to the bridge ramp. From there, the responders would be faced with a new queue for the ramp; however, as noted, this queue would be shorter, and associated with the addition of a lane on the bridge. This configuration would facilitate travel across the bridge by minimizing the time that responders must wait for queues to clear for travel. Therefore, the argument that the existing congestion patterns for the existing swing span pontoon bridge provide more reliable public safety service to the island than the congestion patterns of the unencumbered proposed high-level fixed span bridge is not effective.
17	Comment noted.
18	Vehicular trips are a function of population; however, this is not the only variable. Other variables include the location of service establishments and recreational areas. An increase in population of approximately 66 percent would effect an increase in traffic of approximately 83 percent, a difference of less than 20 percent. The traffic increases are not exponential but are greater than a 1:1 ratio. Such increases are attributed to increased discretionary trips by persons staying/living on the Island that would result with a bridge that did not have the potential for a delay and other induced trips. Furthermore, it should be noted that case study evidence for Ocean Isle Beach and Holden Beach suggests that the type of bridge does not significantly effect the rate and type of development.
19	The Level of Service data should be used only with the referenced limiting notations. Level of Service data do not apply to one-lane facilities, where periods when no vehicular movements are allowed to occur. Because one-lane facilities are considered functionally obsolete and inefficient, no Level of Service descriptor has been developed or is professionally accepted. Regardless, it can be concluded that a two-lane facility will have a more efficient travel, with less queuing and delay than a corresponding one-lane facility. Furthermore, it should be noted that a two-lane bridge is the minimum facility that meets Federal and State design criteria.
20	See response to Comment #18.
21	The objective of the Sunset Beach Bridge replacement project is to provide a more reliable means of transportation between the island and mainland and to provide a greater degree of public safety therefrom. See response to Comment #18.
22	Comment noted.

RESPONSES TO COMMENTS RECEIVED FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION LETTER DATED JANUARY 15, 1998

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682)

23	Comment noted. The purpose of Section S4, Other Major Actions in the Project Vicinity is to discuss other projects identified on the NCDOT Transportation Improvement Program. Full development of Holden Beach, Ocean Isle, and Sunset Beach is acknowledged in the FEIS as the likely local future for these areas. Section 4.1.1.3 discusses secondary land use impacts in more detail.
24	The survey response shows that seven percent of the respondents were lured to Sunset Beach partly because of its bridge, and 26 percent of the respondents at Ocean Isle were lured to Ocean Isle partly because of its bridge.. Because the bridge is only one of eight noted factors influencing the decision to use beaches, it cannot be concluded that the 26 percent of the responders would otherwise choose Sunset Beach if a high rise bridge were constructed. A more realistic scenario is presented in the FEIS in section 4.1.1.1, which notes that day visitors that currently go to Sunset Beach would continue to do so, and some Ocean Isle day visitors would consider going to Sunset Beach on a more regular basis if a new bridge were built.
25	References regarding the transportation and safety benefits of the preferred alternative over the existing bridge are not provided to obscure the impacts of the project. The impacts of the project are presented by issue in Section 4.0 of the FEIS.
26	Commitments made in the FEIS are legally enforceable in association with the Record of Decision. Accordingly, NCDOT is genuine in its commitments for further study and incorporation of mitigative and ameliorative measures. Notable studies that must be completed when further design details are available include: drainage, hydrological scour analysis studies; development of the final Mitigation Plan; development of the traffic control plan; and completion of geotechnical investigations. These studies will not independently have any adverse effects on the environment. If during final design, it is determined that commitments are either not feasible or practicable, coordination and the successful resolution of the issue with interested local, State, and Federal agencies will be completed prior to any further project advancement.
27	Comment noted.
28	The referenced boat launch has been an allowed trespass but has never been officially recognized or maintained as a recreational facility by any entity or agency. The court held that Section 4(f) does not apply to this facility (756 F. Supp. 904 (E.D.N.C 1990)).
29	Comment noted. Only three sites have been identified as potentially suitable alternative sites for the boat launch. However, NCDOT is presently evaluating these sites for feasibility in coordination with State and Federal agencies.
30	Page 4-62 acknowledges that average speeds of boats traveling through the channel could increase with the presence of an unrestrictive high level bridge; however, it is emphasized that large commercial vessels already have unrestricted passage through the channel. Accordingly, the only boat traffic that would be associated with increased average speeds from unimpeded travel would be that of pleasure craft, which generally have a much shallower draft and corresponding wave erosion.
31	The proposed bridge would improve the already existing access to Sunset Beach Island. At this time, there is no vehicular access to Bird Island, and development on this island is excluded from Federal monies (e.g., the Federal Flood Insurance Program) because it is included in the Waites Island Complex of the United States Coastal Barrier Resources System.

RESPONSES TO COMMENTS RECEIVED FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION LETTER DATED JANUARY 15, 1998

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682)

32	NCDOT commits to the evaluation of routing stormwater to avoid direct outfall into the Primary Nursery Areas of the Atlantic Intracoastal Waterway. This analysis will be conducted as details become available during further hydraulic design.
33	See response to Comment #32. If practicable, retention basin requirements will require some land on the mainland portion of the project. At this time, the location and size of such a basin cannot be estimated; however, use of CFEF land will be avoided where practicable. It is anticipated that if such a facility is determined to be practicable for the preferred alternative, it could be located within the construction access areas or under the bridge. Impacts to CFEF have been accounted for in both of these areas. Should additional CFEF land be needed for such a facility if determined practicable, the configuration of the facility will be designed to minimize the adverse effects. Details of the design will be evaluated as they become available during further hydraulic design.. There are no anticipated effects to coastal flood elevations from the preferred alternative, and effects to the marsh and water quality are discussed in FEIS Sections 4.3.1.4 and 4.2.2.1, respectively.
34	Should practicable stormwater management facilities need additional acreage not within the 45-foot corridor to either side of the centerline for the road, the amount of disturbed earth would increase accordingly; however, the additional amount of disturbed earth from any such facility is not anticipated to increase the total by a substantial amount. Details of the configuration of any practicable stormwater management facilities will be evaluated as details of the bridge design become available during final design.
35	See response to Comment No. 34.
36	The incremental increase in turbidity associated with the increased speeds of pleasure craft would not be substantially greater than what exists for commercial activity at present. Although it is anticipated that with the avoidance of the Big Narrows Channel, the natural, self-flushing ability of the Big Narrows Channel will be maintained, an evaluation of this will be conducted during final design. Also, see response to Comment #30.
37	Mitigation for such a structure from the noted viewpoints is limited in type and effectiveness. The adverse visual impacts noted would be permanent, but largely insubstantial as the adversely affected views are seen only when traveling to and from the beach and not from the predominant destination of the beach.
38	The FEIS documents the analysis conducted to determine the effects that the bridge would have on day-visitor population, and it documents both anticipated secondary effects of the bridge on development and induced economic effects of the bridge. Chapter 4.0 discusses the anticipated effects, both positive and negative, to the human environment. This FEIS has been reviewed by all State and Federal agencies, with concurrence that the document provides a sufficient analysis.
39	See responses to Comments # 32, 33, and 34 regarding the evaluation of stormwater management facilities.

RESPONSES TO COMMENTS RECEIVED FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION LETTER DATED JANUARY 15, 1998

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682)

40	Mitigation must be considered for all Class A properties, which includes residences, if the FHWA noise abatement criterion is approached or exceeded. Sound barriers were evaluated for substantially affected residences (two residences total), but were found to be unreasonably expensive, with a total costs of $68,940 per residence. This barrier would be located on the western side of the bridge approach on the mainland, on top of a fill slope, and extend along a portion of the bridge. Such a wall extending along a portion of the bridge may also not be feasible due to structural and visual considerations. Consequently, sound barriers were determined to be infeasible abatement measures, and no other mitigation measures were considered. The NCDOT will provide technical guidance to property owners to help decrease substantial noise levels on their properties.
41	The referenced section of the FEIS refers to fencing along the crosswalks and is not intended to reference any other fences that are existing or proposed for the dune area. Walking is not specifically noted in the ordinance as a prohibited act. However, as disturbance in any manner to any frontal dune is prohibited, walking on any portion of the frontal dunes that would disturb sand is, therefore, prohibited.
42	The type of impact is irrelevant for the determination of whether or not a mitigation measure is practicable.
43	Effect determinations have been reviewed and adopted by the US Fish and Wildlife Service, and the National Marine Fisheries Service. Such review was completed in association of a review of the project EIS, which discusses the potential for increased day-visitors to the beach.
44	NCDOT maintains that new access is not being provided by the preferred alternative. Rather, more efficient and reliable transportation access would be provided. See also response to Comment #24
45	The FEIS does not suggest that development pressures will not be intensified with the construction of a fixed span high level bridge. However, land use is a local issue that can and should be addressed through local zoning and other development restrictions.
46	Section 4.7.5 addresses ways to minimize harm to affected Section 4(f) resources. These resources include the beach, parking lot, gazebo, and beach area, and public access areas to the beach. These resources would also be affected by the construction of a two-lane drawbridge or two-lane pontoon bridge, which would also benefit traffic but to a much lesser extent than the preferred alterative. See also responses to Comments # 3 and 5.

Bill Gilmore

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

October 13, 1998

Mr. Barry Lentz, President
Sunset Beach Taxpayers Association
Post Office Box 6053
Sunset Beach. North Carolina 28470

Dear Mr. Lentz:

Thank you for your recent letter regarding the North Carolina Department of Transportation's decision to reconsider the recommended alternative for the replacement of Bridge No. 198 on SR 1172 over Intracoastal Waterway at Sunset Beach in Brunswick County (TIP No. B-682). I appreciate your understanding the necessity to give equal and full consideration to both the mid-level and high-rise alternatives.

In your letter, you raised several questions. First, the 35-foot bascule bridge option mentioned in my recent letter to you is incorrect; specifically, the mid-level bascule bridge which is being studied would provide a minimum clearance of 30 feet.

Second, the two-lane pontoon bridge alternative was studied previously and eliminated from further consideration due to the maintenance, reliability, safety, and transportation issues associated with pontoon bridges. After reviewing the information in the Final Environmental Impact Statement, I concur with the decision that this alternative does not meet the purpose and need of this bridge replacement project.

Your third concern is the study and consideration of a low-level (16-foot) bascule bridge. We have evaluated the merits of a 15-foot low-level bascule bridge and have also eliminated it from further consideration. The benefits of a mid-level bascule bridge outweigh the cost differences between the low-level and mid-level bridges. Analyses of the three low-level bascule bridge alternatives studied are contained in the Final Environmental Impact Statement.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201. RALEIGH. N.C. 27611-5201

JAMES B. HUNT JR.
GOVERNOR

E. NORRIS TOLSON
SECRETARY

September 1, 1998

Mr. Barry R. Lentz
President
Sunset Beach Taxpayers Association
Post Office Box 6053
Sunset Beach, North Carolina 28470

Dear Mr. Lentz:

As you are aware, the North Carolina Department of Transportation has been working to replace the existing pontoon bridge on SR 1172 over the Intracoastal Waterway in the town of Sunset Beach in Brunswick County. I recently met individually with representatives from both the town of Sunset Beach and the Sunset Beach Taxpayers Association.

I have received input from many individuals and groups about this project. As a result of this input and in consultation with the Federal Highway Administration, we are reconsidering our previous recommendation for the 65-foot high-rise bridge. Two alternatives studied originally, the 65-foot high-rise bridge and the 35-foot mid-level bascule bridge, meet the project's purpose and need which is to provide safe and reliable transportation access across the Intracoastal Waterway. Each of these alternatives has merits that will be considered during the decision-making process. This project is so important that we must give full and equal consideration to both alternatives.

We believe any decision on this project should – and will – be made involving the public and local officials in the decision-making process. We are committed to providing a replacement bridge that is in the best interest of the public and the community of Sunset Beach.

I look forward to your continued interest and involvement in this important bridge replacement project.

Sincerely,

E. Norris Tolson

ENT/wdg
cc: Len A. Sanderson, P. E., State Highway Administrator
Nicholas Graf, P. E., Division Administrator, Federal Highway Administration

RESPONSES TO COMMENTS RECEIVED FROM THE SUNSET BEACH TAXPAYERS ASSOCIATION LETTER DATED JANUARY 15, 1998

FEIS FOR THE SUNSET BEACH BRIDGE REPLACEMENT PROJECT NORTH CAROLINA TIP NO. B-682)

47	Secondary effects to the natural and physical environment would arise from associated direct and indirect land use effects. Section 4.1.1.3 addresses secondary land use impacts and suggests that the replacement of the existing bridge with a more reliable two-lane structure is not expected to greatly affect the rate and type of development at Sunset Beach. Accordingly, the anticipated secondary effects to the natural and physical environment that would be caused therefrom (e.g., from increased foot traffic, parking in undesignated areas, and others) would be limited in extent. The agencies' consensus was that when the safety, traffic, cost, and overall environmental effects were compared among alternatives, the least environmentally damaging practicable alternative to address the deficiencies of the Sunset Beach Bridge is the newly revised Alternative W1R. The concern of the SBTA members that more efficient travel would entice more day visitors and facilitate development on the island is valid; however, the minimum facility that meets the Federal and State design criteria is a two-lane facility, which is also what would be provided by the two-lane pontoon bridge or any two-lane replacement alternative.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201. RALEIGH. N.C. 27611-5201
March 23,1999

E. NORRIS TOLSON
SECRETARY

Mr. Barry Lentz
President
Sunset Beach Taxpayers Association
Post Office Box 6053
Sunset Beach, North Carolina 28470

Dear Mr. Lentz:

Thank you for your recent letter concerning the proposed replacement of Bridge No. 198 on SR 1172 over the Atlantic Intracoastal Waterway at Sunset Beach (TIP No. B-682).

The Department of Transportation has a responsibility to provide safe, efficient and effective transportation systems for citizens and the visitors to our state. It is also our responsibility to provide these systems without unduly compromising the economic vitality, the quality of life, and the natural environment of the communities they serve. We cannot accomplish either objective without thoroughly evaluating the impacts of all potential alternatives for a proposed project.

As I have indicated in previous letters, the department has determined the low-level bascule is not a reasonable and feasible alternative for the replacement of the existing pontoon bridge. The low-level (15-foot) bascule bridge requires frequent openings for the passage of watercraft. The mid-level bridge (30 to 35-feet) allows the majority of watercraft to pass unobstructed. The service for both road and watercraft users improves vastly with the mid-level bridge. In addition, the cost differential between the low-level and mid-level bascule bridges is small and the environmental impacts of the two alternates are similar. For these reasons, the low-level bascule bridge was eliminated from further consideration.

As part of our commitment to reconsider the mid-level bridge option, we are evaluating alternative locations for the bridge that will not disrupt the original town center. Once these studies are complete, I will schedule a meeting with the Sunset Beach Town Council and the Sunset Beach Taxpayers Association to review the findings. Together, I am confident we will reach a resolution that best serves the interest of the general public and the Sunset Beach community.

Again, I appreciate your taking the time to express your thoughts and concerns regarding this important highway project with me.

Sincerely,

E. Norris Tolson

ENT/wdg
cc: Louise F. McColl, Member, Board of Transportation

bc: Len A. Sanderson, P. E., State Highway Administrator
Donald R. Morton, P. E., Deputy Highway Administrator-Preconstruction
William D. Gilmore, P. E., Manager, PD&EA Branch

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID MCCOY
SECRETARY

August 31, 1999

The Board of Directors
Sunset Beach Taxpayers Association
Post Office Box 6053
Sunset Beach, North Carolina 28470

Dear Board of Directors:

During the past twenty years, the North Carolina Department of Transportation has conducted extensive engineering and environmental studies to identify the most reasonable and feasible alternative for the proposed replacement of the existing pontoon bridge over the Atlantic Intracoastal Waterway at Sunset Beach (TIP Project No. B-682). These studies included the evaluation of alternative bridge corridors and the analysis of several bridge types such as a high-rise, fixed-span and a mid-level bascule. During this time the department also conducted comprehensive public involvement and environmental agency coordination programs.

After careful consideration, based on the results of these studies and the input received from the coordination efforts, the Federal Highway Administration (FHWA) and the department have selected the high-rise, fixed-span bridge as the preferred alternative for the proposed action. The department proposes to incorporate into the bridge construction plan the eight conditions put forth in the Sunset Beach Taxpayers Association's June 4, 1999 letter, as appropriate and permissible by law.

The selection of the high-rise, fixed-span bridge was made, in part, for the following reasons:

- The high-rise, fixed-span bridge will allow unimpeded traffic flow along SR 1172 (Sunset Boulevard) and along the Atlantic Intracoastal Waterway.
- Emergency fire, police and rescue response times will be minimized by the uninhibited access, thereby enhancing public safety.
- The costs to the taxpayers of North Carolina for the high-rise, fixed-span bridge are significantly less than for the mid-level bascule bridge.

A more detailed discussion of the FHWA's and the department's analysis and recommendation is set forth in the Final Environmental Impact Statement and the Record of Decision.

As you are aware, the department reevaluated the mid-level bascule bridge alternative following publication of the Final Environmental Impact Statement because of concerns expressed by the Sunset Beach Taxpayers Association (SBTA). These concerns seemed to focus on the type and extent of development the proposed project would induce on the island. The SBTA endorsed the mid-level bascule bridge alternative, with eight conditions, in the belief that a bascule-type bridge which interrupted traffic flow to the island would discourage development incompatible with the "family atmosphere" of the beach. The department's analysis does not support this assessment. It is our conclusion that the type and extent of development that occurs on the island will not depend on whether a mid-level bascule bridge or a high-rise, fixed-span bridge is constructed, but on the commitment of the local government to maintain the existing ambiance of the community. However, we do support the SBTA's efforts to preserve the "family beach" atmosphere and have addressed these conditions in the project Record of Decision (ROD).

I appreciate the Sunset Beach Taxpayers Association's participation in the project planning process for this most important transportation project. I have enclosed a copy of the ROD for your review and comments. If you have questions or need additional information, please let me know.

Sincerely,

David McCoy

DM/wdg

Enclosure

cc: Joseph Stanley, Board of Transportation Member
Louise McColl, Board of Transportation Member
Cherry Cheek, Mayor of Sunset Beach

B-0682 Sunset Beach

OWNER NAME	ADDRESS2	CITY	STATE	ZIP CODE
1620 PROPERTIES LLC	8202 CATAWBA COVE DR	BELMONT	NC	28012
A B C BOARD	303 SUNSET BLVD	SUNSET BEACH	NC	28468
AACH JERRY ET JOANN	535 GREAT OAK CIRCLE	SUNSET BEACH	NC	28468
ABERNATHY TONY L & PATRICIA	5459 WHITING AVE	KANNAPOLIS	NC	28081
ACORN JOHN T ET MARGARET D	303 SOUTH MECHANIC STREET	PENDLETON	SC	29670
ADAMS BEVERLY J	409 FOREST DRIVE	GRAHAM	NC	27253
ADAMS DINA H	10400 SWIFT STRM PL #309	COLUMBIA	MD	21044
ADAMS JOSEPH F ET JUANITA	407 STOKES DRIVE	SUNSET BEACH	NC	28468
ADAMS ROBERT M TRUSTEES	PO BOX 171	N. MYRTLE BEACH	SC	29597
ADAMS W THAD III	1980 BRANDON CIR	CHARLOTTE	NC	28211
ADDINGTON BOBBY, MARJOYLYNE	1753 DOGWOOD HILL DRIVE	DENVER	NC	28037
ADKINS ROBERT WAYNE ET LORRAINE	1916 LONGWOOD AVE	SANFORD	NC	27330
AGNER DONALD R ET EVELYN W	823 DOGWOOD DRIVE	SUNSET BEACH	NC	28468
AGNIEL LUCIEN D JR ET KRISTI M	76 HUMBOLDT AVENUE	PROVIDENCE	RI	02906
AGOSTA-KOLB NANCYMARIE	104 SEDGMAN CT	CARY	NC	27511
AICHEL GEORGE ET ZELMA	PO BOX 2653	WISE	VA	24293
ALBERT KENNETH M ET ANNETTE	8250 BALLARD ROAD	COLFAX	NC	27235
ALDERSON PATRICK L ET KATHY C	134 WEST HILL TERRACE	PAINTED POST	NY	14870
ALDERSON ROBERT A ET LESLIE L	827 WINDSON RD	CUMBERLAND	MD	21502
ALDRICH JOSEPH D ET SUSAN	2120 VALENCIA TERRACE	CHARLOTTE	NC	28226
ALDRIDGE JAMES L ET LYNDA B	6214 POPLIN RD	INDIAN TRAIL	NC	28079
ALFARO JEANNE BONNER	PO BOX 1627	HENDERSON	TX	75653
ALLARD STEPHEN C	PO BOX 6444	SOUTH BRUNSWICK	NC	28470
ALLEN CHARLES A IV ET CINDY M	2233 WILMINGTON ROAD	FAYETTEVILLE	NC	28306
ALLEN NATHAN W ET WENDI M	6617 CENTER RD	BLADENBORO	NC	28320
ALLEN RAEFORD S ET RITA H	1719 DAVIS FARM RD	YORK	SC	29745
ALLEN ROBERT S SR ET MADELINE F	538 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
ALLEN WILLIAM T ET NANCY J	104 EAST MAIN STREET	SUNSET BEACH	NC	28468
ALLIGOOD GRAY & ET	1912 SIERRA DR	WILSON	NC	27896
ALLISON JOSEPH P ET CHRISTINE	1067 MCCRAY RD	BURLINGTON	NC	27217
ALLRED HAROLENE	185 OLD GASTON ROAD	PITTSBORO	NC	27312
ALLRED JOHN JR ESTATE	8804 MICHAUX LN	RICHMOND	VA	23229
ALMOND ANITA M & ET	36187 PICKLER RD	NEW LONDON	NC	28127
ALMOND LARRY JOE ET DONNA T	2500 BADIN RD	ALBEMARLE	NC	28001
ALTMAN DIANA L	12520 APPIN ROAD	LAURINBURG	NC	28352
ALVAREZ A MARIA A & SANDRA	214 OLDE OAK LN	SUNSET BEACH	NC	28468
ANDERSON BOB ET MARSHA	820 MAGNOLIA DRIVE	SUNSET BEACH	NC	28468
ANDERSON DOROTHY L	722 WEATHERGREEN DR	RALEIGH	NC	27615
ANDERSON HELEN H TRUSTEE	3810 PAYNE RD	HIGH POINT	NC	27265
ANDERSON JUANITA CALL	1744 BRUSHY MOUNTAIN RD	WILKESBORO	NC	28697
ANDERSON ROBERT W ET ANNE G	201 3RD ST SE SUITE 210	CEDAR RAPIDS	IA	52401
ANDREWS CHRISTOPHER & SHERYL	5111 LAKE SHORE DR	COLUMBIA	SC	29206
ANDREWS HAMLIN	3412 MILL RUN LANE	PFAFFTOWN	NC	27040
ANDREWS WALTER G ET JILL G	7001 HIGH OAKS DR	MATTHEWS	NC	28104
ANGEL PHILIP JR ET GLENDA S	111 ST ANDREWS DR	STONEVILLE	NC	27048
ANGLEY CLYDE R ET	PO BOX 7057	SHALLOTTE	NC	28470
ANLYAN J PETER ET HARRIETT A	912 ENGLEWOOD AVE	DURHAM	NC	27701
ANTHONY KENNETH & ANTHONY JERRA	4332 W BLITSGEL DR	FLORENCE	SC	29501
AREY MRKLEY L ET	6834VAN DE ROHE DR	CHARLOTTE	NC	28215
ARMFIELD LOIS R	925 NEW GARDEN RD #2208	GREENSBORO	NC	27410
ARMFIELD WILLIAM C SR	199A WIDEWATER DR	PROSPERITY	SC	29127
ARMSTRONG CHARLES A ET REBECCA	140 W WALNUT AVE	MOUNT HOLLY	NC	28120
ARNETTE JUDY G	219 LIVE OAK DR SW	SUNSET BEACH	NC	28468
ARNOLD ALTON N ET PHYLLIS S	5027 KITTRIDGE RD	MINT HILL	NC	28227
ARVIDSON ERIC P ET PATRICIA	405 SHORELINE DRIVE E	SUNSET BEACH	NC	28468
ASPY ROBERT M ET CAROL A	184 EDGEWATER CIRCLE	SUNSET BEACH	NC	28468
ATHARI DIANA I	530 TWISTED OAK LANE	SUNSET BEACH	NC	28468
ATKINSON TOMMY R ET ELIZABETH F	139 MAIN ST	CHESTERFIELD	SC	29709
ATLANTIC TELEPHONE CO	PO BOX 3198	SHALLOTTE	NC	28459
AUGUST ANITA E	279 HEATHER DRIVE	SUNSET BEACH	NC	28468
AUGUSTINE STEPHEN ET SUSAN L	12208 HICKORY KNOLL	MATTHEWS	NC	28105
AURESTO JOHN ET MARGARET	9 KELLY RIDGE RD	CARMEL	NY	10512
AUSTIN JERRY LYNN	101 DOUBLE L ROAD	ROCKINGHAM	NC	28379
BABB JAMIE L ET SAMANTHA D	715 LIVE OAK DRIVE	SUNSET BEACH	NC	28468
BAHAM JAMES A	529 SHORELINE DR EAST	SUNSET BEACH	NC	28468
BAILEY CHARLES THOMAS SR	PO BOX 82	SOUTHMONT	NC	27351
BAILEY LAWRENCE G ET	141 THE MASTERS	GEORGETOWN	KY	40324
BAILEY PAT BARKER	10413 NELAND ST	RALEIGH	NC	27614
BAILEY ROBERT A ET CATHI L	3704 HASTINGS COURT	WHITE PLAINS	MD	20695

BAKER FLORA COLLINS	2456 S HIGHWAY 41	MULLINS	SC	29574
BAKER FRANCIS E ET KAREN A	211 OLDE OAK LANE	SUNSET BEACH	NC	28468
BALDWIN PHILLIP & MORELLATO REMO	OSHAWA ONTARIO	CANADA L1K 2L3		
BALLARD RICHARD E ET RACHEL	166 SPRING WYATT DRIVE	GASTONIA	NC	28056
BARBER JAMES O ET LINDA B	103 SWAN QUARTER DRIVE	APEX	NC	27502
BARBER PAMELA MCKEITHAN	510 E HAMLET AVE	HAMLET	NC	28345
BAREFOOT SARA DUBOSE	1225 RUTLIDGE AVE	FLORENCE	SC	29505
BARKER DAN T JR ET KNOX DOUGLASS	3525 PRIMROSE AVENUE	GREENSBORO	NC	27408
BARKER DAN T TRUSTEE	2921 SKYE DR	FAYETTEVILLE	NC	28303
BARLOWE MARSHALL L	PO BOX 2337	LENOIR	NC	28645
BARNA GEORGE J	604 TRIANGLE CT	SUNSET BEACH	NC	28468
BARNES JANE E & MAUREEN B ROONEY	5 HIGHPOINT DRIVE	MOUNTAINSIDE	NJ	07092
BARNHILL DAVID BRYAN SR ET PATRICIA	308 DOGWOOD DR SW	SUNSET BEACH	NC	28468
BARNHILL JOSEPH M ET JOANN M	13480 OAKWOOD DRIVE	LAURINBURG	NC	28352
BARRETT HAROLD JR ET JOSIE M	3020 CUMBERLAND RD	FAYETTEVILLE	NC	28306
BARTLETT BRIAN	806 SALT MARSH STREET SW	SUNSET BEACH	NC	28468
BARTOSIK STEVEN T ET DIANE L	21 GATES RD	MIDDLETON	MA	01949
BARTRAM JOAN D ETVIR CHARLES E	300 SEA TRAIL DRIVE WEST	SUNSET BEACH	NC	28468
BASS GARY F III	418 33RD STREET	SUNSET BEACH	NC	28468
BASS JOHN H ET HAZEL L	21 NORTHFIELD RD	LUMBERTON	NC	28359
BATTON LYNETTE H	5014 WARREN SPRINGS CT	GREENSBORO	NC	27455
BAUCOM JAMES E ET MARY LEE	1311 COUNTRY CLUB DR	HIGH POINT	NC	27262
BAUER LINDA EVANS	504 SHORELINE DRIVE E	SUNSET BEACH	NC	28468
BAUER WILLIAM L TRUST	9302 KINGS RD	MYRTLE BEACH	SC	29577
BAUGHMAN ALVIN F ET CATHY A	109 SHUMPERT RD	WEST COLUMBIA	SC	29169
BAUMAN SCOTT J ET CHRISTINE I	1840 TALLGRASS CIR	WAUKESHA	WI	53188
BAXLEY DAVID F ET MERLE	702 SHORELINE DR E	SUNSET BEACH	NC	28468
BAXTER JOHN DATHEY ET JOYCE R	609 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
BAZEMORE J W ET ET	818 CHESTER RD	WINSTON-SALEM	NC	27104
BEALL JAMES HARPER III	405 STONECRAFT DR	LENOIR	NC	28645
BEAM KENNI BEA AND CATHEY BEAM CRAF	PO BOX 61956	FT MYERS	FL	33906
BEAMAN BOBBY F ET SANDY R	32224 LATON RD	ALBEMARLE	NC	28001
BEAMON JAMES W ET BRENDA S	109 LOCKFIELD DR	CLAYTON	NC	27520
BEAMON MARIANNE E & CHRISTINA	PO BOX 1403	NORTH WILKESBORO	NC	28659
BEARD MICHAEL DWAYNE & ET	409 16TH STREET	SUNSET BEACH	NC	28468
BEATTIE ANN M	35 RADCLIFF DRIVE	SUMTER	SC	29150
BEAUPREZ DOROTHY M	1406 SAWGRASS CT	BOWLING GREEN	OH	43402
BECK ALBERT WEBSTER	51 O'DONALD RD	ASHEVILLE	NC	28806
BECKHAM LEE BARNES ET ANNE	1635 LOVE RD	CLOVER	SC	29710
BEEKHUIS AREND G AND	495 GREAT OAKS CIRCLE SW	SUNSET BEACH	NC	28468
BEIRNE KEVIN F ET LUCY M	722 GARFIELD ST	FRANKLIN SQUARE	NY	11010
BELK DONALD R JR ET SHERYL W	575 BELK RD	MT ULLA	NC	28125
BELK JOHN A ET JENNY C	529 MAGNOLIA DRIVE SW	SUNSET BEACH	NC	28468
BELL ROBERT W ET SANDRA	421 FOURTH ST	SUNSET BEACH	NC	28468
BEMAN KENNETH VERNE JR ET	8444 COULWOOD OAKS LANE	CHARLOTTE	NC	28214
BENDELL C T	3754 WYNTUCK CIRCLE	KENNESAW	GA	30152
BENES WALTER G ET MARY	523 SHORELINE DRIVE EAST	SUNSET BEACH	NC	28468
BENFIELD JEFFREY ET ET	PO BOX 224	FALLSTON	NC	28042
BENNETT VERNON D	1127 WEST HENDERSON ST	SALISBURY	NC	28145
BENOIT JOSEPH O ET PAULA I	61 PAINTED POINT RD	PHIPPSBURG	ME	04562
BENSINGER DOUGLAS L ET MARILYN K	1808 BONNIBE CT	RALEIGH	NC	27612
BENTLEY ALICIA KAYE	PO BOX 2772	SHALLOTTE	NC	28459
BENTON J L & ET	1097 CRAWFISH ROAD	RURAL RETREAT	VA	24368
BENTON MARK D ET JANET L	3 TONI DRIVE	NEW EGYPT	NJ	08533
BENTON RONALD WL ET SALLY A	87 PINECREST DRIVE	THOUSAND OAKS	CA	91361
BERG LOUIS S ET EVELYN B	419 28TH STREET	SUNSET BEACH	NC	28468
BERGEN JOHN D ET LINDA L	1789 WRIGHTSTOWN DR	NEWTOWN	PA	18940
BERGIN JOHN DALY & TERESA TRUSTEES	9005 W SAHARA AVE	LAS VEGAS	NV	89117
BERGIN JOHN J ET	830 WEST BAY DR	WEST ISLIP	NY	11795
BERNARD M LESLIE ET MILDRED	727 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
BERRY JERRY A ET ET	452 HEMINGFORD GREY	FT MILL	SC	29715
BERRYMAN ROBERT D ET SUZANNE	406 39TH STREET	SUNSET BEACH	NC	28468
BEYERSDORFER GERALD L ET PATRICIA L	1974 10TH STREET PLACE NW	HICKORY	NC	28601
BIDDLE DANIEL FRANCIS ETAL	404 PRINCE ST	LAURINBURG	NC	28352
BIGGERS MICHAEL D ET BETSY B	8030 ROCKY RIVER RD	HARRISBURG	NC	28075
BILLIAR RICHARD T ET CATHERINE	660 KINGS TRAIL	SUNSET BEACH	NC	28468
BILLIG JON ET JULIE	7130 LYNBROOK CREEK	DENVER	NC	28037
BING RUPERT C ET BARBARA A	700 FAIRWAY DR EAST	SUNSET BEACH	NC	28468
BIRD ISLAND BOYS LLC	412 GLASGOW RD	CARY	NC	27511
BITTING H BRIAN ET CAROLINE	2796 KUTZTOWN ROAD	EAST GREENVILLE	PA	18041
BLACK JOHN A ET CHRISTINE S	919 GREENWOOD DR	GREENSBORO	NC	27410

BLACK S JEROME JR	1123 NEW SALEM RD	MONROE	NC	28110
BLACKSTOCK DANIEL M ET GLORIA J	319 EAST LOCHHAVEN DRIVE	FAYETTEVILLE	NC	28314
BLAINE BRIAN ET KATHLEEN A	726 LONGLEAF DR	SUNSET BEACH	NC	28468
BLAKE IRVIN E	2377 NORTH US HWY 220	ELERBE	NC	28338
BLAKER JONATHAN D	506 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
BLAKLEY LAWRENCE H ET GLENDA	303 HATHER ROAD	ROCKINGHAM	NC	28379
BLALOCK BRENDA M ET JIMMIE R	127 PICCADILLY DR	WINSTON-SALEM	NC	27104
BLALOCK JERRY R ET & JOHN MICHAEL	614 BRIDGES DR	KINGS MOUNTAIN	NC	28086
BLANCHARD STEPHEN R ET KAREN D	1795 TAYLORS CREEK DR	ASHEBORO	NC	27203
BLAND BEVERLY ETVIR MARION HAMRICK	563 FOXFIRE TRACE	PITTSBORO	NC	27312
BLAND RONALD K ET ASHLEY	215 SHORELINE DR	SUNSET BEACH	NC	28468
BLANDA JAMES & MARIE V BLANDA	684 FAIRWAY DRIVE E	SUNSET BEACH	NC	28468
BLANKENSHIP CHARLES R ET CYNTHIA	419 WATER OAK WYND	SUNSET BEACH	NC	28468
BLASER DALE L ET VIRGINIA C	4450 HAMBURG MILL RD	SUMMERFIELD	NC	27358
BLOSS DONALD L ET PANSY JOAN	1811 WHITE OAK DRIVE	CHARLESTON	WV	25320
BLUMENTHAL ROBERT S ET MICHELLE R	8828 OAKHAM ST	HUNTERSVILLE	NC	28078
BODDIE GRACE C	3636 HOPE VALLEY RD	DURHAM	NC	27707
BODNER RICHARD G ET KATHRYN	631 KINGS TRAIL	SUNSET BEACH	NC	28468
BOEHMER ROBERT & ANNIE	1129 INDIGO CIRCLE	SUNSET BEACH	NC	28468
BOKELMAN GORDON H ET E ANN	4406 MOREHOUSE TERRACE	CHESTERFIELD	VA	23832
BOLAND RICHARD L	714 WATERWAY DR	SUNSET BEACH	NC	28468
BOLEN ANN G	205 AZALEA CIR	SUNSET BEACH	NC	28468
BOLES JOHN R ET GAYLE P	2025 STALLINGS ROAD	MATTHEWS	NC	28105
BOLICK NORMAN C & DAVID COOPER	112 WOODBINE TERRACE	MORGANTON	NC	28655
BOLICK STEVE C ET KAREN S	8205 FAIRFIELD FOREST RD	DENVER	NC	28037
BOLLINGER ELLIOTT L & BRENDA C	1878 MT HOLLY DRIVE	ROCK HILL	SC	29730
BOND S ANDREW ET YVONNE M	3617 BEAVER FORD ROAD	WOOD BRIDGE	VA	22191
BOONE SAMUEL L ET IRENE F	515 DOGWOOD DR SW	SUNSET BEACH	NC	28468
BOROUGHS LEWIS E	6100 W FRIENDLY AVE	GREENSBORO	NC	27410
BOSHER ANNE A	3 COURT 9 SW	CAROLINA SHORES	NC	28467
BOSTIAN HOYLE S	9282 WHISPER PARK DR SW	CALABASH	NC	28467
BOSTIC DORIS F ETVIR JAMES B	8221 RIVERMONT DRIVE	CLEMMONS	NC	27012
BOSWELL CLARISSA JO	3339 MIDWAY DRIVE	WHITEVILLE	NC	28472
BOSWELL GENE R TRUSTEE ETAL	7705 MILL POND LANE	WAXHAW	NC	28173
BOUCHILLON RANDALL E	419 31ST STREET	SUNSET BEACH	NC	28468
BOULWARE TREZ M ET MARYANN	110 BROOKWOOD FOREST DR	BLYTHEWOOD	SC	29016
BOURGEOIS GEORGE H ET JUANITA	279 FREEMAN MILL ROAD	HAMLET	NC	28345
BOWEN EDGAR JR ET & EUGENIA WINN	1220 LITTLE LAKE HILL RD	RALEIGH	NC	27607
BOWEN INVESTMENTS	306 CROOKED GULLEY CIRCLE	SUNSET BEACH	NC	28468
BOWEN JAMES C L	304 NORTH SHORE SE	SUNSET BEACH	NC	28468
BOWERS JOHN M	16075 BETHEL CHURCH RD	OAKBORO	NC	28129
BOWLING J EARL ET BEVERLY B	8180 CARNOSTIC DR	LAURENBURG	NC	28352
BOWLING RANDALL A & ET	6607 STONEHILL DR	SAN JOSE	CA	95120
BOYD WILLIS R JR & MARTHA LIVING TR	PO BOX 206	LAKE JUNALUSKA	NC	28745
BRADDY MARVIN B	230 CROOKED GULLEY CIR	SUNSET BEACH	NC	28468
BRADFORD WILLIAM W ET MARGARET	380 DEVEREAUX CT	KENNESAW	GA	30144
BRADT RUMEL A	268 HEATHER DRIVE	SUNSET BEACH	NC	28468
BRAMMER OTIS JASON (LT)	2617 BECKERDITE RD	SOPHIA	NC	27350
BRANCH STEVEN R ET LINDA R	2758 OLD WHITEVILLE ROAD	LUMBERTON	NC	28358
BRAND FRANK J II	616 FAIRWAY DRIVE	FLORENCE	SC	29501
BRANTLEY JEFFREY G	1109 HUNTSMAN DR	DURHAM	NC	27713
BRAVO LUCIANO ET MARIE MARQUES	15101 GRAVENHURST TERRACE	NORTH POTOMAC	MD	20878
BRECHEISEN RANDOLPH G ET SYLVIA W	300 TELLURIDE TRAIL	CHAPEL HILL	NC	27514
BREESE SUSAN BRADLEY ET BRADLEY RIC	423 FAIRWAY DRIVE	WAYNESVILLE	NC	28786
BREK LLC	2530 JAMES B WHITE HWY N	WHITEVILLE	NC	28472
BRENNAN MARGARET D	701 FAIRWAY DR E	SUNSET BEACH	NC	28468
BRENNAN PATRICK ET EILEEN	2117 HIDDENBROOK DRIVE	BELMAR	NJ	07719
BREWER JAMES W ET RUBY	320 TARRIGART DRIVE	MOORE	SC	29369
BRIDGER HERBERT L ET JEAN	3101 LINKSLAND RD	MOUNT PLEASANT	SC	29464
BRIDGERS KENNETH K ET JACQUELINE	405 SEA TRAIL DR SW	SUNSET BEACH	NC	28468
BRIGGS CLINTON S ET DEBRA H	153 WOLFE TRAIL	GREENSBORO	NC	27406
BRIGMAN GEORGE MITCHELL ET BRENDA S	2523 TALL PINES LANE	MATTHEWS	NC	28105
BRINEGAR WILBURN M ET SANDRA L	687 FAIRWAY DRIVE EAST	SUNSET BEACH	NC	28468
BRISSON DOMINIQUE K ETVIR JAMES	931 WYNDFALL DRIVE SW	SUNSET BEACH	NC	28468
BRITT M JOHNSON ET MYRTLE H	2383 COLLINS DR	LUMBERTON	NC	28358
BRITT MARY E & CAPPS K J& SMITH B P	209 FLORENCE RD	STATESVILLE	NC	28625
BRODERICK P D ET H L SMITH	PO BOX 4723	CARY	NC	27519
BROOKS CALVIN TEAL	15902 HWY 218	INDIAN TRAIL	NC	28079
BROOKS HUBERT GENE ET SHERRY B	1408 16TH AVE NE	HICKORY	NC	28601
BROOKS JERRY N ET MILLICENT P	819 KAY ST NE	LENOIR	NC	28645
BROUSSARD BRADLEY J ET MARIA C	157 ELLERSLIE DRIVE	FAYETTEVILLE	NC	28303

BROWDER EDWARD H ET JUDITH H	208 BROWDER RD	KING	NC	27021
BROWN BOBBY L ET GLORIA F	8033 HICKORY DRIVE	CHARLOTTE	NC	28215
BROWN CHARLES D	1401 STONE AVENUE	KANNAPOLIS	NC	28083
BROWN DEBRA A	4355 BALDWIN AVENUE	LITTLE RIVER	SC	29566
BROWN J RICHARD	3037 WYNTREE RIDGE WAY	RALEIGH	NC	27606
BROWN JOE E JR ET MARGRETTE ET	103 OLD ARMORY COURT	LEXINGTON	SC	29072
BROWN KENNETH C ET DRUSILLA M	6421 SEAMAN RD	OREGON	OH	43618
BROWN OWEN A ET JO ANN S	1311 VIRGINIA AVE	EDEN	NC	27288
BROWN VINCENT M III ET MARY K	607 JASMINE LN	SUNSET BEACH	NC	28468
BROWNING OLA B ET GLORIA I	PO BOX 445	CHAPMANVILLE	WV	25508
BROWNSTEIN ARNOLD	201 OLDE OAK LN	SUNSET BEACH	NC	28468
BRUBAKER DALE L ET BARBAR	1812 TIFFANY PL	GREENSBORO	NC	27408
BRUCE JAMES D	9319 CONCORD HWY	INDIAN TRAIL	NC	28079
BRUMMETT PAUL MOSS	PO BOX 6152	SUNSET BEACH	NC	28468
BRUNSWICK ELECTRIC MEM CORP	PO BOX 826	SHALLOTTE	NC	28459
BRUNTON VICKY ANN	2979 EBB TIDE LANE	SUPPLY	NC	28462
BRYAN BONNIE K	525 GREAT OAK CIRCLE	SUNSET BEACH	NC	28468
BRYAN KENNETH M	103 RIPPLEWATER LN	CARY	NC	27511
BRYAN ROBERT A ET JACQUELYN	9731 DUFFER WAY	MONTGOMERY VILLAGE	MD	20886
BRYANT FLOYD S ET SANDRA R	152 WHISPERING PINES DR	HUDSON	NC	28638
BRYANT JAMES ROBERT ET SARA R	1339 PHILBECK RD	YORK	SC	29749
BRYANT MICHAEL PHILLIP	4007 BURLINGTON ROAD	GREENSBORO	NC	27405
BUCKLAND L GLENN ET DONNA C	1719 CLARENDON DR	GREENSBORO	NC	27410
BUFFKIN MILDRED	319 LIVE OAK DR SW	SUNSET BEACH	NC	28468
BUIE RODERICK J ET CAMILLA S	5935 CREOLA RD	CHARLOTTE	NC	28270
BULLOCK ROY NICHOLAS ET CAROLYN	209 BULLOCK DRIVE	ALBEMARLE	NC	28001
BUMGARNER TOMMY J ET DONNA D	5309 HICKORY GROVE ROAD	STANLEY	NC	28164
BUNCE WILLIAM D ET	PO BOX 58115	FAYETTEVILLE	NC	28305
BURBANK JERALD M ET ELIZABETH J	216 TRAVIS LANE	GIBSONVILLE	NC	27249
BURFEINDT JOHN H ET ETHEL JOAN	171 EVERETT PLACE	ENGLEWOOD	NJ	07631
BURGER ROBERT J ET SUSAN M	13224 LITTLE ANTIETAM RD	HAGERSTOWN	MD	21742
BURGESS JOSEPH MICHIEL ET DONNA	6602 BURLINGTON ROAD	WHITSETT	NC	27377
BURKE GREGORY D ET JANICE T	8505 RIDDLE PLACE	RALEIGH	NC	27615
BURNETT JOSEPHINE C	1508 MARSHALL FARM STREET	WAKE FOREST	NC	27587
BURNETTE HERMAN ET ROSEMARY	5900 GREYFIELD DR	MONROE	NC	28110
BURNETTE LYNDA F & JOY F WADE	531 GLOVENIA ST	EDEN	NC	27288
BURRIS C W III ET ARDENA J	110 ST ANDREWS ROAD	STONEVILLE	NC	27048
BURRIS CLYDE W JR ET KYONGSOOK S	PO BOX 84	MADISON	NC	27205
BURRIS JAMES ALAN ET GAIL C	37020 TERCHER RD	NEW LONDON	NC	28127
BURRIS PEGGY LOWDER	24542 ST MARTIN ROAD	ALBEMARLE	NC	28001
BURROUGHS GORDON TRENT	200 FOWLER ST	TABOR CITY	NC	28463
BURTON WILLIAM C ET LINDALYN A	11808 EDGEWATER COURT	RALEIGH	NC	27614
BUSCHE JOHN C IV ET CHRISTINE	6 SANDY DR	MORRISVILLE	PA	19067
BUTLER ERNEST J ET FRANKIE B	PO BOX 1023	WELCOME	NC	27374
BUTLER STEVEN L ET VIRGINIA K	3706 E NORTH ST APT K1	GREENVILLE	SC	29615
BUTTS MELVIN S ET HILDA B	610 DARROCH ROAD	BUNNLEVEL	NC	28323
BUZZARD WILLIAM H	526 LIVE OAK DRIVE SW	SUNSET BEACH	NC	28468
BUZZELL MARK E ET JUDITH A	238 LIVE OAK DRIVE	SUNSET BEACH	NC	28468
BYERLY ELIZABETH C TRUSTEE	2130 SHELFIELD DR	CARMICHAEL	CA	95608
CADE ERVIN M	PO BOX 53114	FAYETTEVILLE	NC	28305
CAGLE CONRAD G ET FAYE C	1200 BRAFFORD DR	CONCORD	NC	28025
CAIAFA JOSEPH ET ANNE MARIE	20 VAN BUREN AVE	CRANFORD	NJ	07016
CAIN JOHN F ET JANE K	272 HEATHER DR	SUNSET BEACH	NC	28468
CAIN KEITH D	925 NEW GARDEN RD #904	GREENSBORO	NC	27410
CAIN SAMUEL E JR	1106 MARY LANE	WHITEVILLE	NC	28472
CAIN SAMUEL ERNEST SR ET DOROTHY	354 GOLF COURSE ROAD	WHITEVILLE	NC	28472
CAISON SHELDON KEITH	709 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
CALHOUN JOHN C ET MARGIE A	1115 JAPONICA LN SW	SUNSET BEACH	NC	28468
CALLAGHAN MARGARET S	633 MAGNOLIA DRIVE	SUNSET BEACH	NC	28468
CALLAGHAN RICHARD J ET DIANA M	900 TADLOCK DR	RALEIGH	NC	27614
CALLICUTT J CHARLES & ET	4805 LAUREL OAKS DR	GREENSBORO	NC	27406
CALLOWAY STEPHEN M ET CATHY B	112 BIRKHAVEN DRIVE	CARY	NC	27511
CAMBRIA ALFRED ET DOROTHY	729 E FAIRWAY DR	SUNSET BEACH	NC	28468
CAMPBELL RANDY RAY ET DONNA LYNN	5845 HOOVER ELMORE RD	LINCOLNTON	NC	28092
CAMPELL MARVIN A	1302 COBBS MTN ROAD	BEDFORD	VA	24523
CANADY ANNA MARIE	240 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
CANALVIEW PARTNERSHIP	511 OLD PELZER RD	PIEDMONT	SC	29673
CANDELA GIULIO ET SALLY C	527 GREAT OAK CR	SUNSET BEACH	NC	28468
CANNIZZARO DOREEN E	39 GRAND OFFENBACH STREET	CENTEREACH	NY	11720
CANNON DOROTHY S	PO BOX 6482	SOUTH BRUNSWICK	NC	28470
CARELOCK CROMER L ET GLADYS	121 BAUCOM DEESE RD	MONROE	NC	28110

CARINCI ERNESTINE M	6507 WAKEHURST ROAD	CHARLOTTE	NC	28226
CARLYE RONNIE M	PO BOX 6642	SUNSET BEACH	NC	28468
CARNEY DAVID A & ET	12230 CARROLL MILL ROAD	ELLICOTT CITY	MD	21042
CAROLINA DREAMS GOLF LLC	18-3 CAUSEWAY DRIVE SW	OCEAN ISLE BEACH	NC	28469
CAROLINA SWEETWATER LTD	115 41ST STREET	PITTSBURG	PA	15201
CARPINELLO JOSEPH D ET JANE M	690 FAIRWAY DR EAST	SUNSET BEACH	NC	28468
CARRAS GEORGE G ET CONSTANCE	4133 MONTIBELLO DR	CHARLOTTE	NC	28226
CARRICK KENNETH D JR & ET	7101 CHADWYCK FARMS DR	CHARLOTTE	NC	28226
CARROLL BRUCE E ET JACQUELINE	10234 RALEIGH TAVERN LN	ELLICOTT CITY	MD	21042
CARROLL JAMES R ET ANN TRUST	2409 LEESMOOR LN	FORT WAYNE	IN	46808
CARROLL JOHN DEWITT JR	5173 NICOLE ROAD	KERNERSVILLE	NC	27284
CARROLL MAE T	819 GUILFORD COLLEGE ROAD	GREENSBORO	NC	27409
CARTER FRANK G ET TANIA K	460 EDEN RD	STONEVILLE	NC	27048
CARTER JERRY DELANE ET NEDA R	PO BOX 6283	SO BRUNSWICK	NC	28470
CARTER JOSEPH W AND RICHARD M	101 ROCKINGHAM ROAD	GREENVILLE	SC	29615
CARTER PEGGY H	204 ROCKCREST ROAD	FAYETTEVILLE	NC	28311
CARTWRIGHT JEANNE E GRAHAM	207 SHORELINE DRIVE	SHALLOTTE	NC	28459
CATE TIMOTHY NELSON ET JANET S	405 N SHORE DRIVE	SUNSET BEACH	NC	28468
CATHEY JOSEPH H JR ET PEGGY	9086 HERITAGE DR	CALABASH	NC	28467
CAUDLE D WOODROW ET KATHY G	319 PINE TRAIL	HENDERSON	NC	27536
CC & FT OLDHAM LLC	1276 OLD LYSTRA ROAD	CHAPEL HILL	NC	27517
CECILS FOLLY	219 ININGLASS LN	OWINGS MILLS	MD	21117
CHADWICK D GREG	130 PROVIDENCE ROAD	CHARLOTTE	NC	28207
CHADWICK DEBORAH & GARY POPE	310 E FIRST ST	OCEAN ISLE BEACH	NC	28469
CHADWICK KELLY A ET ANNE	149 STERLING POINT CT	WINSTON SALEM	NC	27104
CHAFFIN WILLIAM H SR & DARLENE C	241 MAGNOLIA DR	SUNSET BEACH	NC	28468
CHANCE ALAN ROBERT ET KENAN WALTERS	778 OLD WHITEVILLE ROAD	LUMBERTON	NC	28358
CHANEY DAVID ET	1391 BROOKGREEN DR	MYRTLE BEACH	SC	29577
CHAO NELSON J ET NORMA L POULSEN-CH	848 PINEHURST DRIVE	CHAPEL HILL	NC	27517
CHEEK HAROLD L ET BETTY L	1725 DEEP CREEK CHURCH RD	BURLINGTON	NC	27217
CHEEK MABEL R & MURRAY BECKY C	1231 SHAMROCK DR	BURLINGTON	NC	27215
CHERRY JASPER L ET MARY F	PO BOX 245	NEWLAND	NC	28657
CHILDERS RALPH R ET MARY LOUISE	106 PARK ROAD	MT HOLLY	NC	28120
CHILDRES RICHARD S	549 WALKER STREET	ELLENBORO	NC	28040
CHILDRES ROBERT S ET SONDRA H	549 WALKER STORE RD	ELLENBORO	NC	28040
CHINNIS KATHLEEN W ET	11 SUNFISH POINT	GREENSBORO	NC	27455
CHITLA JOHN D ET DOREELIN M	726 WATERWAY DRIVE SW	SUNSET BEACH	NC	28468
CHONKO ROBERT J ET ROSEMARY	1770 PRICE DR	FARMVILLE	VA	23901
CHRISTENBURY NORMAN R ET JULIA B	156 LIN-MAR DRIVE	STANLEY	NC	28164
CHRISTIAN DONALD C ET DOROTHY G	4916 REGALWOOD DR	RALEIGH	NC	27613
CHURCH CAROL H	515 SHORELINE DR EAST	SUNSET BEACH	NC	28468
CHURCH PAMELA B & ET	3711 CAMBRIDGE ROAD	DURHAM	NC	27705
CLARK ALTON THEODORE JR ET JAMIE	630 DOGWOOD DRIVE	SUNSET BEACH	NC	28468
CLARK LEON E ET WANDA A	343 NICHOLSON RD	ROCKINGHAM	NC	28379
CLARK ROGERS HOWELL JR & MICHAEL PE	PO BOX 953	ELIZABETHTOWN	NC	28337
CLARK WILLIAM S DR ET PEGGY S	706 CRAVEN STREET	NEW BERN	NC	28560
CLAY ALLEN ET ET	901 RIDGEWOOD DR N E	LENOIR	NC	28645
CLAYTON BILLY M ET CONCEPTA A	1413 INLET STREET	SUNSET BEACH	NC	28468
CLEGG WILLIAM R ET NEILL	4203 HENDERSON RD	GREENSBORO	NC	27410
CLEVELAND III LIVING TRUST ET	1501 WARWICK WAY	CONYERS	GA	30013
CLINE GAITHER D & BARBARA B	1218 MONROE DRIVE	GASTONIA	NC	28054
CLINE RONALD EUGENE ET SUSAN C	3220 CONCORD PWY.SOUTH	CONCORD	NC	28027
CLOANINGER WILLIAM G	13930 IDLEWILD RD	MATTHEWS	NC	28105
CLUB VILLAS HOMEOWNERS ASSOC INC	PO BOX 280	NORTH MYRTLE BEACH	SC	29582
COASTAL COTTAGES LLC	1008 NORTH SHORE DRIVE	SUNSET BEACH	NC	28468
COBLE DARRELL ET THERESA	18862 HURLEY ROAD	OAKBORO	NC	28129
COGBILL JOHN ET JANET	11780 BOLLINGBROOK DR	RICHMOND	VA	23219
COGGINS MERRY LYNN	1014 DURHAM AVE SW	CALABASH	NC	28467
COGGINS TIMOTHY L ET HAZEL L	7003 W GRACE STREET	RICHMOND	VA	23226
COLE DONALD W ET LAURA M	237 OVERBY RD	HUNTINGTON	WV	25704
COLE GENEVIEVE LOWRY	3825 SOMERSET DRIVE	DURHAM	NC	27707
COLE HAROLD D JR	1915 PATY DR	JOHNSON CITY	TN	37604
COLE NORMAN F	404 29TH STREET	SUNSET BEACH	NC	28468
COLEMAN CAROL A	PO BOX 452	WILMINGTON	NC	28402
COLLINS DANIEL ET LYNN	3720 BERKLEYLANE	LUMBERTON	NC	28358
COLLINS JAMES F ET DANNA	886 PAYNE COURT	SUNNYVALE	CA	94087
COLLINS MARGARET M	504 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
COLLINS T JAY ET MAXANN S	1 EATON COURT	HOUSTON	TX	77024
COMBS BOBBY EUGENE ET GLENNA K	500 FAIRWAY DR W	SUNSET BEACH	NC	28468
COMBS THOMAS R ET	3974 WILCOXSON DRIVE	FAIRFAX	VA	22031
CONAWAY CONSTANCE E	639 KINGS TRAIL	SUNSET BEACH	NC	28468

CONDON BRENDAN	40 SWEETBIAR TRAIL	HOWELL	NJ	07731
CONLEY KENNETH E ET MARY	3308 MIKELYNN LANE	MATTHEWS	NC	28105
CONNELL JAMES E ET BETTY T	4308 WHISPERING OAKS DR	CHARLOTTE	NC	28213
CONNERS PETER R ET LEE	673 KINGS TRAIL	SUNSET BEACH	NC	28465
CONNOR WILLIAM R ET JOANN J	310 SEA TRAIL DR W	SUNSET BEACH	NC	28468
CONRAD DAVID P	7010 CHAFTAIN PLACE	GREENSBORO	NC	27410
CONTINENTAL CONDOMINIUM ASSO INC	431 S SUNSET BLVD	SUNSET BEACH	NC	28468
COOK SYLVESTER L ET GAIL M	208 WILSON STREET	EDEN	NC	27288
COOK TERRY W	607 LIVE OAK DRIVE SW	SUNSET BEACH	NC	28468
COOPER JOSEPH LEON	228 MAGNOLIA DR SW	SUNSET BEACH	NC	28470
COOPER STACY S & DEBORAH A & ET	1406 WEDGEFIELD DRIVE	ROCK HILL	SC	29732
COPELAND CHARLES JR ET DOROTHY H	412 CEDAR HILL LANE	RALEIGH	NC	27609
COPELAND STEPHEN B ET KATHLEEN D	307 STONECUTTERS COVE	STOCKBRIDGE	GA	30281
CORBETT JOHN F JR ET CAROL A	7106 FRESHAIRE DRIVE	SPRINGFIELD	VA	22153
COREY RICHARD A. ET MARYANN M	102 MANSFIELD RD	ASHFORD	CT	06278
CORNWELL MICHAEL S	7640 ABINGTON DR	KERNERSVILLE	NC	27284
CORRELL EDITH C TRUSTEE	204 AZALEA CIRCLE SW	SUNSET BEACH	NC	28468
CORRIHER MITCHELL B JR ET NAN	4516 WENCHELSEA PLACE	RALEIGH	NC	27612
CORTES MARY A	PO BOX 10	SHALLOTTE	NC	28459
COSGROVE JOSEPH	405 3RD STREET	SUNSET BEACH	NC	28468
COSGROVE RICHARD S	1147 SKYLINE DRIVE	NEW LONDON	NC	28127
COSTELLO THOMAS J ET SHEILA	450 BENT CREEK TRAIL	KERNERSVILLE	NC	27284
COSTIN JOHN WILLIAM	1115 OFFSHORE DR	FAYETTEVILLE	NC	28301
COSTIN WILLIAM EARL ET GLORIA L	2008 COLONIAL LANE	HICKORY	NC	28601
COTTINGHAM DAVID G ET LYNDA B	1307 HILLSIDE DR	DILLON	SC	29536
COUNCIL SHELIA WOOD & REBECCA CROWE	9142 BURNEY ROAD	WHITE OAK	NC	28399
COWLES ROBERT J ET BETTE M	2680 INDIAN LAKE DR	MARIETTA	GA	30062
COX AMOS DANIEL ET	1409 KNIGHTWOOD DR	GREENSBORO	NC	27410
COX DALE ET JACKIE	517 TWISTED OAK LANE	SUNSET BEACH	NC	28468
COX JEAN M	PO BOX 536	SHALLOTTE	NC	28459
COX MARK E ET MARY LEBBY	4516 MOSSHILL	COLUMBIA	SC	29206
COX MILDRED G & JOHN L GILES	1122 PARK RD SW	SUNSET BEACH	NC	28468
COX MONTE R ET FRANCES H	218 LIVEOAK DR SW	SUNSET BEACH	NC	28468
COX PAUL C ET BARBARA A	531 MAGNOLIA DRIVE	SUNSET BEACH	NC	28468
COX RONNY ET VIRGINIA L	PO BOX 264	BROOKNEAL	VA	24528
COYLE G F III - TRUSTEE	4492 CONESTOGA TRAIL	ACKRON	OH	44321
CRABTREE ALBERT E ET	3949 BRINTON PL	CHARLOTTE	NC	28266
CRABTREE FAMILY TRUST	1468 TYNDALL ST	HAW RIVER	NC	27258
CRADDOCK RONALD A ET VILMA	2010 SHARPE RD	GREENSBORO	NC	27406
CRADDOCK VIVIAN	723 CIRCLE DRIVE	EDEN	NC	27288
CRAIG BOBBY R ET VIVIAN M	574 KAREN DR	ROCK HILL	SC	29730
CRAIG JAMES A JR & MARY CO-TRUSTEES	264 BALFOUR DR	WINTER PARK	FL	32792
CRAVEN MARIE J	815 MCLEAN DRIVE	DILLON	SC	29536
CRAWFORD THOMAS A SR & MAUDE B	1519 EAST HWY 55	CLOVER	SC	29710
CREECH CAROLYN TEDDER	5725 WOODCREST DRIVE	RALEIGH	NC	27603
CREWS LENNIE G ET SALLY W	7151 MT. RD	HALIFAX	VA	24558
CREWS WADE A ET MARY P	2548 W MOUNTAIN ST	KERNERSVILLE	NC	27284
CRIBBS LARRY M ET SANDRA	PO BOX 516	SOPHIA	NC	27350
CRIM LARRY ET JACKIE	409 WATEROAK WYND SW	SUNSET BEACH	NC	28468
CRIPE BERNARD D ET KAREN B	1601 BUDWOOD DRIVE	RALEIGH	NC	27609
CRISP JAMES O	PO BOX 1109	FRANKLIN	VA	23851
CRISWELL WILLIE L ET DELORES M	528 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
CROOM DALLAS KEVIN & MCINTYRE M S	109 HALEY HOUSE LANE	APEX	NC	27502
CROUCH BOYCE H ET JUANITA S	1118 JAPONICA LANE	SUNSET BEACH	NC	28468
CROUCH ROBERT L ET DEBORAH H	366 ANDERSON RD	EDEN	NC	27288
CROUTHAMEL JAMES L	PO BOX 7573	SHALLOTTE	NC	28470
CRUMP CAROL	PO BOX 767	HUDSON	NC	28638
CRUMP RONALD W ET JANET M	PO BOX 1392	MORGANTON	NC	28655
CRUTCHFIELD CHARLES M ET PAMALA	RR 6 BOX 253 C	FAIRMONT	WV	26554
CRUTCHFIELD JAMES K ET DIANA H	100 HUNTERS RIDGE	WHEELING	WV	26003
CSEH JOHN T ET JENNIFER	2730 CHADWICK CT	WESTLAKE	OH	44145
CUELLAR KRISTINA W	23914 33RD DR SE	BOTHELL	WA	98021
CULLEN JAMES M ET ANNE B	11322 BARONIA PLACE	CHARLOTTE	NC	28277
CULLER RICHARD B JR & ET	3612 BREMERTON DR	RICHMOND	VA	23233
CUNDIFF MARY L	598 KINGS TRAIL SW	SUNSET BEACH	NC	28468
CURRAN EARL R ET JUNE & KATHY	304 HOME ROAD	SALISBURY	NC	28147
CURRIVAN GEORGE ET PAULA	5 SHEEHY LN	SHELTON	CT	06484
CURTIS BRUCE	2342 CASTLE ROCK FARM RD	PITTSBORO	NC	27312
CZUL JEANINE S	142 EAST RIDGE ROAD	CHARLESTON	WV	25314
DAMERON RICHARD G	201 MCARTHUR STREET	TABOR CITY	NC	28463
DANCY ARTHUR F JR ET	418 DOLPHIN STREET	SUNSET BEACH	NC	28468

DANIELS LELAND M JR ET MARQUITA K	PO BOX 1375	SOUTHERN PINES	NC	28388
DARCH RALPH L ET SHIRLEY	345 WILL LUCAS RD	LINDEN	NC	28356
DARR CLARK LEONARD ET LINDA C	278 YOKELEY ROAD	LEXINGTON	NC	27295
DARSIE CHARLES ET SANDRA JOY COOK	111 LARIAT LANE	CHAPEL HILL	NC	27517
DATTLER BETTY G	604 CAMELLIA LANE	SUNSET BEACH	NC	28468
DAVIDSON JAMES C JR ET JEWELL	1845 INDIAN TRAIL	EDEN	NC	27288
DAVIS AL ET MARILYN	PO BOX 6553	SHALLOTTE	NC	28470
DAVIS BETTY P	2222 SELWYN AVE UNIT 408	CHARLOTTE	NC	28207
DAVIS DANIEL I - TRUSTEE	22 CENTRE STREET	RYE	NY	10580
DAVIS FRED M ET EMMA N	PO BOX 126	FRANKLINVILLE	NC	27248
DAVIS GEORGE H JR	317 LEANING TREE RD	COLUMBIA	SC	29223
DAVIS JAMES A ET AMY B	5347 VICKERY CHAPEL ROAD	GREENSBORO	NC	27407
DAVIS JOSEPH D JR ET DOLORES	4 COLLEGEHILL RD BOX 212	MONTROSE	NY	10548
DAVIS KEITH A	116 CHIPWOOD LANE	GREENVILLE	SC	29615
DAVIS LOUIS M	2400 ROCK CREEK DRIVE	CHARLOTTE	NC	28226
DAVIS MAMIE L	PO BOX 144	CERRO GORDO	NC	28430
DAVIS MELVIN L ET JEWELL H	5250 RUTH DR	CHARLOTTE	NC	28215
DAVIS PENNY P	200 WOODLAND CIRCLE	RUTHERFORDTON	NC	28139
DAVIS PHILLIP T ET CAROL	119 BRAELANDS DR	CARY	NC	27511
DAVIS RAY W SR ET SYLVIA	2300 ELMHURST DRIVE	FAYETTEVILLE	NC	28304
DAVIS RYAN S ET TONI O	6868 DAVIS COUNTY RD	RANDLEMAN	NC	27317
DAWKINS MACON AUBREY JR ET KATHLE	3100 SADLER RD	CHARLOTTE	NC	28278
DAWKINS RICHARD T ET MARY B	2105 BEACHWOOD DR	SANFORD	NC	27330
DAWLEY BERNARD P ET BETTY J	516 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
DAY CARLIE SAMUEL ET NANCY	724 DOGWOOD DR SW	SUNSET BEACH	NC	28468
DAY LANNY G & ET	817 ABELIA RD	COLUMBIA	SC	29205
DEAN EVON W	8748 WEST MARKET STREET	GREEENSBORO	NC	27409
DEAN N STROUPE FAMILY LTD PARTNERSH	1194 EAGLECREST DRIVE	STANLEY	NC	28164
DEBBS KEVIN MICHAEL	35 PAPE DR	ATLANTIC HIGHLANDS	NJ	07716
DEBBS MICHAEL B ET EDITH	64 PEDEE PLACE	MIDDLETOWN	NJ	07748
DEFONCE JAMES T ET BARBARA A	3397 LEXINGTON AVE	MOHEGAN LAKE	NY	10547
DEIBEL KAREN SUE ET	313 FAIRFIELD PIKE	YELLOW SPRINGS	OH	45387
DEL GIORNO JOHN F ET JOAN M	318 SCHUBAUER DRIVE	CARY	NC	27513
DELLINGER ALBERT R ET BARBARA S	3200 WINDROW LANE	MATTHEWS	NC	28105
DELLINGER LARRY B ET WANDA L (LT)	2193 HEAVNER RD	LINCOLNTON	NC	28092
DELLINGER WILLIAM J ET DONNIE S	1343 MISTLETOE RIDGE PL	CONCORD	NC	28027
DEMERRITT MICHAEL	5418 SHARONVIEW RD	CHARLOTTE	NC	28211
DENARDI LENA & ADA	542 DOGWOOD DR SW	SUNSET BEACH	NC	28468
DENARDO GEORGE F ET LORRAINE V	2610 RIVER ROCK ROAD	MACUGNIE	PA	18062
DENNIS FRANCES CONNIE	1762 FRINK STREET	OCEAN ISLE BEACH	NC	28469
DENNIS JAMES T JR ET JEAN E	411 PARK RIDGE RD	ALBEMARLE	NC	28001
DERRICKSON JAMES C ET EVELYN S	801 LONGVIEW ST	GREENSBORO	NC	27403
DIANTONIO DORITA A ET RICHARD R	10086 GREEN CLOVER DR	ELLICOTT CITY	MD	21042
DIAZ ANTONIO L ET RAQUEL TRUSTEES	6511 LINCOLN ROAD	BRADENTON	FL	34203
DICARLO JOSEPH C ET MARY A	202 PAKACHOAG STREET	AUBURN	MA	01501
DICK DONALD F ET BETTY J	608 KNIGHTSBOROUGH WAY	APEX	NC	27502
DICKEY RICHARD A ET MARGARET	1941 20TH AVE DR NE #56	HICKORY	NC	28601
DICKSON HARRY ET PATRICIA A	1523 STRAWBERRY ROAD	ST ALBANS	WV	25177
DICKSON THOMAS G ET PEGGY L	1350 SPRINGLAKE RD	YORK	SC	29745
DIDSBURY JOHN R ET GAIL L	1100 BEARGLADES LANE	RALEIGH	NC	27614
DIEHL ROBERT E ET PATRICIA	602 KINGS TRAIL	SUNSET BEACH	NC	28468
DIETRICH WILLIAM S ET CYNTHIA ANN	244 WEDGEWOOD RD	BETHLEHEM	PA	18017
DIFAZIO SALVATORE ET MARY LU	706 WATERWAY DR	SUNSET BEACH	NC	28468
DILLON DANNY L ET KATHRYN R	1263 OLD SALEM ROAD	KERNERSVILLE	NC	27284
DINGESS BILLY RAY ET BETTY ANN	701 E SHORELINE DR	SUNSET BEACH	NC	28468
DIORIO DOROTHY T	610 JOHNSTONE PLACE	N MYRTLE BEACH	SC	29582
DISNEY MARGARET P	2121 VILLAGE LAKE DR #135	CHARLOTTE	NC	28212
DIXON JULUIS C	1400 ORVIS STREET	CHARLOTTE	NC	28216
DODGE WALTER AND CATHERINE	503 SHORELINE EAST	SHALLOTTE	NC	28459
DOERN KENNETH L ET ANNE L	213 W CANAL AVENUE	SUNSET BEACH	NC	28468
DOJONOVIC MICHAEL G ET BEVERLY S	3200 MABE HILL RD	KERNERSVILLE	NC	27284
DOMBROWSKI FREDERICK E ET & GLENN M	389 FAIRMONT AVENUE	N TONAWANDA	NY	14120
DONAHUE GEORGE	604 WISTERIA DR	SUNSET BEACH	NC	28468
DONALDSON WILLIAM M III	2650 ZACKS FORK RD	LENOIR	NC	28645
DONNELL SAMUEL RICHARD ET ELDOREEN	521 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
DORMAN PHILLIP & BROOKS JACKSON	2070 HAGAN DR	GREEN SEA	SC	29545
DOSTER ROBERT M & JEAN FAMILY LLC	4209 EXUM DRIVE	WEST COLUMBIA	SC	29169
DOTSON BRETT ET JULIE H	194 AZALEA CIRCLE	SUNSET BEACH	NC	28468
DOUGLAS BILL S ET NANCY R	370 FIELDSTONE ROAD	MOORESVILLE	NC	28115
DOUGLAS PAUL R ET LETHA B	683 FAIRWAY DR E	SUNSET BEACH	NC	28468
DOVE WILMER ET MILDRED A	262 WEST BROAD STREET	DARLINGTON	SC	29532

DOYLE JACK E ET	3501 MILL POND RD	CHARLOTTE	NC	28226
DRASHEFF GREGORY ET CHRISTINE	621 MILLSLOUGH LANE SW	SUNSET BEACH	NC	28468
DRENNEN SHEILA K	3510 LAKE SHORE DRIVE	SHALLOTTE	NC	28470
DRISCOLL WILLIAM J ET FLORENCE	608 WISTERIA DR	SUN SET BEACH	NC	28468
DUBRAWSKI BEVERLY J	PO BOX 8050	SHALLOTTE	NC	28470
DUCKER WILLIAM A	1317 GREG AVENUE	FLORENCE	SC	29501
DUCKWORTH ELECTRIC COMPANY	4432 STATESVILLE ROAD	CHARLOTTE	NC	28269
DUKE PAUL H ET EMILY A	7333 WINDALIERE DR	CORNELIUS	NC	28031
DUNCAN DOUGLAS W	1325 CHADSFORD PLACE	CHARLOTTE	NC	28211
DUNLAP BOB E ET MYRTLE S	PO BOX 191	GREER	SC	29652
DUNN H GLENN	735 DOGWOOD DR	SUNSET BEACH	NC	28468
DUNN SUE T (LT)	126 PHILLIPS CIR	ROCKINGHAM	NC	28379
DUTTON T M	244 WESTVIEW PARK DR	ROCKY MOUNT	NC	27801
DVORSKY JOHN W ET ANNE	517 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
EARLEY CHARLES LEROY ET EDITH	898 WALKER STORE RD	ELLENBORO	NC	28040
EARNHARDT BOBBY G ET GINA L	1825 MOUNTAIN MEADOW DR	ASHEBORO	NC	27203
EARNHARDT HAZEL D	20411 DEEP COVE CT	CORNELIUS	NC	28031
EASLEY JOSEPH CRAIG	PO BOX 15	STANFIELD	NC	28163
EASTBURN DAVID A ET LYNNE C	2254 FAIRFAX ROAD	COLUMBUS	OH	43221
EBEL PHILIP J ET JEANNETTE E	632 KING'S TRAIL DR	SUNSET BEACH	NC	28468
EDGERTON GLENN S ET MARTHA	PO BOX 8109	SHALLOTTE	NC	28470
EDMUNDS COPELAND A	1982 OSPREY	FLORENCE	SC	29501
EDMUNDSON EDWARD S III ET ANN A	4212 GLEN LAUREL DRIVE	RALEIGH	NC	27612
EDWARDS BARRY L & SYBIL	3900 GREENBRIER DR	DALLAS	TX	75225
EDWARDS BOBBY JOE	1833 HAVENWOOD DRIVE	LANCASTER	SC	29720
EDWARDS E O'BRIEN	104 BLACKFORD CT	DURHAM	NC	27112
EDWARDS RICHARD H	39 STONEHENGE DRIVE	NEW CANAAN	CT	06840
EFIRD JOSEPH L ET RUBY D	20760 ST MARIN RD	ALBEMARLE	NC	28001
EFTING ALAN & CHERYL KILBORN	7220 SPRING MEADOW LN	RALEIGH	NC	27608
EGNER JOHN B ET MARIANNE B	789 ARDEN ROAD	JENKINTOWN	PA	19046
EHLING WILLIAM P ET MARGARET R	610 TRIANGLE CT SW	SUNSET BEACH	NC	28468
EHRHARDT LAIVORA S	10 MCFARLAND	PINEHURST	NC	28374
ELCO PROPERTIES	PO BOX 931	DAVIDSON	NC	28036
ELIS KENNETH J ET MARGARET	209 AZALEA CIRCLE SW	SUNSET BEACH	NC	28468
ELLER RONDAL F ET SANDRA K	PO BOX 580	DAVIDSON	NC	28036
ELLINGTON JASON BANKS	510 LIVE OAK DR	SUNSET BEACH	NC	28468
ELLIOTT JEFFREY M ET & WEST HENRY L	13313 LADY ASHLEY RD	MIDLOTHIAN	VA	23113
ELLIOTT RONALD I ET MARGUERITE S	1011 LOST COVE	MATTHEWS	NC	28104
ELLIS RICHARD ET ELINOR	2101 JAREDS POND ROAD	PLEASANT GARDEN	NC	27313
ELMORE JUDY ABNER	5302 N OCEAN BLVD	N MYRTLE BEACH	SC	29582
EMERICK SUSAN H	430 29TH ST	SUNSET BEACH	NC	28468
ENGLE CHARLES RICHARD ET MARY E	24255 PHEASANT COURT	SALINAS	CA	93908
ENGLISH BOBBIE F & T H	4470 ANTIOCH CHURCH RD	MATTHEWS	NC	28104
ENTWISTLE JAMES ET GAIL	361 COUNTRY CLUB DR	WHITEVILLE	NC	28472
EPSTEIN DAVID ET DIANE	3315 DANIEL AVE	DALLAS	TX	75205
ERRICKSON CLIFFORD R ET LYNN	423 S SUNSET BLVD	SUNSET BEACH	NC	28468
ERWIN MARK D ET BETTY A	6718 ROBERTA RD SW	OCEAN ISLE BEACH	NC	28469
ERWIN PATRICIA L	4717 ELZO LANE	KETTERING	OH	45440
ESHELMAN THOMAS C ET MARY R	1845 TORRINGTON STREET	RALEIGH	NC	27615
EUDY MARY FRANCES & GENE	322 N DEPOT ST	ALBEMARLE	NC	28001
EVANS CHARLOTTE S	PO BOX 1076	BLADENBORO	NC	28320
EVANS DEBORAH C	105 6TH STREET	PIKEVILLE	KY	41501
EVANS JOHN T ET DEBRA B	303 PRINCE ST	LAURINBURG	NC	28352
EVANS LINDEN D ET PATRICIA J	207 ACORN DR	YARDLEY	PA	19067
EXLEY JAMES T ET LINDA H	1533 HIGHLAND DR	BETHLEHEM	PA	18015
FABREY MARION PARK & ET TRUSTEES	175 STRATFORD ROAD	ASHEVILLE	NC	28804
FABREY ROBERT H II ET CAROL A	436 WINDSOR RD	ASHVILLE	NC	28804
FAHEY JOHN HAMILTON ET MARY DAVID	407 37TH ST	SUNSET BEACH	NC	28468
FAKELMANN JACOB	706 LONG LEAF DR	SUNSET BEACH	NC	28468
FAKELMANN ROBERT J ET MARY S	91 ACADEMY ST	CALIFON	NJ	07830
FARRAR JAMES M ET ANGELA D	1395 FARRAR DAIRY RD	LILLINGTON	NC	27546
FARRAR JOHN W ET GUSTA B	3504 BIRDSBORO DR	FAIRFAX	VA	22033
FARRAYE ANTHONY R ET ELAINE	10667 E DESERT COVE	SCOTTSDALE	AZ	85259
FARRELL LMARY Z	APT 2A	KINGS PARK	NY	11754
FARRINGTON DONALD H & CATHERINE	229 AZALEA CIRCLE SW	SUNSET BEACH	NC	28468
FARRY LAWRENCE W	849 PENDLETON ST	PICKENS	SC	29771
FAVRO WILLIAM R ET BRENDA M	8858 LOMBARDI DRIVE	CICERO	NY	13039
FEAGANS ELBERT M JR ET ELIZABETH A	5504 PEACHGROVE COURT	HARRISBURG	NC	28075
FEDDER DAVID PETER ET JUDITH	PO BOX 2019	PINEHURST	NC	28370
FEEZOR CHARLES N JR M D	PO BOX 1356	DAVIDSON	NC	28036
FEHRMANN DOUGLAS H ET ANN C	1106 BUTTERNUT LANE	O FALLON	IL	62269

FELL DENNIS ET PAM	199 AZALEA CIRCLE	SUNSET BEACH	NC	28468
FELL KATHLEEN J	526 GREAT OAKS CIR SW	SUNSET BEACH	NC	28468
FELTON CHARLES M JR	712 FORMBY DRIVE	COLUMBIA	SC	29223
FERGUSON GREGORY A & STACEY	11809 EDGEWATER COURT	RALEIGH	NC	27614
FERGUSON JUDITH K & ROBERT K HOLBRO	1005 FIELDSTONE RD	MOORESVILLE	NC	28115
FERGUSON MARILYN T	602 WISTERIA DR	SUNSET BEACH	NC	28468
FERGUSON MURRY	PO BOX 646	BLOWING ROCK	NC	28605
FERGUSON THOMAS T ET	5001 FIELDING DRIVE	RALEIGH	NC	27606
FERRARI JOSEPH R	609 TRIANGLE COURT SW	SUNSET BEACH	NC	28468
FERRELL WILLIAM T ET MARY L	358 FOREST CREEK DRIVE	WINSTON-SALEM	NC	27107
FERRO FRANCIS E ET MARTHA SUE	PO BOX 11	CLARKSVILLE	NY	12041
FIDELLE LINDA C	733 EDEN TERRACE	ROCK HILL	SC	29730
FIEHN GRACE A	PO BOX 1357	SOUTHERN PINES	NC	28387
FIELD MAUREEN D	1928 FORGE RD	TOANO	VA	23168
FIELDS ALLEN KEITH ET KATHRYN ANN	PO BOX 1451	WHITEVILLE	NC	28472
FIELDS WILBUR M JR ET MARGARET S	248 FAYETTEVILLE RD	GULF	NC	27256
FINCH NORA LYNN & KATHRYN J JACOBS	4921 OLD MILLCREST COURT	RALEIGH	NC	27609
FINGER CLINTON D ET LORRAINE M	75 CAROLINA SHORES DR	CAROLINA SHORES	NC	28467
FINLEY BRENDA ET	723 N MARLBORO STREET	BENNETTSVILLE	SC	29512
FINNERTY J LORENA ETVIR PATRICK S	213 AZALEA CIR SW	SUNSET BEACH	NC	28468
FIRST CITIZENS BANK & TRUST CO	PO BOX 29519	RALEIGH	NC	27626
FISHER BECKY R	601 TWIN PINE RD	PITTSBURG	PA	15215
FISHER HERBERT L	272 FISHER DRIVE	WHITEVILLE	NC	28472
FISHER NANCY D & JAMES D & WALTER	105 CHIPPING COURT	GREER	SC	29650
FITZGERALD WILLIAM DANIEL	41 WILDWOOD ACRES	ASHEVILLE	NC	28806
FLANAGAN WILLIAM WALLACE JR	PO BOX 220	MONTREAT	NC	28757
FLETCHER THOMAS A	13133 DONEGAL DRIVE	CHESTERFIELD	VA	23832
FLOWERS BETTY J	726 LIVE OAK	SUNSET BEACH	NC	28468
FLOYD EDITH T	4308 N WALNUT STREET	LUMBERTON	NC	28358
FOCHT CLARK E	2421 EASTWOOD DR	YORK	PA	17402
FOIL HOMER & MARJORIE P TRUSTEES	8104 NORTH HOUND COURT	CHAPEL HILL	NC	27516
FOR OUR FOUR LLC	1545 MEADOW BRANCH	WINSCHESTER	VA	22601
FORD DON E ET LOIS J & OLGA L WATSO	46 BEACONSFIELD COURT	LINCOLNSHIRE	IL	60069
FORSYTH COURTNEY HAZEN & JUANITA	805 PITMAN ROAD	GREENSBORO	NC	27406
FORT LAURENS W JR DR ET BRENDA	PO BOX 187	GREAT FALLS	SC	29055
FORZANI RINALDO JR ET GERALDINE	30 HIGHLAND RIDGE RD	MANALAPAN	NJ	07726
FOSTER STEPHEN D ET TAMMY M	8817 HEARTHSTONE CT	TERRELL	NC	28682
FOWLER BONNIE S	4433 BENT TREE FARM ROAD	WINSTON SALEM	NC	27106
FOWLER JERRY L ET SUSAN L	22 POINT O'WOOD DRIVE	MIDDLETON	NJ	07748
FOWLER SUSAN L & LANDER MARY LU	2029 NORTON RD	CHARLOTTE	NC	28207
FOWLER WILLIAM HOWARD	12269 NEW BRITTON HWY E	WHITEVILLE	NC	28472
FRANCHINO DONALD ET KAREN	14 APRIL CT	NANUET	NY	10954
FRANCIS M STUART	520 MAGNOLIA DRIVE	SUNSET BEACH	NC	28468
FRAZER PROPERTIES	670 LANCASTER HIGHWAY	CHESTER	SC	29706
FRAZIER DAVID C ET CHRISTINE A	431 WEATHERGREEN DRIVE	RALEIGH	NC	27615
FRAZIER PHILLIP C ET CYNTHIA A	PO BOX 69	INDIAN TRAIL	NC	28079
FREEDLE MARGARET M	2087 WELCOME-BETHESDA RD	LEXINGTON	NC	27295
FREEDMAN RICHARD L ET DEBRA ANN	526 FOXCLOVE CIRCLE	GLENMOORE	PA	19343
FREEMAN THOMAS E JR ET REBECCA	1818 SOUTHVIEW ROAD	DURHAM	NC	27703
FREITAS STEVEN PAUL	712 DOGWOOD ST	SUNSET BEACH	NC	28468
FRENCH DWIGHT L ET RUTH J	680 FAIRWAY DRIVE E	SUNSET BEACH	NC	28468
FRIEND JOHN D SR ET SHIRLEY	5195 SHOREVIEW DR	CONCORD	NC	28025
FRIESLEBEN MARJORIE & DELUCA A L	43 OAKCREST AVE	MIDDLE ISLAND	NY	11953
FRYE HERMAN ET DEBRA	PO BOX 1085	LITTLE RIVER	SC	29566
FUGITT CORDELIA H	208 STONEHEDGE DR	GREENVILLE	SC	29615
FULLER RUSSELL E ET ELEANOR	14 COY	OREGON	OH	43616
FULTON RICHARD E ET JANE E	5513 DEN HEIDER WAY	RALEIGH	NC	27606
FURR TIMOTHY F ET BONNIE	748 IDEAL WAY	CHARLOTTE	NC	28203
GADDY MCKETHAN R ET SHERRILL	724 WATERWAY DRIVE	SUNSET BEACH	NC	28468
GAINEY HEYWARD J SR	717 LIVE OAK DR SW	SUNSET BEACH	NC	28468
GALASSI JOHN PAUL JR ET MERNA DEE	414 SIMERVILLE ROAD	CHAPEL HILL	NC	27517
GALLAGHER ARTHUR R ET JULIA A	509 SHORELINE DR E	SUNSET BEACH	NC	28468
GALOVICH CAROLE	529 DOGWOOD DR SW	SUNSET BEACH	NC	28468
GALOVICH RAYMOND	604 LIVE OAK DR SW	SUNSET BEACH	NC	28468
GALOVICH RONALD JOSEPH	530 LIVE OAK DRIVE	SUNSET BEACH	NC	28468
GAMBELL IMOGENE B THE TRUSTEE	102 LODEN COURT	SIMPSON VILLE	SC	29681
GARCIA CARLOS A ET REBECCA T	291 DARLA DR	SUMMERFIELD	NC	27358
GARCIA FRED N ET LEA D	PO BOX 164	ARCHBALD	PA	18403
GARDINER CHARLES A ET MAJORIE C	8413 BELL`S LAKE ROAD	APEX	NC	27502
GARDNER HERBERT J JR ET PATRICIA M	507 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
GARNER ALLISON L	324 BUBBLING WELL RD	MATTHEWS	NC	28105

GARNER DALLAS ELWOOD II ET SHARON S	47 SUMMER HILL DRIVE 40	ELIZABETHTOWN	NC	28337
GARNER JAMES H ET DOROTHY M	116 GARNER BRITT DR	ROBBINS	NC	27325
GARRETT JAMES G ET GINA K	404 LEE PARKS RD	LEXINGTON	NC	27292
GARRETT MARGIE SMITH	6115 LIBERTY RD	JULIAN	NC	27283
GAVEN THOMAS J ET MARIA H	19603 AIRMONT RD	ROUND HILL	VA	20141
GEDDINGS WARREN H JR ET GAIL D	5119 AMHERST TRAIL DR	CHARLOTTE	NC	28226
GENTRY BILLY D ET REBECCA B	118 VALLEY VIEW DR	MADISON	NC	27025
GIAMPIETRO FRANCIS J & JANE	436 WESTRIDGE DRIVE	PHOENIXVILLE	PA	19460
GIBSON DONNA PUTNAM	734 SOUTH MAIN ST APT E	MT HOLLY	NC	28120
GIBSON HAROLD D SR ET JOYCE	1501 STONEYCREEK COURT	RICHMOND	VA	23233
GIBSON PATTERSON B ET	819 WEST COVINGTON STREET	LAURINBURG	NC	28352
GIBSON WILBERT ET CAROL & DAVID G	1417 CAROLINA DRIVE	ROCKINGHAM	NC	28379
GIFFORD JAMES W ET SHELIA J	5110 OLD US 421	LILLINGTON	NC	27546
GILLESPIE MARVIN E JR ET BONNIE	9270 W HOLLYWOOD DRIVE	OAK HARBOR	OH	43449
GILLEY WILLIAM MICHAEL ET DONNA	2531 BITTING ROAD	WINSTON-SALEM	NC	27104
GLADDEN THEODORE ET PAULETTE	PO BOX 186	EAST SPENCER	NC	28039
GLEASON LEWIS E ET KATHLEEN E	670 KINGS TRAIL DR	SUNSET BEACH	NC	28468
GLENN BETTY S ETVIR COY M	617 E MAYNARD AVE	DURHAM	NC	27704
GLENN SYLVIA M	49467 QUAIL TRAIL RD	NORWOOD	NC	28128
GLISSON GEORGE G & BARBARA	69 PATTERSON RD	LUMBERTON	NC	28358
GLOUSE FRANK JR ET JULIE A	101 KENNEDY ST	EASLEY	SC	29642
GOAD MARION A ET LYNN	192 COMMONWEALTH RD	GALAX	VA	24333
GODFREY ALVIN O ET ANNETTE L	1126 PARK RD	SUNSET BEACH	NC	28468
GODWIN FAMILY TRUST THE	1000 MORNINGSIDE DRIVE	ROCKINGHAM	NC	28379
GODWIN RONALD GENE	3800 BEAVERDAM RD	CHADBOURN	NC	28431
GOINS CHARLES WAYNE	3015 ALAMANCE ROAD	GREENSBORO	NC	27407
GOMEZ TERESA SPEARS	46 WILDERNESS ROAD	ASHEVILLE	NC	28804
GOOD JOHN R	401 SHORELINE DRIVE EAST	SUNSET BEACH	NC	28468
GOODMAN JEFFREY V ET	PO BOX 1040	SALISBURY	NC	28145
GOODWIN CHARLES R JR ET THERESA B	319 HOKE DRIVE	DALLAS	NC	28034
GOODYEAR ANNE S TRUSTEE	4930 DERBYSHIRE DR	CHARLOTTE	NC	28226
GORE EDWARD M ET DINAH E	435 W SHORE LINE DRIVE	SUNSET BEACH	NC	28468
GORE JOSEPH GARDNER JR & ANN H	2752 BROWNFIELD WAY	SUMTER	SC	29150
GORE WADE M ET FAYE W	823 GORE LAKE ROAD	NAKINA	NC	28455
GORNEY JON L ET NANCY	31780 LAKE ROAD	AVON LAKE	OH	44012
GOSNEY DENNIS R ET DEBORAH G	PO BOX 3151	MONROE	NC	28111
GOSS BOBBY ET BARBARA	5005 GATEWOOD DRIVE	DURHAM	NC	27712
GOTTHARDT WILLIAM C ET	26 NORTH HORACE STREET	WOODBURY	NJ	08096
GOULET MILDRED E & SCOTT R	537 MAGNOLIA DR	SUNSET BEACH	NC	28468
GOWAN JAMES B ET JANET LILES	PO BOX 37024	RALEIGH	NC	27627
GOWER RONALD K ET SANDRA J	403 ATCHINSON STREET	GARNER	NC	27529
GRACE MICHAEL A	390 GAITHER RD	WINSTON SALEM	NC	27101
GRAGG PAUL & BILLY M	PO BOX 1040	BOONE	NC	28607
GRAHAM LINDA	1116 HALESWORTH DR	CHARLOTTE	NC	28211
GRANT JAMES L ET NORMA L	1300 EDGE BROOK DR	GARNER	NC	27529
GRANTHAM TOMMY CHARLES	410 WATEROAK WYND	SUNSET BEACH	NC	28468
GRAY IRINA	616 JASMINE LANE	SUNSET BEACH	NC	28468
GRAY JAMES F ET KATHLEEN	818 LIVEOAK DR SW	SUNSET BEACH	NC	28468
GRAY MAXIE R	529 25TH STREET NW	HICKORY	NC	28601
GRAY SUSAN DAY	1016 CHARLESMONT COURT	LENOIR	NC	28645
GREALIS GEORGE E ET BARBARA A	216 LAFAYETTE ST	CHICOPEE	MA	01020
GRECO RALPH J ET ELISE	328 RIVERBEND DRIVE	BERMUDA RUN	NC	27006
GREEN JOSEPH LARRY ET MARY	5008 GRANDOVER PKWY	GREENSBORO	NC	27407
GREENBERG BILLIE A	693 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
GREENE JESSE LEON ET JANICE C	5403 FOX TERRIER DRIVE	OAK RIDGE	NC	27310
GREENWAY WILLIAM F ET BETTY S	209 SHORELINE DR E	SUNSET BEACH	NC	28468
GREENWOOD ROY C ET ANNE B	2949 WOODWIND DRIVE	VALDESE	NC	28690
GRIFFIN A GLENN JR & CAROLYN TRUST	PO BOX 148	RED OAK	NC	27868
GRIFFIN JOSEPH T ET LINDA P	174 BRIGHTWOOD RD	EDEN	NC	27288
GRIGSBY EDWIN	525 SUN VALLEY TER	HAZARD	KY	41701
GRIMES LABON CHARLES ET	6502 HORSEMAN TRAIL	SUMMERFIELD	NC	27358
GRIMSLEY WALTER H III ET JANET	106 LAKE RIDGE LANE	SPARTANBURG	SC	29301
GRINDSTAFF HOLLIS P	514 N BUCKOAK ST	STANLEY	NC	28164
GROOVER RICHARD LEE JR & GROOVER GY	219 DOGWOOD DRIVE SW	SUNSET BEACH	NC	28468
GROSSMAN STEVEN B ET MICHELLE	3171 HYDE PARK DRIVE	CLEARWATER	FL	33761
GROVE MICHAEL	7 SUNRISE POINT CT	LAKE WYLIE	SC	29710
GRUBB STEPHEN D ET DAWN H	109 S US 701 BY PASS	TABOR CITY	NC	28463
GUENTHER JAMES E ET MARY V	201 JONES COVE RD	ASHEVILLE	NC	28805
GURGANUS BERNICE B	4126 WOOD ST SW	SHALLOTTE	NC	28470
GURLEY PAMELA J	311 WILLIE D DRIVE	JEFFERSON CITY	TN	37760
GUTHRIE ANNE S	5037 16TH ST DR NE	HICKORY	NC	28601

GUTKNECHT ROBERT A ET	2012 ALCOA DR	ARNOLD	PA	15068
GUYER DAVID J ET SHIRLEY C	220 W SHORELINE DRIVE	SUNSET BEACH	NC	28468
GWAZDAUSKAS JENNIFER A & FRANCIS C	7609 OVERLAND TRAIL	RALEIGH	NC	27615
H & D PROPERTIES LLC	1728 TRADITION CLUB DR	PAWLEYS ISLAND	SC	29585
HA KHIEM ET	422 E 2ND AVE	RED SPRINGS	NC	28377
HADLEY ELLA D	232 EAGLES RIDGE DR	BLYTHEWOOD	SC	29016
HAGLUND WILLIAM S ET KAREN M	3 VILLAGE COVE	WARWICK	NY	10990
HAGOOD T E JR	114 N OAKLAND AVE	EDEN	NC	27288
HAGWOOD MARVIN D ET NANCY	200 EAST D ST	BUTNER	NC	27509
HAHN GILBERT H ET JOAN	602 TRIANGLE TRAIL CT SW	SUNSET BEACH	NC	28468
HAIGLER DONNA	4194 RIPARIAN LN	COLLETTSVILLE	NC	28611
HAIGLER JEFFREY SCOTT ET JEANETTE W	20 DUNESIDE DRIVE	OCEAN ISLE BEACH	NC	28469
HALL ALBERT L ET BETTY A	1901 NORTH CHESTER STREET	LUMBERTON	NC	28358
HALL FRANK D ET MILDRED B	409 MT VIEW RD	KING	NC	27021
HALL KATHERINE B	807 COFFEY AVE	N WILKESBORO	NC	28659
HALL ROBERT G ET JOYCE Q	714 SHORELINE DR E	SUNSET BEACH	NC	28468
HALL ROBERT W & ROBERT F	3133 CHAUCER DRIVE	CHARLOTTE	NC	28210
HALLORAN JOHN J ET BETTY A	695 CYPRESS CT	SUNSET BEACH	NC	28468
HAMBLIN ELINOR THOMAS TRUSTEE	8 HELD CIRCLE	CHARLESTON	SC	29412
HAMER DOLROE JR	2787 GEORGIA PACIFIC RD	WHITEVILLE	NC	28472
HAMILTON DON W	322E KIVETT ST	ASHEBORO	NC	27203
HAMPTON DONNA BELINDA ET	1255 DIAL STREET	KANNAPOLIS	NC	28083
HAMRICK PHILIP L ET	2607 BELLA SERA WAY	MATTHEWS	NC	28105
HANLON CHARLES J JR & EMPSON E A	10 NJ PLAZA 9TH STREET	OCEAN CITY	NJ	08226
HANSEN DOUGLAS B ET CATHERINE A	1458 SUMMIT VIEW DRIVE	ROCK HILL	SC	29732
HANSON BRIAN L & JACKS A HANSON	18522 VIBURNUM WAY	OLNEY	MD	20832
HARDEE ALLEN O BRYAN ET ELVA J	55 PARK ST EXTENSION	LITTLE RIVER	SC	29566
HARDEE BENJY	4500 LAKE CIRCLE	LITTLE RIVER	SC	29566
HARDIE JAMES W ET PAMELA	PO BOX 7087	SOUTH BRUNSWICK	NC	28470
HARDIN MICHAEL L ET JANE B	416 BARKER TEN MILE RD	LUMBERTON	NC	28358
HARGETT DANNIE B	4417 WALTER NELSON RD	CHARLOTTE	NC	28212
HARGRAVE M BATES ET LOIS B	41 JOYCE RD	TENAFLY	NJ	07670
HAROUNY VICTOR R ET JANET P	410 LOCKLEY DR	CHARLOTTE	NC	28207
HARPER CORDELL ET MILDRED	102 RAY STREET	TABOR CITY	NC	28463
HARPER JEANNE S	144 SARDIS VIEW LN	CHARLOTTE	NC	28270
HARPER JOHN C & MELISSA F (LT)	880 WEST AGUA CALLENTE RD	SONOMA	CA	95476
HARRELL RONALD A ET ANN M	PO BOX 331	INDIAN TRAIL	NC	28079
HARRELSON DAVID	315 STOKES DRIVE SW	SUNSET BEACH	NC	28468
HARRELSON HENRY C ET ANNE H	2010 SHARON AVE	CHARLOTTE	NC	28211
HARRELSON JOSEPH WILLIAM	723 LIVE OAK ST SW	SUNSET BEACH	NC	28468
HARRINGTON FREIDA B	7103 EAST CREEKS EDGE DR	WILMINGTON	NC	28409
HARRIS ARCHIE J ET SARAH	421 COX LAKE RD	STANLEY	NC	28164
HARRIS BOBBY N ET VIRGINIA A	6427 HWY 150 EAST	MAIDEN	NC	28650
HARRIS CHARLES H	531 CIRCLE DR	BURLINGTON	NC	27215
HARRIS KENNETH C TRUSTEE	724 LONGLEAF DR	SUNSET BEACH	NC	28468
HARRIS NANCY A	614 JASMINE LN	SUNSET BEACH	NC	28468
HARRIS PEGGY ANN N	710 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
HARRIS THOMAS B ET MIRIAM I	6912 PARK SOUTH DR	CHARLOTTE	NC	28210
HARRIS WADE KELLY ET LEIGH TENANTS	859 CHARTIER CT	ASHEBORO	NC	27203
HARRIS WILLIAM F JR ET JANICE M	109 DOGWOOD CIRCLE	BUTLER	NC	27509
HARRISON MARGARET TRUSTEE	796 NEWINGTON DRIVE	CLEMMONS	NC	27012
HARRISON NOEL R & ET	1804 BANBURY ROAD	RALEIGH	NC	27609
HART BOBBY EUGENE ET RENEE DEAL	6055 CHAUCER LANE	GRANITE FALLS	NC	28630
HART JAMES P JR ET MARY H	426 30TH STREET	SUNSET BEACH	NC	28468
HARTER JOHNATHAN LOUIS ET DEBRA LIN	1809 BRIDGEPORT DRIVE	RALEIGH	NC	27615
HARTZOG INVESTMENTS LLC	1428 CANTERBURY ROAD	RALEIGH	NC	27608
HARVEY RAYMOND W ET CHARLOTTE A	6725 WEST LAKE ANNE DRIVE	RALEIGH	NC	27612
HARWOOD TANA ALMOND	4014 MEADOWRIDGE DR	CHARLOTTE	NC	28226
HATCHER ELLIS JR ET	14224 IDLEWILD RD	MATTHEWS	NC	28105
HATFIELD HELEN J	3575 WEDGEFIELD RD	SUMTER	SC	29154
HAUSER JOE E ET GRETCHEN S	3740 HERCHEL LANE	WINSTON SALEM	NC	27106
HAUSER LINDA A ETVIR FRANCIS R	290 SEA TRAIL DR	SUNSET BEACH	NC	28468
HAUVER HAROLD E ET BARBARA L	18 RIDINGS DRIVE	HOMER	NY	13077
HAWKE ROY L ET LYNNE T	105 LUDLOW COURT	CARY	NC	27513
HAWKINS BOBBY R ET ANN T	503 GREAT OAK CIRCLE	SUNSET BEACH	NC	28468
HAYES BETTY SAWYER	3016 PLYMOUTH ROCK RD	COLUMBIA	SC	29209
HAYES HUGH F ET SARA B	317 HOWARD STREET	MOUNT AIRY	NC	27030
HAYES JANET	PO BOX 653	RANDLEMAN	NC	27317
HAYES VIRGINIA LEE	1131 PARK RD	SUNSET BEACH	NC	28468
HAYNE MARY PHILLIPS	719 SHADOWBROOK DR	COLUMBIA	SC	29210
HAYNIE BUFFORD H ET VIVIAN	107 SHADY LANE	ANDERSON	SC	29621

HAYWORTH BETTY E	132 SKEET CLUB RD	HIGH POINT	NC	27265
HE AINT HEAVY LLC	136 RUGBY RD	SALISBURY	NC	28144
HEAFNER FRANK D ET MARGARET W	428 4TH AVENUE N W	HICKORY	NC	28601
HEARN RICHARD FOSSETT ET BARBARA A	3907 GLAZEBROOK DR	FREDERICKSBURG	VA	22401
HEAVENER ROBEY R JR & LAURA J	535 DOGWOOD DR SW	SUNSET BEACH	NC	28468
HEAVENER ROBEY R SR	PO BOX 6331	S BRUNSWICK	NC	28470
HEDRICK RICKY LEE ET TERESA KAY	2231 WATER OAK LN	GASTONIA	NC	28056
HEFFERNAN THOMAS	714 MAGNOLIA DRIVE	SUNSET BEACH	NC	28468
HEFFNER CLIFTON W JR ET SARAH (LT)	PO BOX 6987	SHALLOTTE	NC	28469
HEIL RALPH J ET DIANA	622 TRIANGLE COURT SW	SUNSET BEACH	NC	28468
HEISER JAN DAVID ET JUANITA	114 KESWICK COURT	ADVANCE	NC	27006
HELMS CLINTON R	3263 LABARCA LANE	LAS VEGAS	NV	89122
HELMS CLYDE V & MYRA E	2100 RAMBLE ROAD	MIDLAND	NC	28107
HELMS NEAL G	6100 FAIRVIEW RD STE 1200	CHARLOTTE	NC	28210
HELMS RICHARD C ET EVA L	10637 PRAIRIE RIDGE LANE	CHARLOTTE	NC	28213
HELPER JAMES ET LINDA	2574 OLD ASHWORTH LN NW	CONCORD	NC	28027
HELTON BRENT ANTHONY ET TERESA	906 PENNELL STREET NE	LENOIR	NC	28645
HENDERSON JEFFREY CLAUDE	12 SWANEE LANE	THOMASVILLE	NC	27360
HENDERSON NANCYE J & JEANNE M	7935 BAY SPRINGS ROAD	COLA	SC	29223
HENDERSON SYLVIA P	3203 CHAUCER DRIVE	CHARLOTTE	NC	28210
HENDRICKS ROBERT LEE	316 DOGWOOD DR SW	SUNSET BEACH	NC	28468
HENSLEY DAVID A ET JENNIFER L	4909 LAKEGREEN CT	RALEIGH	NC	27612
HERNDON STANLEY C ET DEBRA GILL	808 BELL DRIVE	ROCKY MOUNT	NC	27803
HERRING LEONARD E JR ET LINDA N	1310 ANDOVER ROAD	CHARLOTTE	NC	28211
HESTER MARY WARD	612 WILLIAMSBORO ST	OXFORD	NC	27565
HESTER MILDRED TRUSTEE	2134 MARTIN STREET	BURLINGTON	NC	27215
HEWETT NORMAGORE ETV	1250 RIVERBEND DR SW	SHALLOTTE	NC	28470
HICKMAN VERNIE ET MARIE TRUST	302 SHORELINE DR EAST	SUNSET BEACH	NC	28468
HICKS GEORGE L ET GEORGIA P	7213 FORTROSE LANE	CHARLOTTE	NC	28277
HICKS WILLIAM L ET JUDY A	235 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
HICKSON ROBERT W ET INGE	611 CAMELLIA LANE	SUNSET BEACH	NC	28459
HIGH JAMES C	PO BOX 707	WHITEVILLE	NC	28472
HIGH PRIORITY PROPERTIES	120 ZACHARY RD	COBURN	PA	16821
HIGH ROBERT M ET KATHLEEN S	8312 CASTINE COURT	RALEIGH	NC	27613
HILBURN RONALD D ET JOYCE M	1509 BANBURY STREET	FAYETTEVILLE	NC	28304
HILL DOUGLAS K ET DEBRA	1613 CANAL DR	SUNSET BEACH	NC	28468
HILL GARY L & ET	1817 HEYWARD STREET	COLUMBIA	SC	29205
HILL JOSEPH GARY ET MAUREEN MCCARTH	30 CAPE MAY POINT	GREENSBORO	NC	27455
HILL THOMAS E	1802 FURMAN DR	FLORENCE	SC	29501
HILLSGROVE FRANCES	128 LEAVITT RD	PITTSFIELD	NH	02363
HILTON FRANCES R	1024 15TH AVENUE N W	HICKORY	NC	28601
HILTON WILLIAM RAY ET DIANE K	403 WACCAMAW WAY	HARTSVILLE	SC	29550
HINDMAN CAREY M	908 SANTEE DRIVE	FLORENCE	SC	29501
HINSON GEORGE B	4410 CODDLE CREEK DRIVE	CONCORD	NC	28207
HINSON KATHLEEN M ETVIR ERIC W	142 CELESTE CIRCLE	CHAPEL HILL	NC	27517
HINTON SUNSET LLC	3100 MONTICELLO DR	RALEIGH	NC	27612
HIRST KIM W ETVIR JAMES M JR	9109 ALPINE CIRCLE	CHARLOTTE	NC	28270
HITESHEW TIMOTHY ET LESILE	103 HOLLYCLIFF LN	CARY	NC	27511
HIX DOUGLAS W ET	726 ANSON AVE	LAURINBURG	NC	28352
HNILICA MARLENE A	2621 BERWYN RD	COLUMBUS	OH	43221
HODGE JEFFERY R ET BRENDA LORI	4113 MAPLE BOTTOM DRIVE	APEX	NC	27502
HODGES BUDDIE R ET REBECCA C	110 BROOKLANE	MT HOLLY	NC	28120
HODGES GEORGE H	7001 CHADWYCK FARMS DR	CHARLOTTE	NC	28226
HODGES ROULA	5013 KNOBVIEW PLACE	WINSTON-SALEM	NC	27104
HODGKISS JOHN E ET MARY ANN	3314 SHARP ROAD	GLENWOOD	MD	21738
HOEY TERENCE J & HENDRIK BOEDART ET	10813 DALMORE PLACE	RALEIGH	NC	27614
HOFF WALTER R	309 BLANE CT	SUNSET BEACH	NC	28468
HOFFER LOIS	904 WHISPERING RIDGE LANE	BEL AIR	MD	21015
HOGAN JERONE G ET DEBORAH	5401 SHADOWBROOK DRIVE	RALEIGH	NC	27612
HOGAN JOHN J ET LINDA A	11 BRIAROOT DRIVE	SMITHTOWN	NY	11787
HOGAN RUSSELL H ET DONEY N	2828 MCKINNEY ST	BURLINGTON	NC	27217
HOLCOMB ELLEN JEAN	302 BURLAGE CIR	CHAPEL HILL	NC	27514
HOLDEN RONALD C ET CLARICE C	3852 HOLDEN RD SW	SHALLOTTE	NC	28459
HOLDER GLEN EDWARD ET JO L	528 LIVE OAK DRIVE SW	SUNSET BEACH	NC	28468
HOLDING IRENE FAYE	605 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
HOLLAND JIMMIE K ET SHAWN L	414 PARKSIDE PLACE	ZEBULON	NC	27597
HOLLAND ROGER L	120 SHERMAN LAKES ROAD	FUGQUAY VARINA	VA	27526
HOLMAN REVOCABLE FAMILY TRUST UTD	608 JASMINE LANE	SUNSET BEACH	NC	28468
HOLMES ROBERT J SR ET CAROLE D	HC#-2120	TANNERSVILLE	PA	18372
HOLMES ROBERT T ET SUZANN K	1630 WINDING WAY SW	OCEAN ISLE BEACH	NC	28469
HOLT JOHN TIMOTHY ET PATRICIA MCCAR	9611 BRISTOL AVE	SILVER SPRINGS	MD	20901

HOLT ROBERT J ET NANCY A	591 HWY 905	CONWAY	SC	29526
HOLTON JOHN W ET KAREN	PO BOX 6507	SHALLOTTE	NC	28470
HONEYCUTT H ROBERT ET ANN P	74 MAXWELL RD	AUTRYVILLE	NC	28318
HONEYCUTT WALTER W ET DOROTHY	1928 OPTIMIST LANE	CHARLOTTE	NC	28205
HONEYCUTT WYMAN ET GLENDA	1013 MT ELEM CHURCH RD	ROSEBORO	NC	28382
HOOD CASEY T	202 MAGNOLIA ST	SUNSET BEACH	NC	28468
HOOD THOMAS F ET DEMITRA A	202 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
HOOD WILLIAM B ET VIRGINIA W	221 AZALEA CIRCLE	SUNSET BEACH	NC	28468
HOOKS D JACK ET MARGARET	212 PINE STREET	WHITEVILLE	NC	28472
HOOVER DAN C ET ANN	300 MAMMOTH OAK DR	CHARLOTTE	NC	28270
HORCHLER JAMES E ET M CAROLINE	PO BOX 6717	SHALLOTTE	NC	28470
HORNER PATRICIA K	1047 YOUNGS CHAPEL CH RD	ROXBORO	NC	27573
HORNER WILLIAM E JR	524 TWISTED OAK LAND	SUNSET BEACH	NC	28468
HORNING PERRY J	4200 ORVIL LANE	WINSTON-SALEM	NC	27107
HORSTMAN DONALD H ET LINDA W	106 SOLTESRA WAY	DURHAM	NC	27705
HOSKINS JAMES DICKASON III ET SUSAN	4220 STARMOUNT DRIVE	GREENSBORO	NC	27410
HOUGH MARY AMELIA	2006 COLUMBIA CIRCLE	SUMTER	SC	29154
HOVERMALE KATHRYN & BRUCE TRUSTEES	5 WOODLAND CT	SUMTER	SC	29150
HOWARD CLIVE JACK ET MARTHA	3826 HARRIS CREEK RD	LAWNDALE	NC	28090
HOWELL DAVID L ET DEBBIE J	49628 TOWNSHIP RD 200	COSHOCTON	OH	43812
HOWES HENRY A ET ROSALYN & H CRAYNE	PO BOX 778	PINE LEVEL	NC	27568
HUBBELL MARLENE Y	376 TOMMY'S RD	GOLDSBORO	NC	27530
HUDSON ANN C	PO BOX 6839	SHALLOTTE	NC	28470
HUDSON FREDERICK M ET HEATHER E	32 CHAFFEE CREEK	CAMDEN	AR	71701
HUDSON LARRY A & CINDY SIMON	624 DOGWOOD DR SW	SUNSET BEACH	NC	28468
HUDSON STANLEY REX	903 ANN STREET	ROCKINGHAM	NC	28379
HUFFMAN PRESTON C ET ALEAN TRUSTEES	516 TWISTED OAK LANE	SUNSET BEACH	NC	28468
HUGGINS CLAUDE E ETU	103 FOWLER ST	TABOR CITY	NC	28463
HUGGINS ROBERT A ET LINDA	532 MAGNOLIA DR	SUNSET BEACH	NC	28468
HUGHES BENJAMIN S	2101 SUBER MILL RD	GREER	SC	29651
HUGHES GEORGE R	3509 SLOAN COURT	RALEIGH	NC	27606
HUGHES IAN D	18439 HERNANDEZ LANE	LOS GATOS	CA	95030
HUGHES MICHAEL A ET TERESA K	92 OAK BROOK DRIVE	COLUMBIA	SC	29223
HUGHES PAUL E ET KATHERINE J	691 EAST FAIRWAY DR	SUNSET BEACH	NC	28468
HUGUELET EUGENE W ET JOYCE A	6117 SWEETGUM HOLLOW	WILMINGTON	NC	28403
HUMBLE JIMMIE ET KATHY	1233 LOST TREE NW	CANTON	OH	44708
HUMPHRIES LIVING TRUST	PO BOX 413	CLIFFSIDE	NC	28024
HUMRICKHOUSE SCOTT ET STEPHANI	4300 SIX FORKS RD STE 700	RALEIGH	NC	27609
HUNN BARBARA GORE	4527 GREENBRIAR DR	LITTLE RIVER	SC	29566
HUNT DAVID C & SANDRA M TRUSTEES	5555 E MCDONALD DRIVE	PARADISE VALLEY	AZ	85253
HUNT JOEL R JR	47 BROOKSIDE ROAD	WHITEVILLE	NC	28472
HUNT W G ET MINNIE K	1106 NORTH SHORE DRIVE	SUNSET BEACH	NC	28468
HUNT WHALEY P	PO BOX 2253	PINEHURST	NC	28374
HUNTER FRANCIS R JR ET MAUREEN	10331 KATTLEDRUM COURT	ELLICOTT CITY	MD	21042
HUNTER GAYE F & GEORGE C FREEMAN JR	2710 COUNTRY CLUB LN	CHARLOTTE	NC	28205
HUNTER JAMES ET JANET	3842 BENT CREEK RD	CONCORD	NC	28027
HUNTER JAMES W ET JENNIE L	PO BOX 81	WEBSTER	NC	28788
HURT BILLY ET JANICE	4453 HURT RD	JONESVILLE	NC	28642
HURT THOMAS G KAY	10538 OLD BRASSLE DR	CHARLOTTE	NC	28227
HUSSEY WILLIAM T ET EVELYN B	210 AZALEA CIRCLE SW	SUNSET BEACH	NC	28468
HUTCHINS JACK W ET PEGGY W	3303 LINWOOD RD	GASTONIA	NC	28052
HUTCHINS PERRY I ET RUTH G	810 DOGWOOD DRIVE	SUNSET BEACH	NC	28468
IKEDA RICHARD M ET HARRIET	39 CEDARWOOD LANE	CHADDS FORD	PA	19317
INMAN PAUL K ET MARGARETE H	6547 LOUGLEN CIRCLE	CHARLOTTE	NC	28212
INRI CORP	428 SUNSET BLVD	SUNSET BEACH	NC	28468
IOVACCHINI ET EVELYN C	90 CRESTWOOD RD	ASHEVILLE	NC	28804
IVEY TERRY	729 SHAWNEE DR	CHARLOTTE	NC	28209
JACKSON BROOKS H & WATSON JOHN	4765 SEA BREEZE DR	GREEN SEA	SC	29545
JACKSON DON V ET DAVIE H	395 LYNN COVE RD	ASHEVILLE	NC	28804
JACKSON HERB ET LAURA	PO BOX 10	DAVIDSON	NC	28036
JACKSON MARVIN P JR	926 WISTERIA DR	FLORENCE	SC	29501
JACOBS MARLENE B	816-1 SAGE CREEK LN	FAYETTEVILLE	NC	28320
JACOBS MICHAEL III	956 HUNTINGTON RUN LANE	KERNERSVILLE	NC	27284
JAENICKE LIMITED PARTNERSHIP	1330 KENTUCKY AVE	ASHLAND	KY	41102
JAMES LC ET LENORA M	3825 STACK ROAD	MONROE	NC	28112
JANES EDWIN W II	302 ROLLING KNOLL DR	BEL AIR	MD	21014
JANNEY RONALD L ET BARBARA M	319 N JACKSON STREET	EDEN	NC	27288
JARVIS DENNIS J ET RONNI L	352 BARMORE RD	LAGRANGEVILLE	NY	12540
JEFFRIES JEFFREY D E ET CATHERINE K	104 TORREY PINES DRIVE	CARY	NC	27513
JENKINS DAVID S ET JOANN	707 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
JENKINS SAMUEL A ET VIVIAN M	233 JOHN WEBB ROAD	ELLERBE	NC	28338

JENNINGS BRUCE & NADINE KURLAND	45 ALEXANDER LN	FALLING WATERS	WV	25419
JENNINGS LISA A	175 REHOBETH LANE	MOORESVILLE	NC	28117
JENSEN ERIC W ET PENELOPE	415 LANDERWOOD LANE	CHAPEL HILL	NC	27514
JENSEN ERIK J ET SUE R	1403 BAY ST	SUNSET BEACH	NC	28468
JERNIGAN HARRY	1824 W DOGWOOD RD	LORIS	SC	29569
JERNIGAN HENRIETTA H	1848 MORGANTON RD	FAYETTEVILLE	NC	28305
JETT JAMES HENRY & HELEN PIERCE	PO BOX 8142	SHALLOTTE	NC	28470
JODICE VINCENT A ET LORENA O	515 GREAT OAKS CIRCLE SW	SUNSET BEACH	NC	28468
JOHN JAMES THOMAS JR	311 MONTROSE LANE	LAURINBURG	NC	28352
JOHNSON CHARLES W & JOAN TRUSTEE	403 ORCHARD KNOB RD	CLINTON	TN	37716
JOHNSON DAVID C ET CHARLENE S	701-102 W LANE ST	RALEIGH	NC	27603
JOHNSON GREGORY A ET MONNIE	18748 BLUE VIOLET LN	GAITHERSBURG	MD	20879
JOHNSON JAMES C	3619 PEELER STREET	BURLINGTON	NC	27215
JOHNSON LARRY R ET HALLIE G	707 SHORELINE DR E	SUNSTE BEACH	NC	28468
JOHNSON MAURICE P ET SARAH	1200 LANCELOT DRIVE	PLEASANT GARDEN	NC	27313
JOHNSON RAY N ET TERRY M	9478 BAY FRONT DRIVE	NORFOLK	VA	23518
JOHNSON RAYFORD S ET PATRICIA	2050 MEADOW LANE	GRAHAM	NC	27253
JOHNSON THOMAS AVERY ET JOAN K	105 CAMPGROUND RD	DALLAS	NC	28034
JONES CARL STEPHEN JR ET BARBARA	1683 OAKMONT DR	ASHEBORO	NC	27203
JONES ELLIS JR ET SHIRLEY	PO BOX 682	ROWLAND	NC	28383
JONES JAMES E & BEATRICE C	29418 ZION CHURCH ROAD	DAMASCUS	VA	24236
JONES JAMES E ET LOU L	205 E SHORELINE DR	SUNSET BEACH	NC	28468
JONES JIMMY J ET CATHERINE N	270 HEATHER DRIVE	SUNSET BEACH	NC	28468
JONES KEITH LEE ET	1204 SASSPAN DR	SHALLOTTE	NC	28470
JONES LUTHER M ET EDNA P	307 MAGNOLIA DRIVE SW	SUNSET BEACH	NC	28468
JONES MARY P (LT)	600 KINGS TR	SUNSET BEACH	NC	28468
JONES SCOTT AND IRENE E	129 FOSTERTOWN ROAD	MEDFORD	NJ	08055
JONES SUE M	528 TWISTED OAK LN	SUNSET BEACH	NC	28468
JORDAN DAVID ET WANDA	437 FIELDSTONE DRIVE	BURLINGTON	NC	27215
JORGENSEN DONALD W ET ANNE RAVEN	PO BOX 411	SEAGROVE	NC	27341
JOYCE RODGER & JILL	3717C W MARKET ST	GREENSBORO	NC	27403
JOYCE WILLIAM P & BEULA M GRUBBS	155 NORTH HARDING RD	COLUMBUS	OH	43209
JUSTICE CHARLES & BILLY R	305 CHALON DRIVE	CARY	NC	27511
KARRIKER JAMES ET JANE H	496 BUCKHURST DR	KERNERSVILLE	NC	27284
KAY JOSEPH & BEVERLY	201 HOPKINS RD	SENECA	SC	29678
KAZAN VIRGINIA	111 CREEK DRIVE	QUINBY	SC	29506
KEARNS TALBERT E ET ELIZABETH B	1120 TWYLA RD	MORRISVILLE	NC	27560
KECK DIANNE H	5133 HIGHWAY 54	GRAHAM	NC	27253
KEETER ROBERT B JR ET MADGE	PO BOX 333	LAWNDALE	NC	28090
KEEVER JOSEPH F (LT) & ET	106 2ND STREET	BLACK MOUNTAIN	NC	28711
KEHRBERG NOELLE L & NINA L	PO BOX 2522	CULLOWHEE	NC	28723
KEIGER R KASON ET	211 E TATTERSALL DR	STATESVILLE	NC	28677
KEILEY LAWRENCE J ET MARY E	273 SEA TRAIL DR W	SUNSET BEACH	NC	28468
KELLER CAROLYN A & LEWIS S TRUSTEES	6306 LIGHTBURN COURT	CENTREVILLE	VA	20121
KELLEY BONNIE	12301 INGLESIDE DR	LAURINBURG	NC	28352
KELLEY TIMOTHY P ET ANGELA K	1105 W NORTH SHORE DR	SUNSET BEACH	NC	28468
KELLY BETTY K	190 PINE KNOLL DR	EASLEY	SC	29642
KENLEY CHARLES	7904 RIPPLESTIR CT	RALEIGH	NC	27615
KENNEDY DAVID F ET SARAH	5228 SHOFFNER RD	MC LEANSVILLE	NC	27301
KENNEDY JAMES M ET DARLENE S	101 NORTHSHORE DR	SUNSET BEACH	NC	28468
KENNEDY JOHN T ET MARYELLEN	3006 GARDEN LA	GARDEN CITY	SC	29576
KENNEDY RALPH D	320 SEA TRAIL DRIVE W	SUNSET BEACH	NC	28468
KEPLER WILLIAM L & VIRGINIA TRUST	571 LESTER CT	HARRISBURG	PA	17112
KERR JULIUS H ET GAYE C	313 WATERWAY DRIVE	SUNSET BEACH	NC	28468
KESLER JAMES MICHAEL ET AMY H	PO BOX 451	ELLERBE	NC	28338
KEY ADELAIDE D	300 WEBB COVE RD	ASHEVILLE	NC	28804
KIGER MILTON C	7325 FOSTER ST	RURAL HALL	NC	27045
KIKER BETTY W ETVIR WILLIS R	533 GREAT OAK CIRCLE	SUNSET BEACH	NC	28468
KIKER JACK C ET JANET S	303 SUGARTOP DR UNIT 2223	BANNER ELK	NC	28604
KILLIAN JOE Y	2649 HWY 161	YORK	SC	29745
KILLMEIER JOHN R & ET	3040 SHELLY GRAHAM DRIVE	GRAHAM	NC	27253
KING PHILIP L ET REBECCA S	406 BRYN COURT	PITTSBURG	PA	15237
KING WALTER L SR ET MIRIAM H	5048 16TH STREET DR NE	HICKORY	NC	28601
KING WILSON L ET REBECCA L	1525 BEECH MOUNTAIN PKWY	BEECH MOUNTAIN	NC	28604
KIRBY BRUCE N ET RUTH B	302 WOODSIDE AVE SW	LENOIR	NC	28645
KIRKLAND J DOUGLAS ET JUDY A	2165 HICKORY HOLLOW DR	ROCK HILL	SC	29730
KIRKMAN K WAYNE & MARJORIE	920 KLYCE ST	EDEN	NC	27288
KIRKPATRICK GENE MR AND MRS	118 SOUTHWICK CT	CARY	NC	27513
KISER PHYLLIS C	PO BOX 4953	ROCK HILL	SC	29732
KISH FRANCIS J ET LORAINE B TRUSTEE	699 FAIRWAY DRIVE EAST	SUNSET BEACH	NC	28468
KLAPP HERBERT C ET CAROLE J	711 FAIRWAY DR E	SUNSET BEACH	NC	28468

KLUTTZ HENRY N ET AMY	111 LIVE OAK DR	SUNSET BEACH	NC	28468
KLUTTZ JOHN A ET GLENNA B	107 DOGWOOD DRIVE	BLACK MOUNTAIN	NC	28711
KNAPP GARY B ET SYLVIA C	5239 SHANNAMARA DRIVE	MATTHEWS	NC	28105
KNAPP RICHARD ET LOURDES QUINTERO-K	883 MAIN ST	HINGHAM	MA	02043
KNAPP WARREN D JR ET FRANCES M	1270 THAYER DR	ASHEBORO	NC	27203
KNERR RICHARD & GLORIA TRUSTEES	533 DOGWOOD DR	SUNSET BEACH	NC	28468
KNIGHT J C ET MARCELINE	124 LAKEVIEW DRIVE	LENOIR	NC	28645
KNIGHT PATRICIA R TRUSTEE	212 OLDE OAK LANE	SUNSET BEACH	NC	28468
KNOTT WALTER II & JERRY COX	756 FESMIRE ST	ASHEBORO	NC	27205
KNOWLES LELIA R	210 BRIARCLIFF AVE	OAK RIDGE	TN	37830
KNOWLES NIRA P	151 THACKER FARM LANE	REIDSVILLE	NC	27320
KOCH PAMELA C	116 BELLEVILLE	BLOOMFIELD	NJ	07003
KOCHERSBERGER ROBERT C JR & BARBARA	415 SOUTH BOYLAN	RALEIGH	NC	27603
KORUDA MARK J ET BARBARA J	136 CAROLINA FOREST COURT	CHAPEL HILL	NC	27516
KOSCSO ROBERT P ET SUZANNE	208 CLEARPORT DR	CARY	NC	27519
KOVALCHIK WILLIAM M ET SHARRON S	55 HALAWA DR	HONOLULU	HI	96818
KOWTONIUK WALTER V ET CAROL E	201 GARDNER STREET	JOHNSTOWN	PA	15905
KROEMER SHARON LEONARD	3155 MORRIS STREET	WALKERTOWN	NC	27051
KRUPPENBACH HARRY W	12182 PURCELL RD	LAURINBURG	NC	28352
KRZYWICKI FRANCIS B ET HELEN C	PO BOX 268	LANDENBURG	PA	19350
KUHNEL MICHAEL ET STEPHANIE	9520 BELLS VALLEY DRIVE	RALEIGH	NC	27617
KUNZ JOHN M ET ALICIA R	411 AQUEDUCT STREET	AKRON	OH	44303
KUNZIER FRANK J ET ANNE	43 EVERGREEN DR	NORTH CALDWELL	NJ	07006
LADYZINSKI JOHN A ET MELINDA S	19 DOGGETT CT	BASKING RIDGE	NJ	07920
LAKEY ARNOLD N ET REBECCA	192 EAST MAGNOLIA RD	N WILKESBORO	NC	28659
LAMBE DAVID LEON ET LINDA	1405 WILEY LEWIS RD	GREENSBORO	NC	27406
LAMBERT EDDIE W & ET	2362 COLE MOUNTAIN RD	ASHEBORO	NC	27203
LAMOY FRANCES	716 FAIRWAY DRIVE EAST	SUNSET BEACH	NC	28468
LAMPLEY SHARON BURGESS	195 WILDERNESS DRIVE	ROCKINGHAM	NC	28379
LANDRY STEPHEN A ET JULIA M	18 TRAILBRIDGE DR	CINCINNATI	OH	45241
LANE JOHN M ET ANNIE RUTH	PO BOX 793	BENNETTSVILLE	SC	29512
LANE MILDRED CANIPE	PO BOX 6308	S BRUNSWICK	NC	28470
LANG JEFFREY A ET SYLVIA M	603 LIVE OAK DR	SUNSET BEACH	NC	28468
LANGFORD ROBERTA L	623 LIVE OAK DR SW	SUNSET BEACH	NC	28468
LANKFORD SHARON	8 CAPE MAY POINT	GREENSBORO	NC	27455
LANO CHARLES F ET JUDITH C	16618 SIR WILLIAM DRIVE	SPRING	TX	77379
LANTZ JOHN P ET CATHERINE E	1801 HAMPTON CHASE CT	PASADENA	MD	21122
LANZILLO JANE F	611 JASMINE LANE SW	SUNSET BEACH	NC	28468
LARSON LEX KINGSBURY ET KATHRYN A	100 SPICEWOOD PLACE	CHAPEL HILL	NC	27514
LAUGHINGHOUSE ANN	302 WILDWOOD CIR	MYRTLE BEACH	SC	29572
LAUGHLIN JAMES H ET EMILY R	215 AZALEA CIRCLE	SUNSET BEACH	NC	28468
LAW JAMES ARLIE ET CYNTHIA S	PO BOX 969	STEWART	VA	24171
LAWRENCE JUDSON	3021 PINETUCK LANE	ROCK HILL	SC	29730
LAWSON ALTON ET JUDITH B	1401 EAST 8TH ST	LUMBERTON	NC	28358
LAWSON JANET L	PO BOX 7377	SHALLOTTE	NC	28470
LAWSON ROBERT C ET LINDA K	935 W MT HERMAN CHURCH RD	ELKIN	NC	28621
LEA JOHN JOEL	PO BOX 1379	LAURINBURG	NC	28353
LEAHY MARY L	622 JAMINE LANE	SUNSET BEACH	NC	28468
LEAR JOSEPH WILLIAM ET JENNY SUE	1709 IVY DR	MARION	SC	29571
LEARY PAUL A	PO BOX 905	INSTITUTE	WV	25112
LEAVITT DENISE D	535 TWISTED OAK LANE	SUNSET BEACH	NC	28468
LEAVITT ROBERT W JR ET DALLAS C	211 W CANAL AVE	SUNSET BEACH	NC	28468
LEBLANC J MICHAEL & JAYNE L HELMS	3664 ELLISBORO ROAD	STOKESDALE	NC	27357
LECLAIR H ROBERT JR	607 DOGWOOD DR SW	SUNSET BEACH	NC	28468
LECOUNT JUNE	214 AZALEA CIRCLE	SUNSET BEACH	NC	28468
LEDEN GORDON F ET BARBARA H	7512 WINGFOOT DR	RALEIGH	NC	27615
LEDGETT CONSTANCE	318 E BAY ST	SOUTHPORT	NC	28461
LEE EDWARD S	PO BOX 6803	SOUTH BRUNSWICK	NC	28469
LEE RONNIE G ET PAMELA J	1316 ANN ST	ROCKINGHAM	NC	28379
LEFEBVRE JOSEPH C ET JACQUELINE M	19439 COACHMANS TRACE	CORNELIUS	NC	28031
LEFELAR GEORGE N ET MARGARET F	14816 LAKE TERRACE	ROCKVILLE	MD	20853
LEGGETTE HENRY F ETU	1557 CHURCH RD/PO BOX 217	PROCTORVILLE	NC	28375
LEHRER RICHARD ET ELLEN	720 LONGLEAF DRIVE	SUNSET BEACH	NC	28468
LEIGHT LAWRENCE W ET GLORIA JOAN	212 AZALEA CIRCLE SW	SUNSET BEACH	NC	28468
LEINFELDER KARL F ET LAVONNE	207 HELMSDALE DRIVE	CHAPEL HILL	NC	27514
LENNON LEON B ET BETTY F	12025 HAYNE LENNON ROAD	EVERGREEN	NC	28438
LENTZ BARRY RICHARD	129 TRADESCANT	CHAPEL HILL	NC	27514
LENZ JOHN O ET KAREN L	6206 WINNEPEGG DR	BURKE	VA	22015
LEONHARDT ALVIN L ET ELLA MARIE	2312 ACME ROAD	BELMONT	NC	28012
LEPORE PROPERTIES LLC	830 SUNSET BLVD	SUNSET BEACH	NC	28468
LEVAN JOHN S ET	5924 MEADOWMERE DR	MONROE	NC	28110

LEVAN ROBERT L ET ROBERTA B	1065 FOREST RD	WEST CHESTER	PA	19382
LEVINE STEVEN R ET BARBARA Y	4008 WATAUGA DR	GREENSBORO	NC	27410
LEVINSON IRVING ET SHIRLEY M	27 SHINDLER TERRACE	W ORANGE	NJ	07052
LEWIS JACK B JR	PO BOX 27	ROCK HILL	SC	29731
LEWIS JESSE F JR ET E CAROL	521 SHORELINE DR EAST	SUNSET BEACH	NC	28468
LEWIS JOHN T & ROSE T	201 SHORELINE DR E	SUNSET BEACH	NC	28468
LEWIS ROBERT E & ET	523 LIVE OAK DR SW	SUNSET BEACH	NC	28468
LIEBERT R W	3518 CYPRESS CLUB DR	CHARLOTTE	NC	28210
LINCOLN TRUST COMPANY & ET	419 SUNSET BLVD	SUNSET BEACH	NC	28468
LINDSEY FRANCES I	PO BOX 1164	REIDSVILLE	NC	27320
LINKOUS GERTHEL H	1213 LONG MEADOWS DR	LYNCHBURG	VA	24502
LINTON ASHLEY C	2026 CAMELOT DR	OCEAN ISLE BEACH	NC	28469
LITCHFIELD WILFRED C ET KATHERINE D	730 LIVE OAK DR SW	SUNSET BEACH	NC	28468
LITTLE BILLY R ET LILLIE D	PO BOX 7899	SHALLOTTE	NC	28470
LITTLE CHARLES A ET DELL E	207 AZALEA CIRCLE	SUNSET BEACH	NC	28468
LITTLE WAYNE C	PO BOX 208	OAKBORO	NC	28129
LITZENBERGER THOMAS ET JANET TRUST	PO BOX 194	MONT ALTO	PA	17237
LIVELY JACK H JR ET DEBORAH F	232 TRAPP HILL PLACE	DURHAM	NC	27705
LIVELY PAUL G ET BETTY M	5201 CARRIAGE DR	CHARLOTTE	NC	28205
LIVING SOLUTIONS LLC	PO BOX 414	AMISSVILLE	VA	20106
LIVINGSTON DAVID F ET JEANETTE L	505 SHORELINE DRIVE EAST	SUNSET BEACH	NC	28468
LLOYD WILBUR R ET MARY	2408 N MAURY ARCH	BURLINGTON	NC	27215
LOCKLEAR JERRY DEAN	3532 LAYTON RIDGE RD	APEX	NC	27502
LOCKLEAR THOMAS JAMES	420 SUNSET GROVE DRIVE	HOLLY SPRINGS	NC	27540
LOCKMAN JEFFERSON R ET LORENE W LAW	PO BOX 714	MOUNT HOLLY	NC	28120
LOESTER RICHARD P ET VIRGINIA	211 SHORELINE DR	SUNSET BEACH	NC	28468
LOFIN ALAN D ET CYNTHIA N	204 MEADOW WOOD DR	SALISBURY	NC	28146
LOFLAND FRANK E JR & JANET	222 AZALEA CIRCLE	SUNSET BEACH	NC	28468
LOHR HAZEL K	816 HOLLY LANE	SUNSET BEACH	NC	28468
LONG CHRISTINE S	1024 WOODHAVEN TRAIL	YADKINVILLE	NC	27055
LONG EMILY KOLE	5818 BEACH DR SW	SHALLOTTE	NC	28470
LONG GERALD ET FREEDA	PO BOX 1306	SHALLOTTE	NC	28459
LONG JESSE D ET ELAINE M	7808 WALLACE LANE	CHARLOTTE	NC	28212
LONG L CURTIS ET BARBARA	1516 RICE HOPE COURT	GASTONIA	NC	28054
LONG LLOYD JAMES	1115 JOHN SHORT RD	FORT MILL	SC	29715
LOOKABILL GENE L SR & JACQUELINE H	3601 MOUNTAINBROOK RD	CHARLOTTE	NC	28210
LOOMER GLENN D ET SUSAN S	550 MILLSBEE LANE	ROSWELL	GA	30075
LOVETT MINETTE G	1041 GREEN SEA RD N	GREEN SEA	SC	29545
LOVETT PATRICK REX	6500 SWAMP FOX RD WEST	TABOR CITY	NC	28463
LOWE CHARLES F JR & ANN M	315 WALNUT GROVE ROAD	ARCHDALE	NC	27263
LOWENSTEN DONALD LM ET ELEANOR	321 HEATHER COURT	SUNSET BEACH	NC	28468
LOWRY DANSBY M	1886 FRANK BARNETTE RD	ROCK HILL	SC	29732
LOWRY JERRY	1511 COLUMBINE ROAD	SANFORD	NC	27330
LUCAS JAMES ROY ET BETTY LEE	197 BRANCH ROAD	BELL	WV	25015
LUDLUM SARA LEE & JANE A STEPHENS	PO BOX 9695	ASHEVILLE	NC	28815
LUEDER DR DONALD C	2327 HAMILTON MILL RD	CHARLOTTE	NC	28226
LUM DONALD ET DENISE	1324 LIBERTY COURT	NORTHFIELD	MN	55057
LUPO SAMUEL E & HIROKO LIVING TRUST	3816 N TAZEWLL STREET	ARLINGTON	VA	22207
LUPO SUSAN ETVIR & ANDREW TAYLOR	PO BOX 221255	CHARLOTTE	NC	28222
LUZI WILLIAM A ET ROSEMARY E	4332 BANBURY DR	GAINESVILLE	VA	20155
LYNCH GEORGE F ET ALICE T	5 RAND PLACE	BEDFORD	MA	01730
LYNCH GWENDOLYN I	PO BOX 63	BETHANIA	NC	27010
LYNCH JOANN L	399B OXFORD LANE	MONROE TOWNSHIP	NJ	08831
MABE CAROLYN F	305 N COUNCIL OAK ST	MORGANTON	NC	28655
MABES GEORGE DEWEY JR ET NORMA W	1322 WASHINGTON ST	EDEN	NC	27288
MACKINNON ROSEMARY	708 LONGLEAF DR	SUNSET BEACH	NC	28468
MACLAREN JAMES E ET EDITH	57 ADELHAIDE LANE	EAST ISLIP	NY	11730
MACLIN MARY C	616 MYERS LANE	GREENSBORO	NC	27408
MACMILLIAN DOUGLAS P & ET	3911 LARKSTON DRIVE	CHARLOTTE	NC	28226
MAHER RICHARD H ET	7340 ELWOOD DR	CHARLOTTE	NC	28227
MAHER THOMAS L JR ET CHARLOTTE TRUS	636 DOGWOOD DRIVE SW	SUNSET BEACH	NC	28468
MALLONEE MICHAEL S ET EUGENIA	2715 NORMANDY RD	CHARLOTTE	NC	28209
MANNING JERRY P ET GAIL B	717 FAIRWAY DR E	SUNSET BEACH	NC	28468
MANSER RUDOLPH G ET PATRICIA A	418 WILLOW PEG WAY	RINCON	GA	31326
MANSON PALMER W ET ANITA R	218 AZALEA CIRCLE	SUNSET BEACH	NC	28468
MARING BOBBY L ET CHRISTIE L	212 WEST 20TH ST	LUMBERTON	NC	28358
MARKS MIRIAM W & MASON J M TRUSTEES	1004 E MAIN ST	SUNSET BEACH	NC	28468
MARLOWE ARTHUR JR	PO BOX 64095	FAYETTEVILLE	NC	28306
MAROLF ROBERT B ET DEBRA A	10833 TARA OAKS DRIVE	CHARLOTTE	NC	28227
MARRA STEPHANIE M & ANTHONY J JR	17565 STOCKTON LANE	CHAGRIN FALLS	OH	44023
MARSHALL JAMES W	506 GREAT OAKS CIRCLE	SHALLOTTE	NC	28459

MARSHALL JEAN S	1 HICKORY NUT LANE	LAKE WYLIE	SC	29710
MARTI EDWIN SR ET MARION	416 STOKES DR	SUNSET BEACH	NC	28468
MARTIN CHARLES S JR ET ANN M	5039 BONNIE BRAE RD	RICHMOND	VA	23234
MARTIN DAVID P ET GERALDINE A	PO BOX 954	LENOIR	NC	28645
MARTIN DONALD C ET CHRISTY F	2924 MICHELLE DR	MATTHEWS	NC	28105
MARTIN GAIL A	PO BOX 1866	DUNN	NC	28335
MARTIN JAMES GUY ET JULIA STEPHEN	PO BOX 647	LUMBERTON	NC	28359
MARTIN JANICE K	622 GALWAY LANE	COLUMBIA	SC	29209
MARTIN JERRY CASH ET CAROLYN	961 BLUE HOLLOW	MT AIRY	NC	27030
MARTIN JOE T	518 HAWTHORNE LANE	GASTONIA	NC	28052
MARTINELLI LOUIS J ET MARIE T	33 MANNY WAY	RED BANK	NJ	07701
MARTORELLI FRANK W ET ELLEN M	692 FAIRWAY DR E	SUNSET BEACH	NC	28468
MAS PROPERTIES LLC	131 OCEAN BLVD WEST	HOLDEN BEACH	NC	28462
MASON JAMES W III & CELESTE M PITTM	108 CANDLE CT	ROCKY MOUNT	NC	27804
MATTHEWS DEXTER R ET ANN W	2105 WEYBRIDGE DR	RALEIGH	NC	27615
MATTHEWS KENNETH FRANCIS JR	11535 EDENBERRY DRIVE	RICHMOND	VA	23236
MATTHIS CHARLES B ET EDNA	615 LIVE OAK DRIVE	SUNSET BEACH	NC	28468
MATTSON C RUSSELL ET CONSTANCE W	655 KINGS CT	SUNSET BEACH	NC	28468
MAURER SCOTT A ET CHRISTINE S	591 BORO LINE RD	TRAPPE	PA	19426
MAWJI KARIM B ET DEBORA	403 WATER OAK WYND	SUNSET BEACH	NC	28468
MAXWELL JAMES ET & BEASON ROBERT ET	PO BOX 52396	DURHAM	NC	27717
MAYBERRY CECIL M TRUST	227 LIVE OAK DRIVE SW	SUNSET BEACH	NC	28468
MAYKUTH JOHN S JR ET	1776 PHARVIEW DR SW	OCEAN ISLE BEACH	NC	28469
MCALEER JAMES ET SANDRA	PO BOX 6429	SHALLOTTE	NC	28469
MCARN SALLY ROESSLER TRUSTEE	PO BOX 500	HUDSON	OH	44236
MCCAMMON ROBERT J ET TERRY	3781 WOODBRIAR WAY	MCKLEAN	PA	16426
MCCANN MARVIN & LOUIS R LAZENBY	2002 OLD RALEIGH ROAD	APEX	NC	27502
MCCANNON HENRY T ET MARY (LT)	16 PADDINGTON DR	CONCORD	NC	28025
MCCARN RICHARD H ET SONJA S	405 40TH ST	SUNSET BEACH	NC	28468
MCCARROLL RICHARD E ET LEE	15 BUSBEE ROAD	ASHEVILLE	NC	28803
MCCARTHY CHARLES EDWARD ET VIRGINIA	2407 LAUREL DRIVE	SANFORD	NC	27330
MCCARTHY THOMAS E JUDITH K	182 FREEDOM MILL ROAD	GASTONIA	NC	28052
MCCLURE GLADYS Y ETVIR BRUCE	3328 DDRAPER AVE	CHARLOTTE	NC	28205
MCCLURE PATRICIA B	21 ISLE PLAZA	OCEAN ISLE BEACH	NC	28469
MCCLURE STEPHANIE KAREN & JERRY BEN	1434 FOX RUN	CHARLOTTE	NC	28212
MCCLURE WILLIAM M ET GINGER	5619 RYDER AVE	CHARLOTTE	NC	28226
MCCOLLISTER RICHARD D ET KATHEY T	306 TRAPPERS RDG	ROCKWELL	NC	28138
MCCOLLUM JOE P ET BICKETTE	2801 OLIVE BRANCH ROAD	MONROE	NC	28110
MCCOMB JOHN A & JANET TRUSTEES	714 FAIRWAY DR EAST	SUNSET BEACH	NC	28468
MCCORKLE PHIL RAY ET BARBARA	427 N SALISBURY AVENUE	SPENCER	NC	28159
MCCOY BARBARA J	2872 CEDAR MILL CROSSING	AWORTH	GA	30102
MCCOY DONALD W JR & ET	8116 NORTH HOUND COURT	CHAPEL HILL	NC	27516
MCCREA MICHAEL S	50599 LINCROFT LANE	GRANGER	IN	46530
MCCREARY BOBBY JOE	1473 KNOLLS DRIVE	NEWTON	NC	28658
MCCULLOUGH MICHAEL DAVID ET ANGELA	404 SHORELINE DR E	SUNSET BEACH	NC	28468
MCCURLEY ROGER DON ET BETTY B	709 SHORELINE DRIVE E	SUNSET BEACH	NC	28468
MCCURRY DANIEL ET PATSY W	2412 DENISE DRIVE	GASTONIA	NC	28054
MCCURRY MARK S ET CATHERINE F	721 PINEHURST DR	CHAPEL HILL	NC	27514
MCDAVID JAMES E JR ET MACON H	2109 REAVES DR	RALEIGH	NC	27608
MCDONALD ROY AND SHIRLEY	126 CRONLY ST	LAURNBURG	NC	28352
MCDOUGAL CHARLES A TRUSTEE	7928 ROOKSLEY COURT	RALEIGH	NC	27615
MCDOWELL DALE L ET BRENDA L	152 LAKE HUNT DRIVE	REIDSVILLE	NC	27320
MCDUFFIE JAMES C ET CATHY B	PO BOX 2147	ROCKINGHAM	NC	28380
MCDUFFIE SCOTT ET JUDY K	543 NC 62 EAST	PLEASANT GARDEN	NC	27313
MCELROY SHIRLEY J	7337 OLD MILL TRAIL	TRUSSVILLE	AL	35173
MCELVEEN CHARLES B	311 WEST GODBOLD	MARION	SC	29571
MCFARLANE RONALD H ET NANCY L	8016 SELFRIDGE CT	RALEIGH	NC	27615
MCGEE DONALD L JR & BONNIE B	1701 PIPER PLACE	GREENSBORO	NC	27408
MCGEE JAMES J ET EDNA S	733 MAGNOLIA DR	SUNSET BEACH	NC	28468
MCGEE JERRY E	1204 IRONGATE DR	MONROE	NC	28110
MCGEE MARGARET C	PO BOX 6264	SOUTH BRUNSWICK	NC	28470
MCGLOON THOMAS M	1142 S DOGWOOD DRIVE	HARRISONBURG	VA	22801
MCGONEGLE JEROLD ETU	5937 HIGHDALE CIRCLE #H	ALEXANDRIA	VA	22311
MCINNIS DAVID F	738 REYNOLDS RD	SUMTER	SC	29150
MCIVER HAZEL M	PO BOX 187	BELEWS CREEK	NC	27009
MCJUNKIN EUGENE H ET	626 DOGWOOD ROAD	STATESVILLE	NC	28677
MCKENZIE GERALD D ET ETHEL F	1528 OLANTA HIGHWAY	EFFINGHAM	SC	29541
MCKINNEY BARNEY	PO BOX 704	PORTSMOUTH	OH	45662
MCKISSICK MICHAEL L ET BONNIE K	2605 HARRY SHELLEY CT	MARION	SC	29571
MCLAIN DAWN M & BARBARA M LIVING TR	547 GREAT OAK CIRCLE SW	SUNSET BEACH	NC	28468
MCLANE WILLIAM A ET BARBARA	8669 HARPS MILL ROAD	RALEIGH	NC	27615

MCLEAN DUNCAN N ET FRANCES S	PO BOX 431	MORROW	GA	30260
MCLEER MICHAEL ROBERT ET MIRIAM	2123 MCMANUS RD	MIDLAND	NC	28107
MCLENNAN WILLIAM ET CAROL	2959 CEDAR CREEK RUN	LITTLE RIVER	SC	29566
MCLEOD GLENDA DUBOSE	1613 BELLEVIEW DR	FLORENCE	SC	29501
MCMILLIAN DOUGLAS H ET MARGARET	273 TANGLEBROOK TR	EDEN	NC	27288
MCMULLEN DOROTHEA	2607 VANSTORY STREET	GREENSBORO	NC	27407
MCNAIR CAROLYN R	1115 TURNBRIDGE ROAD	CHARLOTTE	NC	28226
MCNEILL ROBERT C ET MILDRED C	7660 ROCKINGHAM ROAD	LAUREL HILL	NC	28351
MCPHERSON ROGER L ET LINDA L	3000 DUNMURRY RD	BALTIMORE	MD	21222
MCREE LEONARD ET BEVERLY	PO BOX 1763	DAVIDSON	NC	28036
MCWHIRTER DAVID DEWEY	9450 NUGGET HILL PLACE	CHARLOTTE	NC	28227
MEASE ANNA S AS TRUSTEE	22211 SHILOH CHURCH ROAD	BOYDS	MD	20841
MEDLIN MARGARET SUGGS	PO BOX 692	PINEVILLE	NC	28134
MEHNE DOUGLAS	694 EAST FAIRWAY DR	SUNSET BEACH	NC	28468
MEIER NED R ET MARLENE K	105 N SHORE DR	SUNSET BEACH	NC	28468
MELANSON NORMAN R ET ELIZABETH A	203 OLDE OAK LANE	SUNSET BEACH	NC	28468
MELETIS THOMAS PETER & ET	26 ETON RD	CHARLESTON	SC	29407
MELVIN CHARLES H JR ET DEBBIE	5935 CARNEGIE BLVD STE101	CHARLOTTE	NC	28209
MELVIN CHARLES KENNETH ET LEAH	711 STANLEY AVENUE	ROCKINGHAM	NC	28379
MELVIN ERNEST C ET BARBARA B	6202 STEEPLE CHASE COURT	GREENSBORO	NC	27406
MELVIN GARY ET KATHY	414 MILLER-CHAPEL ROAD	REIDSVILLE	NC	27320
MELVIN WILLIAM R & LESLIE A REECE	1704 RED BIRD DRIVE	PLEASANT GARDEN	NC	27313
MENGEL PAUL W ET LOIS S	28 OAK LANE	DANVILLE	VA	24541
MEROE MASAO ET JANET L	822 COLGATE AVE #16-M	BRONX	NY	10473
MERRILL ROBERT L ET LOIS H	PO BOX 1095	BREVARD	NC	28712
MERRITT JAMES W	612 LIVE OAK DR SW	SUNSET BEACH	NC	28468
METKIFF WILLIAM ET FRAN	19 SURREY DR	NORTH MERRICK	NY	11566
MEYER ALBER J	PO BOX 3469	RICHMOND	VA	23235
MICHAELIS LORING E ET NANCY J	39 GREENWOOD DRIVE	HORSHAM	PA	19044
MILAN PAUL JEFFREY ET LORELEI	4021 SKIP JACK COURT	RALEIGH	NC	27613
MILLER BRIDGET C	13100 WESTMORELAND RD	HUNTERSVILLE	NC	28078
MILLER CHARITY P	701 LIVE OAK DR	SUNSET BEACH	NC	28468
MILLER CHRIS H ET ROBIN	1348 OTISCO VALLEY RD	MARIETTA	NY	13110
MILLER KATHLEENE	226 MAGNOLIA DR	SUNSET BEACH	NC	28468
MILLER MARGARET	521 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
MILLER RICHARD A ET CATHERINE C A	2275 WOODMERE DRIVE	CLEVELAND	OH	44106
MILLER ROBERT E ET MARY L	651 KINGS COURT	SUNSET BEACH	NC	28468
MILLER WILLIAM E ET GAIL	6000 CHRISTOPHER WREN DR	WEXFORD	PA	15090
MILLIGAN H N ET FRANCES	305 SHORELINE DR	SUNSET BEACH	NC	28468
MILLPINE ENTERPRISES	25 MCMICHAEL DR	PINEHURST	NC	28374
MILLS JOHN H	229 LIVE OAK DRIVE SW	SUNSET BEACH	NC	28468
MILLSAPS ANDREW KIRK ET DAWN	815 CONWAY CT	WINSTON SALEM	NC	27106
MILLSAPS JEANETTE H	825 BUTTONWOD DR	WINSTON-SALEM	NC	27104
MINOR RALPH R & DORIS	525 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
MOFFETT SHIRLEY H	3511 CLONINGER RD	DALLAS	NC	28034
MOFFITT JAMES I	911 PEMBROKE ROAD	GREENBORO	NC	27408
MOHR J CHRISTIAN ET LINDA C	729 PEDDLEBROOK DR	RALEIGH	NC	27609
MOKRYCKI JAMES ET CHRISTINE	52 PINEWOOD DRIVE	CAROLINA SHORES	NC	28467
MOMMSEN TODD M ET SHARON H	1903 HUNTERWOODS DRIVE	HIGH POINT	NC	27265
MONAHAN SHIRLEY M	PO BOX 513	LATTA	SC	29565
MONROE BRYAN D ET HEATHER J	12209 KAYSMOUNT COURT	RALEIGH	NC	27614
MONROE JAMES A ET MARY N	360 JOHN HENRY LEE RD	LUMBERTON	NC	28358
MONTENYOHL ERIC L ET MARGARET M	116 RAVENNA WAY	CARY	NC	27513
MONTGOMERY DAVID B ET KAREN G	801 BROOKGREEN DRIVE	CARY	NC	27511
MOOCK BRADLEY H ET JEANINE M	6200 GODFREY DR	RALEIGH	NC	27612
MOORE AVIS H	806 LIVE OAK DR	SUNSET BEACH	NC	28468
MOORE BOBBY G ET SUSAN	1801 CHIPCHASE DR	KERNERSVILLE	NC	27284
MOORE FREDDIE H & HARRIET TRUSTEES	1860 CEDAR DRIVE	LENOIR	NC	28645
MOORE HUGH J ET MARY RACHEL	401 COURTLAND STREET	SPINDALE	NC	28160
MOORE KEITH R ET TERRY D	10726 YELLOW TAIL CT	CHARLOTTE	NC	28270
MOORE LAWRENCE E & NANCY P TRUSTEE	109 BRIARWOOD ROAD	SPARTANBURG	SC	29301
MOORE MARY R	706 SHORE LINE DR E	SUNSET BEACH	NC	28468
MOORE RONALD L ET LOUISE W	8700 SOUTHAMPTON DR	RALEIGH	NC	27615
MOORE THOMAS W ET BRENDA G	1521 HUNTING RIDGE ROAD	RALEIGH	NC	27615
MOORE WILLIAM E ET TRUDIE P	PO BOX 36	HENRIETTA	NC	28076
MORAN ARTHUR P ET JEAN D	73 CAMPMEETING ST	SIDNEY	NY	13838
MORGAN DONALD WAYNE ET KIMBERLY	PO BOX 92	LAUREL HILL	NC	28351
MORGAN JEFF T	4421 S ELM-EUGENE ST	GREENSBORO	NC	27406
MORGAN JOEL	715 SHUE ROAD	CHINA GROVE	NC	28023
MORRIS CLAUDIUS IV & CHANTAL A	3902 ST MARKS RD	DURHAM	NC	27707
MORRIS LUCILLE M ETVIR BILLY	381 WESTERLY PARK RD	EDEN	NC	27288

MORRISON PEGGY	1411 OLDE TURNBURY CT	CHARLOTTE	NC	28277
MOSE KENNETH ALLEN	406 WATEROAK WYND	SUNSET BEACH	NC	28468
MOSS EMMETT L ET HILDA H	PO BOX 217	GROVER	NC	28073
MOTEL EQUIPMENT LEASING CORP	5826 STANLEYVILLE DRIVE	RURAL HALL	NC	27045
MOULTON GUY C ET HENRIETTA	509 FAIRWAY DR	SUNSET BEACH	NC	28468
MOUNT SHOOP PAUL ET MARCIA	1038 GRACEWOOD RIVE	LIBERTYVILLE	IL	60048
MOWERY LEWIS K SR	PO BOX 25955	WINSTON SALEM	NC	27114
MRS INVESTMENTS	1108 WEST FRONT STREET	BURLINGTON	NC	27215
MUNN WILLIAM F & MARIE T	722 LONG LEAF DR	SUNSET BEACH	NC	28468
MURPHY JOHN A ET MARTHA G	280 SEA TRAIL DR	SUNSET BEACH	MD	28468
MURPHY KENNETH D ET VERNA Y	30 LAKE DRIVE	CANDLER	NC	28715
MURPHY LINDA LOU & TINA SUZETTE FLO	173 OLD PETRIE RD	SPARTANBURG	SC	29302
MURRAY JAY A ET MICHELLE	476 MISSOULA COURT	RENO	NV	89511
MURRAY JOHNNIE A ET PATRICIA	518 SHERRON ROAD	DURHAM	NC	27703
MURRAY ROBIN NESMITH	6676 OLD COLLEGE RD	LISLE	IL	60532
MUTSCHINSKI GERHARD ET GIZELLA	501 GREAT OAKS CIR	SUNSET BEACH	NC	28468
MYERS CORLISS S ET CAROLYN M	PO BOX 8094	SHALLOTTE	NC	28470
MYLROIE AUGUSTA	126 CAROLINA MDWS VILLA	CHAPEL HILL	NC	27517
MYRICK PATTIE F & G P MARG TRUSTEE	3104 STEEPLETON WAY	GREENSBORO	NC	27410
N C DEPT OF TRANSPORATION	PO BOX 25201	RALEIGH	NC	27611
NAHORY WILLIAM F	5308 GUILDBROOK RD	CHARLOTTE	NC	28226
NAIN ANN B ET	5032 LAUREL GROVE LANE	WEDDINGTON	NC	28105
NAPPY GERARD J	596 KINGS TRAIL	SUNSET BEACH	NC	28468
NARDONI LONDA I	689 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
NEAL CLIFTON SAMPLE ET CYNTHIA	4300 STRANGEFORD AVE	CHARLOTTE	NC	28215
NEAL ELIZABETH A	2403 QUAIL LAKE DR	CHARLOTTE	NC	28210
NEALY JAMES B ET OLA M	1236 LAKEDELL DR	CHARLOTTE	NC	28215
NEELY DEBORAH COPELAND	10843 ALEXANDER MILL DR	CHARLOTTE	NC	28277
NELSON DAVID L	502 N SUNSET BLVD	SUNSET BEACH	NC	28468
NERN CHARLES C ET SUSAN G	647 OYSTER BAY DRIVE	SUNSET BEACH	NC	28468
NESMITH FRANK M	110 HICKORY STREET	SUNSET BEACH	NC	28468
NEVILLE MYRON E	PO BOX 145	PEMBROKE	NC	28372
NEWELL J MICHAEL	701 CLAYFIELD COURT	CHARLOTTE	NC	28209
NEWMAN SAMUEL ET JODY	593 COACH TRAIL	SUNSET BEACH	NC	28468
NEWTON BARBARA & JEFFREY DRASHEFF	633 RINGWOOD AVE	WANAQUE	NJ	07465
NEWTON JAMES H ET SUSAN C	405 TRAMORE DR	CHAPEL HILL	NC	27516
NICOLETTI CHRIS ET GRETA	6620 ELGIN LANE	BETHESDA	MD	20817
NILSSON DALE R ET JACQUELINE F	1204 APACHE LANE	APEX	NC	27502
NOBLES DALAIR ET BRENDA	815 LIVE OAK DR	SUNSET BEACH	NC	28468
NORDH JAN-ERIK ET BRITT M	104 OLD CHARLESTON DRIVE	ELON	NC	27244
NORMANSELL RICHARD T & JENNIFER TR	1727 PHARVIEW DRIVE SW	OCEAN ISLE BEACH	NC	28469
NUNIS MARKEL T ET JEAN M	3176 HERMITAGE DRIVE	LITTLE RIVER	SC	29566
NYE RONALD M ET LYNDA B	515 N BROADRIDGE RD	ORRUM	NC	28369
OAKES ROBERT E JR TRUSTEE	708 SOUTH CREEK DRIVE	NASHVILLE	NC	27856
OAKLEY DON P ET JILL A	704 WIMBERLY DRIVE	GREENSBORO	NC	27410
OAKLEY ROBERT L ET VIRGINIA J	241 BULLARD FORD RD	HARTSVILLE	SC	29550
OAKLEY ROGER D	2668 NORTH STREAM CT	HOW RIVER	NC	27258
OAKLEY WILLIM H JR ET SANDRA H	631 MILLSLOUGH LANE SW	SUNSET BEACH	NC	28468
OBLAK DAVID J ET MARILYN	11873 FAWN RIDGE LANE	REATON	VA	20194
OBLAK ROBERT O ET PATRICIA A	957 WILLIAMS CT	WALWORTH	WI	53184
O'BRIEN JOSEPH W ET DIANNE M	105 KENT AVE	MARLTON	NJ	08053
O'BRIEN MARC S ET TAMMY	PO BOX 1733	SHALLOTTE	NC	28459
OCEAN ISLE MUSEUM FOUNDATION	21 EAST SECOND ST	OCEAN ISLE BEACH	NC	28469
OCEAN RIDGE FARMS INC	351 OCEAN RIDGE PKWY SW	OCEAN ISLE BEACH	NC	28469
ODOM ALVIN J JR ET ANNETTE Y	502 W NORTHSHORE DRIVE	SUNSET BEACH	NC	28468
ODOM ANNETTE Y & RALPH F YARBROUGH	428 SUNSET BLVD	SUNSET BEACH	NC	28468
OLIVE G HUNTER ET MARY E	PO BOX 53334	FAYETTEVILLE	NC	28305
OLIVER ENTERPRISES OF GREENSBORO LL	4010 WALDENBROOK CT	GREENSBORO	NC	27407
ONEILL DONALD J ET MARGARET	231 N LINCOLN STREET	PEARL RIVER	NY	10965
ORAVEC DANIEL D	115 WATER LAND WAY	FREDERICK	MD	21702
O'REAR DAVID M	3713 INGRAM DRIVE	RALEIGH	NC	27604
O'SULLIVAN COLIN & KAREN THORNTON	10161 CREEKSIDE DR SE #D2	LELAND	NC	28451
O'SULLIVAN KEVIN ET ANNE M	PO BOX 354	ATHENS	WV	24712
OTTENI GERALD V ET SUSAN B	123 OVERBROOK DR	CONCORD	NC	28025
OWEN BRUCE MICHAEL ET ANN MARIE	293 SEA TRAIL DR W	SUNSET BEACH	NC	28468
OWEN SHIRLEY B	184 YOW RD	SEAGROVE	NC	27341
OWEN WILLIAM J ET JEAN M	4900 HALBERD CT	RALEIGH	NC	27613
OZIMEK JOHN	303 E WASHINGTON AVE	FAIRFIELD	IA	52556
PADGETT JAMES T ET PATRICIA B	416 HOOK AVE	COLUMBIA	SC	29169
PADGETT JOYCE WIKE	213 SHANNON DR	WILMINGTON	NC	28403
PADGETT RAY WILLIAM JR ET ELIZABETH	1213 DIXIE TRAIL	RALEIGH	NC	27607

PADGETT WILLIAM ET DEBRA	5208 CAMP STEWART RD	CHARLOTTE	NC	28215
PAGE EDWARD W	708 TOPAZ COURT	SENECA	SC	29672
PAGE GENE ALLEN ET BRENDA KIRBY	1136 33RD STREET SW	HICKORY	NC	
PAGE GEORGE W	210 KEMP RD E	GREENSBORO	NC	27410
PAGE WILLIAM C ET SYLVIA H	349 COURTNEY LANE	MATTHEWS	NC	28105
PAGELS JOHN F ET BARBARA	4425 MOREHOUSE TERRACE	CHESTERFIELD	VA	23832
PAIT-MULKEY TRACY LYNN	1024 PARK RD	SUNSET BEACH	NC	28468
PALMER CHARLES ET REBECCA A	6197 ABBOTSFORD DRIVE	DUBLIN	OH	43017
PALMER GEORGE E ET	5512 CARMEL RD APT 319	CHARLOTTE	NC	28226
PALMER JEANETTE L	3723 METHODIST PARK ROAD	VALDESE	NC	28690
PALMER NED P & ODELIA WINSHAW	6339 RICHLAND CHURCH RD	LIBERTY	NC	27298
PAOLONI DALE H ET TONI	103 FAIRWAY VALLEY CT	CARY	NC	27513
PARADISE WEST	875 MIALINA FOREST COURT	WINSTON SALEM	NC	27106
PARKER CHARLES E ET SUSAN LYNN	947 NORTHWYCK DR	WHITSETT	NC	27377
PARKER EDDIE JR & DOLLIE	809 LIVEOAK DR SW	SUNSET BEACH	NC	28468
PARKER LAWRENCE J ET IRENE	1011 PARK RD SW	SUNSET BEACH	NC	28468
PARKER RICHARD MILLARD	10500 IDA CHAPEL ROAD	LAUREL HILL	NC	28351
PARKER S. EDWARD JR TRUSTEE	1509 HERITAGE LANE	FLORENCE	SC	29505
PARNELL DENNIS A ET DOROTHY	PO BOX 342	PARKTON	NC	28371
PARRELLA JOHN J ET MADELINE M	19 JACKSON AVE	MIDDLETOWN	NY	10940
PARRISH GREGORY A ET JEANNE	PO BOX 6625	SHALLOTTE	NC	28470
PARRISH JEFFREY ET SHERRY F	819 WOODLAND DRIVE	COLUMBIA	SC	29205
PARTINGTON PAUL W SR ET SHARON A	3112 ELLERSLIE CT	GLENWOOD	MD	21738
PASCAL FRANCES M	212 ST GERMAIN AVE SE	VALDESE	NC	28690
PASCAL PROPERTIES LP	260 OUTBACK RD	CHAPIN	SC	29036
PASCHOLD EUGENE HENRY ET ANN H	8539 BROOK MEADOW LANE	LEWISVILLE	NC	27023
PATTERSON FRED B ET DOROTHY D	1583 US 421 N	LILLINGTON	NC	27546
PATTERSON JEAN JAMES	4504 HARVARD AVENUE	GREENSBORO	NC	27407
PATTERSON STEVEN F ET IVONNE F	700 SPRINGLOCH ROAD	SILVER SPRING	MD	20904
PAXTON LYNDA M	112 EAGLE CREST DR	MATTHEWS	NC	28104
PEACH JOHN E ET DIANNA M	1206 APACHE LANE	APEX	NC	27502
PEARCE JUNE LEGGETT	509 NORTHVIEW DR	FAYETTEVILLE	NC	28303
PEARCE LOUIS ET SYLVIA	407 SAILFISH STREET	SUNSET BEACH	NC	28468
PEDDER CHRISTIE ETVIR SIMON	11432 JAMES JACK LN	CHARLOTTE	NC	28277
PEED JOE L ET TERESA P	310 SUNSET BLVD	SUNSET BEACH	NC	28468
PEEK THOMAS V ET CATHERINE C	129 RAVEN HILL DR	ROCKINGHAM	NC	28379
PEELE JOHN LLOYD	106 SHADYWOOD DR	ROCKINGHAM	NC	28379
PEELE THOMAS E JR ET NAOMI B	107 BROOKS STREET	HAMLET	NC	28345
PEELER DWIGHT BARRY ET MARTHA	PO BOX 476	BOONVILLE	NC	27011
PEGRAM P SAMUEL JR	2332 ELIZABETH AVE	WINSTON SALEM	NC	27103
PELLIGRA SALVATORE J ET EDITH V	213E AVONDALE DRIVE	GREENSBORO	NC	27403
PENEGAR OSCAR G	1401 FAIRFIELD DR	GASTONIA	NC	28052
PENNINGTON SIDNEY L ET SUZANNE J	537 GREAT OAKS CIRCLE	SUNSET BEACH	NC	28468
PENNINGTON WALTER F ET PATRICIA M	505 GREAT OAK CIR SW	SUNSET BEACH	NC	28468
PEOPLES FEDERAL SAVINGS & LOAN ASSO	PO BOX 1740	CONWAY	SC	29526
PEOPLES MARIAN BRANDON	PO BOX 3642	BRISTOL	TN	37625
PERE JOHN DAVID	920 ELDERBERRY LANE L-42	SUNSET BEACHH	NC	28468
PERFATER DAVID ET SUSAN	5935 MONET DR	ROANOKE	VA	24018
PERKINS GEORGE R JR & ET	PO BOX 525	SANFORD	NC	27330
PERNA LOUIS P ET JUDITH L	730 FAIRWAY DR	SUNSET BEACH	NC	28468
PERNA ROBERT J ET LINDA M	653 KINGS COURT	SUNSET BEACH	NC	28468
PERRY WALTER R	104 PLEASANT VIEW RD	FAIRMONT	NC	28340
PERRY WAYNE B SR & DORIS R TRUSTEES	2623 CATHERINE DR	BURLINGTON	NC	27215
PETERS MARVIN M ET CAROL L	592 COACH TRAIL	SUNSET BEACH	NC	28468
PETERSON RONALD K ET JULIE A	10 SUMMER STREET	ASHEVILLLE	NC	28804
PETROVIC DUSAN ET ANA	846 IDLEWILDE DRIVE	ROCK HILL	SC	29730
PETTERSEN MURIEL	1870 KITTRELL DR SW	OCEAN ISLE BEACH	NC	28469
PETTY JOSEPH H ET MYRTLE	PO BOX 396	CLINTON	NC	28329
PHILLIPS CLAUDE E ET CATHERINE L	1511 WALNUT RIDGE WAY	STONE MOUNTAIN	GA	30083
PHILLIPS GREGG RAY	4640 HWY 601	SALISBURY	NC	28147
PHILLIPS JULIUS C ET	609 BOWDEN ROAD	CHAPEL HILL	NC	27516
PHILLIPS LARRY C ET DALE G	11661 HARNETT DUNN HWY	DUNN	NC	28334
PHIPPS WILLIAM J ET CAROL G	408 SAILFISH STREET	SUNSET BEACH	NC	28468
PICKLER EUGENE B	1077 AUSTIN ROAD	NEW LONDON	NC	28127
PICKLER JOE C ET MAUDINE	36273 PICKLER RD	NEW LONDON	NC	28127
PIELLI JEFFREY P	106 CHRISTINE CT	MATAWAN	NJ	07747
PIERCE JUDITH M	616 GARDEN RD	DAYTON	OH	45419
PIERCE THOMAS A ET VEANNA M	4286 ROCKY GLENN	ROSEWELL	GA	30075
PINK PARADISE L.L.P.	360 BROOKTON DR	CLEMMONS	NC	27012
PINNING ROBERT B ET CHARLOTTE L	1621 COVINGTON ST	BALTIMORE	MD	21230
PITTMAN W BRIAN ET KATINA D	4006 STONEYCREEK ROAD	CHAPEL HILL	NC	27514

PLASTICS COLOR CORPOF NC INC	349 LAKE ROAD	DAYVILLE	CT	06241
PLUMMER BOYD M ET ELEANOR	1922 CRANDON DR	CHARLOTTE	NC	28216
PLYLER JACK L ET PEGGY	7220 CITY VIEW DR	CHARLOTTE	NC	28212
PLYLER MARCUS R	7212 CITY VIEW DR	CHARLOTTE	NC	28212
PODUSZCZAK EDWARDS S ET ROSE A	288 HEATHER DR	SUNSET BEACH	NC	28468
POE MICHAEL E ET KATIE L	360 BOB HORTON RD	APEX	NC	27502
PONDER TONI JEAN F ET WILLIAM M III	134 DEER CREEK RD	EASLEY	SC	29640
POOLE HOLDINGS LP	3 STEGNER LANE	AUSTIN	TX	78746
POPE DAVID A ET PAULA	3111 KINGS RIDGE DR	LENOIR	NC	28645
POPE WILLIAM ET ANNA	721 LIVE OAK DR SW	SUNSET BEACH	NC	28468
PORTER CHARLES L & ET	16519 COBBLER DR	MIDLAND	NC	28107
PORTER LOYD DONALD ET JOYCE	3436 US 21 HWY	HAMPTONVILLE	NC	27020
POST PHILIP N ET BARBARA K	104 SAINT ANDREWS PLACE	CHAPEL HILL	NC	27514
POTEAT FRANK EDWARD	PO BOX 2880	LENOIR	NC	28645
POTVIN ELIZABETH A	635 KINGS TRAIL	SUNSET BEACH	NC	28468
POWELL DIANE H ETVIR DAVID A SR	1141 INDIGO CIRCLE	SUNSET BEACH	NC	28468
POWERS HAROLD L	4819 RIVER HAVEN ROAD	PFFAFFTOWN	NC	27040
PRAGEL VINCENT F & DOREEN	545 GREAT OAK CIRCLE	SUNSET BEACH	NC	28468
PRAGEL WILLIAM E ET PATRICIA A	543 GREAT OAK CIRCLE SW	SUNSET BEACH	NC	28468
PRESNELL HELEN A	706 TEAGUE DR	JAMESTOWN	NC	27282
PRESNELL JUDITH L	608 TRIANGLE CT SW	SUNSET BEACH	NC	28468
PRESSLEY ALAN D	PO BOX 35565	CHARLOTTE	NC	28235
PREWETT ERNEST	114 LIVE OAK CT	GREENWOOD	SC	29649
PRICE MARTHA C TRUSTEE	312 73RD AVE 14 WINDWOOD	MYRTLE BEACH	SC	29572
PRICE WILLIAM P III & WINN SAMS	4900 QUAIL LANE	COLUMBIA	SC	29206
PRIDGEN LENDON N SR ET KAREN L	4605 GRAVEL PIKE	PERKIOMENVILLE	PA	18074
PRIDGEN LESTER D ET JOANN	591 LAWRENCE TEDDER RD	WHITEVILLE	NC	28472
PRINCE ARTHUR L JR	PO BOX 631	TABOR CITY	NC	28463
PRINCE HURSHEL	PO BOX 750	WHITEVILLE	NC	28472
PRINCE WILLIAM BISHOP ET MIRIAM G	402 STROKES COURT	SUNSET BEACH	NC	28468
PRUETTE DAVID L ET EUGENIA M	1328 GEORGETOWN COURT	HIGH POINT	NC	27262
PRYCE VERNON T JR ET JANICE	425 WATER OAK WYND SW	SUNSET BEACH	NC	28468
PRYKA RAYMOND J ET DEANN	6640 HILLCREST	OAK HARBOR	OH	43449
PUKNYS RAYMOND J ET ANNE A	316 40TH STREET	SUNSET BEACH	NC	28468
PULLEY BOBBY	1621 JOE HALL RD	HOPE MILLS	NC	28348
PURGASON MARGARET J S	4900 MILLPOINT RD	GREENSBORO	NC	27406
PUSSER JUNE R	2709 EDGEFIELD RD	FLORENCE	SC	29501
PUTMAN C EVANS	1005 WEST MAIN ST	SUNSET BEACH	NC	28468
PYNER GARY ET BETSY	34 GROVE FARM RD	PITTSTOWN	NJ	08867
QUEEN JUDY	2312 WOODFIELD CIRCLE	GASTONIA	NC	28054
QUEEN WILLIAM R JR ET SYLVIA Y	136 LARK HAVEN LANE	MOORESVILLE	NC	28115
QUINN JOSEPH B ET SANDRA B	101 VESCOVA LN	MORRISVILLE	NC	27560
QUINN KENNETH E	615 JASMINE LANE SW	SUNSET BEACH	NC	28468
QUINN RITA A	201 FOX BRIAR LANE	CARY	NC	27511
RABON CINDY S	9845 SWAMP FOX HWY EAST	TABOR CITY	NC	28463
RACKLEY LINWOOD J ET MILDRED A	168 E SELWOOD LANE	COLUMBIA	SC	29212
RADEMAKER JAMES N TRUSTEE	510 FAIRWAY DR	SUNSET BEACH	NC	28468
RAILEY JERRY J ET SHIRLEY H	101 NORTH ELM STREET	LOWELL	NC	28098
RATHGE STEVEN A	3201 SHOREVIEW RD #22	RALEIGH	NC	27613
RAY CHARLES KENNETH	1177 DAVIDSON ROAD	LEXINGTON	NC	29072
REAMER PATRICIA	606 TRIANGLE CT SW	SUNSET BEACH	NC	28468
REAVIS LARRY G & ET	PO BOX 278	YADKINVILLE	NC	27055
REAVIS MARIE L	2025 WEST MAIN ST	YADKINVILLE	NC	27055
RED SUNSET INC	122 - LAKE SUNSHINE DRIVE	SIMPSONVILLE	SC	29681
REDEKER FREDERICK H ET MARCELLA	729 LONG LEAF DR	SUNSET BEACH	NC	28468
REEL DONALD A ET ROCHELLE J	RR 3 BOX 1035-A	MIFFLINTOWN	PA	17059
REGISTER CECIL R	1013 CARRITUCK DR	RALEIGH	NC	27609
REID F JOSEPH ET PATRICIA	619 KINGS TRAIL	SUNSET BEACH	NC	28468
REINHARDT JACQUELINE	503 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
REOPEL RONALD L ET JEANNE D	612 JASMINE LANE	SUNSET BEACH	NC	28468
RESUA JOSEPH ET HELEN	21 WESTCHESTER TERRACE	ANNANDALE	NJ	08801
RESUA RONALD R ET SUZANNE N	41 DICKSON STR	INWOOD	NY	11698
REYES DIANA & CYNTHIA WADDELL	9721 HAMPTON RD	FAIRFAX STATION	VA	22039
REYNOLDS RICHARD E ET RUTH H	703 NORTH SHORE DR	SUNSET BEACH	NC	28468
REYNOLDS TODD B TRUSTEE EVELYN TEST	3595 JORDAN LANDING RD	MURRELLS INLET	SC	29576
REYNOLDS WILLIAM T	1221 MILL POND COURT	NEWPORT NEWS	VA	23602
RHEA NORMA P	608 N STRATFORD RD	WINSTON-SALEM	NC	27104
RHODES JAMES P ET MARGARET M	1033 JENKINS DR	CHARLOTTE	NC	28212
RICE JERRY L ET CHERYL ANN	1330 HIDDEN LAKES DR	MT PLEASANT	SC	29464
RICHARDS ROBERT C	5 TIFFANY LANE	METHUEN	MA	01844
RICHARDSON ERNEST J ET ALETHA	2253 JOHN CHRIS DR	HARRISBURG	NC	28075

RICHARDSON JOHN L ET MILDRED L	8211 HICKORY DRIVE	CHARLOTTE	NC	28215
RICHARDSON JOSEPH D ET CATHEY	406 MCDONALD CHURCH RD	ROCKINGHAM	NC	28379
RICHARDSON ROLLEN LEE	6515 DENNIS ROAD	WALNUT COVE	NC	27052
RICHARDSON WAYLON BLUE ET MAXINE C	PO BOX 145	JACKSON SPRINGS	NC	27281
RICKABAUGH YVONNE P	5001 MARBLE ARCH ROAD	WINSTON SALEM	NC	27104
RICKENBAKER D GENE	PO BOX 1796	SUMTER	SC	29151
RIDDLE F CALVIN JR ET FAYE H	1609 TWIN OAK DR	FAYETTEVILLE	NC	28305
RIESER GEOFF D ET SHANNON LYNN	1657 MARBELHEAD RD	CLEMMONS	NC	27102
RIGA TERRIANNE P	549 WESTBROOK DR	CORTLANDT MANOR	NY	10567
RIGGINS KEITH O'NEIL JR ET MARY	406 34TH STREET	SUNSET BEACH	NC	28468
RIMER BEN ET VIRGINIA	2867 CALLOWAY DR	MEBANE	NC	27302
RINES GEORGE H ET CAROLYN	1119 PARK RD SW	SUNSET BEACH	NC	28468
RITCH CLYDE O ET REBECCA	5332 WILGROVE MINT HILL R	CHARLOTTE	NC	28227
RIVER WATCH PROPERTIES LLC	113 QUEENSFERRY RD	CARY	NC	27511
RIVER'S PROPERTIES LLC	7615 FAYETTEVILLE RD	RALEIGH	NC	27603
ROACH DANIEL C ET LISA R ADAMS	1102 BEAUWYCK CT	CHARLOTTE	NC	28211
ROBBINS CHARLES L III ET MARYELLEN	5328 SILVER FOX RD	ROANOKE	VA	24014
ROBBINS DIAN G	597 COACH TRL	SUNSET BEACH	NC	28468
ROBERTS BRUCE E ET ANGELA R	231 LIVE OAK DR SW	SUNSET BEACH	NC	28468
ROBERTS DANAH D & AGNES C	5209 PLATTE DR	MCLEANSVILLE	NC	27301
ROBERTS DORIS & GEORGE TRUST	107 OLDE OAK LANE	SUNSET BEACH	NC	28468
ROBERTS HAROLD OWENS	1715 LISBON LANE	CHARLOTTE	NC	28269
ROBERTS NORMAN W ET MARY KATHERINE	PO BOX 3722	PINEHURST	NC	28374
ROBERTS PHYLLIS J ET MICHAEL T	1711 AZALEA AVENUE	KANNAPOLIS	NC	28081
ROBERTSON HAROLD ERVIN ET MILDRED S	1505 KIRKPATRICK RD	BURLINGTON	NC	27215
ROBERTSON JAMES J ET CYNTHIA M	106 MEADOWGLADES LN	CARY	NC	27511
ROBINSON DARRYLE W ET	532 AMANDA DR	MATTHEWS	NC	28105
ROBINSON EUGENE C ET HARRIET T	41 HIALEAH ROAD	GREENVILLE	SC	29607
ROBINSON SANDRA LEIGH PEELE	405 BOYETTE STREET	HAMLET	NC	28345
RODRIGUEZ RAFAEL & ROBERT SCHELLER	203 AZAELA CIRCLE	SUNSET BEACH	NC	28468
ROGERS BILLY W ET KIMBERLY T	6426 WHITTED RD	FUQUAY VARINA	NC	27526
ROGERS CYNTHIA SUE	382 LILY POND CT	GAHANNA	OH	43230
ROGERS GEORGE C ET	12345 MAGNOLIA CIRCLE	ALPHARETTA	GA	30202
ROGERS GEORGE E & RUTH J	PO BOX 1415	ELIZABETHTOWN	NC	28337
ROGERS HAROLD WAYNE JR ET TRACEY	215 CODY DRIVE	THOMASVILLE	NC	29360
ROGERS ROSS E ET BETH S	925 10TH AVE DR NW	HICKORY	NC	28601
ROHM RICKEY D ET SUSAN B	105 KELLY DR	DALLAS	NC	28034
ROHRBACK FRANK M JR ET SHERRY L	8018 WILLOW AVE	MECHANICSVILLE	VA	23111
ROLLINS TONY E ET JO ANN	1209 OLD HICKORY GROVE RD	MOUNT HOLLY	NC	28120
RONAI JAMES G AND SLOAN C	630 RIDGE ROAD	ORANGE	CT	06477
ROOF WILLIAM B	6829 TWO NOTCH ROAD	COLUMBIA	SC	29223
ROPP MICHAEL E ET CLAIRE I	593 TODDS RIDGE RD	WILMINGTON	OH	45177
ROSE CHARLES H ET HOWSON ARTHUR ET	3216 DOULTON LANE	FUQUAY VARINA	NC	27526
ROSE ZANE G & ET	PO BOX 297	BREAKS	VA	24607
ROSENBERG MARK L & CAROLYN TRUSTEES	1304 E CANAL DR	SUNSET BEACH	NC	28468
ROSSI LELLO I ET PATRICIA S	671 KINGS TRAIL DRIVE	SUNSET BEACH	NC	28468
ROTH EDWARD & CHRISTINE TRUST	PO BOX 260399	LAKEWOOD	CO	80226
ROUSSEAUX JEAN-CLAUDE ET LUCRETIA A	8109 SHANNON WOODS LANE	MATTHEWS	NC	28104
ROWE H DAVID & PENNY A TRUSTEES	8200 BRITTAIN`S FIELD RD	OAK RIDGE	NC	27310
ROY RAYMOND A	502 FAIRWAY DR	SUNSET BEACH	NC	28468
RUDICK JEFF ET LINDA	1008 PARK RD	SUNSET BEACH	NC	28468
RUSS ALAN H	5030 OCEAN HWY SW	SHALLOTTE	NC	28470
RUSSELL DONNA J	275 HEATHER DR	SUNSET BEASCH	NC	28468
RUSSOS JAMES H ET	337 TRANSYLAVANIA DR	RALEIGH	NC	27619
RUSTICO PETER A ET BARBARA A	44 BURNT CORNERS RD	MIDDLETOWN	NY	10940
RYAN EDWARD H ET MARGARET C	521 DOGWOOD DR SW	SUNSET BEACH	NC	28468
RYAN JAMES L ET LISA L	4711 FAIRVISTA DRIVE	CHARLOTTE	NC	28269
SACK CHRISTIAN	12738 LONG COVE DRIVE	CHARLOTTE	NC	28277
SALANE TERESSA HUTSON	104 CRICKET HILL ROAD	COLUMBIA	SC	29223
SALE BILLY G ET RONDA H	542 TWISTED OAK LANE	SUNSET BEACH	NC	28468
SANCHEZ TINA R ETVIR HERIBERTO	946 ELDERBERRY LANE	SUNSET BEACH	NC	28468
SANDERSON JEFFREY L	790 SUNSET BLVD	OCEAN ISLE BEACH	NC	28469
SANFORD SUZANNA CAIN	12720 LITTLE CREEK DRIVE	RALEIGH	NC	27603
SANIBEL AT SUNSET L L P	4530 CHINABERRY LANE	WINSTON-SALEM	NC	27106
SANOCKI EUGENE ET RITA J	1100 WATERVIEW LN SW	CALABASH	NC	28467
SANOCKI GARY M ET KAREN A	602 MAGNOLIA DRIVE	SUNSET BEACH	NC	28468
SANS SOUCI PROPERTIES LLC	1004 NORTHSHORE DR	SUNSET BEACH	NC	28468
SANSONE WILLIAM KEY ET SHARON	4604 CROSSCURRENT PLACE	WILMINGTON	NC	28409
SARGIS JOHN P ET ELIZABETH R	616 TRIANGLE CT SW	SUNSET BEACH	NC	28468
SARKIS FAMILY LLC	7 GOLDEN DRIVE	WHEELING	WV	26003
SARVIS JONNIE S	224 LONG RIDGE RD	MURRELLS INLET	SC	29576

SASSER JIMMY R ET SHERI T	716 E SHORELINE DRIVE	SUNSET BEACH	NC	28468
SATTERFIELD WILLIAM T ET GERALDINE	103 OLDE OAK LA	SUNSET BEACH	NC	28468
SATTERWHITE HENRY G & MICHAEL	1429 BAY STREET	SUNSET BEACH	NC	28468
SAULNIER PHILIP J & JUDITH TRUSTEES	7904 LUDLOW LANE	DUNN LORING	VA	22027
SAUNDERS LARRY SHERRILL ET MARY E	872 MCDONALD CHURCH RD	ROCKINGHAM	NC	28379
SAUNDERS RICHARD R & MINTA M TRUSTE	5001-1B BASS CHAPEL ROAD	GREENSBORO	NC	27455
SAVARESE MICHAEL A TRUSTEE	11107 WILLOWBOTTOM DRIVE	COLUMBIA	MD	21044
SAWGRASS LLC	PO BOX 990	SHALLOTTE	NC	28459
SAWTSCHENKO ALEXANDER P (LT)	6701 LAURDANE RD	RALEIGH	NC	27613
SAWYER EMERSON D ET EVELEIGH T	5921 EMERSON RD	MULLINS	SC	29574
SAWYER GWENDOLYN R	130 FAYETTEVILLE STREET	HOLDEN BEACH	NC	28462
SAWYER TERRY & ALLEN R & MCKEITHAN	126 HILLSIDE CIRCLE	BLADENBORO	NC	28320
SAYKO PATRICIA W	PO BOX 6339	SHALLOTTE	NC	28470
SCHAEDE KAREN MCKEITHEN ETVIR FRANK	3104 WILLOW OAK DR	GREENSBORO	NC	27408
SCHEIDLE GEORGE D ET JOAN L	281 SEATRAIL DRIVE W	SUNSET BEACH	NC	28468
SCHEVIAK THOMAS ET ANDREA	7605 TYLERTON DRIVE	RALEIGH	NC	27613
SCHMITT RICHARD A & HATLEY DAVID ET	9400 COVE DR	MYRTLE BEACH	SC	29572
SCHNEIDER KEVIN	50 MEADOW LANE	BAYPORT	NY	11705
SCHOONMAKER ALICIA D & DOOLEY COLIE	109 W CANAL AVENUE	SUNSET BEACH	NC	28468
SCHORPP CHARLES H ET LILLIAN E	610 WISTERIA DRIVE	SUNSET BEACH	NC	28468
SCHOTT NORMAN G ET CAROLYN J	4418 WALTER NELSON ROAD	CHARLOTTE	NC	28227
SCOTT EDWIN W ET SUSAN K	6900 VALLEY RIDGE CT	RALEIGH	NC	27615
SCOTT GORDON PARHAM JR FAMILY TRUST	310 EARLWOOD ROAD	STATESVILLE	NC	28677
SCRUGGS WALTER E JR	433 33RD STREET	SUNSET BEACH	NC	28468
SEA TRAIL CORPORATION	211 CLUBHOUSE ROAD	SUNSET BEACH	NC	28468
SEA TRAIL PROPERTY OWNERS ASSOC INC	PO BOX 6040	SUNSET BEACH	NC	28470
SEABOLDT FRANK B JR	695 FAIRWAY DRIVE EAST	SUNSET BEACH	NC	28468
SEABOLDT JUDY S	695 E FAIRWAY DR	SUNSET BEACH	NC	28468
SEALEY DENNIS LAMOND ET JULIA	PO BOX 323	LELAND	NC	28451
SECURITY SAVINGS BANK SSB	PO BOX 3288	SHALLOTTE	NC	28459
SEELY THEODORE A JR ET MARY A	208 OLDE OAK LN	SUNSET BEACH	NC	28468
SEIBERT NANCY G	371 LONG LEAF DR SW	SUNSET BEACH	NC	28468
SEIDEL WALTER G ET DORIS E	2 RAVINE DR	WOODCLIFF LAKE	NJ	07675
SELISKER MARK R ET RACHEL	4620 WHITE CHAPEL WAY	RALEIGH	NC	27615
SELLERS BETTE	8121 INVERNESS CIRCLE	LAURINBURG	NC	28352
SELLERS RODGER P	720 DOGWOOD DR SW	SUNSET BEACH	NC	28468
SENKOW PATRICIA A	522 WAMPEE ST	CALABASH	NC	28467
SENSENIG GEORGE M ET LOUISE K	530 FAIRWAY DRIVE	SUNSET BEACH	NC	28468
SERWIN STEPHEN FRANK ET KECIA H	108 W CLARKSVILLE CT	CARY	NC	27513
SETZER BRYAN EUGENE ET LINDA K	3608 QUAIL RIDGE LANE	MATTHEWS	NC	28104
SETZER CHARLES R ET MOZELLE H	183 KEATS ROAD	MOORESVILLE	NC	28115
SETZER GILES G ET SHIRLEY	1514 EDINBOROUGH LANE	GASTONIA	NC	28054
SEXTON C PHILLIP	PO BOX 7326	SHALLOTTE	NC	28470
SFRAGA JOSEPH ET DORIS A	611 TRIANGLE TRAIL	SUNSET BEACH	NC	28468
SHACKLETON STEVEN ET SUSAN	693 FLETCHER RD N	KINGSTOWN	RI	02852
SHADE WINSTON F ET TERESA L	4713 GREEN POINT LN	HOLLY SPRINGS	NC	27540
SHANNON THOMAS M AND PATRICIA M	428 33 RD ST	SUNSET BEACH	NC	28468
SHAREFF HOWARD L & BARBARA N VOSK	508 HAYMARKET LANE	RALEIGH	NC	27615
SHARPE L DEAN	202 WEST TIDBALL AVE	MADISON	NC	27025
SHAW TIMOTHY BLAKE ET ANNE STOREY	308 IRVING PARK DR	KERNERSVILLE	NC	27284
SHEDDEN JOHN A ET JUDY T	272 HARBOR RIDGE DRIVE	STATESVILLE	NC	28677
SHEETS EDWARD N ET CAROLE A	2057 WOODCREST DR	OREGON	OH	43618
SHELBURNE EDWARD M	504 WOODFIELD RD	WHITEVILLE	NC	28472
SHERRILL KRESS NEWTON ET JOAN C	155 DEERWOOD LANE	MOORESVILLE	NC	28115
SHERRILL WILSON E ET SUSIE	1112 PARK ROAD SW	SUNSET BEACH	NC	28468
SHIPLEY DANIEL M ET LISA P	65 HIGH ST	BATH	ME	04530
SHIPLEY GRANT F	3322 N WASHINGTON RD	FORT WAYNE	IN	46802
SHIPLEY ROBERT K - TRUSTEE	1734 W EL CAMINO REAL #9	MOUNTAIN VIEW	CA	94040
SHIPMAN MARTHA BRIDGER	PO BOX 246	BLADENBORO	NC	28320
SHIREY LESLIE J ET SARA A	112 VESCOVA LANE	MORRISVILLE	NC	27560
SHIREY STEWART J ET MARIE H	2758 HWY 194 N	BOONE	NC	28607
SHOE GEORGE D JR ET CATHERINE B	8425 BRINGLE FERRY RD	SALISBURY	NC	28146
SHOEMAKER BENJAMIN LEWIS	418 MARLBORO ST	RED SPRINGS	NC	28377
SHREAVES OTTO JR ET & KEITER R H ET	PO BOX B	WESTPOINT	VA	23181
SHUE BEVERLY DEAN	1711 HANFORD HILLS RD	GRAHAM	NC	27253
SHUFORD RANDY A ET SANDRA	1542 GORES LANDING RD SW	OCEAN ISLE BEACH	NC	28469
SHULL DENNIS W ET SYLVIA B	183 24TH STREET NW	HICKORY	NC	28601
SHUMBO JOSEPH ET JOANNE A	213 SHORELINE DRIVE E	SUNSET BEACH	NC	28468
SIGMON JOHN E ET LYNN G	3222 PLEASANT GREEN ROAD	DURHAM	NC	27705
SIGMON RUPERT T ET DEANE	359 LEGION RD	HUDSON	NC	28638
SILLS VALERIE	440 BRANCH DRIVE	PITTSBORO	NC	27312

SIMMONS RALPH T ET WANDA D	462 MANGUM ROAD	EVERGREEN	NC	28438
SIMONS WILLIAM E	2030 11TH AVE NE	HICKORY	NC	28601
SIMPSON CAROLYN F	505 LIVE OAK DR SW	SUNSET BEACH	NC	28468
SIMPSON JACK C JR & DAVID SIMPSON	PO BOX 1355	CHESTER	SC	29706
SINGLETARY JOSEPH L ET CATHERINE	269 STAFFORDSHIRE RD	WINSTON-SALEM	NC	27104
SINGLETARY ROGER ET WANDA	13342 SWAMP FOX HWY E	TABOR CITY	NC	28463
SINGLETON GARY F	121 W DREWRY LANE	RALEIGH	NC	27609
SINIGAGLIO EUGENE ET DENISE M	4537 ROSLYN DR	WILMINGTON	DE	19804
SINK CHARLES S III & ET	PO BOX 1063	N WILKESBORO	NC	28659
SINK JOHN W JR ET DEBORAH W	1014 CHARTER PLACE	CHARLOTTE	NC	28211
SKIFF JAMES H ET VICTORIA W	PO BOX 6413	SOUTH BRUNSWICK	NC	28470
SLAPAK FRANCES K	153 BRANDYWINE DR	MC CORMICK	SC	29835
SLAUGHTER RALPH C JR	630 LIVEOAK DR SW	SUNSET BEACH	NC	28468
SLIZ KATHY R	594 JACKSON TRAIL ROAD	JEFFERSON	GA	30549
SLOANE REALTY OF OCEAN ISLE BCH INC	16 CAUSEWAY RD	OCEAN ISLE BEACH	NC	28469
SMALL JO ANN GRIFFIN TRUSTEE	165 SUMMERLEA DR	CHARLOTTE	NC	28214
SMALL RICHARD A ET JANICE J	24 SOUTH ROYAL DRIVE	ALBANY	NY	12205
SMITH ANNA A	PO BOX 1869	LANCASTER	SC	29721
SMITH ANNE T	539 GREAT OAKS CIRCLE	SUNSET BEACH	NC	28468
SMITH BOBBY W ET SHIRLEY B	179 5TH STREET EXT	HAMLET	NC	28345
SMITH CAROL D	PO BOX 6954	SHALLOTTE	NC	28469
SMITH CHARLES L SR ET DOROTHY AILEE	1550 HORSE BRANCH ROAD	OCEAN ISLE BEACH	NC	28469
SMITH DOUGLAS	3376 HIGHWAY 324	ROCK HILL	SC	29732
SMITH GARY D ET JUADANE S	1510 PECAN LANE	KERNERSVILLE	NC	27284
SMITH GRAYSON E ET BERTIE S	142 DEER PATH LN	LEXINGTON	NC	27295
SMITH JASON ET JENNIFER	9312 WEST STREET	MANASSAS	VA	20110
SMITH MACON C ET MARTHA J	705 YEOMAN LANE	GREENSBORO	NC	27409
SMITH MARION P	507 LIVE OAK DRIVE	SUNSET BEACH	NC	28468
SMITH MELVIN MC ET PHYLIS	110 MEEKS RD	EDEN	NC	27288
SMITH MICKEY LEE ET SHARON	508 PINE COURT DR	SILER CITY	NC	27344
SMITH PAMELA P	36071 ROCKY RIVER SPRINGS	NORWOOD	NC	28128
SMITH PAUL J	PO BOX 296	WAGRAM	NC	28396
SMITH SAM W JR	608 HAMILTON STREET	EDEN	NC	27288
SMITH THEODORE R ET JANE	608 FATIMA LANE	LOUISVILLE	KY	40207
SMITH W FREEMAN ET MARY	957 WOODY DRIVE	GRAHAM	NC	27253
SMITH WAYNE LEE & JUDY G	PO BOX 1128	MONROE	NC	28111
SMYLY PEGGY P & JAMES P TRUSTEES	604 NORTH SHORE DR W	SUNSET BEACH	NC	28468
SNAPP EDWARD NEAL ET GEORGIE	1151 FOXHALL DR	WINSTON SALEM	NC	27106
SNIDER RICHARD H	527 MAGNOLIA DR	SUNSET BEACH	NC	28468
SNYDER CURTIS O ET VIOLA J	1938 SQUIRE COURT	WYOMISSING	PA	19610
SOL MATES L L C	508 COURTFIELD AVE	WINCHESTER	VA	22601
SOLOMON MILAS D JR ET DORIS	PO BOX 134	CORDOVA	NC	28330
SONDERMAN DAVIS L AND JERRY	112 GOLDFINCH COURT	PRINCETON	WV	24740
SORRELL FAMILY LIMITED PARTNERSHIP	5800 OLD PRVDNCE RD #6317	CHARLOTTE	NC	28226
SORRENTINO VITO ET GRACE	1497 OLD ORCHARD STREET	NORTH WHITE PLAINS	NY	10603
SOUCY DONALD R ET JEANINE	2905 WESSEX COURT	FAYETTEVILLE	NC	28306
SOUTHWICK ELVIRA	697 FAIRWAY DRIVE E	SUNSET BEACH	NC	28468
SPANGLER AMBROSE E ET VERSIE W	539 LIVE OAK DR SW	SUNSET BEACH	NC	28468
SPANOS PAUL C ET KATHRYN L	2701 BUENA VISTA RD	WINSTON-SALEM	NC	27106
SPARKS ENTERPRISES INC	PO BOX 3140	CONCORD	NC	28025
SPARROW JAMES R AND MARY F	1308 BOYD RD	GASTONIA	NC	28052
SPEIGHT GLENN ET JOYCE S	708 SYCAMORE LANE	ROCKINGHAM	NC	28379
SPENCER WALTER JR ET ANNETTE LYNN	510 GREAT OAK CIRCLE	SUNSET BEACH	NC	28468
SPH PROPERTIES LLC	891 DR KERR RD	IVANHOE	NC	28447
SPORTS ENDEAVORS INVESTMENTS LLC	431 US HWY 70A EAST	HILLSBOROUGH	NC	27278
SQUIER KARLA J & CHRISTIAN JTROS	209 OLDE OAK LANE	SUNSET BEACH	NC	28468
STACKHOUSE BRUCE D ET PAMELA	2498 CLUB HOUSE ROAD	GLEN ROCK	PA	17327
STAFFORD KENNETH J ET RITA E	1242 S. MAIN ST	PALMER	MA	01069
STANLEY ANNIE M	PO BOX 427	TABOR CITY	NC	28463
STANLEY CYNTHIA ANN	5858 MEREDITH LANE	SHALLOTTE	NC	28459
STANLEY MAURICE F ET	812 LIVE OAK DR SW	SUNSET BEACH	NC	28468
STANLEY PAULA D & PEGGY D REEVES TR	1762 FRINK STREET SW	OCEAN ISLE BEACH	NC	28469
STANLEY RICHARD A ET CHRISTINA M	517 GREAT OAK CIRCLE	SUNSET BEACH	NC	28468
STANLEY RON M ET TERESA G	12490-7 CREEK HWY	NAKINA	NC	28455
STANLEY WALTER JR ET	4802 FAIRVIEW CH RD	TRINITY	NC	27370
STARBUCK MARVIN L JR	2316 HUTCHINS ST	WINSTON SALEM	NC	27106
STARK DENNIS J ET CAROLYN FAYE	PO BOX 246	PINEBLUFF	NC	28373
STARNES JACKIE ET & WEATHERBY COLIN	PO BOX 770	SUMMERTON	SC	29148
STATE OF NORTH CAROLINA	PO BOX 629	RALEIGH	NC	27620
STEADMAN JR EUGENE ET REBECCA C	3806 WESTGATE DR	ALEXANDRIA	VA	22309
STEELE GARY J ET CHARLOT M	303 WATERWAY DRIVE	SUNSET BEACH	NC	28465

STEEN JOHN W ET BARBARA	322 HEATHER COURT	SUNSET BEACH	NC	28468
STEINER LEONARD A JR ET PATRICIA A	613 KINGS TRAIL	SUNSET BEACH	NC	28468
STEPHENS FRED C ET LINDA M	598 EASTLAND RD	BEREA	OH	44017
STEPHENS HAL JEFFERY	4017 WIREGRASS ROAD	ORRUM	NC	28369
STEVENS JAMES P JR ET J HOLLY	PO BOX 127	LORIS	SC	29569
STEVENS LARRY H ET BETTY JO	1187 GASTON SELLERS RD	WHITEVILLE	NC	28472
STEWART CHRISTOPHER F ET LAURA M	630 ARLINGTON ST	CHAPEL HILL	NC	27514
STEWART DONNIE L SR ET KATHRYN P	278 RAYE DR	WINSTON-SALEM	NC	27107
STEWART HARVEY H JR TRUST	PO BOX 335	BOZMAN	MD	21612
STEWART KAYLA J	1408 RIDGE SIDE PLACE	RALEIGH	NC	27613
STEWART TIMOTHY JOHN JR & STANLEY	15208 BEXLEY PLACE	CHARLOTTE	NC	28227
STIBBE MARY ANN G	6065 WINTERHAVEN DRIVE	SYLVANIA	OH	43560
STOKES JAMES A III ET JACQUELINE	3410 49TH STREET	MOLINE	IL	61265
STOLFI JOSEPH EDWIN ET DOROTHY	1521 PINEGROVE	MANSFIELD	OH	44906
STOLLERY JEAN	PO BOX 35553	CHARLOTTE	NC	28235
STONE BARRY JORDAN ET KATINA S	8501 SIMPSON RD	WAXHAW	NC	28173
STONE DECIO (LT)	622 DOGWOOD DRIVE SW	SUNSET BEACH	NC	28468
STONE JAMES D ET RACHEL	PO BOX 5581	GREENVILLE	SC	29606
STONE RHONDA	703 WATERWAY DR	SUNSET BEACH	NC	28468
STOVALL DONALD F ET DORIS W	3945 SAWMILL ROAD	WINSTON SALEM	NC	27107
STRANDQUIST JAMES M ET MARY LYNN B	14074 STEVENS VALLEY CT	GLENWOOD	MD	21738
STREET BOB J ET BETTY L	712 FAIRWAY DR EAST	SUNSET BEACH	NC	28468
STREET JAMES T	335 BADGER CIRCLE	ROXBORO	NC	27573
STRICKLAND GAYLEE ET FLORENCE	720 WATERWAY DRIVE	SUNSET BEACH	NC	28468
STRICKLAND JAMES C ET SHEILA S	PO BOX 177	BOLTON	NC	28423
STRICKLAND JAMES H ET MARTHA B	50 PINECROFT DRIVE	WHITEVILLE	NC	28472
STRICKLAND JOSEPH ALLEN ET BONNIE	PO BOX 583	WHITEVILLE	NC	28472
STRINGER ARTHUR VERNON ET VANESSA H	1 CROSSFIELD CT	GREENSBORO	NC	27408
STUART CHARLES JACKSON	4739 HEDGEMORE DR	CHARLOTTE	NC	28209
STUART DAVID H	410 STOKES DRIVE	SUNSET BEACH	NC	28468
STUART RAY L AND ANNA	343 FREEDOM MILL RD	GASTONIA	NC	28052
SUDDETH B JERRELL ET LINDA	101 POWERS DRIVE	EASLEY	SC	29640
SUGGS JOSEPH & ROBERT & CECIL	1004 N GRAHAM HOPEDALE RD	BURLINGTON	NC	27217
SUGGS ROBERT C ET MARY F	6354 HOLLY GROVE ROAD	THOMASVILLE	NC	27360
SUH DR KENDALL H	PO BOX 5189	OCEAN ISLE BEACH	NC	28469
SUITS JAMES R ET JOANNE S	5336 AUDREY RD	GREENSBORO	NC	27406
SULLIVAN STEPHEN P ET CAROL LEA	2825 DUNKIRK DR	RALEIGH	NC	27612
SULLIVAN VERA MC	1018 RANDOLPH CIR	LENOIR	NC	28645
SUMMERLIN REBECCA LEE	4638 BLUFF DR	SHALLOTTE	NC	28470
SUN`S SET LIMITED PARTNERSHIP	5616 INVERNESS DRIVE	DURHAM	NC	27712
SUNRISE EAST PARTNERS 1	PO BOX 5422	WINSTON-SALEM	NC	27113
SUNSATIONAL PARTNERS II RLLP	PO DRAWER 25008	WINSTON-SALEM	NC	27114
SUNSET BEACH FARMS INC	502 SUNSET BL N	SUNSET BEACH	NC	28468
SUNSET BEACH LIMITED PARTNERSHIP	2229 WEEPOLOW TRAIL	CHARLESTON	SC	29407
SUNSET BEACH PARTNERS	PO BOX 1225	LENOIR	NC	28645
SUNSET BEACH REALTY & MGT.INC	401 S SUNSET BLVD	SUNSET BEACH	NC	28468
SUNSET BEACH VENTURES LLC	419 ANTHONY ST	GLEN ELLYN	IL	60137
SUNSET INVESTMENT PROPERTIES LLC	12 N OAK FOREST DRIVE	ASHEVILLE	NC	28803
SUNSET OAKS GARDEN HOMES OWNER'S	7290-3 BEACH DR	OCEAN ISLE BEACH	NC	28469
SUNSET PARTNERS	PO BOX 668827	CHARLOTTE	NC	28266
SUNSET PEACH LLC	4449 DRIFTWOOD DR	CLEMMONS	NC	27012
SUNSET PROPERTIES INC	419 SOUTH SUNSET BLVD	SUNSET BEACH	NC	28468
SUNSET'S WEST I LLC	PO BOX 5422	WINSTON-SALEM	NC	27113
SURAZAL LIMITED PARTNERSHIP	60 OLD COLONY ROAD	WELLESLEY	MA	02481
SURRATT ROBERT T ET JUDY C	1104 KIRKWOOD PLACE	SUNSET BEACH	NC	28468
SUTTLES JANICE U	1820 ALPINE LANE	GASTONIA	NC	28054
SUTTON ANN B	1515 HASTY ROAD	MARSHVILLE	NC	28103
SWAIM LLOYD G ET MARY LOU	503 PERSIMMON LANE	FREDERICKSBURG	VA	22401
SWAN CARL	1738 EDGEWATER DR	CHARLOTTE	NC	28210
SWANSON SAMUEL E ET RUTHANN B	200 WYNDFIELD PLACE	ATHENS	GA	30605
SWARTZ PAUL L ET SHIRLEY A	13932 BLUE MT DR	MAUGANSVILLE	MD	21767
SWORDS JAMES D ET JUDY S	PO BOX 509	WAXHAW	NC	28173
SZATKO STEVEN R ET CAROL M	12 MULBERRY CT	WHITESBORO	NY	13492
SZEMANCZKY J LOUIS	314 WILLOW ST	NEW HAVEN	CT	06511
T.J.S. PROPERTIES	1809 BRASSFIELD RD	RALEIGH	NC	27614
TADLOCK DOUGLAS L ET MARTHA D	611 B EAST CHESTNUT ST	STANLEY	NC	28164
TAKE THE TIME LLC	1075 ASH ROAD	MARIETTA	OH	45750
TANNER SAMUEL D JR & ET	755 CUMBERLAND CIRCLE	ROCKINGHAM	NC	28379
TARTER ROLLIN H ET NANCY ANN	835 WEST LEXINGTON AVENUE	DANVILLE	KY	40422
TATHAM JOHN F SR ET PATRICIA L	3651 REID ROAD	ROCK HILL	SC	29730
TATUM JEAN R ETVIR NORMAN C	5921 A BROOKFIELD RD	RICHMOND	VA	23227

TAYLOR BRIAN J ET DONNA M	713 LIVE OAK DR SW	SUNSET BEACH	NC	28468
TAYLOR DONALD J & VIRGINIA J	14 GROVES AVENUE	ALEXANDRIA	VA	22305
TAYLOR KATHERINE S	2479 SUNFISH ST	SUPPLY	NC	28462
TAYLOR LARRY W ET ELIZABETH W	PO BOX 644	LENOIR	NC	28645
TAYLOR LORETTA M TRUSTEE	40 MORRISON RD	WINDHAM	NH	03087
TAYLOR ZACHARY A ET JANE	3313 LANDOR RD	RALEIGH	NC	27609
TEAGUE O B ET ANN	1916 SHEPHERDS WAY	GREENSBORO	NC	27410
TEDDER FREDERICK A	642 HALLSBORO RD NORTH	HALLSBORO	NC	28442
TEDESCO LAWRENCE B JR ET HELEN A	715 FAIRWAY DRIVE EAST	SUNSET BEACH	NC	28468
TEKER ARNOLD S ET BARBARA A	710 FAIRWAY DR EAST	SUNSET BEACH	NC	28468
TEMPLE EARL JACKSON JR	115 ROCKWOOD DR	LENOIR	NC	28645
TEMPLETON KENNETH ET DIANE P	11410 OLDE TURNBURY CT	CHARLOTTE	NC	28277
TENNANT JAMES E ET BETTY	641 KINGS TRAIL DRIVE	SUNSET BEACH	NC	28468
TERHUNE STEPHEN T	288 W JOYCE LN	ARNOLD	MD	21012
TERRY ANNE C	111 MUIRFIELD CT	DURHAM	NC	27712
TEW LUTHER D ET BRENDA C	PO BOX 6219	SUNSET BEACH	NC	28470
THARRINGTON RONALD T SR ET ELAINE	PO BOX 548	CLARKSVILLE	VA	23927
THE ADELINE ZACHERT BARBER IRR TRUS	3106 SCARBOURGH DRIVE	WILMINGTON	NC	28409
THE CARL W SMITH TRUST	8412 EACH LEAF COURT	COLUMBIA	MD	21045
THE FRINK COMPANY INC	1001 BEACH DRIVE SW	SUNSET BEACH	NC	28468
THE HICKMAN FAMILY TRUST	250 SHORELINE DR EAST	SUNSET BEACH	NC	28468
THE MELETIS FAMILY LIMITED PAR	1007 BRIARCLIFF RD	MOORESVILLE	NC	28115
THE NELSON REVOCABLE TRUST	1312 DESOTO	BURLINGTON	CA	94010
THE POUGE MAHONE CORPORATION	PO BOX 2887	SHALLOTTE	NC	28459
THEIL WILLIAM F JR ET NADINE J	3108 CARDIGAN CT	MATTHEWS	NC	28104
THEIMER ALAN D JR ET DELFINA	535 MAGNOLIA DRIVE	SUNSET BEACH	NC	28468
THIGPEN F RAY	632 WEDGEWOOD DRIVE	WHITEVILLE	NC	28472
THOMAS DAVID P ET SUSAN	2924 SHAKER DRIVE	CHARLOTTE	NC	28210
THOMAS DOUGLAS D ET PENNY L	42583 WHITMAN WAY	NOVI	MI	48377
THOMAS JACK J ET JULIA	212 SHORELINE DRIVE E	SUNSET BEACH	NC	28468
THOMAS JAMES W & FRANCES TRUSTEES	PO BOX 6722	SHALLOTTE	NC	28470
THOMAS JERRY L ET GRACE C	12550 BIGLICK RD	STANFIELD	NC	28163
THOMAS MEREDITH GERALD	516 GREAT OAKS CIRCLE	SUNSET BEACH	NC	28468
THOMAS RAYMOND ET PATRICIA	500 BIG MILL FARM RD	KERNERSVILLE	NC	27284
THOMAS RICHARD L ET BONIVANT A	1005 CHATFIELD DR	GREENSBORO	NC	27410
THOMAS ROBERT ET	PO BOX 863	RIDGEWAY	SC	29130
THOMAS WILLIAM C ET LUCILE R	1108 BRAUGHTON AVE	CONCORD	NC	28025
THOMASSON JAMES W ET NANCY H	636 KINGS TRAIL	SUNSET BEACH	NC	28468
THOMPSON ALVIN B ET	100 KIMMIE ROAD	CHERAW	SC	29520
THOMPSON BOBBIE N	5315 SIERRA COURT	FAYETTEVILLE	NC	28303
THOMPSON C MICHAEL ET JANE R	792 ARBOR RD	WINSTON-SALEM	NC	27104
THOMPSON CHARLES O JR ET NOREEN	1207 CAHOON RD	WESTLAKE	OH	44145
THOMPSON HURLEY E JR ET RHONDA B	PO BOX 1300	CARTHAGE	NC	28327
THOMPSON JAMES M SR ET NORMA	325 FREEMAN MILL RD	HAMLET	NC	28345
THOMPSON R DONALD ET LILLIAN M	620 JASMINE LANE	SUNSET BEACH	NC	28468
THOMPSON RALPH PERRY	PO BOX 49916	GREENSBORO	NC	27419
THOMPSON WILLIAM B	407 35TH STREET	SUNSET BEACH	NC	28468
THWAITES ROBERT V ET GERTRUDE	606 KINGS TRAIL SW	SUNSET BEACH	NC	28468
TICE JOHN S SR & ROBERT J JAQUES	613 JASMINE LANE SW	SUNSET BEACH	NC	28468
TICKLE CHARLES III ET	107 PRESTON ARBOR LANE	CARY	NC	27513
TICKLE DANIEL MONROE ET GAIL	PO BOX 7083	SHALLOTTE	NC	28470
TILLEY DELMAR E ET BRENDA W	2530 MOSS CREEK LOOP RD 1	ELON COLLEGE	NC	27244
TIMMONS WILLIAM D & MARTHA S	PO BOX 3355	PINEHURST	NC	28374
TITUS ANTHONY F ET LISA L	7814 KENNEBEC DRIVE	CHAPEL HILL	NC	27517
TOBBEN KAREN S	4810 GAYNOR ROAD	CHARLOTTE	NC	28211
TODD STEVEN W ET KATHI W	6044 BRATTON PL	CHARLOTTE	NC	28277
TOLBERT JAMES O & BETTY K	101 CHURCHILL DOWNS	GREENVILLE	SC	29615
TOMAHAWK TRUCKING INC	636 HWY 210E	HARRELLS	NC	28444
TOMLIN DIANE C & RICHARD E GOSLEE	900 FORBES ST	EAST HARTFORD	CT	06118
TONG DIEN H ET DIEP N	8701 GRUENEWALD LANE	CHARLOTTE	NC	28210
TOWELL TED W ET JOANN	177 BLACKWELDER FARM DR	MOORESVILLE	NC	28115
TOWN OF SUNSET BEACH	700 SUNSET BLVD N	SUNSET BEACH	NC	28468
TOWNSEND TERRY M ET LYNDA K	316 C HIGHWAY 210 N	SPRING LAKE	NC	28390
TOWNSEND WILLIAM H ET SHIRLEY EDGE	2045 PINELOG	LUMBERTON	NC	28360
TRAMMELL RONNIE ET SHIRLEY	1985 GROCE MEADOW ROAD	TAYLORS	SC	29687
TRANSCAROLINA CORPORATION	22940 TORRENCE CHAPEL RD	CORNELIUS	NC	28031
TRANSOU TERRY ALLEN ET KELLIE	6711 ELM FOREST DR	CHARLOTTE	NC	28212
TRAVERS JAMES T ET MARY	1410 INLET STREET	SUNSET BEACH	NC	28468
TRAYWICK CURTIS CLIFTON JR ET BETTY	200 OVERLOOK DR	WADESBORO	NC	28170
TREECE JAMES E	2 PINECREST DRIVE	HAMLET	NC	28345
TRIBBLE R WAYNE ET LINDA J TRUSTEES	1171 SOUTH FAIRWAY DR	FOREST	VA	24551

TRICKETT RICHARD A	3755 HEDGECLIFF COURT	ALPHARETTA	GA	30022
TRIMBERGER GEORGE M ET DIANE K	1209 ST JOHNS AVENUE	STALLINGS	NC	28104
TRIPLETT BILLY B JR ET REGINA S	PO BOX 1021	BLOWING ROCK	NC	28605
TRIPLETT BROOKE E & MASSARO ANDREW	3015 BELSPRING LANE	RALEIGH	NC	27612
TRIPLETT GARRELL J AND	619 LIVE OAK DRIVE SW	SUNSET BEACH	NC	28468
TROTTER JAMES F & ET	603 MAIN ST	SUNSET BEACH	NC	28468
TROTTER MARGARET SCOTT RODWELL TRUS	603 MAIN STREET EAST	SUNSET BEACH	NC	28468
TRUSTEE OR SUCCESSOR TRUSTEE OF THE	PO BOX 7647	SHALLOTTE	NC	28470
TUCHEK RICHARD D ET GWENDOLYN T	130 CANTIBERRY DR	SALISBURY	NC	28146
TUCKER DAN & MARCELLA FAMILY TRUST	104 DUMBARTON CT	CARY	NC	27511
TUCKER DORRIS P	5185 HERMITAGE DR	POWDER SPRINGS	GA	30073
TUCKER EDWARD P JR ET PEGGY S	4915 DORIS AVE	CHARLOTTE	NC	28205
TUCKER ROBERT L ET	285 BEVERLY DRIVE NE	CONCORD	NC	28025
TUCKER WALLACE H	1435 RIVERSHYRE PARKWAY	LAWRENCEVILLE	GA	30243
TUEL REBECCA E ETVIR & ET	114 LONG LEAF LANE	PLYMOUTH	NC	27962
TUNT MYRON E ET BILLIE M	387 SEA TRAIL DR W	SUNSET BEACH	NC	28468
TURK STEVEN D ET KAREN L	PO BOX 4661	CHARLESTON	WV	25364
TURNAGE LARRY R	PO BOX 7390	SOUTH BRUNSWICK	NC	28470
TURNER J RAY ET RUTH J	627 LYNNE AVENUE	CHARLESTON	SC	29412
TURNER KENNETH R ET BARBARA T	8104 JEFFERSON COLONY RD	CHARLOTTE	NC	28227
TURNER OLIVE L	PO BOX 186	WEST LIBERTY	WV	26074
TUTTLE EDWARD H III ET DEBORAH O	305 WEST MAIN STREET	SUNSET BEACH	NC	28468
TUTTLE STEPHEN A ET GAYLE M	2016 PINE BARK	CLAYTON	NC	27520
ULLMAN KATHLEEN R & BRUCE FADEM	620 OLD DUTCH ROAD	BEDMINSTER	NJ	07921
ULRICH RUDOLF H III ET LESLIE J	342 SEA TRAIL DR W	SUNSET BEACH	NC	28468
UNDERWOOD CHARLES A JR	2504 HINTON STREET	RALEIGH	NC	27612
UNDERWOOD THOMAS H JR ET MAGGIE C	1407 INLET ST	SUNSET BEACH	NC	28468
UNDERWOOD VICKI BROWN	220 ADAMS STREET	EDEN	NC	27288
UPCHURCH TIM T ET NAIDA S	603 MASON RD	DURHAM	NC	27712
UTZ CLARENCE D ET CAROL T	3441 CORNELL DRIVE	FAYETTEVILLE	NC	28306
UVEGES JOHN PAUL ET ALYCE F	15712 SENTINEL DR	SUN CITY WEST	AZ	85375
VALENTE BERNARD F ET CAROL A	18 HEMLOCK DRIVE	CLIFTON	NY	12065
VALORIS BRUCE & MERITA TRUST	13745 CABELLS MILL DR	CENTREVILLE	VA	20120
VANCE DONALD W & BARBARA F	1114 CHOCTAW TRAIL	GEORGETOWN	KY	40324
VANETTI STEVEN F	594 EAST ROAD	MIDDLETON	NJ	07748
VARNER MICHAEL G	8879 CLIFFDALE RD	FAYETTEVILLE	NC	28314
VAUGHAN CATHERINE B	726 LAUREL FOREST DRIVE	CLARKSVILLE	VA	23927
VAUGHAN THOMAS HOUGH	118 WATERTON WAY	SIMPSONVILLE	SC	29680
VAUGHT JAMES D ET BONNIE SUE	10409 43RD AVENUE	DELTSVILLE	MD	20705
VERNON ARTHUR L ET WANDA	205 COUNTRY ROADS CIRCLE	STOCKBRIDGE	GA	30281
VERNON DONALD R & TERRY W TRUSTEES	403 2ND STREET	SUNSET BEACH	NC	28468
VESTAL MARK ET ANITA	590 AMBROSE PL	FAYETTEVILLE	NC	28314
VIETS LLOYD O ET JOHNNIE LYNN	928 THORN RIDGE LANE	CLOVER	SC	29710
VOGLER JAMES B JR ET SARAH	1220 BRIAR PATCH LANE	RALEIGH	NC	27615
VOLLMER SCOTT C ET JOYCE O	7312 STILL POND CT	RALEIGH	NC	27613
VON CANON C FREDERICK	PO BOX 1527	SANFORD	NC	27331
VOSK BARBARA N	7508 HAYMARKET LANE	RALEIGH	NC	27615
VOYAGER ASSOCIATES LIMITED PARTNER	3417 WOODLAWN ROAD	ROCKY MOUNT	NC	27804
VRANA SHEILA J	1060 DERRY WOODS DR	HUMMELSTOWN	PA	17036
WACHTER JOHN WELLS & ET CO-TRTEE	3017 WALMAR DRIVE	KNOXVILLE	TN	37920
WAERLOP IVO F ET BARBARA S TRUSTEES	8316 CASTINE COURT	RALEIGH	NC	27613
WAGNER OREN HARRY ET BETTY	249 HEATHCLIFF PLACE	WINSTON SALEM	NC	27104
WAITE JORDAN C	6229 GILL CREEK ROAD	COLUMBIA	SC	29206
WAKEFORD CHARLES W ET KAREN	9509 KIRKHILL DR	RALEIGH	NC	27615
WALKER HOLLAND P JR ET SONIA D	6417 FOLGER DR	CHARLOTTE	NC	28270
WALKER JUDITH K	1617 JESSAMINE RD	LEXINGTON	SC	29073
WALKER ROGER S TRUSTEE	1974 HAMPTONWOOD ROAD	ROCK HILL	SC	29732
WALKER RUSSELL EUGENE ET DIANNE BAY	2129 TRAILWOOD CT	KANNAPOLIS	NC	28081
WALLACE BUNNY P ET DAWN W	PO BOX 564	PINE BLUFF	NC	28373
WALLACE JUDY E	523 DOGWOOD DRIVE SW	SUNSET BEACH	NC	28468
WALLACE KAREN F & DEBRA R FINGER	6611 WILLOWBOTTOM ROAD	HICKORY	NC	28602
WALLACE RICKY W ET DEBORAH H	1121 OLD RIDGE ROAD	EAST BEND	NC	27018
WALLACE SHANE	6209 CANDLEWOOD DR	CHARLOTTE	NC	28210
WALSER HENRY DAVIS	200 - 33RD AVE SOUTH	N MYRTLE BEACH	SC	29582
WALSH ROBERT K ET LOUISE W	2816 REBEL LANE	FLORENCE	SC	29505
WALTER EARL ET JANE B	11698 FOXSPUR CT	ELLICOTT CITY	MD	21042
WALTERS DEAN ET PHYLLIS	48 UNION STREET	OCEAN ISLE BEACH	NC	28469
WALTERS EDWARD X ET DONNA	6617 KEYSTONE DRIVE	RALEIGH	NC	27612
WALTERS G K & SARAH ELIZABETH	185 HOMER CORRIHER RD	CHINA GROVE	NC	28023
WALTERS IKA ET ESTA L	1065 BUFFALO CREEK RD	HUNTINGTON	WV	25704
WALTERS MACK D ET BRENDA S JR	374 MAC D ROAD	ORRUM	NC	28369

WALTERS TERRY L ET KATHY H	PO BOX 8163	SOUTH BRUNSWICK	NC	28470
WARD ALLENE L	1123 INDIGO CIRCLE SW	SUNSET BEACH	NC	28468
WARD ELIZABETH A	414 WEST MAIN STREET	CARTERSVILLE	GA	30120
WARD JOSEPH E SR ET FRANCES R	223 MCCALL DR	FOREST CITY	NC	28043
WARD RICHARD ET TINA M	6022 COATBRIDGE LN	CHARLOTTE	NC	28212
WARD RICHARD W ET	313 DUNES DR	MYRTLE BEACH	SC	29577
WARD STACEY L	633 LIVE OAK DR	SUNSET BEACH	NC	28468
WARNER WALTRAUD E	6647 SHERROD DRIVE	FAYETTEVILLE	NC	28314
WARREN CAROLYN B TRUST	432 29TH STREET	SUNSET BEACH	NC	28469
WARREN DOUGLAS F	4502 OLD RANDLEMAN ROAD	GREENSBORO	NC	27406
WARREN JAMES W	709 WATERWAY DR SW	SUNSET BEACH	NC	28468
WARREN SHIRLEY T	1401 ALEXIS-LUCIA RD	STANLEY	NC	28164
WATERMAN FRANCIS A JR ET JENNIFER	PO BOX 555	CHESHIRE	MA	01225
WATERS MAREDA DRUM	1031 MAPLE DR	NEWTON	NC	28658
WATERWAY LANDING LLC	790-6 SUNSET BLVD	SUNSET BEACH	NC	28468
WATSON CHARLSIE H	132 HOOVER ST	LENOIR	NC	28645
WATSON DUNCAN M JR ET SARA M	1104 SHEPARD AVE	LAURINBURG	NC	28352
WEARS PETER ET	204 FORESTWOOD DR	DURHAM	NC	27707
WEASE TIMOTHY F & ET	2704 TONEY ROAD	LAWNDALE	NC	28090
WEBB GARY D JR & ET	2523 PRIMM ROAD	DENVER	NC	28037
WEBB H MICHAEL	801 CLEMONT DRIVE NE	ATLANTA	GA	30306
WEBSTER MILDRED B	1379 WHETSTONE CK RD	STONEVILLE	NC	27048
WEBSTER WILLIAM D ET FAYE	321 SARDIS CHURCH RD	MADISON	NC	27025
WEDDLE CLAUDE A ET BETSY S	925 WIMBLEDON RD	MACON	GA	31210
WEDDLE JOHN O ET MARY S	706 N SHORE DR	SUNSET BEACH	NC	28468
WEDDLE RANDY L	227 MAGNOLIA DR	SUNSET BEACH	NC	28468
WEIKEL INES & JACQUELINE MORGAN	106 ELGIN PLACE	GREENSBORO	NC	27410
WEIS MATTHEW J & ET	2740 BARROW PL	MIDLOTHIAN	VA	23113
WELCH WILLIAM M ET BRENDA W	133 PECAN LANE	SALISBURY	NC	28144
WELLS ALBERT N	ONE BARBADOS AVE APT 3D	TAMPA	FL	33606
WELLS JOHN DURHAM ET CAROL C	565 WEST DAVIS BLVD	TAMPA	FL	33606
WELTY ALEN E ET GAIL H	618 JASMINE LANE	SUNSET BEACH	NC	28468
WENSTRUP KENNETH ET DOLORES	709 FAIRWAY DRIVE EAST	SUNSET BEACH	NC	28468
WERNER DENNIS J ET GEORGINA M	5901 FORDLAND DRIVE	RALEIGH	NC	27606
WESOLOWSKI JOYCE M	670 W END AVE APT 15A	NEW YORK	NY	10025
WEST KELLY & MARGARET WEST	1121 PARK ROAD SW	SUNSET BEACH	NC	28468
WEST P D & FRANCES	7611 EAST LANE DR	CHARLOTTE	NC	28212
WEWERKA JOE F ET JUDY	4713 TWINWOOD COURT	RALEIGH	NC	27613
WHISNANT LINDA R	PO BOX 6118	SOUTH BRUNSWICK	NC	28470
WHITE ANN E	718 MAGNOLIA DR SW	SUNSET BEACH	NC	28468
WHITE GEORGE C JR & ELEANOR B	PO BOX 354	PAW CREEK	NC	28130
WHITE HILDA H	406 STOKES CT SW	SUNSET BEACH	NC	28468
WHITE JACKIE RAY	3010 BIG NECK RD	ASH	NC	28420
WHITESIDES RALPH W ET MARJORIE L	716 HEMLOCK DR SW	SUNSET BEACH	NC	28468
WHITNEY A GRANT JR ET MARY	2528 ROSEWELL AVENUE	CHARLOTTE	NC	28209
WHITNEY PROPERTIES LLC	1121 GREENTREE DRIVE	CHARLOTTE	NC	28211
WICKER JULIAN ET MARTHA	1916 COTTEN ROAD	SANFORD	NC	27330
WIELAND JOHN ALBERT JR ET ANGELA	PO BOX 381	PITTSBORO	NC	27312
WIESE THOMAS JOHN ET RITA	514 UPLAND DR	WILMINGTON	NC	28405
WIGGINS CHARLES C ET SUSAN	8500 GLENLAKE CT	RALEIGH	NC	27606
WIGGINS JAMES R ET CHARLOTTE T	PO BOX 242	MCADENVILLE	NC	28101
WILEY PEGGY GARRETT	537 LIVE OAK DR	SUNSET BEACH	NC	28468
WILKENS CARL & YVONN	PO BOX 1124	LUMBERTON	NC	28358
WILKERSON JIMMIE C ET MARTHA	1148 JOEL STREET	CHINA GROVE	NC	28023
WILKINS EDWARD M	1705 N ELM STREET	LUMBERTON	NC	28358
WILKINS WINFREY O ET JEANNINE D	815 OAKWOOD DRIVE	EDEN	NC	27288
WILKINSON WOODY H & KELLY L	133 N 2ND STREET	SMITHFIELD	NC	27577
WILLIAMS EUGENE JOSEPH ET NANCY I	330 SEATRAIL DR	SUNSET BEACH	NC	28468
WILLIAMS DENNIS B ET PRISCILLA S	375 SOUTH CIRCLE DR NW	CONCORD	NC	28027
WILLIAMS DIANA LYNN	1411 INLET STREET	SUNSET BEACH	NC	28468
WILLIAMS J C ET ALICE	1072 FEEDMILL ROAD	WHITEVILLE	NC	28472
WILLIAMS JOHN T ET BARBARA H	277 CLONTZ HILL ROAD	TROUTMAN	NC	28166
WILLIAMS MICHAEL C ET BEVERLY	256 MISTLETOE LANE	SYLVA	NC	28779
WILLIAMS ROBERT J ET FREDERICKA M	6789 N HURON ROAD	WOLCOTT	NY	14590
WILLIAMS RONALD W JR & LAIDLAW ANN	4916 SETTER COURT	JAMESTOWN	NC	27282
WILLIAMS WADEFORD C ET DAISY	1429 LARSON ST	GREENSBORO	NC	27407
WILLIAMSON BOB ET LARUE	1873 NEW BRITTON HWY E	WHITEVILLE	NC	28472
WILLIAMSON HUGH ET ETHELENE C	136 MA MAC ROAD	WHITEVILLE	NC	28472
WILLIAMSON JIMMY L ET LINDA	416 WATEROAK WYNDS SW	SUNSET BEACH	NC	28468
WILLIAMSON JOHN H & HARRY GLEEN	1027 SHADY BLUFF DR	CHARLOTTE	NC	28211
WILLIAMSON ODELL D & BULLINGTON LAD	#2 CAUSEWAY	OCEAN ISLE BEACH	NC	28469

WILLIETS JOHN R ET SUSAN P	198 EUSTON ROAD	GARDEN CITY	NY	11530
WILLIFORD KATHY P	9525 PINE SHADOW DRIVE	RICHMOND	VA	23233
WILLIS MARTHA G	533 IRIS DR	FLORENCE	SC	29501
WILLOUGHBY C COLON ET	2700 PEACHTREE ST	RALEIGH	NC	27608
WILLOUGHBY CLARENCE	1385 WILLOUGHBY RD	TABOR CITY	NC	28463
WILLOUGHBY MARY L	311 DOWNS STREET	RIDGEWOOD	NJ	07450
WILMER FRANK ET JANE	200 MILL RD	SCHWENKSVILLE	PA	19473
WILSON CHRISTINE J TRUSTEE	7840 SPIROWOOD STREET	DUBLIN	OH	43016
WILSON HAROLD M ET SONJA D	PO BOX 442	CATAWBA	NC	28609
WILSON RONALD L ET LINDA	3303 MADISON AVE	GREENSBORO	NC	27403
WINDHAM CUYLER L SR ET MARY D	112 BLEDSOE STREET	HOPE MILLS	NC	28348
WINSLOW JOSEPH R III	4176 WREN LANDING	LITTLE RIVER	SC	29566
WINSTEAD DONALD S ET KAREN	7608 COPPER CREEK CT	WAKE FOREST	NC	27587
WINTERS ZANE ET ERMA JUANITA	2737 HILL VIEW CT	PORTSMOUTH	OH	45662
WISH PETER A ET JUDITH	6858 SOUTHSTAFF RD	FAYETTEVILLE	NC	28306
WITSELL DAVID L & KYLE A WORSHAM	104 SONGBIRD LANE	CHAPEL HILL	NC	27514
WOHLBRUCK EVERETT L & NANCY TRUSTEE	2506 KNOLLWOOD RD	CHARLOTTE	NC	28211
WOLFE MAX W AND BETH W	618 ARCHIE WHITESIDES RD	GASTONIA	NC	28052
WOLFE THOMAS E JR	359 CALHOUN DR	GARDEN CITY	SC	29576
WOOD DAVID C ET JUDITH L	9124 WEST STREET	MANASSA	VA	20110
WOOD ROGER MASON ET JOY	704 SHORELINE DR E	SUNSET BEACH	NC	28468
WOODIN ROBERT A ET LESLIE M	8 BIRCH HILL COURT	BALLSTON LAKE	NY	12019
WOODLEY KATHRYN L & DOUGLAS M TRUST	7704 HAYFIELD ROAD	ALEXANDRIA	VA	22310
WOODRING BRENDA K	PO BOX 1	ZIONVILLE	NC	28698
WOODRING EDWARD E ET RACHEL B	237 ROBY EGGERS RD	ZIONVILLE	NC	28698
WORLEY JAMES P ET COLLETTE J	8021 THORNLEY CT	BETHESDA	MD	20817
WORSLEY W CECIL III ET JOANNA W	1826 SOUTH CHURCHILL DRIV	WILMINGTON	NC	28403
WREN THOMAS	221 SHORELINE DR EAST	SUNSET BEACH	NC	28468
WRIGHT DONALD F	637 KINGS TRAIL DR	SUNSET BEACH	NC	28468
WRIGHT ELAINE	629 MILLSLOUGH LANE SW	SUNSET BEACH	NC	28468
WRIGHT GARY L ET J SUSANNE	1520 BRIDLE PATH DRIVE	LANSDALE	PA	19446
WRIGHT IRENE	PO BOX 56	PINNACLE	NC	27043
WRIGHT JANICE	207 WEST SHORELINE DRIVE	SUNSET BEACH	NC	28468
WRIGHT JIMMY	215 WEST HARRIS PLACE	EDEN	NC	27288
WRIGHT ROBERT H ET MARGARET M	233 LIVE OAK DR	SUNSET BEACH	NC	28468
WYLIE ROBERT L IV ET CANDYCE J	803 WILDWOOD CIRCLE	MYRTLE BEACH	NC	29572
WYNKOOP WILLIAM H ET GLENDA	413 AUTUMN DRIVE	MONROE	NC	28112
YANDLE RICHARD D	422 36TH STREET	SUNSET BEACH	NC	28468
YARBROUGH-FARR CONSTRUCTION CO INC	428 SUNSET BEACH BLVD	SUNSET BEACH	NC	28468
YASINSAC CORINNE S ET	2108 WEWBLEY	COLUMBIA	SC	29212
YEAGER JIM ET MARY BETH	5825 NEW ENGLAND WOODS DR	BURKE	VA	22015
YOST HERBERT C ET MARY E	519 FAIRWAY DR	SUNSET BEACH	NC	28468
YOUNG JAMES H ET REBECCA	525 FAIRWAY DR	SUNSET BEACH	NC	28468
YOUNG RICHARD L ET TERESA O	702 WATERWAY DR SW	SUNSET BEACH	NC	28468
YOUNTS GARY W ET MELANIE	PO BOX 1949	SHALLOTTE	NC	28459
YOW MARVIN E	130 LIVE OAK CT	N MYRTLE BEACH	SC	29582
YUG KAILIM & MARY TRUST	552 POND APPLE RD	CLARKSVILLE	TN	37043
ZACHARY JACK L LET MARCIA	187 AZALEA CIR SW	SUNSET BEACH	NC	28468
ZALESKI WALTER P ET LYNN	519 SHORELINE DR E	SUNSET BEACH	NC	28468
ZALEWSKI THOMAS PETER	101 KETTERING LANE	CARY	NC	27511
ZETTS RAYMOND N & CARMELA R TRUSTEE	402 2ND STREET	SUNSET BEACH	NC	28468
ZIEFEL JOHN F ET MARY K	309 WATERWAY DRIVE EAST	SUNSET BEACH	NC	28468
ZIZWAREK JOSEPH P ET IDA N	52-B EDINBURDH LN	MANCHESTER	NJ	08759
ZUKAS VITE J ET HELMA R	609 CAMELLIA LANE	SUNSET BEACH	NC	28468