US 64, FROM NC 45 EAST OF PLYMOUTH
TO APPROXIMATELY 1.1KM (0.7MI) EAST OF
SR 1235 (SCHOOL MAINTENANCE ROAD),
WASHINGTON AND TYRRELL COUNTIES
STATE PROJECT NO. 6.149001T
TIP NO. R-2548

ADMINISTRATIVE ACTION

STATE FINAL ENVIRONMENTAL IMPACT STATEMENT

N. C. Department of Transportation

Submitted pursuant to 42 U. S. C. 4332(2)(C)

For further information contact:

Mr. William D. Gilmore, P.E., Manager
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North Carolina Department of Transportation
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10/6/99
Date

William D. Gilmore, P. E., Manager
Project Development and Environmental Analysis Branch, NCDOT

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Administrative Action

State Final Environmental Impact Statement

September 1999

Documentation prepared in the Project Development and Environmental Analysis Branch by:

Richard L. Brewer, P. E.
Project Planning Engineer

Teresa A. Hart
Project Planning Unit Head

PROJECT COMMITMENTS
US 64, from NC 45 East of Plymouth
to about 0.7 miles East of
SR 1235 (School Maintenance Rd.),
Washington and Tyrrell Counties
State Project No. 6.149001T
TIP No. R-2548

Hydraulics Unit, Roadway Design Unit, Division 1 Environmental Officer

- NCDOT will provide cross-pipes, or surface water equalizer canals, where warranted, in addition to prescribed hydraulic structure in causeways (existing and proposed) at **high quality riverine** wetland areas.

Division of Highways – Operations, Division Construction Engineer

- NCDOT will adhere to in-stream construction moratoria at all direct tributaries to the Albemarle Sound or designated anadromous spawning areas/nurseries. (The moratoria for each of the stream crossings will be established in consultation with the N. C. Division of Marine Fisheries.)

Division 1 Environmental Officer

- NCDOT will provide the N. C. Natural Heritage Program and other interested agencies an opportunity to examine the preferred alignment for populations of rare species not protected by federal law.

Division 1 Environmental Officer, Wildlife Resources Commission, Highway Design Branch

- NCDOT is committed to providing appropriate wildlife crossing opportunities by constructing bridges at three sites to be determined from animal utilization studies.

PD&EA Branch, Division of Highways – Operations, Division Construction Engineer, Roadside Environmental Unit

- NCDOT will adhere to conditions of the Memorandum of Agreement with the State Historic Preservation Office for mitigating adverse impacts to the Mizell, Homestead and Turner Farms. These conditions, stipulated below, will be included in the U. S. Army Corps of Engineers Individual Permit:

  - NCDOT will provide windbreak planting along the right of way through the Mizell Farm and the Homestead Farm and in the viewshed of the Turner Farms, which includes native plants commonly found grown up along rural fencelines (examples: Yaupun Holly, Wax Myrtle, Red Maple, Loblolly Bay, Longleaf Pine, Pond Pine, Atlantic White Cedar, Tulip Tree, and Bald Cypress).
  - NCDOT will utilize typical large wire mesh fencing, composed of 6" squares and wooden posts, along their controlled access boundary.

- NCDOT will regulate development in the areas around the Mizell Farm, the Homestead Farm, and the Turner Farms [from approximately Station 26 to Station 56 (L-revised) as shown on the design plans prepared by the Roadway Design Unit, NCDOT] by providing full control of access and if, in the future, there are applications for driveway permits between these two points, NCDOT agrees to provide SHPO with copies of the applications for their review and comment.

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

Page

TABLE OF CONTENTS
(continued)

Page

LIST OF TABLES

TABLE OF CONTENTS
(continued)

Page

LIST OF TABLES (continued)

APPENDICES

US 64, from NC 45 East of Plymouth
to about 0.7 miles East of
SR 1235 (School Maintenance Rd.),
Washington and Tyrrell Counties
State Project No. 6.149001T
TIP No. R-2548

SUMMARY

A. Description of Proposed Action

The North Carolina Department of Transportation (NCDOT) proposes a highway improvement project for US 64 in Washington and Tyrrell Counties, between NC 45 (east of the Town of Plymouth) and about 0.7 miles east of SR 1235 (School Maintenance Rd.) in Columbia. (See Figure 1. All referenced figures are located in Appendix A.)

This highway project was listed as a priority in the interagency agreement to integrate Section 404 and NEPA requirements. A project team has met on several occasions to approve the concurrence points of the agreement.

B. Alternatives

Four build alternatives and the no build alternative were studied and discussed in the Draft Environmental Impact Statement (EIS), approved on October 9, 1997. Included in the alternatives discussion were the primary engineering and cost factors and the environmental impacts of each. All four build alternatives met the purpose and need of this project.

Concurrence points #1 and #2 of the Section 404/NEPA merger agreement, dealing with the project's purpose and need and alternatives, respectively, were approved by the project team while the Draft EIS study was ongoing.

After completion of the Draft EIS and subsequent combined public hearings, the project team reconvened to vote on concurrence point #3, the least environmentally damaging practicable alternative (LEDPA). A unanimous vote by the team selected Alternative 1 as the LEDPA. This selection is contingent upon the environmental commitments, as outlined in a September 14, 1998 letter from William D. Gilmore, Manager, Project Development and Environmental Analysis Branch, to Michael F. Bell, Project Manager, U. S. Army Corps of Engineers. See Appendix C for all pertinent correspondence.

Finally, concurrence point #4, wetland avoidance and minimization efforts, was approved by the project team at a subsequent meeting.

The LEDPA and the other three build alternatives once under consideration are described below and shown on Figures 1 and 2.

- LEDPA (Alternative 1) (Recommended) — To avoid and minimize wetland impacts, this alternative has been modified since the completion of the Draft EIS. From NC 45 to 1.0 miles west of SR 1304 (Mile Wretch Rd.) construct a 4-lane divided freeway on new location; from 1.0 miles west of SR 1304 to 1.1 miles east of SR 1169 (Meadow Lane) construct a 4-lane divided freeway parallel to existing US 64; from 1.1 miles east of SR 1169 to 0.4 miles east of SR 1158 (Old Creswell Rd.) construct a 4-lane divided freeway bypass of Creswell; from 0.4 miles east of SR 1158 to 0.2 miles east of SR 1113 (Travis Rd., Tyrrell Co.) construct a 4-lane divided freeway parallel to existing US 64; from 0.2 miles east of SR 1113 to SR 1110 (Old Columbia Rd.) construct a 4-lane divided freeway on new location; from SR 1110 to the west bank of the Scuppernong River widen US 64 to a 4-lane expressway divided by a 16-foot wide raised concrete median; by staged construction, build a new 4-lane bridge with a 4-foot painted median over the Scuppernong River; from the east bank of the river to about 0.7 miles east of SR 1235 (School Maintenance Rd.) widen US 64 to a 5-lane curb and gutter facility.

- Alternative 2 — Widen existing US 64 to a multi-lane facility, including a bypass of Creswell on new location.

- Alternative 3 — Widen existing US 64 to a 4- or 5-lane expressway facility from the project's start to just west of SR 1132 (Back Woods Rd.); construct a 4-lane divided freeway on new location to connect with the freeway section described above under LEDPA (Alternative 1).

- Alternative 4 — Construct a 4-lane divided freeway north of the existing facility from the project's start to just west of SR 1132; construct a 4-lane divided freeway on new location to connect with the freeway section described above under LEDPA (Alternative 1).

Due to two important alignment shifts made on the recommended alignment since the last public hearing, NCDOT was to hold additional informal hearings in late September 1999.

C. Major Environmental Impacts

Environmental impacts of the four build alternatives were discussed in Section III of the Draft EIS. The adjusted acreage of wetland impacts reflect the alignment shifts and avoidance and minimization measures undertaken since the completion of the Draft EIS. The recommended alternative (Alternative 1) will impact about 89.2 acres of wetlands. The Draft EIS showed that alternative 1 would impact about 108.1 acres of wetlands. So the avoidance and minimization efforts reduced wetland impacts by approximately 18.9 acres.

The State Historic Preservation Office (SHPO) determined that the recommended alternative creates an adverse impact on three historic properties eligible for or listed on the National Register of Historic Places (NRHP): the Homestead Farm, the Mizell Farm, and the Turner Farms (Figure 2). After reviewing more detailed preliminary plans, the SHPO and the NCDOT agreed that landscaping along the right of way fence line would provide the necessary mitigation for the impacts to these farms (see the Memorandum of Agreement in Appendix D).

There are no archaeological sites on or eligible for the NRHP in the path or adjacent to the LEDPA. There are no air quality violations. While there are a substantial number of residences and businesses impacted by traffic noise, NCDOT has determined it is not reasonable or feasible to provide noise abatement measures as mitigation.

D. Areas of Controversy/Major Unresolved Issues

Wildlife crossings

NCDOT has agreed to providing appropriate wildlife crossings by constructing three bridges with vertical clearance of approximately 8 feet and horizontal clearance of approximately 100 feet at sites to be determined from animal utilization studies. NCDOT is sponsoring pre-construction field monitoring necessary to fine-tune locations of bridges at three sites. Design of the wildlife crossings will be developed in consultation with the WRC.

The North Carolina Wildlife Resources Commission (WRC) is currently undertaking a study to determine the location of three proposed wildlife crossings. The study is scheduled to be complete by December 31, 1999. A second study, to analyze the effectiveness of the crossings, has also been requested and is in the process of being submitted for Board of Transportation approval.

E. Permits

NCDOT and its contractors shall not excavate, fill, or perform land clearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by the Department of the Army (DA) permit or any modification to the permit. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this project without appropriate modification of the individual permit. To ensure that all borrow and waste activities occur on high ground, except as authorized by individual DA permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with this project will be available to the Corps on request.

Before construction of the project can begin, permits will be required due to the discharge of fill into jurisdictional wetlands and impacts to surface waters. Discharge of fill materials into Waters of the United States is prohibited under Section 404 of the Clean Water Act, unless permitted by the U. S. Army Corps of Engineers. The Corps, at their discretion, will evaluate wetland impacts cumulatively and a Section 404 Individual Permit will likely be required.

The project will also require a Section 401 Water Quality Certification from the N. C. Department of Environment and Natural Resources - Division of Water Quality (DWQ). In addition, a permit from the U. S. Coast Guard for modifications to the Scuppernong River bridge and one or more Coastal Area Management Act (CAMA) permits from the N. C. Division of Coastal Management will be required prior to the letting of the construction contract.

F. Coordination

Federal, state and local agencies were notified and consulted during the preparation of this document. In addition, local residents were to have offered verbal and written comments at a supplemental combined public hearing, held in September 1999.

Several Citizens' Informational Workshops have been held over the course of the planning phase. The first was held on September 24, 1992. Many people living between the beginning of the project and Roper, a predominately minority neighborhood, objected strongly to an improved US 64 running close and in front of their homes, where many children play in the front yards. As new alternatives developed as a result of the public clamor, a second workshop was held on February 7, 1995. For these first two workshops, two separate meetings were held in Columbia and in Roper. When the scope of the project expanded to include new location alternatives, additional workshops were held on September 19, 1995 and on October 3, 1996. The Department has sought to keep the public fully informed of this highway project and all of its ongoing changes.

Combined design public hearings were held at the Tidewater Research Station and at Columbia High School on March 10 and 11, 1998, respectively. The purpose of the public hearings is to include the public as part of the project's planning process. Preliminary highway designs showing potentially affected landowners were presented for public review and comment.

US 64
FROM NC 45 EAST OF PLYMOUTH TO
ABOUT 0.7 MILES EAST OF
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WASHINGTON AND TYRRELL COUNTIES
STATE PROJECT NO. 6.149001T
TIP NO. R-2548

STATE FINAL ENVIRONMENTAL IMPACT STATEMENT

Prepared by the Project Development and Environmental Analysis Branch
Division of Highways
North Carolina Department of Transportation

I. DESCRIPTION AND BASIS OF THE PROPOSED ACTION

The North Carolina Department of Transportation (NCDOT) proposes to improve the US 64 corridor, from just east of NC 45 in Plymouth to 0.7 miles east of SR 1235 (School Maintenance Road) in Columbia. Alternative 1, as described in the State Draft EIS, has been selected as the least environmentally damaging practicable alternative (LEDPA) by a project team consisting of representatives of federal and state advisory agencies.

The proposed project will take US 64 on new location from east of NC 45 to nearly 1.0 miles west of SR 1304 (Mile Wretch Rd.), near the Scuppernong Community. From here the new alignment runs adjacent and parallel to the existing highway to a point about 1.1 miles east of SR 1169 (Meadow Lane) and then bypasses Creswell to its north on new location. From 0.4 miles east of SR 1158 (Old Creswell Rd.) to 0.2 miles east of SR 1113 (Travis Rd., Tyrrell Co.) the recommended alignment runs adjacent and parallel to the existing highway. From the point east of SR 1113, the alignment veers south on new location and ties back into the existing US 64 at SR 1110 (Old Columbia Rd). From SR 1110 to the west bank of the Scuppernong River US 64 is to be widened on existing location to a 4-lane expressway divided by a 16-foot wide raised concrete median. By staged construction, a new 4-lane bridge over the Scuppernong River at Columbia is proposed. This bridge will have a 5-foot wide walkway for pedestrians and bicyclists on it's northern edge. Finally, from the east bank of the river to about 0.7 miles east of SR 1235 (School Maintenance Rd.) US 64 is to be widened to a 5-lane curb and gutter facility.

The proposed cross section of the new location sections is 4-lanes, divided by a 46-foot wide natural median. The project will have full control of access. Five

interchanges along the route will provide local access. Many hydraulic structures will be employed to drain the relatively flat terrain. The length of the project is 28.0 miles, which is 3.5 miles shorter than the route taken along existing US 64. Latest cost estimates are $19,750,000 for right of way and $175,350,000 for construction, bringing the total approximate cost of the project to $195,100,000.

This project is included in the 2000-2006 NCDOT Transportation Improvement Program (TIP). The TIP approves widening US 64 to multi-lanes with some on new location. The proposed improvements are to be state funded. The TIP has allocated $22,784,000 for right of way acquisition, $144,608,000 for construction, and $9,252,000 for expenditures in previous years. The total funding for this project is $176,644,000. Right of way acquisition is scheduled to begin in fiscal year 2000 and construction is scheduled to begin in fiscal year 2002.

II. PURPOSE AND NEED OF THE PROPOSED PROJECT

A. Historical Background

NCDOT introduced a project to upgrade US 64 from Plymouth to Columbia in the 1990-1996 Transportation Improvement Plan (TIP). Planning studies for this highway improvement were initiated in 1992. The current 2000-2006 TIP includes project R-2548 as widening US 64 to a multi-lane facility with some on new location. The purpose and need of the proposed project is two-fold: fulfill the highway's role as a critical link in the National Highway System and the State Intrastate System, and provide a safe, efficient highway capable of expediting travel in this area of the state well into the next century.

B. Role of the Highway as a System Link

US 64 is a major intrastate highway traversing the entire state of North Carolina. The highway is currently being upgraded statewide as part of the Governor's Transportation 2001 plan. This plan provides a safe, efficient and dependable transportation for North Carolina well into the 21st century. An essential component of this plan is to establish goals and priorities for projects included in NCDOT's Transportation Improvement Plan (TIP).

US 64 is a highway on the Federal Highway Administration's National Highway System. The highway is also on the State's Intrastate System, as specified in the N. C. Transportation and Highway Laws (Section 136-179). The Intrastate System is established to provide high-speed, safe travel service throughout the State. It connects major population centers both inside and outside the State and provides safe, convenient, through-travel for motorists. The Intrastate System

supports statewide growth and development objectives and connects major highways of adjoining states.

This TIP project (R-2548) calls for improvement of US 64 to a multi-lane facility in a large portion of Washington and Tyrrell Counties. It is crucial to complete the project as part of this important system of highways and so that safe, efficient travel will be maintained and the economic vitality of the region and the state will be enhanced.

C. Safety Deficiencies and Accidents

In northeastern North Carolina in Washington and Tyrrell Counties, US 64 meanders through small towns and communities and passes by agricultural fields and wooded areas. In more developed areas, homes and businesses sit in very close proximity to the highway.

Existing US 64 is a 2-lane highway, with 24 feet of pavement for travel lanes and 6 to 8-foot wide unpaved shoulders. The existing right of way is 60 feet wide. The highway has no control of access, and all intersections along US 64 are at grade. Despite a level landscape, characteristic of the coastal region, the horizontal alignment has numerous curves with a small radius and inadequate superelevation for high speed traffic. A few of these curves have a design speed of 40 miles per hour (mph) while the posted speed limit is 55 mph. NCDOT considers the existing horizontal curvature poor (for this area of the state), and the highway does not meet today's design criteria. Furthermore, numerous residences and businesses are located close to the existing roadway, and their driveways onto US 64 create many points of intersection. This pattern increases accident potential and reduces capacity of the highway due to the increased number of turning vehicles and/or roadside distractions.

Combined with the poor horizontal curvature, the many developed areas lining the highway limit the permissible areas that vehicles can safely pass. For nearly 75 percent of the project's length, the highway has a posted speed limit of 55 mph. Because of numerous slow moving vehicles, farm machinery, and the limited opportunities to pass, average operating speeds are often considerably lower than the posted speed limit. Through towns and communities the posted speed and average operating speed are lower as well. These features of the existing highway create unsafe and inefficient travel conditions.

Many traffic accidents have occurred in recent years, particularly in the areas where the substandard horizontal curves are located. One curve, known to locals as "Bob Knight's curve" is west of SR 1110 (Old Columbia Rd.) in Tyrrell County, and has a long history of accidents. A recent statewide average for the period 1992-1994 shows accident rates on rural United States 2-lane routes is 173.40 accidents per 100 million vehicle-miles (acc/100mvm). During this same period, the actual

average accident rate of US 64 in Washington and Tyrrell counties was 165.62 acc/100mvm, slightly below the statewide average.

D. Traffic Volumes and Level of Service

1. Existing and Forecasted Traffic Volumes

Traffic volumes on US 64 in 1995 ranged between 4,500 and 7,800 vehicles per day (vpd). NCDOT expects travel demands in this area of the state to grow steadily well into the next century as the population of North Carolina and nearby states increase. Growth in population translates into growth in commerce and tourism. By 2020, NCDOT estimates the average daily traffic (ADT) will be 23,000 vpd along the US 64 corridor. With the existing US 64 remaining open to carry local traffic, NCDOT predicts the proposed freeway section will carry over 15,000 vpd and the existing highway will carry as much as 8,000 vpd in 2020. However, these predicted volumes do not account for the seasonal peaks in traffic that routinely occur on this stretch of US 64. Figure 3 illustrates ADT for the project and area roadways for the years 1998 and 2020.

US 64 is and will continue to be a highway transporting vacationers and tourists between the Outer Banks and other parts of the state and region. Vacation travel induces peaks in the traffic flow that are seasonal. Considering data from traffic recording stations in Dare County, census information and traffic volumes on US 64, NCDOT traffic forecasters predict that summer peak volumes will be about 1.6 times greater than the ADT. The summer peak volumes occur during the months of July and August in Dare County. Applying the factor of 1.6 to the average daily traffic yields a seasonally-adjusted ADT of 24,500 vpd on the new freeway. This volume, however, is typical for a weekday during the months of July and August.

Similarly, traffic forecasters can adjust the ADT for a worst-case, weekend scenario, when traffic to and from the coastal areas is greatest. From the forecaster's data, Saturday and Sunday traffic volumes are, on average, about 2.4 times greater than the ADT. If this factor is applied in this case, the weekend volumes during July and August could potentially be as high as 58,800 vpd. Figure 3 in Appendix B illustrates traffic data for the proposed project.

2. Capacity Analysis

Level of service (LOS) is a qualitative measure describing operational conditions within a traffic stream and how motorists and/or passengers perceive these conditions. A LOS definition generally describes these conditions in terms of speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. Six levels of service, with letter designations from A (best) to F (worst), represent operations for each type of facility for which analysis procedures are

available. For this analysis, NCDOT studied four facility types: a 4-lane freeway, a 4-lane expressway, a 5-lane expressway (5 lanes undivided, with curb and gutter), and a 2-lane rural highway. US 64 is presently a 2-lane highway, and was analyzed for existing conditions and the No Build Alternative (alt. 5). The recommended alternative, which includes a freeway on new location, also includes a 4-lane expressway from SR 1110 (Old Columbia Rd.) to the Scuppernong River, and a 5-lane expressway from the river through the town of Columbia. Alternative 2, widening the existing, includes 4-lane and 5-lane expressway type facilities. Alternatives 3 and 4, both contain a freeway section as well as the 4- and 5-lane expressway sections.

On 2-lane highways, the primary measure of service quality is percent time delay, with speed and capacity utilization used as secondary measures. Motorists driving in LOS A conditions could average speeds approaching 60 miles per hour (mph). The passing frequency required to maintain these speeds has not reached a demanding level. LOS B characterizes traffic flow where slightly reduced speeds of 55 mph can be expected on level terrain. Passing demand equals passing capacity in the lower portions of LOS B. Further increases in flow characterize LOS C, where average operating speeds are reduced (52 mph) and passing demand exceeds passing capacity. Although flow is stable, it is becoming susceptible to congestion due to turning traffic and slow-moving vehicles. At LOS D traffic flow becomes unstable and passing becomes extremely difficult. At capacity (LOS E), speeds will drop below 50 mph under ideal conditions and passing becomes virtually non-existent. Level-of-service F represents heavily congested flow with traffic demand exceeding capacity.

On multi-lane highways, level of service criteria is defined in terms of density. Density is a term that quantifies the vehicles' proximity to each other and describes the ease of maneuverability within a traffic stream. LOS A describes absolutely free-flow conditions. LOS B introduces the presence of other vehicles, and their effects begin to be noticed. Average travel speeds are not reduced. LOS C indicates conditions where vehicle densities begin to deteriorate operating conditions, including speed reductions on those facilities where free-flow speeds are normally over 50 mph. LOS D is indicative of further decreases in operating speeds as traffic volumes climb. LOS E is defined as capacity, a condition where flow is generally unstable and affected by disturbances in the traffic stream. Speeds vary in these conditions, but the posted speed limit can be achieved if downstream disturbances do not occur. LOS F is represented by forced or breakdown flow, where average speeds often fall below 30 mph.

On modern freeways, density is the parameter used to define levels of service for basic freeway sections. LOS A describes free-flow operations, with vehicle density not exceeding 10 passenger cars per mile per lane (pc/mi/ln). Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. LOS B represents reasonably free flow with densities not exceeding 16 pc/mi/ln. LOS C is defined by a maximum density of 24 pc/mi/ln, where freedom to maneuver

is noticeably restricted and lane changes require more vigilance on the part of the driver. LOS D occurs between 24 and 32 pc/mi/ln. At this density, freedom to maneuver is more noticeably limited and the driver experiences reduced physical and psychological comfort levels. LOS E describes operation at capacity. Maximum densities at LOS E range between 36 and 48 pc/mi/ln depending on the free-flow speed and number of lanes. Operations in this level are volatile because there are virtually no useable openings in the traffic stream and maneuverability is extremely limited. Finally, LOS F represents breakdowns in vehicular flow, with highly variable speeds and stop and go operations.

The Highway Capacity Manual (Special Report 209, Transportation Research Board, 1994) was used to determine level of service for a recent year (1995) and for the design year 2020. Table 1 summarizes the predicted levels of service for the recommended alternative, the other three build Alternatives and the no-build Alternative. The seasonal adjustments used to predict peak flow during an average weekday during the months of July and August were used in this analysis.

TABLE 1
ESTIMATED LEVELS OF SERVICE IN THE DESIGN YEAR 2020

ALTERNATIVE	4-lane Fwy	4-lane Expwy	5-lane Expwy	2-lane Hwy
Recent Conditions (1995)				D
Preferred (ALT 1) – Freeway on New Location	B	B	C	
ALT 2 – Widen Existing		C	C	
ALT 3 – Roper Connector (Expwy)	C	C	C	
ALT 4 – Roper Connector (Fwy)	C	C	C	
ALT 5 – No Build				F

The capacity analysis indicates that the existing US 64 operates at LOS D for seasonally-adjusted traffic volumes. If the No Build option were selected, seasonal peak traffic flows in the year 2020 would operate under LOS F or forced flow conditions. Traffic operates under highly-variable speeds and stop-and-go traffic progression at LOS F. Breakdowns in the traffic flow can occur with or without accidents, creating long back-ups and motorist delay.

With the construction of the project, LOS B conditions can be expected in the year 2020 on the freeway and 4-lane expressway sections. Through the town of Columbia, the proposed 5-lane section would accommodate traffic at LOS C. Existing US 64, which would continue to serve local traffic, would function at LOS D in 2020.

The other build alternatives considered in the Draft EIS would generally operate at a satisfactory level of service (LOS C). In summary, all of the build alternatives would improve traffic flow on US 64 until at least 2020. However the freeway facility provides a distinct benefit in level of service. Table 1 shows LOS B on the freeway section and LOS C for the expressway section, but freeways can typically absorb greater increases in traffic than can expressways. The range in service flows for each level of service is larger for freeways than it is for expressways. The freeway allows high-speed operations and minimal conflict with entering and exiting traffic which, in turn, improves safety and efficiency.

III. ALTERNATIVES

A. Build Alternatives

1. Recommended Alternative

Alternative 1 in the Draft EIS was selected by the project team as the least environmentally damaging practicable alternative (LEDPA). The length of the LEDPA is about 28.0 miles, compared to the 31.5-mile length of the existing US 64.

From the beginning of the project just east of NC 45 to northwest of the community of Scuppernong, the project is proposed to be a freeway on new location. The typical section is four lanes, two 12-foot wide lanes in each direction, divided by a 46-foot wide grassy, graded median. Right shoulders will be a total of 12 feet wide, having four feet of pavement and eight feet of turf. Median paved shoulders will be 4 feet wide. Freeways are signified by full control of access so that it is only accessible by on-ramps at grade-separated interchanges. Existing secondary roads not having access to the freeway will be grade-separated by the construction of a new bridge, or either they will be terminated as a stub-out or cul-de-sac.

From northwest of Scuppernong to SR 1110 (Old Columbia Rd., Tyrrell County) a freeway with the same cross section is proposed to run parallel to the existing highway corridor. This area of the project includes a bypass of Creswell, traversing north of town. The proposed freeway will be offset from existing US 64 by about 150 feet, measured between the centerlines of both roads.

From SR 1110 to the west bank of the Scuppernong River, the proposed highway is a 4-lane expressway facility, divided by a 16-foot wide raised median. A new 4-lane bridge over the Scuppernong River will be constructed in stages, thus permitting uninterrupted traffic flow on US 64 while construction is in progress. Lastly, NCDOT proposes to widen existing US 64 to a 5-lane facility with curb and gutter from the east side of the Scuppernong River to the project's terminus 0.7 miles east of SR 1235 (School Maintenance Road). The 5-lane road will be 64 feet

wide, from the face of one curb to the other. The project consists of 25.2 miles of freeway and 2.8 miles of surface highway.

The new location alignment (which is also part of alternatives 3 and 4) evolved using the following objectives (in no particular order):

1) Avoid residential housing and businesses,
2) Avoid potential National Register properties,
3) Avoid and minimize impacts to wetlands,
4) Minimize disruption to contiguous farmlands.

The first concept for the new location highway had the road crossing through the southern half of the Tidewater Reseach Station and proceeding south of Roper on a nearly straight alignment to just north of Creswell. During the planning phase, coordination with N. C. State University, which operates a research farm at the Tidewater facility, and the N. C. Department of Agriculture revealed that they were better served and less impacted by the new highway crossing the farm more to the north near the station's major building. NCDOT obliged with the university's and DOA's request and shifted the alignment to the north.

Consequently, the shift at the research farm dictated the alignment traverse portions of the Mizzell Farm and Homesteam Farm, two properties potentially eligible for the National Register of Historic Places. To minimize visual impacts, the alignment was placed in a corridor of woodlands, which also contained wetlands. During the minimization of wetlands process, the NCDOT moved the alignment out the wetlands and more to the north, closer to the residential dwellings on the Homestead Farm. As a mitigation measure, the NCDOT and the State Historic Preservation Officer have agreed that NCDOT will provide special landscaping in the area of the farms. (See Appendix D for the Memorandum of Agreement, outlining mitigation measures.)

Also, NCDOT coordinated with the major farm operators between Roper and Creswell since the original new location alignment split these properties on its straight course to Creswell. All of these property owners contented that they would be better suited with a shift in the alignment to their northern boundaries. Hence, the alignment was shifted northward to basically run along the boundary of farmlands and woodlands. When it was further determined that a pocket of some 30 acres of wetlands could be avoided north of the Tyson property, the alignment was once again shifted to lessen impacts.

Another major alignment shift occured in Tyrrell County between Travis Road (SR 1113) and Old Columbia Road (SR 1110). The shift was done as a minimization effort to decrease the amount of wetland impacts in an old oxbow formation located within the Old Creswell Road (SR 1112) loop. The oxbow formation is where the Scuppernong River ran many years ago before meandering to its current location.

The resulting alignment achieves the four objectives listed above and provides NCDOT a corridor in which to construct a limited access, multi-lane facility that will greatly benefit this area of North Carolina and the entire region.

Alternative 1 was selected as the LEDPA because the project team agreed it has several important advantages over the other alternatives. It impacts the lowest acreage of riverine wetlands, crosses the fewest number of streams, relocates the fewest number of homes and impacts the fewest number of historic properties. Furthermore, it shares with the other freeway alternative (#4) the distinction of being the safest and less costly with respect to traffic accident potential, and the annualized road user costs associated with this alternative is one of the lowest.

Based on this favorable information, the project team unanimously selected the Draft EIS's Alternative 1 as the LEDPA.

2. Alternative 2

Alternative 2 proposed to widen the existing US 64 highway for the entire length of the project. The predominant cross section would be a 4-lane divided expressway facility, with a 46-foot wide natural median. The section would consist of 8-foot wide unpaved shoulders. In the more developed areas along the project, a 5-lane cross section (64 feet, face to face) would have been used since it has a smaller right of way requirement than the 4-lane divided section (88 feet versus 120 feet, approximately). For example, in the area between the beginning of the project and Roper, US 64 is heavily bordered by residences, churches, and businesses. Also, another area where development is heavy on both sides of the road is the Pleasant Grove community. Unlike the recommended alternative this facility would be a surface highway with no control of access. Intersecting streets and driveways would be at-grade with the facility. Alternative 2 is 31.5 miles in length.

Alternative 2 would be less expensive to construct than the recommended alternative, and it would impact a smaller amount of new biotic communities since it requires the least amount of new right of way. Alternative 2 would also impact the least amount of total wetland acreage.

However, existing US 64 runs the closest to the Albemarle Sound, and impacts a substantial amount of valuable, riverine wetlands and crosses the highest number of streams (15).

The primary disadvantage of alternative 2 is the very high number of relocated homes and businesses that would result from the widened roadway. The homes and businesses that would remain after right of way taking would be subjected to traffic noise impacts. Furthermore, a surface highway facility historically is not as safe as the proposed freeway facility. Hence, the projections for future accidents and their costs are highest for this facility. Slower travel times and the greater length of Alternative 2 result in higher road user costs. Finally, alternative 2

could likely have direct impact on two National Register historic properties and 12 other properties eligible for the register.

After analyzing the benefits and detriments of alternative 2, the project team decided that it was not the least environmentally damaging practicable alternative.

3. Alternative 3

Alternative 3 proposed to widen existing US 64 from the beginning to just west of SR 1132 (Back Woods Road) near Roper. The cross section would be either a 4-lane divided facility with 46-foot wide natural median or a 5-lane curb and gutter roadway (64 feet wide, face to face). From SR 1132, Alternative 3 would connect to the freeway alignment of the LEDPA. Alternative 3 consists of 20.1 miles of freeway and 7.6 miles of surface highway. The alternative was developed at the request of the N. C. Department of Environmental Management, Division of Water Quality (DWQ), as a means to avoid a high-quality wetland (on Kendrick's Creek) which is in the path of the LEDPA.

Alternative 3 crosses Kendrick's Creek but not in the area of pristine wetlands. However a new bridge on US 64 would be needed to replace the existing and about 1.1 acres of wetlands would be impacted.

Alternative 3 is the second least expensive to construct, about $10 million less expensive than the recommended alternative. Another positive of the alternative is that it takes the second fewest acres of riverine wetlands and is tied for second with alternative 4 for crossing the fewest number of streams. Like alternative 2, the widening of US 64 between the beginning of the project and Roper would cause substantial numbers of relocatees and community disruption. The project team concluded that alternative 3 was not the least environmentally damaging practicable alternative.

4. Alternative 4

Alternative 4 closely parallels existing US 64 from east of NC 45 to near Back Woods Road (SR 1132) in Roper. It is proposed as a freeway facility on new location. The freeway would consist of a 4-lane divided cross section and a 46-foot wide grassed median. At SR 1132 the freeway would then connect to the freeway of the recommended alternative, much like the connector for alternative 3. Alternative 4 has 24.8 miles of freeway and 2.6 miles of surface highway. The alternative was developed for comparative purposes to the LEDPA, which is also mainly freeway.

Alternative 4 shares the advantages of the LEDPA with respect to lower potential highway user costs and accident potential and cost, and alternative 4 is slightly less costly to it being shorter. Unlike the recommended alternative, alternative 4 would not encroach on the Tidewater Research Station and farms.

However, the alignment north of US 64 between NC 45 and Roper would result in high numbers of residential and business relocations. Another major disadvantage of alternative 4 is that it impacts the greatest amount of biotic communities (668.2 ac). The project team determined that alternative 4 was not the least environmentally damaging practicable alternative.

5. Alternative 5

Alternative 5 is not a build alternative, but the do nothing, or no build alternative. The project team determined that the no build alternative does not meet the purpose and need of the project, and was discarded from further consideration.

Table 2 summarizes the anticipated environmental impacts and other planning considerations for each build alternative.

TABLE 2
SUMMARY OF ALTERNATIVES – RESOURCE IMPACTS AND OTHER PLANNING CONSIDERATIONS

RESOURCE	Recommended (ALT 1)	ALT 2	ALT 3	ALT 4
Natural				
Biotic Communities (ac)	590.5	349.6	604.7	668.2
Tot. Wetland Impacts (ac)	89.2 (108.1)	95.0	97.7	113.5
Riverine	0.7 (39.2)	49.9	47.3	54.6
Non-Riverine	88.5 (68.9)	45.1	50.4	58.9
Stream Crossings	6	15	8	8
Traffic Noise (impacts)	70 res/7 bus	219 res/18 bus	108 res/10 bus	123 res/8 bus
Architectural (#sites/districts)				
National Register(NR)	1	2	1	1
Eligible for NR	2	12	4	4
CONSIDERATION	Recommended (ALT 1)	ALT 2	ALT 3	ALT 4
Cost of Project ($)	175,300,000 (149,325,000)	110,600,000	138,300,000	146,925,000
Relocations				
Total	51 (62)	264	188	98
Residential	40 (43)	234	161	85
Business	11 (19)	30	27	13
Annual Highway User Costs ($)	77,556,281	145,153,126	110,980,478	88,453,721

Note: Figures for the recommended alternative have been updated, while the figures for the other alternatives are from the Draft EIS. The Draft EIS figures for the recommended alternative are shown in parenthesis for comparison purposes. The user costs have been updated for all alternatives.

B. Highway Design Elements

1. Project Breakdown

The R-2548 highway improvement project is broken down into six (6) sections, for contract management and construction administration purposes. The sections are as follows:

- **A**, from the beginning of the project just east of NC 45 to 1500 feet west of Newland Road (SR 1126),
- **B**, from 1500 feet west of Newland Road to 1.3 miles east of Tyson Road (prop. extension of SR 1139),
- **C**, from 1.3 miles east of Tyson Road to 1730 feet east of Cedar Wretch Road (SR 1141),
- **D**, from 1730 feet east of Cedar Wretch Road to Woodley Road (SR 1116),
- **E**, from Woodley Road to Old Columbia Road (SR 1110),
- **F**, from Old Columbia Road to 0.7 miles west of School Maintenance Road (SR 1235).

2. Proposed Right of Way

The following list shows the estimated right of way requirements for the various recommended cross-sections.

Freeway on new location.....230-330 feet
Freeway parallel to existing highway.....200 feet
Multi-lane undivided facility.....100 feet

3. Access Control

The freeway sections will have full control of access. Access will be available only at grade-separated interchanges. The multi-lane sections will have no control of access. At-grade intersections and driveways will be in place for these sections of the project.

4. Interchanges

The project will have full control of access, from east of NC 45 to SR 1110 in Tyrrell County. In areas where full control of access will be maintained, grade-separated interchanges and overpasses will be constructed. The recommended interchange locations are as follows:

- SR 1126 (Newland Road, Washington Co.)
- SR 1139 (Beasley Road Extension, Washington Co.)
- SR 1304 (Mile Wretch Road) / SR 1411 (Cedar Wretch Road) (Washington County)
- SR 1310 (Sixth Street, Washington Co.)
- SR 1113 (Travis Road, Tyrrell Co.)

Since the publication of the Draft Environmental Impact Statement, the interchange formerly located at SR 1125 (E. Mill Pond Road) has been moved to SR 1126 (Newland Road). The Town of Roper expressed concern over locating the

interchange on E. Mill Pond Road in the area Washington County Union Elementary School and playgrounds. The Town felt that increased traffic including large trucks and occasional emergency vehicles were not desirable on this road. Also, from a design standpoint, E. Mill Pond Road has two sharp curves to the north near Union Elementary School which severly restrict design speed. There is also an offset in the alignment between existing US 64 and the considered interchange location.

Therefore, NCDOT, with consent from the environmental agencies on the project team, moved the interchange to the Newland Road location. A diamond interchange will be constructed at Newland Road, where the alignment is more favorable for safety, a good design speed and direct access to existing US 64.

The Town of Roper and the Washington County Commissioners are doing everything they can to encourage economic growth. With the anticipated future development, both agencies made a request for an additional access point to proposed US 64. It is feasible for NCDOT to purchase the required right of way for the future interchange at East Mill Pond Road under the proposed project.

All of the other proposed interchanges are to have a diamond configuration. These interchanges typically have an exit or entrance ramp in each of the four quadrants. Access to the new freeway will also be obtainable at the beginning and end of the freeway section, east of NC 45 and at SR 1110 (Old Columbia Rd.), respectively.

5. Intersection Treatment and Type of Control

All intersecting roads along the proposed freeway, from east of NC 45 to SR 1110 (Old Columbia Rd.), will be grade-separated with an interchange (see section above) or by an overpass structure. Just northwest of the community of Scuppernong, where the new location freeway will meet the existing US 64 corridor and run parallel to the highway, a service road system will be constructed. The system of frontage roads, utilizing segments of existing US 64, will allow local traffic to access or cross the new freeway at interchanges or overpasses. Improvements on the crossing highways at interchanges will include left-turn lanes to enhance capacity and safety. From Old Columbia Road (SR 1110) through Columbia to the eastern terminal of the project, access control will remain unchanged as traffic signals and stop signs will continue to direct traffic.

6. Drainage/Hydraulics

The topography in the project vicinity is primarily flat with poor drainage characteristics. It is anticipated that the proposed facility will be difficult to drain and may require some off-site easements to convey runoff to adequate outfalls. The proposed alignment for the new location portion was selected as to cross streams as close to perpendicular as possible to reduce structure length and minimize encroachment into the floodplain.

The Town of Creswell has problems with runoff from north of US 64 flooding Main Street and the high school area about three to four times per year. Some local property owners north of Creswell have expressed concern that the proposed roadway will increase the flooding potential in this area. In the final hydraulics design phase of the project, all aspects of the affected areas will be studied. Adequate measures will be incorporated into the design plans to handle the drainage of the proposed roadway.

Washington and Tyrrell Counties and the Town of Columbia are participants in the National Flood Insurance Regular Program. Kendrick's Creek is included in the detailed flood study, having an established floodplain and floodway. This project crosses Kendrick's Creek at the upper study limits. Application for a floodway modification may be required at this proposed stream crossing. The portion of the project 4000 feet west of Scuppernong River to the eastern terminus, 0.7 miles east of SR 1235, are within a designated flood hazard zone, but Scuppernong River crossing and the tributary crossings near the eastern terminus are not included in a detailed flood study. Copies of the Flood Insurance Rate Map on which the approximate limits of the 100-year floodplain are delineated are included as Figures 4a, 4b and 4c, in Appendix A. Due to the low elevation and flat terrain in the project vicinity, and the close proximity to the ocean, the 100-year floodplain extends miles north and south of the project, including all the developed area in Columbia as well as the surrounding wooded and wetland areas. The Hydraulics Unit will coordinate with the Federal Emergency Management Agency and local authorities in final design as needed to ensure compliance with applicable floodplain ordinances and to provide adequate drainage accommodations for the proposed roadway improvements without causing any significant adverse effect on the existing floodplain and associated flood hazard.

Due to the flat terrain and poor drainage characteristics of this region, there are numerous buildings in the project vicinity which have floor elevations below the 100-year flood level. During final hydraulics design, the flooding conditions of adjacent properties will be assessed in detail and appropriate recommendations will be made to adequately drain the proposed roadway and to minimize or reduce existing flooding problems to the extent practicable. The proposed roadway on new location will have no significant adverse impact on the existing floodplain nor on the associated flood hazard.

The USGS topographic map shows wetland areas throughout the length of the project. All project alternatives will have a considerable impact to wetlands. Only sites at Kendrick's Creek, Main Canal at Newland Road, and the Scuppernong River are located below headwaters. This project is in the jurisdictional area of the Coastal Area Management Act (CAMA); therefore, CAMA permits will be required. Since the Scuppernong River is a navigable river, it is anticipated a Coast Guard Permit will be required for the new bridge. The Hydraulics Unit in conjunction with the Project Development and Environmental Analysis Branch will coordinate with the Army Corps of Engineers and the Division of Coastal Management to facilitate the permitting process and to ensure that environmental concerns are appropriately

addressed. The project is not located within a water supply watershed nor a high quality water zone; therefore, erosion and sedimentation will be controlled through the appropriate specification, installation, and maintenance of standard erosion and sedimentation control methods. Existing drainage patterns will be maintained, to the extent practicable. Due to the high groundwater table normally found in coastal areas, groundwater resources will be assessed to ensure that groundwater will not become contaminated.

From SR 1110, located about 4000 feet west of the Scuppernong River to the river crossing (existing bridges No. 1 & 2), the proposed typical section will be a 4-lane divided highway with a 4-foot wide painted median barrier. It is recommended the existing two-lane Bridge No. 2 be replaced at the existing location with a five-lane structure (see detailed discussion below). From the east end of the bridge through Columbia to the east terminus, a five-lane curb-and-gutter facility is proposed to replace the existing roadway along this section which varies from a three-lane to four-lane curb-and-gutter facility. Symmetrical widening through the town of Columbia is recommended to minimize adverse impacts to adjacent development along the roadway. The terrain in the vicinity of the project is flat, with poor drainage characteristics, and it is anticipated that some offsite easements may be needed to direct stormwater runoff to adequate outfalls.

Bridge No. 1 was constructed in 1946, at which time, it served as an overflow structure in conjunction with the former Bridge No. 4 which once carried old US 64 over Scuppernong River; however, several years ago Bridge No. 4 was removed and demolished. Bridge No. 1 was retained to serve a driveway entrance to a local business northeast of the bridge. In 1957, Bridge No. 2 was constructed over Scuppernong River, and US 64 was realigned south of its former alignment through Columbia. Bridge No. 2 over Scuppernong River merges with Bridge No. 1 for about 250 feet at the west end. Bridge No. 1 consists of reinforced concrete continuous slab deck supported by reinforced concrete cap and pile bents with vertical concrete abutments. The bridge is 580'-6" in length, comprised of the following spans: 1 @ 10'-3", 56 @ 10' and 1 @ 10'-3". The bridge has a sufficiency rating of 32.8 out of a possible 100. Bridge No. 2 consists of reinforced concrete floor on reinforced concrete deck girders and steel I-beams supported by reinforced concrete piles with concrete caps on the main spans over the river, and timber piles with concrete caps on the approach spans, having a spill-through approach at the east end and a vertical concrete abutment at the west end. Bridge No. 2 is 1553 feet in length, comprised of the following spans: 15 @ 42'-6", 90 @ 9'-8", and 1 @ 45', removable span. Bridge No. 2 has a sufficiency rating of 35.7. Based on the age and condition of the existing bridges, as observed in recent field review, it is recommended that both existing Bridges No. 1 and No. 2 be removed and Bridge No. 2 only be replaced with a single five-lane bridge with roadway widening to the south to allow the bridge to be replaced at the existing location using staged construction in order to maintain traffic on the bridge while it is being reconstructed. Widening to the south will avoid a small public park located on the north side of the highway at the west end of the bridge and will avoid the designated Historic District of Downtown Columbia. This will require

relocation of the power line south of the bridge. The business northeast of Bridge No. 1 may need to be acquired if Alternative access cannot be provided to that property. The new bridge should be 1560 feet in length, assuming it would be constructed at about the same elevation as that of the existing bridge. Since the existing bridge had a 45-foot long removable span in the center of the navigable waterway for emergency access of oversize watercraft, consideration will need to be given as to whether an adjustment in the height of the bridge is necessary to provide for adequate navigational clearance under the bridge. Roadway widening to the north is not recommended, as it would require acquisition of several businesses within the historic district along the north side of the east approach, as well as the acquisition of land from the park at the west end of the bridge. Replacement on new location to the north or south would not be economically feasible due to the major adverse impacts to existing development in Columbia, and it would also likely incur considerable additional environmental damage to wetlands.

The tributary crossing at the east terminus is currently conveyed under the existing two-lane roadway by 4 @ 54" corrugated steel pipes (CSP). Although the existing pipes are hydraulically adequate and of sufficient length to accommodate the proposed symmetrical widening, it is recommended that the existing pipes be removed and replaced with a 2 @ 6'X5' reinforced concrete box culvert (RCBC). This is recommended due to the age and condition of the existing pipes and increased traffic loading anticipated. The proposed culvert can be accommodated with no adjustment in the road grade and no major channel modification. Recommendations of this report are preliminary and could be subject to change based on information obtained from a more detailed hydrologic and hydraulic analysis in the final design phase of the project.

7. Sidewalks

New sidewalks are not proposed for this project. However any sidewalks that are removed by the construction of the project will be replaced. The current walkway on the Scuppernong River Bridge will be removed when the new bridge is built. However the new bridge will have a 5-foot wide walkway and bikeway running along the northern edge of the bridge.

8. Bicycle Provisions

A 5-foot wide bikeway is to be installed for pedestrians and bicyclists to cross on the new bridge over the Scuppernong River. However, there are no other special accommodations for bicycle traffic proposed with this project. A freeway or expressway facility like that proposed will have high-speed traffic, creating a hazardous condition for bicycle traffic. The 2000-2006 TIP lists one independent bicycle project (E-3313) for Tyrrell County as in progress. This is a county-wide project that calls for a regional bicycle map/brochure and route signing on state roads.

9. Geodetic Monuments

Geodetic monuments may be located in or near the project area. If monuments need to be moved or destroyed, the North Carolina Geodetic Survey will be notified prior to any construction activities (See Appendix C for address and phone number).

10. Project Cost Estimates

Estimated construction and right of way cost estimates for the project are in Table 3. These estimates reflect the alignment shifts in the Homestead Farm and oxbow wetland areas, and are broken down by section (see page 13 for description of sections.)

TABLE 3
PRELIMINARY COST ESTIMATES

SECTION	RIGHT OF WAY ($)	CONSTRUCTION ($)
A	2,000,000	30,200,000
B	2,250,000	44,700,000
C	2,275,000	34,300,000
D	4,250,000	16,650,000
E	6,125,000	21,900,000
F	2,850,000	27,600,000
TOTAL	**19,750,000**	**175,350,000**

(source: NCDOT Roadway Design Unit)

11. Highway User Costs

Highway user costs are those which are incurred by motorists either directly or indirectly as a result of driving on a particular section of highway. User costs can be broken down into accident costs and operating costs.

Accident Costs. Accident costs are those incurred by the motoring public and the transportation industry (namely auto insurance agencies) resulting from motor vehicle accidents. Existing US 64 is distinguished by a substandard horizontal alignment with curves having small radii and little or no superelevation. Numerous accidents have occurred in these areas, particularly one known to locals as "Bob Knight's curve," west of SR 1110 in Tyrrell County. A recent statewide average for the period 1992-1994 shows accident rates on rural United States 2-lane routes is 173.40 accidents per 100 million vehicle-miles (acc/100mvm). During this same period, the average accident rate for US 64 in Washington and Tyrrell counties was 165.62 acc/100mvm, which is near the statewide average for facility type.

Different facility types have varying accident rates associated with them. Historically, accident data has revealed that freeways are safest of all highway facilities, while 2-lane highways with no control of access have the highest accident

rates. The provision of a freeway on this project will enhance motorists' safety (and level of service) along this stretch of US 64. Due to their inherent safe design features, freeways not only safeguard lives, but with lower accident rates, can reduce operating costs as well.

The recommended design (Alternative 1) is expected to have the fewest number of accidents and lowest associated costs during the life of this project of any of the alternatives studied.

Operating Costs. Highway user costs are incurred by the motorist in the normal operation of his or her vehicle. These costs include not only expenditures for gasoline, motor oil, tires, etc., but travel-time costs as well. The travel-time costs basically depend on the amount of time one takes to drive from one end of the project to the other. The least amount of time it takes is typically more desirable for the driver/passenger(s) because people have a value they place on their time.

User Cost Summary. The total annual user costs were calculated for the four build alternatives and are depicted in Table 4. This analysis has been refined and updated since the one used for the Draft EIS.

TABLE 4
ESTIMATED HIGHWAY USER COSTS

ALTERNATIVE	TOTAL ANNUAL USER COST
Preferred (ALT 1)	$77,556,281
ALT 2	$145,153,126
ALT 3	$110,980,478
ALT 4	$88,453,721

The total annual user cost for the preferred alternative is less than the similar cost for the other build alternatives. This lower cost means the annual expense of operating one's vehicle will be less on this alternative than any of the other build alternatives.

To illustrate how savings in user costs can contribute to offsetting the expenditure of a major highway project, assume the project construction and right of way costs total $175,000,000, and are to be paid in FY 2002. Assuming the NCDOT could make annual payments on this amount over 23 years (to the design year 2025) and at an assumed interest of 4%, the yearly payment would be $11,777,500. The difference in the annual user cost between the preferred alternative and Alternative 4, for example, is $10,897,440. So the savings gained in highway user costs can nearly offset the assumed annual cost of the preferred alternative.

IV. EFFECTS TO THE ENVIRONMENT

A. Natural Resources

1.0 Study Area

The northeastern Washington-northwestern Tyrrell County region is characterized by subtle changes in topographic relief. Elevations range from 5 feet (east of Deep Creek) to 20 feet above mean sea level (west of Pleasant Grove). The highly rural area is predominantly agricultural or silvicultural with large-scale hog farms (Tyson Farms), grain fields, etc. (Bluestone Farms) and tree plantations (Weyerhauser) in evidence throughout. Residential clusters are densely concentrated from the western project terminus to the east side of Roper, at Pleasant Grove and at Creswell. Several streams, including Kendrick's Creek, Deep Creek, the Scuppernong River and numerous tributaries cross much of the study area, draining the landscape from south to north. The study area lies in the outer coastal plain physiographic province.

2.0 Methodology

In-house research was conducted prior to and following field studies. Sources used in this investigation include: US Geological Survey (USGS) quadrangle maps (*Columbia West, Creswell, Leonards Point, Plymouth East, Roper North, Roper South, Westover*), Fish and Wildlife Service (FWS) National Wetland Inventory (NWI) maps, NCDOT aerial photographs (1:9600) and National Resource Conservation Service (NRCS) soil maps of Tyrrell and Washington Counties. Water resource information was obtained from publications of the Department of Environment, Health and Natural Resources (DEHNR, 1996) and from the NC Center for Geographic Information and Analysis (NCCGIA) Environmental Sensitivity Base Map of 'Chowan' and Washington (December 1995). Climatic data was obtained from the National Climatic Data Center in Asheville. Information concerning the occurrence of federal and state protected species in the study area was gathered from the FWS list of protected, candidate and federal species of concern (August 23, 1996). The N.C. Natural Heritage Program (NHP) database of rare species and unique habitats was consulted for known records of such resources in the area. Verbal coordination with the Division of Marine Fisheries and NC Wildlife Resources Commission (WRC) biologists regarding sensitive fish resources was conducted also.

General field reconnaissance was conducted along each of the alternative alignments during February, March and April 1996, and during February and March 1997 by NCDOT biologist M. Randall Turner. Biotic communities were catalogued and dominant species were recorded. Wildlife occurrences were noted based upon active searching (log rolling, visual search with binoculars, etc.), identification of animal utilization patterns based upon the presence of tracks, scat and sound. Jurisdictional wetland determinations were based upon the criteria described in the

"Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, January 1987).

3.0 Inventory of Biotic Resources

Biotic resources include aquatic and terrestrial compartments. This section provides inventories and descriptions of natural and manipulated communities, including both plant and animal components. Composition and distribution of biotic communities throughout the project area are reflective of topography, hydrology, cover, and past and present land uses. Animal presentations emphasize vertebrates. While the community presentations are organized around dominant plant community patterns, it must be emphasized that none of the communities in the study area are so-called climax communities. Therefore, species composition and animal utilization will not perfectly coincide with the idealized "type" communities. Furthermore, while some animal groups may experience greater fitness when associated with one or more ecologically distinct habitats, it is also true that many of these animals are more or less capable of utilizing a wide range of habitats within the proximal landscape.

Scientific nomenclature and common names (where available) are provided for each plant and animal species described. Subsequent references to the same organism will include only the common name. All plant names cited were actually observed; animal species given were either observed (individuals or their evidence), or are known to occur based upon historical data.

3.1 Terrestrial Communities

The terrestrial communities encountered within the study area include forested and non-forested forms. For the most part, the forested communities are either pine-dominated flatwoods (uplands and wetlands), mixed hardwoods, including some cypress-dominated bottomlands, mixed hardwood-pine and mixed pine-hardwood uplands. Non-forested communities are generally represented by sites recently cut by silvicultural operations, powerline and highway rights of way, agricultural landscapes and residential or commercial lawnscapes. Some community boundaries are well-delimited such as when a pine-dominated flat is punctuated by a small stream-head, or when forest fragments abruptly end at the boundaries of development. However, in many instances, community boundaries are ill-defined. Quite often contiguous "communities" merge without any transition zone (ecotone) between them, such as the pine-dominated forests which are often intersected by a riparian community. Except for the riverine communities (bottomlands) most of the other forested areas are either pine plantations or are patches in the landscape, surrounded by agricultural landscapes.

3.1.1 Pine Plantations

Silviculture is a major industry in the study area. Weyerhauser, Inc. and other forest products companies are growing loblolly pine (*Pinus taeda*) in large tracts of land throughout the region, including the study area. These monoculture operations can be observed along existing US 64 and along the new location alternative alignment. Many of these parcels are well-drained through a network of ditches and canals to facilitate the removal of excess groundwater. In some areas, the tracts lie in undrained, saturated landscapes, while in others, the pines occupy relatively dry, upland sites. (rare in this part of the state).

In addition to loblolly pine, numerous other subcanopy, shrub and herbaceous species can be observed in these communities. Red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*), pepperbush (*Cyrilla racemiflora*), red bay (*Persea borbonia*), sweet bay (*Magnolia virginiana*), giant cane (*Arundinaria gigantea*), royal fern (*Osmunda regalis*) and brake fern (*Woodwardia virginica*) are often present. In the undrained wetland tracts, giant cane, royal and brake ferns are much more prevalent than in the drier tracts.

3.1.2 Mixed Transitional Forests

Numerous transitional forest tracts are intersected by each of the project alternatives. These forested parcels are mixtures of loblolly pine and hardwoods. The dominant canopy forms in these forested areas vary from loblolly pine to mixed hardwood species. Some have little or no loblolly and some are almost totally pine forests, although these communities should be distinguished from the pine plantations (3.1.1). Where hardwoods dominate, the species composition can be greatly influenced by site hydrology. Mesic sites tend to have more oaks (*Quercus alba*, *Q. velutina*, *Q. falcata*), tulip poplar (*Liriodendron tulipifera*), beech (*Fagus grandifolia*) and sourwood (*Oxydendrum arboreum*). Here, the shrubby growth can be richer with blueberries (*Vaccinium* sp.), American holly (*Ilex opaca*), winged sumac (*Rhus copallina*) and beauty bush (*Callicarpa americana*). Poison ivy (*Toxicodendron radicans*), Japanese honeysuckle (*Lonicera japonica*) and green briar (*Smilax* spp.) are prevalent. Partridge berry (*Mitchella repens*), crane's fly orchid (*Tipularia discolor*) and ebony spleenwort (*Asplenium platyneuron*) occur in greater numbers in these drier habitats. Persimmon (*Diospyros virginiana*), sassafras (*Sassafras albidum*), grape (*Vitis* spp.) and numerous other species are frequently observed in these forested areas. The wetter, mixed transitional forests usually have red maple, ironwood (*Carpinus caroliniana*), bayberry (*Myrica cerifera*), chestnut oak (Quercus michauxii) and giant cane in greater profusion, although these same species do occur in the more mesic areas, but are less abundant.

3.1.3 Bottomland Forests

The bottomland communities which occur at each of the stream crossings, contain a mixed assemblage of hydrophytic species, including tupelo (*Nyssa*

aquatica), black swamp gum (*Nyssa sylvatica* var. *biflora*), bald cypress, green ash (*Fraxinus pennsylvanica*), red maple, sweet gum, chestnut oak, and less frequently, water oak (*Q. nigra*) and willow oak (*Q. phellos*). The subcanopy is often sparse, but may include seedlings of the canopy species, as well as ironwood, swamp hawthorne (*Crataegus* sp.), ti-ti (*Cyrilla racemiflora*) and one or more bays (sweet or red, usually). Rattan vine (*Berchemia scandens*), cross-vine (*Anisostichus capreolata*) and Virginia creeper (*Parthenocissus quinquefolia*) are almost always present. False nettle (*Boehmeria cylindrica*), lizard's tail (*Saururus cernuus*) and one or more ferns, including royal, brake, cinnamon (*Osmunda cinnamomea*) and sensitive (*Onoclea sensibilis*) are routinely observed. One of the nicer, cypress-gum dominated bottomlands occurs at the crossing of Kendrick's Creek by LEDPA.

The NHP has identified four high quality, significant natural areas in the vicinity of the proposed project. Three of these areas, East Dismal Swamp, Conaby Creek/Swan Bay Swamp and Bull Neck Swamp are located well outside the study area of the proposal; however, a fourth, Scuppernong River Swamp Forest extends into the study area at the extreme east end of the project. Within the study area this Registered Natural Heritage Area is owned by the Nature Conservancy. The Swamp Forest natural area contains non-riverine swamp and Atlantic white cedar forest community components.

3.1.4 Unforested Sites

The only unforested parcels within the study area are the result of past disturbances and include powerline right of way areas, residential and commercial sites, farm fields, cut-overs, and highway rights of way. Species composition in these areas is dictated by site hydrology and by on-going maintenance practices. In the wetter sites, species may include scrubby growth of bays (sweet, red, bayberry), pine and other canopy species, which have been annually cut by rotary mowers in powerline right of way, for example. Some herbaceous hydrophytes, such as cattail (*Typha latifolia*) and common reed (*Phragmites communis*) can be observed in the wettest of these areas. Fescue (*Festuca* sp.) and common Bermuda grass (*Cynodon dactylon*) are groundcovers in much of the residential/commercial lawnscapes, although centipede grass (*Eremochloa ophiuroides*) is also widely used. In these modified landscapes, groupings of shrubs and trees can be observed. Many ornamentals are used, including crape myrtle (*Lagerstroemia indica*), azalea (*Rhododendron* spp.), dogwood (*Cornus florida*) and juniper (*Juniperus horizontalis*), etc. The ecotones adjacent to drainage ditches, farm fields and similar areas are dominated by a wide variety of grasses, herbs and woody vegetation, some under intense mowing regimes.

A rich faunal assemblage utilizes habitats throughout the study area. The broken, mosaic of forests and open agricultural areas is probably beneficial to a number of species. Since a fairly large number of species from all of the terrestrial vertebrate classes were observed during the field investigations, these records are recited below. It is understood, of course, that many other species routinely occur in

the study area. For information on all of the animals known to utilize habitats in this part of the state, the reader is encouraged to refer to publications cited in Section 8.0.

White-tail deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), raccoons (*Procyon lotor*) and opossum (*Didelphis virginiana*) were observed on numerous occasions. White-tail deer, or their tracks were seen throughout the study area. A black bear (*Ursus americanus*) was seen while walking the new location alignment southeast of Roper.

Wild turkey (*Meleagris gallopavo*) were observed in multiple locations adjacent to pine plantations along alternative 1. Two bobwhite (*Colinus virginianus*) were flushed adjacent to a farm field near the eastern limits of alternative 1. Great blue heron (*Ardea herodias*) were observed feeding along the roadside ditch at the eastern end of the study area and in drainage ditches near the proposed Creswell bypass alignment. Mallards (*Anas platyrhynchos*) were flushed from a drainage canal near alternative 1. Belted kingfishers (*Megaceryle alcyon*) were observed repeatedly throughout the study area, as were red-shoulder (*Buteo lineatus*) and red-tail (*B. jamaicensis*) hawks. Numerous passerine birds were seen throughout the study area, but no effort was made to catalog them.

What was identified as a Mabee's salamander (*Ambystoma mabeei*) was discovered under a log in a wooded area along alternative 1. Slimy (*Plethodon glutinosus*) and southern dusky (*Desmognathus auriculatus*) salamanders were discovered at two sites adjacent to segments alternative 1.

Reptilian forms were seen on several occasions. A large black rat snake (*Elaphe obsoleta*) and an eastern hognose snake were found within 100 feet of each other in a wooded area west of SR 1120. Water snakes (*Nerodia sp.*) were also seen at two stream crossings along US 64. Literally hundreds of basking turtles, including redbelly (*Chrysemys rubriventrus*), yellowbelly slider (*Trachemys scripta scripta*) and even snapping (*Chelydra serpentina*) turtles were observed during the course of the field studies.

3.2 Aquatic Communities

The freshwater aquatic communities which occur in the study area can be categorized as ditch communities and natural stream communities. It is important to note that some of the more hydrologically active bottomlands, which lie adjacent to study area streams, may harbor standing surface water intermittently throughout the year. These areas can and should be considered part of the aquatic community since critical life cycle events, including the spawning of vertebrates, occur here. During the wettest portion of the year these areas are directly connected to the main channel(s) of the creek.

3.2.1 Ditch Communities

Roadside ditches and ditches which drain farm fields and pine plantations occur throughout the study area. Some of these ditches can be quite large (10+ ft wide and several feet deep), but most are 3-4 feet wide and 2-4 feet deep. Due to the high water table in much of the study area, these ditches are wet and free-flowing much of the year. Although agricultural run-off, including fertilizers and pesticides have placed these communities under severe stress, it is not difficult to observe a range of species which have apparently adapted to these harsh conditions. Most of the ditches are so eutrophied that a film of algae and usually duck weed (*Lemna* spp.) can be seen at the surface. Cattails and floating-leaved hydrophytes such as water-lilies (*Nuphar* sp. and *Nymphaea* sp.), as well as submerged aquatics such as millfoil (*Myriophyllum* sp.) are apparently tolerant of the conditions in these ditches, in spite of being subjected to doses of herbicide through run-off events. Common alligator weed (*Alternanthera philoxeroides*) and other rooted vascular hydrophytes like rushes (*Juncus* spp.) and sedges (*Carex* spp.) are also readily observed.

3.2.2 Natural Stream Communities

Natural stream systems in the area include the Scuppernong River, Kendrick's Creek, Main Canal, Baker's Swamp (Old Mill Creek), Pleasant Grove Creek, Chapel Swamp, Newberry Ditch, Deep Creek, and various tributaries. Most of these streams have been channelized to accommodate box culverts, pipes or bridge openings along the existing US-64 alignment. Only two defined drainages are crossed by the recommended new location alignment (alternative 1). The dominant aquatic plants observed in these communities include duck weed, sedges, and rushes at their perimeters. Spatterdock (*Nuphar luteum*) and/or water-lily (*Nyphaeae odorata*) occur near the banks of the Scuppernong River. Although no attempts were made to confirm the presence of submerged aquatic vegetation in the Scuppernong River, an underwater survey will be conducted in the near future.

In or near the aquatic environments, numerous amphibians, reptiles and birds, in addition to fish and invertebrate species, abound. Crawfish frog (*Rana areolata*), bullfrog (*R. catesbeiana*), pickerel frog (*R. palustris*); snapping turtle, eastern mud turtle (*Kinosternon subrubrum*), rainbow snake (*Farancia erytrogramma*), redbelly water snake (Nerodia *erythrogaster*), banded water snake (*N. fasciata*) and brown water snake (*N. taxispilota*) are a few of the amphibians and reptiles most likely to occur in these aquatic habitats. Mammalian fauna which frequent these aquatic zones include muskrat (Ondatra *zibethicus*), beaver (*Castor canadensis*), mink (Mustela *vison*) and river otter (*Lutra canadensis*). Numerous birds rely heavily on the aquatic system in this area, namely the great blue heron and the kingfisher bird.

These organisms depend on the aquatic milieu for some or most of their life history, either as forage, refuge, or as nesting habitat. Numerous fish and invertebrates, which occur in these zones, are totally water-dependent throughout their lives.

In the freshwater zones (canals and creeks) various minnows, killifish (*Fundulus* spp.) and sunfish (*Lepomis* spp.) occur in relatively healthy numbers. It is predictable that most of the larger drainages and even smaller ditches and canals serve as suitable habitat for bowfin (*Amia calva*), American eel (*Anguilla rostrata*), golden shiner (*Notemigonus crysoleuces*), redfin (*Esox americanus*) and chain (*Esox niger*) pickerel, eastern mudminnow (*Umbra pygmaea*), banded killifish (*Fundulus diaphanus*), and eastern mosquitofish (*Gambusia holbrooki*). One or more species of catfish (*Ameiurus* sp. and *Ictalurus* sp.) are likely to be found in the larger creeks and canals also. Sunfish (*Lepomis* spp.), crappie (*Pomoxis* spp.) and large-mouth bass (*Micropterus salmoides*) occur in the deeper streams and ditches in the study area.

Anadromous fish, including herring (*Alosa* spp.), shad (*Alosa* sp. and *Dorosoma* sp.) are known to utilize the Albemarle Sound tributaries, including the Scuppernong River, Kendrick's Creek, Deep Creek and Chapel Swamp. It is also likely that striped bass (*Morone saxatilis*) migrate into these streams from the Albemarle Sound. The proximity to the Albemarle Sound and the relatively undisturbed channels north of US 64 suggest that all of the study area streams have healthy populations of fish and invertebrates.

3.3 Anticipated Impacts to Biotic Communities

Any of the alternatives will result in reduction of existing habitats. Where forested areas are eliminated by construction of a highway segment, new fringe ecotones will develop. Alternative 2 will expand the existing 2-lane roadway to a multi-lane facility with a median and shoulder sections throughout most of the project area. Portions of alternatives 1, 3 and 4, which result in the construction of a freeway adjacent to the existing US 64 will also reduce, not fragment, habitats now bordering the existing facility. The increased distance across the multi-lane facility will place additional pressures on animals during their diurnal or seasonal movements. Roadkills will claim larger numbers of individuals. Shrinking of habitats will place pressures on existing communities, from which individuals of many species will probably be displaced. Overall, the long-term effects of **relatively small** habitat losses at the fringes of existing development should be viewed as **relatively minimal.**

However, new location alternatives will result in habitat fragmentation, the separation of habitat continuums by the new highway facility. This perturbation is likely to be more unsettling to resident populations and will probably result in more severe consequences to those species which have to range further in search of forage, etc. Surprisingly, very little, if any, of the project proposes to bisect unbroken expanses of habitat. Therefore, the overall impact to wildlife is expected to be **relatively minor**. Virtually the entire study area is a mosaic of developed and relatively undeveloped parcels. It is reasonable to assume that the resident animal populations are already highly adapted to a man-dominated landscape. Further encroachment by a new or expanded highway will certainly result in losses of

individuals, but such losses will undoubtedly be assimilated by the communities with minimal long-term consequences. It is entirely reasonable to assume that agri-development in the area poses much more significant long-term risks to biotic communities than does highway development.

Aquatic communities will suffer from construction activities due to sudden inputs of sediment and toxic substances that may result from heavy equipment utilization. However, responsible application of "best management practices" should mitigate against more serious implications to the aquatic zone. **Moratoria against in-stream construction will be required at all of the major stream crossings as a measure to protect late-winter and spring migrations of anadromous fish.** Although highway construction may result in measurable short-term impacts to aquatic systems, it is highly unlikely that such work would result in the same devastation to streams and their inhabitants as some agribusiness operations in the area. Large-scale farms in the study area are having very noticeable effects on the local drainages.

Slow-moving and/or burrowing organisms which occur in the construction zones will undoubtedly be lost to clearing, grubbing and grading activities. More mobile species will escape into adjacent habitats.

Table 5 provides a comparison of impacts to each of the biotic communities among each of the alternatives.

TABLE 5
ANTICIPATED IMPACTS TO BIOTIC COMMUNITIES, BY ALTERNATIVE

COMMUNITY	Recommend Alt. 1	Alt. 2	Alt. 3	Alt. 4
Pine Plantation	187.7	24.3	182.0	182.0
Transitional	99.8	58.1	83.3	88.3
Bottomlands	38.8	48.0	43.7	54.5
Unforested	264.2	219.2	295.7	343.4
Total	**590.5**	**349.6**	**604.7**	**668.2**

Note: Values are in acres; unforested habitats include powerline/highway rights of way, agricultural and other developed sites, and fringe areas.

4.0 Inventory of Physical Resources

Soil and water resources which occur in the study area are discussed below. Soil types and proximity to ground or surface water tables directly influence composition and distribution of flora and fauna in any biotic community.

4.1 Geology, Climatic Data, Soils

Geologically, the area is composed of mostly marine sedimentary rocks that were deposited in the quaternary period about 1.7-5.0 million years ago. The average annual rainfall for both counties is (+/-) 51 inches. About 55-60 % of this precipitation occurs in the April-September period. The growing season, as defined by the number of days between the last average date of freezing temperature (air) in the Spring and the first average date of freezing temperature (air) in the Fall, (5 years in ten data) occurs between April 15 (April 16 in Washington County) and October 25 (= 191.5 days). Rainfall data for Tyrrell and Washington Counties are:

	Tyrrell	Washington
January 1996	N/A (4.10)	5.31 (4.10)
February 1996	N/A (4.02)	3.69 (3.80)
March 1996	N/A (4.10)	4.40 (4.05)

Note: Values given in inches; (x.xx) denotes 25-30 year average; N/A denotes that no data is available for Tyrrell County for 1996.

It is reasonable to conclude from these data that the interval Jan-Mar 1996 was wetter than average, at least in Washington County (two-thirds of the study area lies in Washington County). Consequently, surface water and ground water tables would have been predictably higher than normal during the field studies.

Most of the study area soils are classified as hydric. Table 6 gives an inventory of soils likely to be impacted by one or more of the alternatives.

4.2 Water Resources

The following section describes water resources that occur within or adjacent to the study area. The topic of water resources is presented in three major subsections. The first section describes the physical aspects of each resource and its relationship to major drainages. The second and third sections discuss best usage classifications and water quality, as well as, any special resource assignments. Water Resource discussions herein center on surface waters and do not address groundwater.

TABLE 6
SOIL MAP UNITS WITHIN THE STUDY AREA OF R-2548

Map Unit	Hydric	Non-Hydric
AaA (Altavista lfs)	-	X
Ar (Argent sl)	**(A) X**	
At (Augusta fsl)	-	X
BoA (Bojac lfs)	-	X
Cf (Cape Fear l)	**(A) X**	
Ch (Chowan sl)	**(A) X**	
CtA (Conetoe lfs)	-	X
DgA (Dogue fsl)	-	X
Do (Dorovan m)	**(A) X**	
Dr (Dorovan msl)	**(A) X**	
Ds (Dragston lfs)	**(B) X**	
Me (Muckalee l)	**(A) X**	
Pe (Pettigrew m)	**(A) X**	
Pt (Portsmouth l)	**(A) X**	
Ro (Roanoke l)	**(A) X**	
TaB (Tarboro s)	-	X
To (Tomotley fsl)	**(A) X**	
Wa (Wahee fsl)	**(B) X**	
WkB (Wikham ls)	-	X

Note: (A) denotes map units that are all hydric soils, or have hydric soils as a major component, and (B) map units with inclusions of hydric soils or have wet spots; "lfs", "sl", "fsl", "l", "m", "msl", "ls" and "s" denote loamy fine sand, silt loam, fine sandy loam, loam, muck, mucky silt loam, loamy sand, and sand, respectively;

4.2.1 Study Area Water Resources

Table 7 lists all water resources likely to be impacted by each alternative. Except for the extreme western end of the project, all of the streams in the study area lie within the Pasquotank River Basin. A small portion (+/- 1.5 miles) of the existing alignment near the western terminus lies within the Roanoke River Basin; however, no surface water resources occur in this portion of the study area. The streams in the study area are characterized by slow water velocities. Their individual basins are mostly occupied by swamp forests or bottomlands with mixed hardwood- and cypress-dominated communities. Virtually all of the study area streams flow northward, ultimately discharging into the Albemarle Sound (or Bull Bay).

TABLE 7
ANTICIPATED WATER RESOURCE CROSSINGS: R-2548

WATER RESOURCE	BUC*	ALTERNATIVES Rec. Alt. 1	Alt. 2	Alt. 3	Alt. 4
Beaver Dam Branch	C sw				
Skinners Canal	C sw	-	X	X	X
Kendrick's Creek	SC/C sw	X	X	X	X
Main Canal	C sw	-	X	X	X
Bakers Swamp	C sw	X	X	X	X
Albemarle Sound	SB				
Pleasant Grove Ck	C sw	-	X	-	-
Chapel Swamp	C sw	-	X	-	-
Newberry Ditch	C sw	-	X	-	-
Deep Creek	C sw	-	X	-	-
Trib 1	C sw	-	X	-	-
Trib 2	C sw	-	X	-	-
Trib 3	C sw	-	X	-	-
Scuppernong River	SC	X	X	X	X
Trib 1	C	X	X	X	X
Trib 2	C	X	X	X	X
Trib 3	C	X	X	X	X

Note: X denotes crossing of resource by alternative; "BUC" denotes "best usage classification"

4.2.2 Best Usage Classifications

Streams are assigned best usage classifications by the Division of Water Quality (DWQ) and these classifications within the Pasquotank River Basin are set forth under North Carolina Administrative Code 15A NCAC 2B .0317. The assignment of these classifications are based upon the existing or contemplated best usage of the water resource as determined by studies, evaluations and public hearing input. Table 7 above presents best usage classifications for each listed water resource. All unnamed streams carry the same classification as that assigned to the stream segment to which it is tributary except that unnamed canals in the Pasquotank Basin are classified "C".

The "best usage" for which the waters in each of the above classifications must be protected is given as follows:

Fresh Waters

Class C: aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture.

Note: The supplemental classification "Swamp Waters" (sw) is designated as waters which have low velocities and other natural characteristics which are different from adjacent streams in the area.

Tidal Salt Waters

Class SB: primary recreation and any other usage specified by the "SC" classification.

Class SC: aquatic life propagation and survival, fishing, wildlife, and secondary recreation.

Neither Outstanding Resource Waters (ORW), High Quality Waters (HQW) nor water supplies designated WS-I or WS-II are located in the study area, nor do such resources occur within 175 m (575 ft) of either proposed corridor.

4.2.3 Water Quality

The Benthic Macroinvertebrate Ambient Network (BMAN) surveys, conducted in each river basin by the DWQ, collect biological data which are reflective of water quality. Taxa richness and the presence of certain pollutant-tolerant or -intolerant taxa among benthic macroinvertebrates strongly correlates with water quality.

Kendricks Creek was sampled in 1983 and 1984 and the water quality was determined to be "Fair". The Scuppernong River was sampled near Columbia in June 1983 and was given a "Poor" quality rating. It is interesting that a sample at SR 1105 (south of Columbia), taken in August 1995 resulted in a "Fair" rating. The only other data for the study area was reported from Main Canal (south of Roper) in February 1995, but was not given a rating.

4.3 Anticipated Impacts to Physical Resources

Project will impact naturally occurring soils and minerals within the footprint of the project through excavation and grading. Some soils, are not suitable for roadway fills and will be "undercut" and removed to approved spoil disposal areas. Suitable soils from other areas will be transported to the project for use as fill material. Finally, impervious pavement will be overlaid onto soils underlying travel lanes.

Water resources will be crossed by pipes, culverts and/or bridges. In either case, some re-channelization of streams and ditches may be required. The new (or enlarged) hydraulic structures may result in a change in water velocities and will probably result in redirecting surficial flows at riverine sites (new location sites, pipes and box culverts only). Water quality declines are predictable during the construction interval, but such effects should be minimal over the long term.

5.0 Jurisdictional Resources

Four major jurisdictional issues must be addressed before this project can be approved for construction. These issues are (1) Waters of the U.S. (and Waters of N.C.), regulated by the DWQ and the U.S. Army Corps of Engineers (COE) under Sections 401 and 404 of the Clean Water Act; (2) U.S. Coast Guard approval of a

new bridge crossing of the Scuppernong River; (3) Areas of Environmental Concern (AECs), regulated by the Division of Coastal Management under the Coastal Area Management Act (CAMA); and (4) Rare and Protected Species, regulated by the FWS under the Endangered Species Act of 1973.

5.1 Waters of the U.S. (Waters of N.C.)

Wetlands and surface waters fall under the broad category "waters of the U.S.", as defined in Section 33 of the Code of Federal Register (CRF), Part 328.3. In accordance with the provisions of Section 404 of the Clean Water Act (33 U.S.C 1344), the COE has primary responsibility for reviewing and regulating actions which propose to fill or substantially modify "waters of the United States". Jurisdictionally, wetlands are defined in 33 CFR 328.3 as "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Furthermore, the COE has responsibilities under Section 10 of the Rivers and Harbors Act of 1899 for structures proposed in or near navigable waters, which includes the Scuppernong River.

The DWQ also has a jurisdictional role under Section 401 of the Clean Water Act. The Section 404 Permit application (and/or CAMA Permit, see below) serves as application for a Section 401 Water Quality Certificate, which must be issued before the COE will issue a Section 404 permit. Recent rule changes adopted by the DWQ in October 1996 require that compensatory mitigation for wetland losses must be at least based on a no net loss formula, and stream channel impacts must be mitigated.

Based upon the requirements set forth in the 1989 Memorandum of Agreement between the Department of the Army (DOA) and the Environmental Protection Agency, a major emphasis is placed on attempts to **avoid** and **minimize** impacts to wetlands and water resources. Obviously, due to the widespread presence of wetlands in the study area, avoidance is not possible, except in a no-build scenario. However, minimization is a serious issue. Once a preferred alternative was selected (the LEDPA that avoids impacts to the maximum extent practicable), serious consideration was given to the concept of minimizing impacts to unavoidable wetlands within the footprint of the preferred alternative. Such minimization efforts include bridging of Kendrick's Creek, alignment shifts just east of the Tidewater Research Station and at the old river oxbow, a reduction of median width through wetlands west of the Scuppernong River, and holding fill slopes as steep as practicable.

Compensatory mitigation for unavoidable losses of wetlands will be required. A specific mitigation strategy was developed subsequent to the circulation of the Draft EIS for this project. The NCDOT proposes to mitigate all unavoidable impacts to wetlands by acquiring wetland credits from two established private wetland mitigation banks located within the Pasquotank River Basin in Tyrrell County. The two mitigation banks are the Scuppernong River Corridor Wetland Mitigation Bank and the Great Dismal Swamp Restoration Bank. This mitigation will be in-kind and in-basin.

Insofar as stream channel modification is concerned, all defined streams will be bridged. The only exception is a stream crossing near the end of the project east of Columbia, where the existing culvert will be extended approximately 20 feet. This culvert work will require a Coastal Area Management Association (CAMA) permit.

5.2 U.S. Coast Guard Approval of Scuppernong River Bridge

The U.S. Coast Guard must approve the construction or major modification of all bridges which span navigable waters. Navigable Waters are defined as "any waterway which is subject to the ebb and flow of the tide; or any waterway which is presently used and/or is susceptible to use in its natural condition, or by reasonable improvement, as a means to transport interstate or foreign commerce." U.S. Coast Guard permits are issued in accordance with Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946.

5.3 Areas of Environmental Concern

In addition to the COE jurisdiction over activities in waters of the U.S., the DCM has jurisdiction for reviewing actions (in each of 20 designated coastal counties), which result in "development" within any of several AECs, including: Coastal Wetlands, Estuarine Waters, Esturarine Shoreline, Public Trust Waters, etc. Under CAMA, the DCM also will insure that the proposed action is consistent with local/regional/state laws.

5.4 Rare and Protected Species

Under federal law, any action, which is likely to result in an impact to federally-protected plants or animals, is subject to review by the FWS, under one or more provisions of the Endangered Species Act (ESA) of 1973, as amended. The FWS and other wildlife resource agencies also exercise jurisdiction in this resource area in accordance with the Fish and Wildlife Coordination Act. North Carolina laws are also designed to protect certain plants and animals, which are endemic to North Carolina and/or whose populations are in severe decline.

5.4.1 Federally-Protected Species

Plants or animals with status designations E (Endangered), T (Threatened), or P (Proposed) are protected under the ESA. Two major provisions of the ESA have implications to NCDOT projects. Where federal funds, or federal permits are required, Section 7 requires consultation with the FWS prior to taking any action which may jeopardize, or threaten a protected species. Section 9 provides the FWS with jurisdiction, in cases where no federal funds or permits are required, if the proposal may result in the "taking" of protected species. As of August 23, 1996 four federally protected species are listed by the FWS for Tyrrell and Washington Counties (Table 8).

TABLE 8
FEDERALLY PROTECTED SPECIES IN TYRRELL & WASHINGTON COUNTIES

SCIENTIFIC NAME	COMMON NAME	COUNTY	STATUS
Canis rufus	red wolf	Tyrrell/Washington	EXP
Haliaeetus leucocephalus	bald eagle	Tyrrell/Washington	T
Picoides borealis	red-cockaded woodpecker	Tyrrell	E
Alligator mississippiensis	American alligator	Tyrrell	T(S/A)

Note: "E" (Endangered) is a taxon that is threatened with extinction throughout all or a significant portion of its range; "EXP" denotes a taxon that is listed as experimental (either essential or non-essential): red wolf is non-essential and is treated as a Threatened species on public lands/Proposed species on private lands; "T" (Threatened) is a taxon that is likely to become endangered in the foreseeable future; "T(S/A)" denotes a species which is listed as threatened due to similarity of appearance with another rare species in order to protect the similar species.

Canis rufus (red wolf) **EXP**
Animal Family: Canidae
Date Listed: 3/11/67
Distribution in N.C.: Beaufort, Dare, Hyde, Tyrrell, Washington Counties

The red wolf is a medium-sized canid smaller than the grey wolf and larger and hardier than the coyote. The red wolf can be identified by its more elongated head and shorter coarser pelage than the grey wolf. It has a coloration similar to that of the coyote, but with a darker element. Individuals have been release during the last several years in the Alligator National Wildlife Refuge, located in Dare, Hyde and Tyrrell Counties.

Habitat requirements for the red wolf are not specific. The red wolf does need heavy vegetation to provide adequate shelter and denning materials.

Biological Conclusion: The red wolf is closely monitored by FWS biologists at the Alligator River National Wildlife Refuge. While it is possible that one or more individuals might range into the Scuppernong River bottomlands, which lie adjacent to the project study area immediately west of Columbia, such occurrences would be considered rare. Furthermore, the relatively small impacts to adjacent habitat would not be of any consequence to this species. It is reasonable to conclude that the project will have **No Effect** on this species.

Haliaeetus leucocephalus (bald eagle) **T**

Animal Family: Accipitridae
Date Listed: 3/11/67
Distribution in N.C.: Anson, Beaufort, Brunswick, Carteret, Chatham, Chowan, Craven, Dare, Durham, Hyde, Montgomery, New Hanover, Northampton, Perquimans, Richmond, Stanley, Vance, Wake, Washington.

Adult bald eagles can be identified by their large white head and short white tail. The body plumage is dark-brown to chocolate-brown in color. In flight bald eagles can be identified by their flat wing soar.

Eagle nests are found in close proximity to water (within a half mile) with a clear flight path to the water, in the largest living tree in an area, and having an open view of the surrounding land. Human disturbance can cause an eagle to abandon otherwise suitable habitat. The breeding season for the bald eagle begins in December or January. Fish are the major food source for bald eagles. Other sources include coots, herons, and wounded ducks. Food may be live, or carrion.

Biological Conclusion: No sightings of bald eagles in or near the study area have been recorded. The only likely area for eagle activity close to the study area would be the Albemarle Sound and the Scuppernong River. No eagle sightings were made during the field investigations and no nest sites were encountered. The Department conducted an aerial reconnaissance flight over the study area on October 7, 1998 for the purposes of confirming the presence (or absence) of bald eagle nest sites in suitable habitat zones adjacent to the Scuppernong River. The flight was manned by M. Randall Turner, NCDOT biologist, and Mr. David Allen, senior biologist with the NCWRC, who applied his eagle expertise during the reconnaissance. The flight confirmed that bald eagles are not nesting along the Scuppernong drainage, including the mature forested tracts located east and west of the River. Based upon the results of the aerial survey it is reasonable to conclude that the proposed improvements to US 64 will have **No Effect** on the bald eagle.

Picoides borealis (red-cockaded woodpecker) **E**

Animal Family: Picidae
Date Listed: 10/13/70
Distribution in N.C.: Anson, Beaufort, Bertie, Bladen, Brunswick, Camden, Carteret, Chatham, Columbus, Craven, Cumberland, Dare, Duplin, Forsyth, Gates, Halifax, Harnett, Hertford, Hoke, Hyde, Johnston, Jones, Lee, Lenoir, Montgomery, Moore, Nash, New Hanover, Northampton, Onslow, Orange, Pamlico, Pender, Perquimans, Pitt, Richmond, Robeson, Sampson, Scotland, Tyrrell, Wake, Wayne, Wilson.

The adult red-cockaded woodpecker (RCW) has a plumage that is entirely black and white except for small red streaks on the sides of the nape in the male. The

back of the RCW is black and white with horizontal stripes. The breast and underside of this woodpecker are white with streaked flanks. The RCW has a large white cheek patch surrounded by the black cap, nape, and throat.

The RCW uses open old growth stands of southern pines, particularly longleaf pine (*Pinus palustris*), for foraging and nesting habitat. Although the RCW is more commonly associated with long leaf pine forests with open, uncongested subcanopies, increasing habitat pressures (disappearance of long leaf pine forests in eastern N.C.) has resulted in the RCW colonizing loblolly and even pond pine (*P. serotina*) forests. A forested stand ideally contains at least 50% pine, lacks a thick understory, and be contiguous with other stands to be appropriate habitat for the RCW. These birds nest exclusively in trees that are ≥60 years old which are contiguous with pine stands at least 30 years of age. The foraging range of the RCW is up to 200 hectares (500 acres). This acreage must be contiguous with suitable nesting sites.

These woodpeckers nest exclusively in living pine trees and often in trees that are infected with the fungus that causes red-heart disease. Cavities are located in colonies from 3.6-30.3 m (12-100 ft) above the ground and average 9.1- 15.7 m (30-50 ft) high. They can be identified by a large incrustation of running sap that surrounds the tree. The RCW lays its eggs in April, May, and June; the eggs hatch about 38 days later.

Biological Conclusion: The only portions of the project which have potentially-suitable habitat for the red-cockaded woodpecker lie at the extreme east end of the project in Tyrrell County. A colony survey has been conducted in all suitable habitat zones. The work was conducted by Dr. J.H. Carter, III and Associates, Inc., employing the use of helicopter surveillance as well as ground-based surveys. The study confirmed that the RCW does not exist in contiguous habitat within 0.5 mile of the project study area. As a result of this work, the proposed improvements to US 64 will have **No Effect** on the endangered red-cockaded woodpecker.

Alligator mississippiensis (American alligator) **T(S/A)**

Animal Family: Alligatoridae
Date Listed: 1987
Distribution in N.C.: Bladen, Brunswick, Camden, Carteret, Columbus, Craven, Cumberland, Dare, Duplin, Gates, Hyde, Jones, New Hanover, Onslow, Pamlico, Pender, Robeson, Sampson, Scotland, Tyrrell

A very large lizard-like reptile with powerful jaws and large teeth, a long and laterally compressed tail, 4 toes on hind feet and embedded bony plates forming longitudinal rows of keeled dorsal armor. Historical records indicate species is endemic to North Carolina south of Albemarle Sound. Resident populations exists throughout middle and lower coastal plain.

Listing as threatened by similarity of appearance implies that the status has been assigned primarily to protect the American saltwater crocodile, an endangered resident of Florida. Since skins of alligator and crocodile are so similar, crocodile skins could be marketed as alligator unless controls were established.

Biological Conclusion: The alligator may occasionally occur in the Scuppernong River, as the NHP database indicates, but the project study area lies outside what would be considered ideal habitat for this species. Canals which connect with the Scuppernong River could conceivably harbor alligators. Given the mobility of the species and the large expanses of suitable habitat along the Scuppernong River drainage, the project will have **No Effect** on this species.

5.4.2 Federal Species of Concern

Species of Concern are not protected by the ESA, although they are subject to being listed at any time in the future. Only two Species of Concern are listed for Washington County, none for Tyrrell County.

TABLE 9
FEDERAL SPECIES OF CONCERN LISTED FOR WASHINGTON COUNTY

SCIENTIFIC NAME	COMMON NAME	STATUS	HABITAT
Corynorhinus rafinesquii	Rafinesque's big-eared bat	FSC	Yes
Fundulus waccamawensis	Waccamaw killifish	FSC	No

Note: FSC (=C2) denotes a taxon for which there is some evidence of vulnerability, but for which there are not enough data to support listing as Endangered or threatened at this time. Listing is warranted but precluded by other pending proposals of higher priority. Status has been changed from Candidate to FSC (Federal Species of Concern).

5.4.3 State Rare and Protected Species

Plants or animals with state designations of Endangered, Threatened or Special Concern (SC) are granted protection by the State Endangered Species Act (G.S. 113-331 to 113-337) and the State of NC Plant Protection and Conservation Act of 1979 (G.S. 196:106-202.12 to 106-202.19), administered and enforced by the NC Wildlife Resources Commission and the NC Department of Agriculture, respectively.

The species listed in Table 10 are protected by the state of North Carolina.

TABLE 10
STATE PROTECTED SPECIES IN TYRRELL AND WASHINGTON COUNTIES

SCIENTIFIC NAME	COMMON NAME	NC STATUS	HABITAT
Canis rufus	red wolf	E	No
Haliaeetus leucocephalus	bald eagle	E	No
Picoides borealis	red-cockaded woodpecker	E	Yes
Alligator mississippiensis	American alligator	T	Yes
Condylura cristata (Pop 1)	eastern NC star-nosed mole	SC	Yes
Corynorhinus rafinesquii	Rafinesque's big-eared bat	SC	Yes
Fundulus waccamawensis	Waccamaw killifish	SC	No
Andonta implicata	alewife floater	SC	No
Leptodea ochracea	tidewater mucket	SC	Maybe
Ligumia nasuta	eastern pondmussel	SC	No

Note: "E", "T" and "SC" denote Endangered (any native or once- native species of plant or animal whose continued existence as a viable component of the State's fauna or flora is in jeopardy), Threatened (any native or once-native species of plant or animal which is likely to become an Endangered species in the foreseeable future) and Special Concern (any species of wild animal native or once-native to N.C. which is determined by the WRC to require monitoring).

In addition, element occurrences at the NHP indicate that 5 additional rare species are known to occur within the project vicinity. These species include the southeastern caneborer moth (*Papaipema* sp.3), with a record south of the study area; silvery sedge (*Carex canescens* var. *disjuncta*) with a record east of the study area; seven-angled pipewort (*Eriocaulon aquaticum*) with a record within the study area west of the Scuppernong River; perennial sundrops (*Oenothera perennis*) also located within the study area on the north side of US 64 west of the Scuppernong River; and a liverwort (*Plagiochila ludoviciana*) recorded adjacent to US 64 immediately west of Creswell. All of these species are listed as either Candidates (C), Significantly Rare (SR) or Watch List (W). None of these categories are protected by state law.

Recorded element occurrences of the American alligator and Rafinesque's big-eared bat indicate that individuals have been observed in the Scuppernong River and south of the Scuppernong River south of Creswell, respectively. Neither sighting occurs within the study area.

5.5 Anticipated Impacts to Jurisdictional Resources

It is anticipated that waters of the U.S. and Areas of Environmental Concern will be effected by the proposed improvements to US 64. It is logical to conclude that all four of the federally protected species will not be affected by the project.

5.5.1 Waters of the U.S.

A total of 24 wetland sites will be impacted by the preferred alternative (alternative 1). These sites range from flatwoods (17 sites) to riverine (7 sites) systems. The widen existing alternative (alternative 2) will impact 36 wetland sites, 18 of which are riverine. Alternatives 3 and 4 will impact 12 riverine and 16 non-riverine sites each. Impacts to wetlands for the preferred alternative are summarized in Table 11. Please note that wetland impacts for Section F are based on the assumption that Section F will be terminated east of the Scuppernong River. If this does not occur, the wetland totals for Section F will have to be re-calculated.

TABLE 11
WETLAND IMPACTS BY PROJECT SECTION

Section	Wetland Impacts for Footprint	Wetland Impacts for Clearing	Riverine Wetlands (footprint/ clearing)	Non-riverine Wetlands (footprint/ clearing)	Total Wetland Impacts
A*	10.5251	1.3183	0.0	10.5251/ 1.3183	11.8400
B**	11.3514	1.1690	0.6009/ 0.0938	10.7505/ 1.0752	12.5204
C	23.3240	3.7674	0.0	23.3240/ 3.7674	27.0914
D	15.1431	0.9325	0.0	15.1431/ 0.9325	16.0756
E	18.5613	3.1301	0.0	18.5613/ 3.1301	21.6914
F***	0.0	0.0	0.0	0.0	0.0
Total	**78.9049**	**10.3173**	**0.6009/ 0.0938**	**78.3040/ 10.0792**	**89.2188**

Values are in acres.
*There is a high quality riverine wetland at Mill Creek. It is being bridged.
**The riverine wetland crossing is under consideration for a bridge as part of the wildlife crossings study.
***There are no wetland impacts. However, there is a stream crossing that will require a permit.

Table 12 compares the amount of riverine versus non-riverine wetlands that will be impacted by each alternative alignment. The preferred alternative impacts the least acreage of the valuable and pristine riverine wetlands.

TABLE 12
ANTICIPATED IMPACTS TO WETLAND TYPES, BY ALTERNATIVE

WETLAND TYPE	Preferred (Alt. 1)	Alt. 2	Alt. 3	Alt. 4
Riverine	0.7 (39.2)	49.9	47.3	54.6
Non-riverine	88.5 (68.9)	45.1	50.4	58.9
TOTAL	89.2 (108.1)	95.0	97.7	113.5

Note: Values are in acres; Alt.1 updated values based on wetland delineations; Values in parenthesis are original values based on determinations; Alts. 2,3 and 4 values based on wetland determinations.

5.5.2 Areas of Environmental Concern

As previously indicated, it is anticipated that eight (8) separate streams will qualify as AECs under one or more categories, including Public Trust Waters and/or Estuarine Waters. Only two (2) of the sites are located on the preferred alternative (Alternative 1). These sites are identified as follows:

TABLE 13
AREAS OF ENVIRONMENTAL CONCERN (AECS): R-2548

STREAM CROSSING	LOCATION	ALTS.	AEC
Kendrick's Creek	US-64 (Roper)	Alts. 2-4	PT
Kendrick's Creek	South of Roper	Alt. 1	PT
Main Canal	S-64 (Roper)	Alts. 2-4	PT
Baker's Swamp	US-64	Alt. 2	PT
Pleasant Grove Creek	US-64 (Pleasant Grove)	Alt. 2	PT
Chapel Swamp	US-64 (Skinnersville)	Alt. 2	PT
Newberry Ditch	US-64 (West of NC-32)	Alt. 2	PT/EW/ES
Scuppernong River	US-64 (Columbia)	Alts. 1-4	PT/EW/ES

Note: PT, EW and ES denote Public Trust Waters, Estuarine Waters and Estuarine Shoreline AECs, respectively.

5.6 Anticipated Permit Requirements

Both Tyrrell and Washington Counties are "coastal counties". It is anticipated that two (2) separate stream/river crossings by the preferred alternative will qualify as Public Trust Waters and/or Estuarine Waters AECs, which will require submittal of Major Development Permits for each crossing, including adjacent wetlands. Although, Department of the Army General Permit 291 provides for the DCM to serve as lead permit agency in projects which involve mostly Coastal Wetlands or other AECs, this is not likely to be the case in this project. It is reasonable to predict that separate Section 404 and CAMA permits will be required. It is also highly likely that a U.S. Coast Guard permit will be required for the new crossing of the Scuppernong River.

NCDOT and its contractors shall not excavate, fill, or perform land clearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by the Department of the Army (DA) permit or any modification to the permit. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this project without appropriate modification of the individual permit. To ensure that all borrow and waste activities occur on high ground, except as authorized by individual DA permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with this project will be available to the Corps on request.

B. Architectural Resources

1. Field investigations and study

The NCDOT conducted two surveys for this project in 1994 and 1996 (reports dated December 6, 1994 and June 1, 1996). In 1994, NCDOT divided this project into multiple sections. The first report (December 6, 1994) covered the westernmost section of the project, US 64 from NC 45 east of Plymouth to 2000 feet east of NC 32 in Washington County. NCDOT staff architectural historians surveyed only the existing location, as new location alternatives had yet to be developed. These architectural historians conducted that survey in accordance with North Carolina General Statute 121-12(a), which requires that properties listed on the National Register of Historic Places should receive consideration in the planning process. One National Register property, Rehoboth Methodist Church, was found within the project study area.

NCDOT staff architectural historians conducted the second survey (report dated June 1, 1996) to address the project in its entirety, from NC 45 east of Plymouth to US 64 Business at the Scuppernong River just west of Columbia, Tyrrell County. This also included a new location alternative for the length of the project. In addition to the normal compliance with North Carolina General Statute 121-12(a) for a state-funded project, NCDOT staff architectural historians also surveyed five federal permit areas in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. They identified and evaluated all properties in those permit areas for National Register of Historic Places eligibility. (An NCDOT staff biologist identified and roughly delineated these permit areas in the time since the December 6, 1994, survey report). The 1996 survey for historic architectural resources found twelve properties in these permit areas. One property, Rehoboth Methodist Church, is listed on the National Register. NCDOT and the State Historic Preservation Office (SHPO) determined in a photo review session that the remaining eleven properties were ineligible for listing in the National Register under any of its criteria.

The NCDOT conducted a third survey in February and March, 1997, for several reasons. First, another new location alternative was developed (Alternative 3,

described above). Second, more right of way than was previously studied is now required for Alternative 1 from the Scuppernong community to the end of the project (NCDOT staff architectural historians based their 1996 survey on the expectations of having 175 feet of right of way along this section; the NCDOT now requires 300-350 feet of right of way). Third, the eastern end of the project has been extended through Columbia along US 64 to 1.1km (0.7 mi.) east of SR 1235, east of Columbia. And fourth, a staff biologist has identified and roughly delineated forty-seven (47) federal permit areas in the project area. Therefore, as these numerous permits will trigger one individual federal permit for the length of the project, the NCDOT chose to conduct a Phase II (Abridged) survey for the entire length of this state-funded project in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. This report is on file at NCDOT and at the State Historic Preservation Office.

The staff architectural historians conducted this Phase II (Abridged) survey to determine the Area of Potential Effects (APE), and to identify and evaluate all properties over fifty years of age within the APE according to the Criteria of Evaluation for the National Register of Historic Places. They consulted SHPO's Washington and Tyrrell County survey maps and files, as well as the listings of the National Register of Historic Places and the State Study List, to find information on historic properties in the project area. Based on information found in these files, as well as the results of a field survey, staff architectural historians established a boundary for the APE to include those properties along US 64 for the length of the project and those properties adjoining the new location alternatives. The staff architectural historians conducted an intensive survey by car and on foot on February 18-19 and March 3-5, 1997, covering one hundred percent (100%) of the APE, to identify those properties over fifty years of age that appeared to be eligible for the National Register.

2. Property Identification

The NCDOT identified 244 properties in this survey. Several of these are part of National Register-eligible and -listed historic districts, including the Roper Historic District and the Columbia Historic District (NR), both of which lie partially within the APE. Three properties are listed on the National Register (Belgrade and St. David's Chapel, WH 1; Rehoboth Methodist Church, WH 3; Columbia Historic District, TY 3), and two properties are on the State Study List (Pleasant Grove Methodist Church, WH 395, and Chapel Hill Baptist Church Cemetery, TY 113). One property, the Tarkenten House, was determined eligible in a previous report for this project (dated June 1, 1996). In meetings on April 11, 1996, and March 13, 1997, SHPO concurred with the NCDOT's determination that 190 properties are not eligible for the National Register and are not worthy of further evaluation. The remaining properties are evaluated in the aforementioned report; thirteen have been found eligible for the National Register.

National Register Properties

Rehoboth Methodist Church (WH 3; #11 in June 1, 1996 report)
Belgrade and St. David's Chapel (WH 1)
Columbia Historic District (TY 3)

Properties Eligible for the National Register (evaluated in June 1, 1996 report)

Tarkenten House (#6 in June 1, 1996 report)

Properties Eligible for the National Register (evaluated in this report)

Holy Disciples Church (Former Rosenwald School)
W. W. Mizell Farm
Homestead Farm (Hassell House) (WH 375)
Turner Farms
Roper Historic District
Pleasant Grove Methodist Church (SL) (WH 395)
Store
Former Schoolhouse
Will Chesson House (WH 366)
(unnamed) Farm
(unnamed) Farm
Washington County Subsidiary Prison
Smithson House (WH 398)

Properties Not Eligible for the National Register (evaluated in this report)

Downing-Spruill House (WH 427)

In addition, there are 193 properties the SHPO determined not eligible for the National Register and not worthy of further evaluation.

3. Determination

After consultation with the North Carolina State Historic Preservation Office, it was determined that the subject project would have an adverse effect upon three properties: the Homestead Farm, the Mizell Farm, and the Turner Farms, all of which are eligible for listing in the National Register of Historic Places. Subsequently a Memorandum of Agreement (Appendix D) was drafted to mitigate the effects of the proposed undertaking on these properties.

As a result of the adverse effect determination, the USACOE will condition the Department of Army permit as follows:

- NCDOT will provide windbreak planting along the right of way through the Mizell Farm and the Homestead Farm and in the viewshed of the Turner Farms, which includes native plants commonly found grown up along rural fencelines (examples: Yaupun Holly, Wax Myrtle, Red Maple, Loblolly Bay, Longleaf Pine, Pond Pine, Atlantic White Cedar, Tulip Tree, and Bald Cypress).
- NCDOT will utilize large wire mesh fencing, composed of 4" squares and wooden posts, along their controlled access boundary.

- NCDOT will regulate development in the areas around the Mizell Farm, the Homestead Farm, and the Turner Farms [from Station 40 (L) to Station 55 (L-revised) as shown on the design plans prepared by the Roadway Design Unit, NCDOT] by providing full control of access and if, in the future, there are applications for driveway permits between these two points, NCDOT agrees to provide SHPO with copies of the applications for their review and comment.

C. Archaeological Resources

The primary purpose of this investigation was to determine whether any archaeological resources that could potentially qualify for nomination to the National Register of Historic Places would be affected by the proposed widening project. The archaeological survey methodology for this project was designed to locate, identify, and delineate any cultural resources, especially those that may possess the quality of significance as defined by the National Register of Historic Places criteria (36 CFR 60.4 [a-d]).

This project is being coordinated with the State Historic Preservation Office (SHPO) in accordance with the Federal Highway Administration's procedures for compliance with the National Historic Preservation Act and the Federal-Aid Highway Acts (Department of Transportation Act as amended).

The scope of the archaeological investigations was consistent with the guidelines issued by the Advisory Council on Historic Preservation (Treatment of Archaeological Properties), the Department of Interior's Standards and Guidelines for Archaeology and Historic Preservation projects (48 FR 44739), and the Federal Highway Administration's Guidance on the Consideration of Historic and Archaeological Resources in the Highway Project Development Process (HPP-04, Jan. 25, 1989).

The archaeological field methods consisted of vehicular and pedestrian reconnaissance, selective shovel tests (screened), excavation, and recordation of relevant surface and landscape features. In addition, an intensive visual inspection of

all exposed ground within and immediately adjacent to the Area of Potential Effect (APE) was conducted.

Although all available areas, both within and immediately adjacent to the project's alternatives, were subjected to a systematic cultural resources survey, only 13 (10 historic, 2 prehistoric/historic, and 1 prehistoric isolated find) archaeological resources were recorded during the investigations. Archaeological investigations undertaken by the NCDOT at these 13 sites failed to locate any cultural features, intact artifact bearing strata, or any spatially discrete artifact concentrations. Hence, no further archaeological investigations of the study area are warranted or recommended.

D. Community Impact Assessment Report

1. List Of Potential Impacts

- Generally positive impacts on economic development potential; some negative impacts to primarily smaller businesses.
- Positive impacts on local and regional development goals and plans.
- Moderate to severely substantial relocation impacts, depending on the alternate route. The preferred alternative has the fewest relocatees.
- Neutral to positive impacts on community stability with Alternatives 1 (preferred), 3 and 4; negative impacts with Alternative 2.
- Generally positive impacts on neighborhood cohesion with Alternatives 1 (preferred) and 4; negative impacts with Alternatives 2 and 3.
- Potential positive impacts on tax base over the life of this project.
- Potential positive impacts on employment opportunities over the life of this project.
- Environmental Justice concerns do not appear to be an issue with Alternative 1 (preferred). Alternatives 3 and 4 need additional public input to fully assess Environmental Justice concerns, while Alternative 2 has serious Environmental Justice concerns.
- Secondary and cumulative impacts are anticipated to hasten and intensify growth within and near the corridor. Most of these impacts should be positive but there are some concerns about development impacts on natural resources.

2. Findings and Key Issues

The project is proposed for Washington and Tyrrell Counties in a region of North Carolina which has lost population during a period when the state as a whole has experienced rapid growth. Most of the traffic congesting US 64 is generated outside of the project area. The roadway is a major corridor linking Dare County and the Outer Banks with I-95 and the rest of the state. Local officials believe that an improved transportation system is an important component of their efforts to attract and retain industry, support the existing timber and agri-business industries, promote

tourism, and encourage second home and retiree-oriented development. More jobs and business opportunities are considered key to reversing the trend for out-migration by working age people.

The major issue stemming from direct project impacts is the number of potential relocations. Substantial numbers of relocations could increase the out-migration trend due to high and adverse impacts on community stability, neighborhood cohesion, and lost employment opportunities. Alternative 2 in particular has both the highest number of proposed relocations and a disproportionate impact on minority persons. Environmental Justice concerns also affect Alternatives 3 and 4 due to the potential for disproportionate impacts on low to moderate income persons, both through the number of relocations as well as the loss of certain services and institutions.

Alternatives 3 and 4 appear to require additional public input to determine whether Environmental Justice concerns are justified and what measures may be taken to reduce impacts. Relocation impacts from Alternative 3 also appear to require mitigation, as the number of relocatees is projected to exceed available housing. As for Alternative 2, with the highest number of relocations proposed disproportionately affecting minorities at twice the rate of the population, it appears that impact avoidance or minimization may be required in addition to mitigation. Without substantial changes to its total impacts, as well as its disproportionate minority impacts, Alternative 2 should be dropped from consideration.

Another concern are the potential impacts of Alternatives 3 and 4 on and around the town of Roper. Alternative 3 could impact a substantial amount of community fabric as so much existing development would be adversely affected by widening the existing roadway. Alternative 4's new corridor has some potential to impact a multi-purpose community center being developed by the town, county and regional community colleges. Avoidance of this facility and an adjacent proposed low income housing site is strongly suggested. Both Alternatives have the potential to create a barrier effect between the town and this facility. Accommodation of pedestrian and vehicular connections between town and facility should minimize any impacts.

A final direct impact, also with Environmental Justice concerns, is the potential for the five lane segment through the town of Columbia to create a barrier effect. This section may impact children crossing the roadway to reach schools as well as reduce access to the community core for predominantly minority neighborhoods located south of US 64. Local officials have suggested a grade separated pedestrian facility, which could present difficulties to disabled persons and require additional relocations within minority neighborhoods. A pedestrian-activated crosswalk signal with appropriate markings and ramped curb cuts is another possible mitigation measure.

As for secondary and cumulative impacts, development of a limited access roadway through most of the project area should, in conjunction with county and town water and sewer plans, encourage nodal development around interchanges and existing communities. Adoption of at least corridor zoning plans or similar development regulations could strengthen this development pattern.

At the same time, lack of county-wide zoning or development regulations coupled with a potential increase in second home/retiree development near the Albemarle Sound and other water bodies could push development into areas marginal or not suitable for such intensive use. This is primarily a local government issue, although state agencies such as the Divisions of Coastal Management and of Community Assistance should be encouraged to assist local governments in planning for and preventing such problems.

3. Community Profile

a. Geographic and Political Location. The project is located in Washington and Tyrrell Counties. Both counties are located in northeastern North Carolina coastal plain on the south side of the Albemarle Sound. Both counties are part of the Region R Albemarle Commission council of governments and are surrounded by Dare, Hyde, and Martin Counties.

b. Race, ethnicity and age. *Washington County*. According to the 1990 Census, the population of Washington County was 13,997. The Office of State Planning (OSPL) estimates that the 1997 population was 13,297. Between 1990 and 1997 Washington County declined by approximately 5%. The county experienced a 7.9% net out-migration rate during this period, resulting in a population loss even though births exceeded deaths. OSPL projects that Washington County will experience an even greater net loss of 8.2% of its population between 2000 and 2010.

TABLE 14
1990 Population by Race and Hispanic Origins (Washington Co.)

	Project Area		County		North Carolina	
	Number	%	Number	%	Number	%
Total Population - 1990	**7,200**	**100**	**13,997**	**100**	**6,628,637**	**100**
Hispanic	5		72		69,020	
White	**4,081**	**56.7**	**7,575**	**54.1**	**5,011,248**	**75.6**
Hispanic	0		9		33,967	
Black	**3,114**	**43.24**	**6,366**	**45.5**	**1,455,340**	**21.9**
Hispanic	0		7		5,962	
American Indian	**0**	**0**	**0**	**0**	**82,606**	**1.3**
Hispanic	0		0		1,083	
Asian/Pacific Islander	**0**	**0**	**0**	**0**	**50,395**	**0.8**
Hispanic	0		0		1,154	
Other	**5**	**0.06**	**56**	**0.4**	**29,048**	**0.4**
Hispanic	5		56		26,854	

OSPL estimates for 1997 are that 6,936 (52.16%) county residents are white and 6,361 (47.84%) are non-white. OSPL also estimates the 1990 county Hispanic population at 65 or 0.46%, lower than the statewide average of 1.16%. The 1990 median age for Washington County was 33.9 years, in comparison with the state average of 33.2 years.

TABLE 15
1990 Population by Age (Washington Co.)

	Project Area		County		North Carolina	
	Number	%	Number	%	Number	%
Total Population - 1990	**7,200**		**13,997**		**6,628,637**	
0 to 64	6,276	87.2	12,059	86.2	5,826,580	87.9
65 or above	924	12.8	1,938	13.8	802,057	12.1

Tyrrell County. According to the 1990 Census, the population of Tyrrell County was 3,856. The Office of State Planning (OSPL) estimates that the 1997 population was 3,672. Between 1990 and 1997 Tyrrell County declined by approximately 4.8%. The county experienced a 4.3% net out-migration rate during this period, plus deaths exceeded births. OSPL projects that Tyrrell County will experience an even greater net loss of 7.3% of its population between 2000 and 2010.

TABLE 16
1990 Population by Race and Hispanic Origins (Tyrrell Co.)

	Project Area		County		North Carolina	
	Number	%	Number	%	Number	%
Total Population – 1990	**3,856**	**100**	**3,856**	**100**	**6,628,637**	**100**
Hispanic	17		17		69,020	
White	**2,278**	**59.1**	**2,278**	**59.1**	**5,011,248**	**75.6**
Hispanic	0		0		33,967	
Black	**1,546**	**40.1**	**1,546**	**40.1**	**1,455,340**	**21.9**
Hispanic	0		0		5,962	
American Indian	**9**	**0.25**	**9**	**0.25**	**82,606**	**1.3**
Hispanic	0		0		1,083	
Asian/Pacific Islander	**6**	**0.15**	**6**	**0.15**	**50,395**	**0.8**
Hispanic	0		0		1,154	
Other	**17**	**0.4**	**17**	**0.4**	**29,048**	**0.4**
Hispanic	17		17		26,854	

OSPL estimates for 1997 are that 2,182 (59.42%) county residents are white and 1,470 (40.58%) are non-white. OSPL also estimates the 1990 county Hispanic population at 11 or 0.29%, lower than the statewide average of 1.16%. The 1990 median age for Tyrrell County was 35.4 years, in comparison with the state average of 33.2 years.

TABLE 17
1990 Population by Age (Tyrrell Co.)

	Project Area		County		North Carolina	
	Number	%	Number	%	Number	%
Total Population - 1990	**3,856**		**3,856**		**6,628,637**	
0 to 64	3,178	82.4	3,178	82.4	5,826,580	87.9
65 or above	678	17.6	678	17.6	802,057	12.1

c. Income, poverty status and unemployment. *Washington County*. The 1990 median household income for Washington County was $21,840 while the average household income was $27,040. Per capita income was $9,882. Washington County had 2,804 persons (20.4%) living below the poverty level, of whom 1,211 (8.8%) live at or below 50% of the poverty level.

TABLE 18

1990 Income measures and persons living below poverty level (Washington Co.)

	Project Area		County		North Carolina	
	Number	%	Number	%	Number	%
Median Household Income	$22,316	83.7	$21,840	81.9	$26,647	100
Average Household Income	$27,788	83.6	$27,040	81.3	$33,242	100
Per Capita Income	$9,810	74.9	$9,882	75.5	$13,093	100
Persons below poverty level - total	1,281	17.8	2,804	20.4	829,858	12.5
Persons below 50% of poverty level - total	517	7.2	1,211	8.8	332,966	5.0

According to the Employment Security Commission the county's unemployment rate as of July 1998 was 5.9%. This rate is higher than the state's 3.5% unemployment rate.

Tyrrell County. The 1990 median household income for Tyrrell County was $16,363 while the average household income was $19,926. Per capita income was $7,884. Tyrrell County had 964 persons (25%) living below the poverty level, of whom 421 (10.9%) live at or below 50% of the poverty level.

TABLE 19

1990 Income measures and persons living below poverty level (Tyrrell Co.)

	Project Area		County		North Carolina	
	Number	%	Number	%	Number	%
Median Household Income	$16,363	61.4	$16,363	61.4	$26,647	100
Average Household Income	$19,926	59.9	$19,926	59.9	$33,242	100
Per Capita Income	$7,884	60.2	$7,884	60.2	$13,093	100
Persons below poverty level - total	964	25	964	25	829,858	12.5
Persons below 50% of poverty level - total	421	10.9	421	10.9	332,966	5.0

According to the Employment Security Commission the county's unemployment rate as of July 1998 was 3.7%. This rate is higher than the state's 3.5% unemployment rate.

d. Business activity/employment centers. Business activities are generally adjacent to or in close proximity to US 64. Some clustering of business activities occurs within the towns of Roper, Creswell and Columbia, as well as at major crossroads. Businesses are often intermingled with residential uses in a linear development pattern along major roads. Some locally-oriented businesses, such as personal service establishments, operate out of residences.

Business activities within the project area are fairly limited in both number and size. Existing employment centers are within and around the three towns, plus various timber and agri-business operations.

e. Public facilities, schools and institutions. The Town of Roper has purchased a ±10 acre parcel with existing structure north of existing US 64 for redevelopment as a multi-purpose center. Plans are for both Martin and Beaufort Community Colleges to offer classes. The Town as indicated that a pedestrian linkage to this center is very important to them.

f. Existing/future land uses and present/future zoning.
Existing Land Uses. Existing land uses within the project area are typical of rural eastern North Carolina: low density residential uses mixed with occasional commercial uses developed in a linear pattern along major roads – particularly US 64 – and at major crossroads. Many retail and service establishments are located

within the three towns. Land uses outside of these towns and away from US 64 are generally large parcels held by timber companies, such as Georgia Pacific and Weyerhaeuser, and corporate hog farming operations. Existing land uses along most of the proposed new corridor Alternatives are agricultural, timberlands and woods.

Future Land Uses. Washington County anticipates attracting industrial development to the area. Both counties are emphasizing nature-based or eco-tourism in established communities and adjacent to natural resource areas, such as rivers and the Sound. Large scale agri-business and timber operations are expected to continue, particularly south of US 64. While both counties are losing population, most of the out-migration consists of people within the labor force demographic. Retirees of moderate means constitute a major portion of in-migration to the area, so residential development can be expected near the Albemarle Sound.

If this project is completed as a limited or controlled access roadway as proposed, linear development along new corridor sections would probably not occur. Commercial development and some industrial development can be expected at or near interchanges, primarily those near towns where water and sewer are available.

Zoning. Currently only towns have zoning, which includes their 1 mile Extraterritorial Planning Jurisdiction (ETJ). While neither county is expected to adopt county-wide zoning in the near future, corridor-specific zoning is a strong possibility.

g. Local/regional land use and/or development plans.
Washington County. The Strategic Plan process is underway and is anticipated to be completed in January 1999. The Land Use Plan should be completed during the spring of 1999. The county-wide Water and Sewer Plan is being implemented, with the county system expected to be independent of town systems by 2000.

Tyrrell County. It was noted that the County's CAMA Land Use Plan prohibits any additional out-of-county mitigation banking without the County's permission. While the county believes that a few small industries may located there because of transportation improvements, most emphasis is being placed on farming, forestry, retirees and nature-based or eco-tourism. In Columbia a new heritage museum recently opened and the Walter B. Jones Center for the Sound visitors center is in the design phase.

4. Project Impact Assessment

a. Economic development. Washington County officials believe that improved transportation will assist them with economic development recruiting. County officials noted that 3 or 4 new industries are expected to locate in Washington County in anticipation of the US 64 project. A few small industries may located in Tyrrell County but here more emphasis is being placed on tourism.

While a divided four lane road will not greatly enhance opportunities for the timber and farming industries, road use conflicts between large trucks and private automobiles will be reduced. A number of Washington and Tyrrell residents commute to work in other counties so a higher speed, limited access road should shorten commuting times for many people.

Initially, existing gas, convenience and other businesses oriented to tourists and through traffic may be expected to relocate to interchange locations. Businesses less tourist-oriented would probably locate in or near towns where water and sewer service is available. Through the Partnership for the Sound Washington and Tyrrell Counties are part of a regional effort to build off-season tourism as well as increase nature-based or eco-tourism within the region. If such efforts are successful, additional service-oriented businesses can be expected to develop. Until these inland areas develop their own tourism niche, most tourist-oriented businesses will remain seasonal in nature.

The area is attracting a growing number of "retirees of moderate means," as one state official put it. The "inner banks" so far are attracting retired persons who cannot afford homes on the Outer Banks or who are seeking a more rural or small town atmosphere. At present, there are few businesses which service or cater to this segment of the population, although county officials anticipate this will change. Tyrrell County officials believe that improved transportation will make the area more attractive for retirees. Reduced travel time to the Edenton hospital and other medical care is considered very important for the growing retirement community. It is believed that routing a new US 64 corridor well to the south of the existing corridor would encourage second home and retiree housing near the Albemarle Sound area, as traffic (particularly truck traffic) on existing US 64 would be reduced.

Officials in both counties stated that their local business communities strongly support this project, although they are aware that some small businesses may be negatively impacted.

b. Regional development goals and plans. *Washington County*. In general, county plans are for industrial and housing development to predominate north of US 64, with agriculture and forestry remaining dominant to the south. This project appears to be consistent with these plans and should positively impact their implementation. Alternatives 3 and 4 both had the potential to disrupt Town of Roper proposals for the multi-use center north of town, as well as housing authority development of affordable housing nearby.

Tyrrell County. In general, county plans are for housing and tourism development to predominate north of US 64 and adjacent to rivers and other natural features. Forestry and agriculture should remain dominant to the south. This project appears to be consistent with these plans and should positively impact their implementation. Due consideration must be given within the Town of Columbia to prevent the project from dividing the community.

c. Business, institutional and residential relocations and impacts. Substantial differences in potential impacts exist between the alternatives. Alternative 1 (recommended) has the lowest number of relocations with 40 residences and 11 businesses. Alternative 2 proposes the highest number of potential relocations with 234 residences and 30 businesses. The 1990 census found 6,596 households within these two counties. Thus, projecting that the number of households declined in proportion with the population loss down to 6,269 households, relocations could affect 0.7% to 3.7% of the total households of these two counties.

Relocation impacts will be minimized to the extent possible. Based on potential relocation impacts, Alternative 1 is preferred. Alternative 2 appears to present excessive relocation impacts.

Officials in both counties believe the net out-migration of working age households has slowed or stopped in recent years. However, it is possible that a massive dislocation of households, as would be required with Alternatives 2 and 3, could increase the out-migration trend. It is possible that a number of households where one or more adults is employed outside of the project counties may chose to relocate closer to work. In addition, owners of difficult-to-sell residential properties fronting US 64 may also chose to relocate outside of Washington or Tyrrell Counties once no longer tied to their homes or property.

These are not high growth areas and much new development is oriented towards retiree and second home markets. In addition, much of the undeveloped lands are marginal or inappropriate for development. County water and sewer systems are at present only partially complete. Town systems appear to have sufficient excess capacity to add users, and the Town of Roper in particular expressed an interest in creating a small (30-40 unit) subdivision.

Relocation impacts may be mitigated by coordinating local, state and private efforts to make housing and developable lands available, preferably within areas served by water and sewer systems.

All property acquisitions are subject to the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended. This Act provides for uniform and equitable treatment of persons displaced from their homes, businesses, non-profit associations, or farms by Federal and federally-assisted programs, and establishes uniform and equitable land acquisition policies.

Relocation assistance payments and counseling will be provided to persons and businesses in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act, as Amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. All eligible relocatees will be entitled to moving expenses. All benefits and services will be provided equitably to all residential and business relocatees without regard to race, color, religion, age,

national origins and disability as specified under Title VI of the Civil Rights Act of 1964.

When relocation is necessary, it is the policy of NCDOT to ensure that comparable replacement housing will be available prior to construction of state and federally-assisted projects. Furthermore, the North Carolina Board of Transportation has the following three programs to minimize the inconvenience of relocation.

* *Relocation Assistance,*
* *Relocation Moving Payments, and*
* *Relocation Replacement Housing Payments or Rent Supplement.*

These regulations and programs help ensure that property owners are compensated fairly for the loss of value of their property.

TABLE 20
ESTIMATED NUMBER OF RELOCATIONS

Relocation Type	*Recommended Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4*
Residential	40	234	161	85
Business	11	30	27	13
Total	51	264	188	98

Alternative 1 has an advantage given its number of relocatees is substantially less than the other alternatives.

d. Community stability and neighborhood cohesion. From a commercial standpoint, the project may result in some businesses closing, others relocating closer to the new road, and new businesses moving in. As a rule, bypasses of small towns tend to result in the relocation of high traffic volume business to the new corridor, while other, more locally-oriented businesses often remain within town. The recommended alignment (Alternative 1) will probably result in some business relocation outside of Roper, as the interchange is proposed about a mile southeast of town. Alternatives 3 and 4 would also result in probable relocations if the interchange was north of town, but these businesses would remain closer to and more accessible from the town core area.

Alternatives 1, 3 and 4 are anticipated to have overall a neutral to positive impact on community stability due to the reduction or elimination of conflicts between high through traffic volumes and local access, although the relative value of the positive impacts must be weighed against the varying number of relocations. Alternative 2 is anticipated to have a negative impact on community stability due to

the high numbers of relocations and continuation of through traffic versus local traffic conflicts.

A number of residences front US 64. From a residential standpoint, the project should generally increase neighborhood cohesion where portions of existing US 64 would stop carrying high volumes of through traffic. Outside of Columbia, none of the Alternatives bisect or otherwise divide existing neighborhoods or communities.

A five lane road can act as a barrier between neighborhoods. Within Columbia children must cross the road to reach schools on both sides. At present, the county does not provide law enforcement personnel to assist children at school crossings during school hours. In addition, the neighborhoods south of the road may have difficulty accessing the commercial area to the north. The western area can use the river boardwalk while those in the central area can use the one proposed traffic signal. The eastern end of these southern neighborhoods has the highest potential to be "cut off" from the rest of town.

County officials suggested a grade separated pedestrian crossing. Due in large part to ADA and other accessibility concerns an at-grade mitigation measure may be preferable, such as a pedestrian-activated crossing light. Any such measure should be coordinated with the county and school officials as, especially with elementary students, some sort of crosswalk staff would be advisable during school hours.

Alternatives 1 and 4 should have generally positive impacts on neighborhood cohesion. Alternatives 2 and 3 would have generally negative impacts on cohesion, due to the large numbers of relocations. Further, Alternative 2 would not substantially decrease conflicts between through and local traffic. Within Columbia, pedestrian access issues must be addressed to avoid a barrier effect that would negatively impact the connections between neighborhoods north and south of US 64, including connections to schools and the community core.

e. Tax base changes, changes in employment. If most of the relocated businesses rebuild or find other properties within the project area, both counties should experience a temporary and relatively small reduction in tax revenues. As many businesses are anticipated to relocate within areas with water and sewer service and within proximity of interchanges, most towns should remain stable or see an increase in their tax base. If a number of businesses relocate outside of the project counties, the area could experience a moderate to substantial tax base loss. Local government officials do not believe this will occur. Local opinion is that the project will draw more business and industrial development than might be lost.

Residential development often represents a net property tax loss to local governments. However, both of these counties are rural to small town in character, and provide fewer services than would more urbanized counties. Due to the limited

tax base, particularly in Tyrrell County, minimizing the number of residential relocations may help limit tax base losses. Again, local officials believe the project will enhance the local tax bases.

The project may result in the temporary loss of employment to employees and owner-operators of businesses to be relocated. Business closures and relocation outside of the project counties may result in some permanent job losses. While potential loss of employment opportunities is serious anywhere, it is of particular concern within an area with high numbers of low income residents, out-migration patterns and a low number of local jobs. However, local officials are convinced that the project, combined with their efforts to recruit industry and expand the tourism season, will result in a net gain in employment opportunities.

f. Title VI and Environmental justice. [*see Environmental Justice Analysis map, Figure 5 , Appendix A*] *Title VI of the Civil Rights Act of 1964, and related statutes, requires there be no discrimination in Federally-assisted programs on the basis of race, color, national origin, age, sex, or disability. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," provides that "each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects*[1] *of its programs, policies, and activities on minority populations and low-income populations." The Executive Order makes clear that its provisions apply fully to American Indian populations and Indian tribes. Environmental justice refers to the equitable treatment of people of all races, cultures, and income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.*

Much of the population of each county lives within relatively close proximity to US 64. Almost half of this population is non-white and most of the population could be considered low to moderate income. Neither Washington nor Tyrrell Counties are as ethnically diverse as the overall state, but both counties have much higher non-white populations than the state average. In 1990 about 1/5th of Washington's and 1/4th of Tyrrell's total populations were below the poverty level. Tyrrell County's elderly population was substantially higher than the state average in 1990. Due to the growing number of retirees it is highly probable that both counties now have

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[1] **Adverse effects** means significant cumulative human health or environmental effects, including social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; vibration; destruction or diminution of aesthetic values; destruction or disruption of man-made or natural resources, of community cohesion or a community's economic vitality, or of the availability of public and private facilities and services; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion; isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of DOT programs, policies, or activities.

Disproportionately high adverse effect on minority and low-income populations means an adverse effect that: (1) is predominately borne by a minority population and/or a low-income population, or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population [*adapted from the Final DOT Order on environmental justice*].

large and growing numbers of elderly households. However, it appears that many of these recent, older residents live outside of the area of immediate impacts.

Alternatives will be assessed individually for Environmental Justice concerns. The primary basis for this assessment in this case will be relocations – residential, businesses, churches and non-profits. Because of the small populations and limited business climate, relocations proposed for this project can have substantial impacts on community stability, neighborhood cohesion, employment opportunities and other factors. In addition, because up to 1/3rd of all households and ½ of businesses proposed for relocation are renters, the project counties' relatively small stock of available rental units may be inadequate. The information used for this assessment is from the July 18, 1997 relocation reports.

Alternative 1 (Preferred). Proposed relocations include 43 households, 16 businesses and 3 churches. Of the 43 residential households, 20 (46%) are non-white, 21 (49%) are low to moderate income and 11 (26%) are renters. These numbers are generally consistent with the demographics and economics of the project area. In addition, both a private daycare and Tyrrell County Head Start are proposed for relocation. Even temporary loss of these facilities could result in serious hardship on some families. Projected impacts due to Alternative 1 are believed to be moderately negative, while the effects of project impacts do not appear to fall disproportionately on minorities or low/moderate income persons.

Assessment of Alternative 1 indicates that this project should not result in disproportionately high and adverse impacts on minority or low income populations.

Alternative 2. Proposed relocations include 237 households, 25 businesses and 5 churches. Of the 237 residential households, 212 (89%) are non-white, 102 (43%) are low to moderate income, and 67 (28%) are renters. These numbers are generally consistent with the economics of the project area but impact minorities at almost twice their proportion within the area population. The number of relocatees is expected to exceed available housing. This Alternative may impact several cemeteries containing a cumulative total of up to 300 graves. Projected impacts due to Alternative 2 are believed to be substantially and severely negative, and the effects of project impacts do appear to fall disproportionately on minorities.

Assessment of Alternative 2 indicates that this project will result in disproportionately high and adverse impacts on minority or low income populations.

Alternative 3. Proposed relocations include 161 households, 22 businesses and 5 churches. Of the 161 residential households, 80 (50%) are non-white, 66 (41%) are low to moderate income, and 46 (29%) are renters. These numbers are generally consistent with the demographics and economics of the project area. The number of relocatees is expected to exceed available housing. In addition, both a private

daycare and Tyrrell County Head Start are proposed for relocation. Even temporary loss of these facilities could result in serious hardship on some families. Projected impacts due to Alternative 3 are believed to be substantially negative, although the effects of project impacts do not appear to fall disproportionately on minorities or low/moderate income persons.

Assessment of Alternative 3 indicates that this project should not result in disproportionate impacts on minority or low income populations. However, impacts are believed to be high and adverse.

Alternative 4. Proposed relocations include 85 households, 10 businesses and 3 churches. Of the 85 residential households, 45 (53%) are non-white, 43 (51%) are low to moderate income and 11 (33%) are renters. These numbers are higher than average but not inconsistent with the demographics and economics of the project area. In addition, both a private daycare and Tyrrell County Head Start are proposed for relocation. Even temporary loss of these facilities could result in serious hardship on some families. Projected impacts due to Alternative 4 are believed to be moderately to substantially negative, while the effects of project impacts do not appear to fall disproportionately on minorities or low/moderate income persons.

Assessment of Alternative 4 indicates that this project should not result in disproportionate impacts on minority or low income populations. However, some impacts are believed to be potentially high and adverse.

This assessment has not found any evidence or indication of discrimination on the basis of race, color, national origin, age, sex, or disability. This project is being implemented in accordance with Executive Order 12898.

g. Secondary/cumulative impacts. *One unintended consequence of roadway improvements can be - depending upon local land development regulations, development demand, water/sewer availability, and other factors - encouragement of additional development and sprawl[2]. Improvements to levels of service, better accommodation of merging and exiting traffic, and reductions in travel times can have land development impacts outside of the project area.*

The potential for urban or suburban sprawl in the project counties is unlikely due to the small populations, limited business climate and distance from large population centers. Existing US 64, with uncontrolled access permitting a linear development pattern in close proximity to the road, is an example of rural sprawl. Where access is controlled, this development pattern is not expected to redevelop.

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[2] Some common traits of sprawl are 1. unlimited outward expansion and leapfrog development; 2. low-density residential and commercial settlements; 3. widespread strip commercial development; 4. large areas of homogeneous land uses and 5. poor accessibility of related land uses such as housing, jobs, and services like schools and health care.

Washington County is developing a water and sewer system for the US 64 corridor and areas to the north. Several project area towns have water and sewer systems in place. Between the somewhat localized availability of utilities and the controlled access design with limited interchanges proposed for much of this project, future development should concentrate near existing towns and proposed interchange intersections. Potential concentration of development in this manner should help preserve lands suited for agriculture, timber and natural areas. It should also help existing communities efficiently provide services while developing a "critical mass" of business activities for both residents and tourists.

At the same time, many of the retirees moving into the area are more likely to be attracted to living near natural amenities, primarily the Sound and other water bodies. There is some future potential for retirement/second home communities to be developed around golf courses. The project, with the exception of Alternative 2, should enhance the development potential for areas near the Albemarle Sound, along major rivers and other areas north of the existing roadway due to reductions in through and truck traffic. All of the Alternatives would reduce travel times to medical care in Edenton, which should also encourage the relocation of retirees. Improved transportation into the region from the Triangle, Triad and other major metropolitan areas could encourage and support nature-based or eco-tourism business activities. Improved access from the Outer Banks could encourage tourists to daytrip to the "inner banks" for activities ranging from eco-tourism canoe trips to fishing to golf outings. Reduced travel times to out-of-county employment could encourage a few people to relocate to the project counties; however, the greatest impact from improved commuting is expected to be retention of existing residents rather than in-migration of new workers. The potential for housing seasonal workers for the Outer Banks is unknown and would primarily occur outside of the project area in eastern Tyrrell County.

Industrial development, which is expected to be relatively small scale operations, also has a greater potential for retaining existing residents rather than encouraging in-migration. While transportation improvements would benefit timber and agri-business operations by reducing travel times and conflicts with other vehicles, it is doubtful that this would result in substantial investment in new or expanded facilities.

While both Washington and Tyrrell Counties have CAMA land use plans, neither county at present has zoning or other development and use standards. Washington County may adopt corridor zoning along US 64 at some point in the future. At this time, neither jurisdiction exercises any control or guidance over land uses.

The project is expected to hasten growth and to intensify development within the corridor, near interchanges and in areas between the roadway and Sound. The terms "hasten" and "intensify" must be considered in the context of local conditions. Both project counties have experienced negative net growth since 1990. The Office

of State Planning projects this negative trend to continue, although local officials believe it has stopped or been reversed. For the most part, the project is anticipated to promote growth to an extent which may halt net population loss or result in a small gain. Intensification of growth in and around towns and interchanges means hundreds of houses and dozens of businesses over a period of years – an amount of development that within a metropolitan area would be considered to have "no impact on growth." Most of the secondary and cumulative impacts of the project are expected to be positive.

The negative secondary and cumulative impacts from the project have to do with potential development impacts on natural resources. Much of the suitable, easily developable lands are either already developed or are unavailable for development. New development could occur on marginal lands or in areas environmentally unsuitable for some types of development. In addition, most retiree/second home development is expected to occur north of US 64 near the Sound. This area contains most of the prime farmlands for the area, some low lying areas may be subject to flooding or tidal surges during storms and hurricanes, while drainage, siltation and groundwater impacts from developed areas could potentially affect the Sound. Whether any of this occurs is a shared responsibility between local governments and the Division of Coastal Management.

E. Air Quality

Air pollution originates from various sources. Emissions from industrial and internal combustion engines are the most prevalent sources. Other origins of common outdoor air pollution are solid waste disposal and any form of fire. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air conditions. The traffic is the center of concern when determining the impact of a new highway facility or the improvement of an old highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter, sulfur dioxide (SO2), and lead (Pb) (listed in order of decreasing emission rate). Automobiles are considered to be the major source of CO in the project area. For this reason, most of the analysis presented is concerned with determining expected carbon monoxide levels in the vicinity of the project due to traffic flow.

In order to determine the ambient CO concentration for the receptor closest to the highway project, two concentration components must be used: local and background. The local concentration is defined as the CO emissions from cars operating on highways in the near vicinity (i.e., distances within 100 meters) of the receptor location. The background concentration is defined by the North Carolina Department of Environment, Health and Natural Resources as "the concentration of a pollutant at a point that is the result of emissions outside the local vicinity; that is, the concentration at the upwind edge of the local sources."

In this study, the local concentration was determined by the NCDOT Traffic Noise/Air Quality Staff using line source computer modeling and the background concentration was obtained from the North Carolina Department of Environment, Health and Natural Resources (NCDEHNR). Once the two concentration components were resolved, they were added together to determine the ambient CO concentration for the receptor in question and to compare to the National Ambient Air Quality Standards (NAAQS).

Automobiles are regarded as sources of hydrocarbons and nitrogen oxides. Hydrocarbons and nitrogen oxides emitted from cars are carried into the atmosphere where they react with sunlight to form ozone and nitrogen dioxide. Automotive emissions of HC and NO are expected to decrease in the future due to the continued installation and maintenance of pollution control devices on new cars. However, regarding area-wide emissions, these technological improvements maybe offset by the increasing number of cars on the transportation facilities of the area.

The photochemical reactions that form ozone and nitrogen dioxide require several hours to occur. For this reason, the peak levels of ozone generally occur 10 to 20 kilometers downwind of the source of hydrocarbon emissions. Urban areas as a whole are regarded as sources of hydrocarbons, not individual streets and highways. The emissions of all sources in an urban area mix together in the atmosphere, and in the presence of sunlight, the mixture reacts to form ozone, nitrogen dioxide, and other photochemical oxidants. The best example of this type of air pollution is the smog which forms in Los Angeles, California.

Automobiles are not regarded as significant sources of particulate matter and sulfur dioxide. Nationwide, highway sources account for less than 7 percent of particulate matter emissions and less than 2 percent of sulfur dioxide emissions. Particulate matter and sulfur dioxide emissions are predominantly the result of non-highway sources (e.g., industrial, commercial, and agricultural). Because emissions of particulate matter and sulfur dioxide from automobiles are very low, there is no reason to suspect that traffic on the project will cause air quality standards for particulate matter and sulfur dioxide to be exceeded.

Automobiles without catalytic converters can burn regular gasoline. The burning of regular gasoline emits lead as a result of regular gasoline containing tetraethyl lead which is added by refineries to increase the octane rating of the fuel. Newer cars with catalytic converters burn unleaded gasoline eliminating lead emissions. Also, the United States Environmental Protection Agency (EPA) has required the reduction in the lead content of leaded gasolines. The overall average lead content of gasoline in 1974 was 0.53 grams/liter. By 1989, this composite average had dropped to 0.003 grams/liter. In the future, lead emissions are expected to decrease as more cars use unleaded fuels and as the lead content of leaded gasoline is reduced. The Clean Air Act Amendments of 1990 make the sale, supply, or transport of leaded gasoline or lead additives unlawful after December 31,

1995. Because of these reasons, it is not expected that traffic on the proposed project will cause the NAAQS for lead to be exceeded.

A microscale air quality analysis was performed to determine future CO concentrations resulting from the proposed highway improvements. "CAL3QHC - A Modeling Methodology For Predicting Pollutant Concentrations Near Roadway Intersections" was used to predict the CO concentration at the nearest sensitive receptor to the project.

Inputs into the mathematical model to estimate hourly CO concentrations consisted of a level roadway under normal conditions with predicted traffic volumes, vehicle emission factors, and worst-case meteorological parameters. The traffic volumes are based on the annual average daily traffic projections. The traffic volume used for the CAL3QHC model was the highest volume within the project limits. Carbon monoxide vehicle emission factors were calculated for the year of 2000 and the design year of 2020 using the EPA publication "Mobile Source Emission Factors" and the MOBILE5A mobile source emissions computer model.

The background CO concentration for the project area was estimated to be 1.8 parts per million (ppm). Consultation with the Air Quality Section, Division of Environmental Management, North Carolina Department of Environment, Health, and Natural Resources indicated that an ambient CO concentration of 1.8 ppm is suitable for most suburban/rural areas.

The worst-case air quality receptor was determined to be the right-of-way line, at a distance of 90' from the proposed centerline of the project. The "build" and "no build" 1-hour CO concentrations for the nearest sensitive receptor for the years of 2000 and 2020 are shown in the following table.

TABLE 21
One Hour Carbon Monoxide Concentrations (ppm)

Nearest Sensitive Receptor	Build Alternatives		No Build Alternatives	
Right of Way Line	Year 2000	Year 2020	Year 2000	Year 2020
	2.0	2.5	2.0	2.8

Comparison of the predicted CO concentrations with the NAAQS (maximum permitted for 1-hour averaging period = 35 ppm; 8-hour averaging period = 9 ppm) indicates no violation of these standards. Since the results of the worst-case 1-hour CO analysis is less than 9 ppm, it can be concluded that the 8-hour CO level does not exceed the standard. See Tables A1 through A4 for input data and output.

The project is located in Washington and Tyrrell Counties which have been determined to be in compliance with the National Ambient Air Quality Standards. 40

CFR part 51 is not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

During construction of the proposed project, all materials resulting from clearing and grubbing, demolition or other operations will be removed from the project, burned or otherwise disposed of by the contractor. Any burning will be done in accordance with applicable local laws and ordinances and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. Care will be taken to insure that burning will be done at the greatest practical distance from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Burning will only be utilized under constant surveillance. Also during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process, and no additional reports are necessary.

F. Highway Traffic Noise/Construction Noise Analysis

This analysis was performed to determine the effect of the proposed widening and relocation of US 64 in Washington and Tyrrell Counties on noise levels in the immediate project area. This investigation includes an inventory of existing noise sensitive land uses and a field survey of ambient (existing) noise levels in the study area. It also includes a comparison of the predicted noise levels and the ambient noise levels to determine if traffic noise impacts can be expected resulting from the proposed project. Traffic noise impacts are determined from the current procedures for the abatement of highway traffic noise and construction noise, appearing as Part 772 of Title 23 of the Code of Federal Regulations. If traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures for reducing or eliminating the noise impacts must be considered.

1. Characteristics of Noise

Noise is basically defined as unwanted sound. It is emitted from many sources including airplanes, factories, railroads, power generation plants, and highway vehicles. Highway noise, or traffic noise, is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction.

The magnitude of noise is usually described by its sound pressure. Since the range of sound pressure varies greatly, a logarithmic scale is used to relate sound pressures to some common reference level, usually the decibel (dB). Sound pressures described in decibels are called sound pressure levels and are often defined in terms of frequency weighted scales (A, B, C, or D).

The weighted-A decibel scale is used almost exclusively in vehicle noise measurements because it places the most emphasis on the frequency range to which the human ear is most sensitive (1,000-6,000 Hertz). Sound levels measured using a weighted-A decibel scale are often expressed as dBA. Throughout this report, all noise levels will be expressed in dBA's. Several examples of noise pressure levels in dBA are listed in Table N1.

Review of Table N1 indicates that most individuals in urbanized areas are exposed to fairly high noise levels from many sources as they go about their daily activities. The degree of disturbance or annoyance of unwanted sound depends essentially on three things: 1) the amount and nature of the intruding noise, 2) the relationship between the background noise and the intruding noise, and 3) The type of activity occurring where the noise is heard.

Over time, particularly if the noises occur at predicted intervals and are expected, individuals tend to accept the noises which intrude into their lives. Attempts have been made to regulate many of these types of noises including airplane noise, factory noise, railroad noise, and highway traffic noise. In relation to highway traffic noise, methods of analysis and control have developed rapidly over the past few years.

2. Noise Abatement Criteria

In order to determine whether highway noise levels are or are not compatible with various land uses, the Federal Highway Administration (FHWA) has developed noise abatement criteria (NAC) and procedures to be used in the planning and design of highways. These abatement criteria and procedures are set forth in the aforementioned Federal reference (Title 23 CFR Part 772). A summary of the noise abatement criteria for various land uses is presented in Table N2. The Leq, or equivalent sound level, is the level of constant sound which, in a given situation and time period, has the same energy as does time varying sound. In other words, the fluctuating sound levels of traffic noise are represented in terms of a steady noise level with the same energy content.

3. Ambient Noise Levels

Ambient noise measurements were taken in the vicinity of the project to determine the existing background noise levels. The purpose of this noise level information was to quantify the existing acoustic environment and to provide a base for assessing the impact of noise level increases. The existing Leq noise level along US 64 as measured at 50 feet from the roadway ranged from 61.7 to 67.7 dBA. The ambient measurement sites are presented in Figure N1 and Table N3.

The existing roadway and traffic conditions were used with the most current traffic noise prediction model in order to calculate existing noise levels for comparison with noise levels actually measured. The calculated existing noise levels were within 0.6 to 5.8 dBA of the measured noise levels for the locations where noise measurements were obtained. Differences in dBA levels can be attributed to "bunching" of vehicles(especially heavy

trucks), low traffic volumes, and actual vehicle speeds versus the computer's "evenly-spaced" vehicles and single vehicular speed.

4. Procedure For Predicting Future Noise Levels

In general, the traffic situation is composed of a large number of variables which describe different cars driving at different speeds through a continual changing highway configuration and surrounding terrain. Due to the complexity of the problem, certain assumptions and simplifications must be made to predict highway traffic noise.

The procedure used to predict future noise levels in this study was the Noise Barrier Cost Reduction Procedure, STAMINA 2.0 and OPTIMA (revised March, 1983). The BCR (Barrier Cost Reduction) procedure is based upon the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108). The BCR traffic noise prediction model uses the number and type of vehicles on the planned roadway, their speeds, the physical characteristics of the road (curves, hills, depressed, elevated, etc.), receptor location and height, and, if applicable, barrier type, barrier ground elevation, and barrier top elevation.

In this regard, it is to be noted that only preliminary alignment was available for use in this noise analysis. The project proposes 4 build alternatives. Alternative 1 is to construct a freeway on new location, from the beginning of the project to northeast of the Scuppernong community. From this point to SR 1110 (Tyrrell County), a freeway section is to be built primarily in the existing US 64 corridor, using existing US 64 as a service road. From SR 1110 to the Scuppernong River, construct a multi-lane undivided highway. At the Scuppernong River, build a new structure. From the east side of the river to SR 1235 in Columbia, construct a multi-lane undivided highway. Alternative 2 consists of constructing an expressway on existing location for the entire length of the project. Alternative 3 consists of constructing an expressway on existing location from the beginning of the project through the town of Roper only; then connect this expressway with the freeway section of Alternative 1 in the vicinity of the Weyerhauser property. Alternative 4 consists of constructing a freeway on new location (north of and roughly parallel to existing US 64) from the beginning of the project through the town of Roper, to just west of SR 1132; then construct a freeway connector (south and roughly parallel to SR 1132 (Black Woods Road) to meet the freeway section of Alternative 1. Only those existing natural or man-made barriers were included in setting up the model. The roadway sections and proposed intersections were assumed to be flat and at-grade. Thus, this analysis represents the "worst-case" topographical conditions. The noise predictions made in this report are highway-related noise predictions for the traffic conditions during the year being analyzed.

Peak hour design and level-of-service (LOS) C volumes were compared, and the volumes resulting in the noisiest conditions were used with the proposed posted speed limits. Hence, during all other time periods, the noise levels will be no greater than those indicated in this report.

The STAMINA 2.0 computer model was utilized in order to determine the number of land uses (by type) which would be impacted during the peak hour of the design year 2020.

A land use is considered to be impacted when exposed to noise levels approaching or exceeding the FHWA noise abatement criteria and/or predicted to sustain a substantial noise increase. The basic approach was to select receptor locations such as 25, 50, 100, 200, 400, 800, and 1600 feet from the center of the near traffic lane (adaptable to both sides of the roadway). The locations of these receptors were determined by the changes in projected traffic volumes and/or the posted speed limits along the proposed project. The result of this procedure was a grid of receptor points along the project. Using this grid, noise levels were calculated for each identified receptor.

The Leq traffic noise exposures associated with this project are listed in Table N4.1 (Alternative 1), N4.2 (Alternative 2), N4.3 (Alternative 3), and N4.4 (Alternative 4). Information included in these tables consists of listings of all receptors in close proximity to the project, their ambient and predicted noise levels, and the estimated noise level increase for each.

The maximum number of receptors in each activity category that are predicted to become impacted by future traffic noise is shown in Table N5.1, N5.2, N5.3, and N5.4. These are noted in terms of those receptors expected to experience traffic noise impacts by approaching or exceeding the FHWA NAC or by a substantial increase in exterior noise levels. Under Title 23 CFR Part 772, in Alternative 1, 7 commercial and 65 residential receptors; in Alternative 2, 15 commercial and 216 residential receptors; in Alternative 3, 8 commercial and 111 residential receptors; in Alternative 4, 8 commercial and 123 residential receptors were determined to be impacted due to highway traffic noise. Other information included in Tables N5.1, N5.2, N5.3 and N5.4 is the 72 and 67 dBA noise level contours. The maximum extent of the 72 and 67 dBA noise level contours are 111 and 192 meters, respectively, from the center of the proposed roadway. This information should assist local authorities in exercising land use control over the remaining undeveloped lands adjacent to the roadway within local jurisdiction. For example, with the proper information on noise, the local authorities can prevent further development of incompatible activities and land uses with the predicted noise levels of an adjacent highway.

Tables N6.1, N6.2, N6.3 and N6.4 indicate the exterior traffic noise level increases for the identified receptors in each roadway section. Predicted noise level increases for this project range from 0 to +21 for Alternatives 1, 2, 3, and 4 . When real- life noises are heard, it is possible to barely detect noise level changes of 2-3 dBA. A 5 dBA change is more readily noticeable. A 10 dBA change is judged by most people as a doubling or a halving of the loudness of the sound.

5. Traffic Noise Impact Analysis

Traffic noise impacts occur when the predicted traffic noise levels either: [a] approach or exceed the FHWA noise abatement criteria (with "approach" meaning within 1 dBA of the Table N2 value), or [b] substantially exceed the existing noise levels. The NCDOT definition of substantial increase is shown in the lower portion of Table N2. Consideration for noise abatement measures must be given to receptors which fall in either category.

In accordance with NCDOT Traffic Noise Abatement Policy, the Federal/State governments are no longer responsible for providing noise abatement measures for new development which building permits are issued within the noise impact area of a proposed highway after the Date of Public Knowledge. The Date of Public Knowledge of the location of a proposed highway project will be the approval date of CEs, FONSIs, RODs, or the Design Public Hearing, whichever comes later. For development occurring after this public knowledge date, local governing bodies are responsible to insure that noise compatible designs are utilized along the proposed facility.

Highway Alignment

Highway alignment selection involves the horizontal or vertical orientation of the proposed improvements in such a way as to minimize impacts and costs. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. For noise abatement, horizontal alignment selection is primarily a matter of siting the roadway at a sufficient distance from noise sensitive areas. Changing the highway alignment is not a viable alternative for noise abatement for this project.

Traffic System Management Measures

Traffic management measures which limit vehicle type, speed, volume and time of operations are often effective noise abatement measures. For this project, traffic management measures are not considered appropriate for noise abatement due to their effect on the capacity and level-of-service on the proposed roadway.

Noise Barriers

Physical measures to abate anticipated traffic noise levels can often be applied with a measurable degree of success by the application of solid mass, attenuable measures to effectively diffract, absorb, and reflect highway traffic noise emissions. Solid mass, attenuable measures may include earth berms or artificial abatement walls.

The project will maintain no control of access along Alternative 2, meaning most commercial establishments and residences will have direct access connections to the proposed roadway, and all intersections will adjoin the project at grade. Alternatives 1, 3, and 4 will have the control of access feature for the majority of their lengths that will allow placement of noise barriers. However, the service roads that front the freeway sections in most areas contributed to the overall noise levels of the receptors; thus, making noise mitigation unreasonable. No concentrated areas of receptors were identified that would make noise abatement reasonable, based on benefits versus cost.

For a noise barrier to provide sufficient noise reduction it must be high enough and long enough to shield the receptor from significant sections of the highway. Access openings in the barrier severely reduce the noise reduction provided by the barrier. It then becomes economically unreasonable to construct a barrier for a small noise reduction.

Safety at access openings (driveways, crossing streets, etc.) due to restricted sight distance is also a concern. Furthermore, to provide a sufficient reduction, a barrier's length would normally be 8 times the distance from the barrier to the receptor. For example, a receptor located 50 feet from the barrier would normally require a barrier 400 feet long. An access opening of 40 feet (10 percent of the area) would limit its noise reduction to about 4 dBA (FUNDAMENTAL AND ABATEMENT OF HIGHWAY TRAFFIC NOISE, Report No. FHWA-HHI-HEV-73-7976-1, USDOT, chapter 5, section 3.2, page 5-27).

In addition, businesses, churches, and other related establishments located along a particular highway normally require accessibility and high visibility. Solid mass, attenuable measures for traffic noise abatement would tend to disallow these two qualities, and thus, would not be acceptable abatement measures in this case.

6. "Do Nothing" Alternative

The traffic noise impacts for the "do nothing" or "no-build" alternative were also considered. If the proposed widening did not occur, 232 receptors would experience traffic noise impacts by approaching or exceeding the FHWA's NAC. Also, the receptors could anticipate experiencing an increase in exterior noise levels in the range of +4 to +13 dBA. As previously noted, it is barely possible to detect noise level changes of 2-3 dBA. A 5 dBA change in noise levels is more readily noticed.

7. Construction Noise

The major construction elements of this project are expected to be earth removal, hauling, grading, and paving. General construction noise impacts, such as temporary speech interference for passers-by and those individuals living or working near the project, can be expected particularly from paving operations and from the earth moving equipment during grading operations. However, considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours, these impacts are not expected to be substantial. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

8. Summary

Based on these preliminary studies, traffic noise abatement is not recommended, and no noise abatement measures are proposed. This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772, and unless a major project change develops, no additional noise reports will be submitted for this project.

G. Geotechnical Environmental Impacts

1. Physiography and Geology

The project is located in the Lower Coastal Plain Physiographic Province. Topography along the project area is flat to gently sloping with elevations ranging from 1 meter (3.3ft) in the floodplain of the Scuppernong River to between 3 and 6 meters along the upland portions of the project from Plymouth to Columbia. The project corridor crosses the northern limits of East Dismal Swamp from Plymouth to Roper. Due to the relatively flat terrain, surface drainage is fair to poor. Deep [2+ meters (6.6ft)] farm ditches and canals [5+ meters (16.4ft) deep] improve drainage throughout portions of this project.

2. Geology and Soils

The upland portions of the project area are underlain by Quaternary age sediments consisting primarily of soft to stiff sandy silt (A-4) underlain by sandy and silty clay (A-6, A-7-6). The cohesive sediments are typically less than 3m (9.9 ft) thick. The silt-clay soils generally exhibit poor engineering properties such as high natural moisture content, high plasticity indices and high percent passing the 75 micrometer sieve. Deeper borings indicate that sandy (A-2-4) soils belonging to the Pliocene age Yorktown Formation underlie the surficial clay deposits. About 1 to 2 meters of very soft silt-clay soils, some slightly organic, occur in small creeks crossing the project corridor. Soils in the Scuppernong River flood plain generally consist of 4m (13.2ft) of very soft highly organic soils and very soft clay (A-7-6).

Embankment construction over the upland areas may require undercutting of the clay soils in areas where they are within 1m (3.3ft) of subgrade. Embankment construction over the organic deposits will require undercutting or alternative construction methods (geofabrics, wick drains and/or surcharge) to stabilize the roadway.

3. Settlement and Stability

Some settlement and stability problems may occur in high fill areas on the organic soils near the Scuppernong River and in the silt-clay soils at grade separations and interchanges.

4. Ground Water

Seasonal high ground water is expected along much of the project. Ground water along the majority of the upland segments is typically within 1m (3.3ft) of the natural ground surface. Water levels in the flood plains are at or above the ground surface. Surface drainage along the project is dominated by man-made ditches and canals.

5. Mineral Resources

No significant economic mineral resources other than sand deposits are known to occur within this region.

6. Cut and Fill

Roadway construction is expected to involve shallow cuts and fills with appropriate drainage improvements as well as high fills at grade separations and interchanges.

7. Erosion Control

Soils used in roadway construction may have a high potential for erosion. Appropriate erosion control measures should be utilized to avoid potential siltation problems.

8. Borrow Reconnaissance

Borrow meeting Coastal Plain specifications should be available in nearby areas with minimum stripping of surficial clay soils. Existing borrow pits were noted near NC 32 south of Albemarle Sound, near SR 1146 and 1164 south of Creswell as well as north of US 64 near Travis.

9. Underground Storage Tank (UST) Facilities

Based on the field reconnaissance survey, a total of thirty-eight (38) facilities with the possibility for USTs were identified along the project corridors. Most of the sites were along US 64. A rough breakdown for how many UST sites each alternative would affect is as follows: Alternative 1 (preferred)—16 sites, Alternative 2—38 sites, Alternative 3—24 sites, Alternative 4—15 sites.

10. Landfills and Other Potentially Contaminated Properties

The Geographical Information Service (GIS) was consulted for the project corridor. The research shows that no regulated landfills or dumpsites occur within the project limits.

A total of six (6) garages, three (3) crop centers and one lumber mill were identified along the project corridor. The garages have the potential for used fluid contamination (oil, brake, transmission, etc.), while the crop centers have the potential for pesticide, herbicide and nitrate (from fertilizers) contamination. The lumber mill could have contamination associated with a 2300 gallon aboveground dipping fungicide tank. The breakdown for how many of these the alternatives could potentially affect is as follows: Alternative 1 (preferred)—3 garages and all 3 crop centers; Alternative 2—5 garages, 2 crop centers and the lumber mill; Alternative

3—5 garages, 2 crop centers and the lumber mill; Alternative 4—5 garages, 2 crop centers and the lumber mill.

Based on field reconnaissance and records search, there should be no further environmental conflicts other than those mentioned in this report.

Roadway design should avoid or limit the proposed right-of-way encroachment at these sites because of potential environmental liabilities for proper cleanup and remediation if contamination exists. If the sites cannot be avoided, a "Preliminary Site Assessment" should be performed prior to right-of-way acquisition to determine the existence and extent of any contamination. This assessment will also be used by the NCDOT to estimate the associated clean up costs.

11. Conclusions

Boulevard ditches may be required along most of the project if the proposed grade lies at or near the natural ground surface. Significant areas of organic deposits are limited to the Scuppernong River flood plain. Borrow material meeting Coastal Plain specifications should be available in nearby areas. Based on limited borings along the corridor, stripping the surficial silt-clay soils appears to be minimal. Dewatering of borrow pits will probably be required.

V. PUBLIC AND AGENCY COMMENTS AND RESPONSES

A. Public Comments

The following responses address public comments submitted at the Design Public Hearings, held March 10 and 11, 1998. Approximately 200 people were in attendance at each of these hearings.

Comment: Concern was raised regarding the existing drainage problems around the Town of Creswell. Will these problems be fixed when the new road is built?

Response: The Hydraulics Unit of NCDOT is currently investigating drainage patterns within the Creswell area to ensure that the proposed road does not compound any existing drainage problems.

Comment: The Tidewater Research Station should be bypassed.

Response: Previous discussions with the N. C. Department of Agriculture and the Tidewater Research station resulted in the design of a grade separation as displayed at the Public Hearings. A bypass of the research station is not feasible, since widening the existing US 64 or an alternative alignment north of US 64 would result in expensive right of way costs and a substantial number of relocated homes and businesses.

Comment: Address impacts that additional traffic from widening NC 168 and US 64 will have on the already congested Outer Banks community.

Response: An improved highway into the region could encourage and support nature-based or eco-tourism businesses activities in Washington and Tyrrell counties. It also could encourage Outer Banks residents and tourists to travel inland to take part in nature-related activities such as fishing or boating or golfing. The extent of tourism-related development on the Outer Banks is difficult to speculate, however improved highway access should certainly provide better opportunities for travelers to visit this area of the state.

Comment: Extend the new bridge over Scuppernong River to span wetland areas west of the existing bridge. Structure needs to have a draw span for larger boats or sail boats to have access up the river.

Response: The proposed Scuppernong River Bridge will be constructed at approximately the same location and elevation as the existing structure. Due to safety and wetland issues, and the requirement to bring the bridge and roadway back down to grade in Columbia, the proposed structure will not include a high rise section for larger boats.

Comment: Connect NC 32 with the proposed US 64 for various reasons: access to shopping, Chowan County Hospital, etc.

Response: A NC 32 connector to the proposed US 64 has been defined as a future need project. It is not currently funded in the TIP.

Comment: The multi-lane roadway through Columbia would ruin the town. An Alternative bypass to the north is preferred.

Response: A bypass of Columbia is neither environmentally nor economically feasible and is not within the scope of this project.

Comment: Additional signals are needed in town, specifically at the two school crossings.

Response: Traffic signs and/or signals will be implemented to slow traffic from the proposed freeway section to the 5-lane section within the Columbia town limits. The Area Traffic Engineer will evaluate the need for additional signals within the Town of Columbia.

Comment: The walkway under the existing structure over the Scuppernong River must be replaced or provide some other access across the new bridge to the west.

Response: The latest preliminary design of the bridge includes a walkway mounted from the bottom side of the structure, similar to the existing walkway.

Comment: The Assembly of Praise Church is concerned about the close proximity of the control-of-access fence and proposed highway to the church buildings, including day care center. Children will be much too close to the road. The parcel

will have no access to another road and will become landlocked. The day care center must be kept operational during relocation.

Response: The Assembly of Praise Church has applied for advanced acquisition.

Comment: Crossovers on the proposed freeway sections should be built for emergency vehicle access.

Response: Crossovers for emergency vehicles will be considered between interchanges that are 6 miles or more apart.

Comment: The interchange proposed at E. Mill Pond Road should be moved to remove heavy, dangerous traffic from the road, which passes by a Washington County public school.

Response: The NCDOT has moved the proposed interchange at E. Mill Pond Road to Newland Road, further to the east.

Comment: Existing road now follows higher ground, avoiding swamps and crossing streams. If the road has to be relocated it should be moved farther to the north to follow high ground.

Response: Field surveys and map studies by NCDOT revealed the recommended location to be the least damaging to the environment and the most practicable alternative. Areas north of existing US 64 are dominated by residential land use, and the number of relocations would be higher. In its current location, the proposed roadway will be placed on a 6-foot high fill to avert flooding and enable drainage of the roadway.

Comment: Moving the new route will disturb wetlands and habitat, especially a route to the south of the existing route.

Response: The existing alignment is dominated by homes, churches and businesses located close the roadway. North of the existing roadway, the area is filled with residential developments and pockets of wetlands. Moving the roadway to the south minimizes the relocation of homes, businesses, etc., and limits the amount of wetlands taken to the least extent practicable. One goal of the new alignment is to border areas of wetland and farmland, thereby not causing overwhelming impacts to either resource.

Comment: The existing roadway has been in place for generations. Local businesses depend on patronage of through travelers and locals. A limited access roadway will injure these businesses.

Response: While it is likely current business owners will see a reduction in business from through travelers, the extent of this loss is not considered substantial when comparing it to the overall economy of Washington and Tyrrell Counties. The NCDOT took a "windshield" survey of all businesses located along this US 64 project and determined that of the 53 businesses, only 11 were the type to cater to tourist travelers (gas stations, bait/tackle shops, motel, and restaurants). These 11

businesses may possibly see a slow down in business, though they can and will continue to serve a predominant local body of customers.

Comment: The first curve leaving existing US 64 in Plymouth should be moved to the west of Pines Elementary School. As is, the alignment traverses a property where the house was set back far enough in the past to allow for a widening of US 64. The new location alignment and the curve dissect the property and take more than was ever expected.

Response: The alignment, including the first curve leaving existing US 64, was placed by planning and roadway design engineers to minimize wetland impacts. A corridor leaving US 64 west of Pines Elementary School would impact several areas of wetlands.

Comment: A four-lane road is needed, but one with more access.

Response: A freeway with full control of access has the primary objective of moving through traffic. However the NCDOT considers the five interchanges planned along the route from Newland Road to Travis Road, and also the two termini of the freeway, will provide sufficient access to local roadways and communities.

Comment: If the old US 64 Business bridge is removed, the remaining part of the Veterans Park will need a bulkhead. Also the Scuppernong River channel should be relocated to permit development of the east bank shoreline.

Response: The NCDOT Hydraulics Unit is investigating the need for a bulkhead when the remnant of the old bridge is removed. The new bridge is proposed to be constructed in the same location and footings as the existing bridge. Therefore, the relocation of the Scuppernong River channel is not a justifiable addition to this highway project.

Comment: The proposed alternative will terminate existing US 64 where the new highway takes off on new location to bypass Creswell. Two businesses, Sunnyside Elevator, Inc. and Carolina Pride, Inc., will loose critical access to existing US 64.

Response: The Roadway Design Unit of NCDOT has modified plans to now include a service road connection to existing US 64.

B. Agency Comments

Written responses from regulatory and commenting agencies on the Draft EIS are summarized below. Copies of the comments are included in Appendix C. The NCDOT response to each comment follows the agency comment.

U.S. Department of Commerce-National Oceanic and Atmospheric Administration-National Marine Fisheries Service

Comment: The DEIS adequately addresses fishery resources under NMFS purview. Therefore, we have no comments.

Response: No response necessary.

North Carolina Wildlife Resources Commission

Comment: The subject document adequately discusses benefits, social impacts, and traffic analysis of the final build alternatives. The document also adequately describes anticipated impacts to the natural environment. We remain concerned over the significant wetland impacts that would occur with any alternative. We feel that bridging all riverine wetlands is the only practicable way to minimize wetland impacts for any alternative.

Response: The NCDOT is also concerned about the anticipated magnitude of wetland impacts. Serious wetland avoidance/minimization efforts have been and will continue to be given appropriate consideration throughout the design of the project. The NCDOT has already committed to bridging the entire Kendrick's Creek wetland, and an alignment shift at the old river oxbow area west of the Scuppernong River. During the design of the project, efforts to minimize impacts at other wetland sites will continue.

Comment: We are also particularly concerned over the impacts to wildlife habitat that will occur with the new location alternatives. The final document should discuss measures that will be employed to maintain wildlife habitat connectivity. Although the project areas is a mosaic of developed and undeveloped land, we do not consider agricultural land a disturbance of the magnitude of a high-speed freeway. In some of these areas, resident populations of big-game animals are dependent on this agri-development for food and would likely not be able to support existing population levels without it. The new roadway will likely separate some preferred wildlife feeding areas from bedding areas or escape cover and increased roadkills will undoubtedly result. This can pose a significant hazard to motorists, especially in the case of black bears. We urge NCDOT to closely review design plans and aerial photographs to determine if wildlife crossing structures or exclusion fencing may be appropriate.

Response: The NCDOT is interested in ensuring that wildlife movements are properly accommodated by the proposed improvements to US 64. The North Carolina Wildlife Resources Commission is currently undertaking a study to determine the location of three (3) proposed wildlife crossings. The study is scheduled to be complete by December 31, 1999. A second study, to analyze the effectiveness of the crossings, has also been requested and is in the process of being submitted for Board of Transportation approval.

Comment: At this time, we concur with the DEIS for this project. We request that the final document describe proposed mitigation in more detail and include further discussion on the items noted above. Also, we were unable to locate a discussion on the need for stream channel modification. This should be included in the final document along with a proposal for stream mitigation if any is required.

Response: A specific mitigation strategy was developed subsequent to the circulation of the DEIS. The NCDOT proposes to mitigate all unavoidable impacts to wetlands. A portion of the impacts will be mitigated onsite by the restoration of the oxbow area and the remainder of the impacts will be mitigated by acquiring wetland credits from two established private wetland mitigation banks located within the Pasquotank River Basin in Tyrrell County. The two mitigation banks are: Scuppernong River Corridor Wetland Mitigation Bank and Great Dismal Swamp Restoration Bank. This mitigation will be in-kind and in-basin. In so far as stream channel modification is concerned, only one stream located near the end of the project near east of Columbia will require an extension of an existing culvert. This extension will require a CAMA permit.

N. C. Department of Environment and Natural Resources-Division of Marine Fisheries

Comment: The Division is concerned with the impacts and/or loss of wetlands. The importance of wetlands to fisheries production has been well-documented. These areas are of great importance to fisheries resources, serving as sources of biological productivity, providing food directly and indirectly. Finally, wetlands perform important roles in modifying acute impacts of hydrologic events, moderating stormwater flows, trapping sediments and providing nutrients for incorporation into resident plants. This agency supports the mitigation for the unavoidable losses of wetlands on an 'in kind' basis. These mitigation sites should be near the sites and at an appropriate ratio (greater than 2:1).

Response: The NCDOT agrees that wetlands are very important ecologically, and critically important to fisheries production. Mitigation for the anticipated impacts to wetlands will derive from the acquisition of in-kind credits from one of two private mitigation banks located in Tyrrell County (see response above). Replacement ratios will be those which have been approved by the regulatory agencies.

Comment: As stated in the EIS, this agency will request a moratorium for in-stream construction. The moratorium period will be February 15 through June 30. This will ensure the environmental integrity of the area is protected during critical times of usage by various species.

Response: The NCDOT respects the need for in-stream construction moratoria and is committed to adhering to existing moratoria policies that have been developed between our two agencies.

Comment: This agency would recommend pursuing Alternative 1 and Alternative 3. The Division is concerned with the total wetland impacts associated with Alternative 1, even though it has the least acreage impact to riverine wetlands and the lowest number of stream crossings. The major concern however, with Alternative 1 are the impacts that would result to high quality wetlands on Kendrick Creek. Alternative 3 impacts the second fewest acres of riverine wetlands and is second in stream crossings. This alternative would avoid the high quality wetland area on Kendrick Creek that would be impacted by Alternative 1.

Response: Due to the high quality of the Kendrick Creek wetland, the NCDOT has committed to bridging the Alternative 1 (preferred) crossing of Kendrick Creek and its adjacent wetlands.

U. S. Department of the Army-Corps of Engineers, Wilmington District

Comment: Please reference our letter from Mr. Michael Smith, Assistant Chief, Regulatory Division, to Mr. Frank Vick, P.E., Manager, Planning and Environmental Branch, dated September 5, 1997. This correspondence references the August 20, 1997, project team meeting which discussed the proposed project's purpose and need statement and the alternatives to be carried forward. The project team came to consensus on the purpose and need for the project and on the five project alternatives.

Response: The Department acknowledges that consensus was reached on the purpose and need and five reasonable and feasible alternatives, including a no-build alternative.

Comment: Page ii. 'D. Areas of Controversy/Major Unresolved Issues.' This section should include compensation for, and the bridging of, high quality wetlands as major unresolved issues. The Draft EIS states that NCDOT will prepare a mitigation plan to compensate for wetland impacts. As you are aware, it is our policy that prior to issuance of a Department of the Army (DA) Permit, NCDOT will provide this office with an approved, final mitigation plan for this project. Development of these plans can require a significant amount of time and could lead to delays in the issuance of permits if not addressed in a timely manner. Accordingly, NCDOT should pursue development of this plan as early as possible. The Draft EIS further states that NCDOT will use cross-pipes, or surface water equalizer canals, where warranted, in addition to prescribed hydrologic structures in causeways at high quality riverine wetland areas. This office appreciates this effort to minimize riverine wetland impacts. However, the applicant is required to exhaust all avoidance measures to these high quality wetland systems before minimization efforts are entertained. Bridging high quality wetland systems is an appropriate avoidance measure for this project.

Response: The NCDOT has finalized its plans for compensatory mitigation for the subject project. Commitments have been made to secure the necessary credits from each of two private mitigation banks located in Tyrrell County as well as the

restoration of the oxbow area. Further details, including appropriate documentation of banking memoranda of agreement, credit formulae, location maps, etc. will be made available to the Corps of Engineers and other agencies prior to permit issuance. The NCDOT is aware of the requirements of the 404(b)1 requirements with respect to avoidance. A decision has been made to bridge the entire wetland at Kendricks Creek and the large wetland system located just west of Old Columbia Road (SR 1110, Tyrrell Co.). The NCDOT has also committed to alignment shifts just east of the Tidewater Research Station and at the old river oxbow to minimize wetland impacts.

Comment: Page 9. 'Table 2.' Table 2 summarizes the alternative impacts into a matrix with relocations being a topic of consideration. The relocation numbers for alternatives 2, 3, and 4 appear to be excessive. A summary of the relocation report should be included in the Draft EIS with a copy sent to the Washington Regulatory Field Office, P.O. Box 1000, Washington, North Carolina 27889. If the relocation numbers are accurate, an early effort should be made to minimize the relocations with each alternative. The minimization efforts should include reducing median widths, curb and gutter sections in populated areas, and lane shifts to either or both sides of the existing alignment. In other words, the relocation impacts have not been minimized to the maximum extent possible. If the proposed project requires large numbers of relocations, we question whether the limited amount of benefits attained from this project would justify the social and environmental impacts.

Response: Estimated relocations of residents and businesses that would result from the construction of the LEDPA have been reevaluated with a consideration of minimization of impacts to each property. The results of this reevaluation are presented on page 12 of the Final EIS.

Comment: Page 12. 'Drainage/Hydraulics.' This section states several times that 'it is anticipated that the proposed facility will be difficult to drain and may require some off-site easements to convey runoff to adequate outfalls.' If roadside ditching is the method to provide the drainage, then wetland impacts would increase for each alternative. NCDOT is encouraged to avoid ditching which drains wetlands or to summarize the effects of the ditch impacts in Table 2, located on page 9 of the Draft EIS.

Response: The NCDOT is aware of the need to avoid ditching in wetlands if it can be avoided. This admonition is emphasized to all hydraulic designers. However, there could be circumstances in which ditching is the most practicable design alternative. At this time, the Hydraulics Unit has completed design for all sections of the project except section E, which it will not begin until November, 1999. With the exception of section D, all other sections of the project do not have any ditching in wetlands. Section D has a ditch 220 feet long (from sta 135+80 -L- rt. to sta 138+00 rt.) that is traversing wetlands. Unless the grade of the freeway is raised, ditching through wetlands in the area is unavoidable.

Comment: Page 35. '5.5.1 Waters of the U.S.' A representative of the Corps of Engineers will need to be contacted to confirm all designated wetland areas in the Draft EIS.

Response: Since the completion of the DEIS, a representative of the Corps of Engineers has confirmed the wetland delineations for this project.

Comment: Page 61. B. 'Public Involvement.' This paragraph discussed several citizen's workshops held during the planning phase. The paragraph states that the first one was held on September 24, 1992, in which many people living between the start of the project and Roper objected to making the existing US 64 a 4-lane facility. The document states that 'As new alternatives developed as a result of the public outcry, a second workshop was held on February 7, 1995.' According to the statement, the 'public outcry' drove NCDOT from the existing alignment to new alternatives. The minutes of this significant hearing should be summarized in the Final EIS with a copy of the full minutes and citizen comments sent to out Washington Regulatory Field Office, PO Box 1000, Washington, North Carolina 27889, for inclusion into our public interest review."

Response: The public involvement event held on September 24, 1992 was a Citizens' Informational Workshop. At these workshops, public input is not recorded and minutes are not provided. The written comments and letters received from the public are kept in the project file and are available for viewing.

Comment: The following paragraph should be added to the Final EIS: NCDOT and its contractors shall not excavate, fill, or perform land clearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by the Department of the Army (DA) permit or any modification to the permit. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this project without appropriate modification of the individual permit. To ensure that all borrow and waste activities occur on high ground, except as authorized by individual DA permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with this project will be available to the Corps on request.

Response: This paragraph has been added to the SFEIS (see section IV.A.5.6).

Comment: The Corps supports recommendations by the NC Wildlife Resources Commission, the US Fish and Wildlife Service and the NC Division of Water Quality for the provision of wildlife crossings throughout the project corridor. This concept could be combined with the bridging of riverine wetlands as avoidance measures in high quality wetlands while providing wildlife crossings. These provisions would also reduce the cost of wetland compensation be alleviating the need to restore riverine wetlands.

Response: NCDOT has agreed to providing appropriate wildlife crossings by constructing bridges with vertical clearance of approximately 8 feet and horizontal

clearance of approximately 100 feet at three sites to be determined from animal utilization studies. NCDOT is sponsoring pre-construction field monitoring necessary to fine-tune locations of bridges at three sites. Design of the wildlife crossings will be developed in consultation with the WRC.

N.C. Department of Environment and Natural Resources-Division of Water Quality

Comment: This project will involve new bridge and culvert crossings at numerous locations throughout the project corridor, regardless of the alternative selected. The potential linear distances of these stream impacts were not included in the Draft EIS. It would be helpful if NCDOT included stream geometry data for each perennial stream in the study area. NCDOT is reminded that stream relocations, new culverts or culvert extensions exceeding 150 feet linear distance of stream channel impact at any perennial stream crossing will require mitigation in accordance with current DWQ Wetland Rules {15A NCAC 2H.0505(b)(6)}. If necessary, the stream mitigation proposal must be included with the permit application. The Wetland Restoration Program will be available to use for stream mitigation for this project.

Response: In so far as stream channel modification is concerned, all defined streams along the project including Kendrick's Creek, the unnamed channel running parallel to Newland Road, and the Scuppernong River will be bridged, and no stream impacts will occur. One exception is required culvert extension at an unnamed tribuatry that US 64 crosses near the end of the project east of Columbia. This culvert work will require the issuance of a CAMA permit.

Comment: NCDOT divided their general description of aquatic communities into "ditch systems" and "natural stream systems." This is reasonable considering that the ditch communities were largely created to drain farmland within the region, and as such are degraded by runoff from farms and are not as important to aquatic flora and fauna. We advise NCDOT to determine whether or not these ditches support fish and invertebrate populations. If these systems are not sufficiently naturalized or the water quality is inadequate to support animal life, then mitigation may not be required. The quality of these ditches as opposed to natural streams will also have a direct bearing on our selection of a preferred alternative.

Response: The DOT is aware of the importance of dividing study area surface waters into jurisdictional and non-jurisdictional categories for the purposes of stream impact and mitigation evaluations. Those streams listed in Table 8 of the Draft EIS are natural stream systems. Further investigations since the preparation of the DEIS reveal that only one of the impacted ditches is considered to be a stream as defined by the DWQ. This ditch parallels Newland Road south of Roper.

Comment: DWQ supports recommendations by the NC Wildlife Resources Commission and U. S. Fish and Wildlife Service for the provision of wildlife crossings throughout the project corridor. This concept could be combined with minimization

techniques where the project crosses riverine wetlands. We suggest that bridges at riverine wetlands would provide logical locations for a number of purposes, including

- demonstration of wetland impact avoidance and minimization,
- protection of aquatic communities supported by these wetlands,
- it would help to allay the cost to NCDOT of wetland mitigation, and
- provision of crossings where wildlife would have more available cover.

Response: NCDOT is committed to providing appropriate wildlife crossing opportunities by constructing three (3) bridges at sites to be determined from animal utilization studies.

Comment: NCDOT has acknowledged that wetland mitigation will be required for this project. NCDOT is also aware that in-kind mitigation will be required for wetland impacts, and we must emphasize the need for riverine mitigation for impacts to riverine wetlands. NCDOT has already located a number of potential mitigation sites within the Pasquotank River Basin and has conducted field reviews. We applaud NCDOT's efforts to include wetland mitigation early in the planning process. We look forward to reviewing specific plans to be prepared for the site(s) NCDOT selects. 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.

Response: The NCDOT has finalized its plans for compensatory mitigation for the subject project. Commitments have been made to secure the necessary credits from each of two private mitigation banks located in Tyrrell County in addition to the restoration of the oxbow area. Further details, including appropriate documentation of banking memoranda of agreement, credit formulae, location maps, etc. will be made available to the Corps of Engineers and other agencies prior to permit issuance.

Comment: We encourage NCDOT to investigate whether or not temporary fill will be required to build haul roads and place culverts. NCDOT is advised that full restoration (including removal of fill material and planting/monitoring of vegetation) of temporary fill areas exceeding one acre 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 NCDOT. This policy has gone to Public Notice and will be finalized prior to construction of this project.

Response: The Department is aware of the DWQ concerns and prospective requirements with regard to temporary fills. Present design efforts do not anticipate a requirement for temporary fills in wetlands. However, should this requirement be identified in the future, the NCDOT would seek the approval of the Corps of Engineers and the DWQ.

Comment: NCDOT should describe how stormwater is to be diverted along the project corridor. Wherever possible, we encourage DOT to divert highway runoff onto vegetated swales or into wetlands, rather than directly into streams.

Response: The NCDOT is committed to ensuring that direct runoff from roadways is discharged into adjacent wetlands, or other vegetated areas rather than into natural stream channels, where feasible.

U.S. Department of the Interior-Fish and Wildlife Service

Comment: The Service remains concerned that the present project is merely one of several segments in the upgrading of US 64. The SDEIS notes (p. 4) that US 64 "... is and will continue to be a highway transporting vacationers and tourists between the Outer Banks and other parts of the state and region." As the Service stated in a letter to the Corps of Engineers on June 25, 1996, this project is apparently part of the larger effort to increase traffic flows between Plymouth and points west to the Outer Banks. As such, the primary utility of this project is not independent from Projects R-2545, R-2544, and R-2551 which will ultimately connect Columbia to the Outer Banks.

Response: Since US 64 is a primary intrastate route, it is possible to argue that proposed improvements to any portion of US 64 in the state, including segments in Davidson, Randolph, Chatham and Wake Counties should be studied within a single, comprehensive N.E.P.A. document. However, the NCDOT feels it would be impractical to do so. After all, years may separate the construction of even contiguous sections, necessitating supplemental studies and inefficient application of resources. The issue of independent utility has been addressed by the Corps of Engineers with respect to the subject project and it was found that the subject project, as defined, had independent utility. The curvature of the roadway, traffic volumes and surrounding environment are markedly different on the segment of US 64 east of Columbia compared to the segment between Plymouth and Columbia, making Columbia a logical project terminal. The proposed project (Plymouth to Columbia) will provide benefits to the public in terms of safety and efficiency even if the segment east of Columbia is not built. By earlier agreement, the Department will study the Columbia to Manns Harbor sections of US 64 in a single N.E.P.A. document.

Comment: The SDEIS presents (pp. 2-5) the purpose and need for the project. In general, the project would: (1) provide a link in the State's Intrastate Highway System; and, (2) increase safety and efficiency of travel in the project area. A Service biologist attended the interagency meeting on August 20, 1997, at which project purpose and need were discussed. While the Service did not object to the purposes presented, we do not support the use of legislative mandates to justify specific solutions to transportation need. The transportation issues which form the basis for legislation are valid problems requiring solutions, but not the legislation itself. In general, the desire to increase safety and prevent a deterioration of service

along the project corridor are adequate justifications for improvements to the existing transportation infrastructure.

Response: The "legislative mandate" issue may be, arguably, a valid purpose for a given transportation proposal; however, as indicated, it was not the only purpose presented.

Comment: While the Draft EIS does eliminate the no action alternative, there is no stated preference among the four, build alternatives. The Service commends the NCDOT for the relatively balanced description on the four build alternatives and the concise listing of the positive and negative features of each alternative. The Service retains the right to recommend other alternatives if data not contained in this Draft EIS becomes available and to provide comments on the final alignment on the highway within the corridor selected. Furthermore, the Service has not endorsed any plan regarding the placement or design of interchanges.

Response: No response needed.

Comment: The Draft EIS notes (p. 24) that construction on new location will fragment the habitat of certain wildlife species and result in larger numbers of road-killed animals. The Service believes that proper design features could minimize these adverse impacts. If passageways independent of waterways are deemed impractical, then at a minimum all waterway crossings should be expanded to include areas for dry land passage.

Response: See NCDOT response to the U. S. Army Corps of Engineers concerning provision of wildlife crossings (and in the Summary, section D).

Comment: Median barriers should not hinder wildlife movement across the road. While the Service supports the use of narrow, barrier-type structures in place of wide medians in wetland areas, we share concerns of the N. C. Natural Heritage Program (letter of May 7, 1997, p. C-46) that solid, raised medians could be detrimental to wildlife. The Service recommends that the NCDOT consider the use of separate, cylindrical posts as barriers. The use of such posts, which could be relatively large, would allow animal movement across the road.

Response: Discreet posts as median barriers would potentially subject the motoring public to a significant safety hazards. Each post would constitute a rigid, immovable object that would lead to unnecessary injury and death upon impact. The guardrail or even "New Jersey" barrier serves to soften the blow from an errant vehicle since the barrier does not result in sudden abrupt stops following impact, but facilitates the movement of the colliding vehicle along a trajectory parallel to the travelway. This allows for more acceptable energy transfers immediately following the initial collision, in sharp contrast to collision with a post barrier. In addition to the obvious safety liability associated with erecting discrete post barriers, a substantial post-construction maintenance burden would be derived from this type barrier configuration.

Comment: The Draft EIS states (p. 21) that the white-tailed deer (*Odocoileus virginianus*) and black bear (*Ursus americanus*) occur in the project area. Without such passageways, there is an increased danger of collisions with such larger animals along freeways which traverse relatively undeveloped areas. Properly designed and constructed animal passageways would enhance motorist safety.

Response: As indicated, the NCDOT has agreed to provide suitable wildlife passages at sites to be determined following animal passage studies.

Comment: The Draft EIS states (p. 12-14) that the topography of the project area produces poor drainage and that the new road may be difficult to drain. The document notes that the NCDOT will work to develop a final design which provides adequate drainage without causing adverse effects on the floodplain. The recommended environmental commitments mention the use of cross-pipes, surface water equalizer canals, and prescribed hydraulic structures in causeways. The existing drainage patterns would be maintained, "to the extent practicable." The Service believes that maintaining the natural surface hydrology is critical in preserving the fish and wildlife habitat in the project area. We recommend that the NCDOT consider all feasible methods, including the extensive use of drainage pipes and water collection-distribution systems, to ensure that the project does not seriously disrupt surface water hydrology.

Response: Details of hydraulic crossings are under consideration. The Hydraulics Unit of NCDOT is currently working on the hydraulic design. As the service is aware, most aspects of the Department's hydraulic design are subject to review and scrutiny by environmental agencies during permit application public reviews.

Comment: The Service is pleased that the NCDOT has committed (p. 24 of the Draft EIS) to a construction moratorium at all major stream crossing in order to protect migrating anadromous fish.

Response: No response necessary.

Comment: Table 12 (p. 36) presents comprehensive data of wetland impacts for the four build alternatives. However, these data would be more useful if a map had been provided to indicate the location of each wetland site. Total wetland impacts would range from 95 acres for Alternative 2, the upgrading of the existing highway, to 113.5 acres for Alternative 4.

Response: Such a map is available for viewing at the office of the Division Environmental Officer, 113 Airport Drive, Edenton, NC 27932.

Comment: While the Draft EIS indicates (p. 29) that the minimization of wetland impacts will be a "serious issue," the document defers any detailed discussion of design features and construction techniques until a preferred alternative is selected. The Service believes that such a delay is unnecessary. The types of wetlands to be impacted by the four build alternatives are very similar and should not preclude a discussion of wetland bridging, median widths through wetlands, the extent of lateral ditching, the extent of mechanized land clearing, and fill slopes. The Service is

pleased that the Draft EIS (p. 7) calls for the use of only a four-foot painted median through the wetlands west of the Scuppernong River.

Response: Mechanized land clearing in jurisdictional areas will be limited to the footprint of the project plus an additional 10 feet outside slope-stake lines for the purposes of maintaining erosion control devices. Median widths in wetlands will not exceed 46 feet in width. Specifics concerning lateral ditches and fill slopes have not been developed since these require site-specific design efforts. NCDOT is committed to the use of bridging in conjunction with supplemental cross-drainage at high quality riverine wetlands that cannot otherwise be avoided.

Comment: The Service is pleased that the Draft EIS provides (p. 29) a commitment to compensate for unavoidable wetland losses. The Service concurs that compensation should be near areas where losses occur and on an in-kind basis. However, to date the NCDOT has only visited prospective mitigation sites. The Service believes that a complete assessment of long-term wetland impacts requires some discussion of the type and location of compensatory mitigation. The Draft EIS notes (p. 24) that large-scale farms in the study area have noticeable effects on the local drainage. Presumably, areas drained in the past for agriculture or silviculture could provide adequate areas for wetland restoration. A major goal of the compensatory mitigation effort should be the establishment of links, or corridors, between wetland areas which have been severed by past development.

Response: The NCDOT has finalized its plans for compensatory mitigation for the subject project. Commitments have been made to secure the necessary credits from each of two private mitigation banks located in Tyrrell County in addition to the restoration of the oxbow area. Further details, including appropriate documentation of banking memoranda of agreement, credit formulae, location maps, etc. will be made available to the Corps of Engineers and other agencies prior to permit issuance.

Comment: Species protected by the ESA in Washington and Tyrrell Counties are the bald eagle (*Haliaeetus leucocephalus*), red-cockaded woodpecker (*Picoides borealis*), red wolf (*Canis rufus*), and American alligator (*Alligator mississippiensis*). The alligator is only listed due to a similarity of appearance with the American crocodile (*Crocodylus acutus*) which has a range in this country limited to southern Florida. Therefore, this species does not need to be considered in the fulfillment of Section 7 requirements. Regarding the bald eagle, the Service believes that the lack of actual sightings should not form the basis for a determination of no effect. The real potential for harm to this species would be the loss or disturbance of a nesting site. While the Draft EIS states (p. 38) that "no nest sites were encountered," there is no information regarding the extent of or systematic nature of searches for bald eagle nests. The Service concurs that most of the project corridor would be unsuitable for bald eagle nesting, but we recommend that the Final EIS contain a description of the systematic surveys for eagle nest sites within and adjacent to the proposed corridor where suitable nesting trees exist.

Response: (Biological conclusions are now provided for these species, in section IV.A.5.4.1.)

Comment: The non-essential, experimental status of the red wolf in the project area excludes the species from the full protection of the ESA. On private land this population is only considered as being proposed for listing. However, the Draft EIS does indicate (p. 38) that the project would have "no effect" on this species. The Service finds the basis for this determination to be limited to only a potential loss of habitat. The proposed project is far more likely to affect this species through direct mortality resulting from collisions with cars and secondary impacts resulting from the widening of US 64 to the east, particularly project R-2544 which will cross the Alligator River National Wildlife Refuge (ARNWR). The Final EIS should consider the consequences of car-wolf collisions on the proposed road. The project may replace the slower traffic movement on the existing road with faster travel on a wider, four-lane freeway. Such a change would increase the likelihood of red wolf mortality due to collisions with cars. Furthermore, the present project will have secondary effects of facilitating the four-laning of US 64 to the Outer Banks, an area that includes the ARNWR. The completed four-lane facility from Plymouth to Manteo will increase the volume of cars and thereby increase the risk of red wolf mortality on the highway. While the Service acknowledges that precise impacts of this project may be difficult to define, we cannot concur with NCDOT's 'no effect' determination. As noted above, a system of passageways for larger terrestrial animals would not only protect wildlife, but would also enhance motorist safety. Any design features which facilitate the passage of animals across or under the new highway would benefit the red wolf.

Response: (see material on red wolf in section IV.A.5.4.1.)

Comment: The Draft EIS acknowledges (p. 39) that project impacts on the red-cockaded woodpecker are "unresolved" due to an absence of definitive field surveys in suitable habitat. The Service considers the lack of such information to be a serious deficiency in the Draft EIS. Furthermore, the Service believes that field data on the presence of listed species should be a factor in establishing initial corridors and certainly a major consideration in the selection of a preferred alternative.

Response: The only portions of the project which have potentially-suitable habitat for the red-cockaded woodpecker lie at the extreme east end of the project in Tyrrell County. A colony survey has been conducted in all suitable habitat zones. The work was conducted by Dr. J.H. Carter, III and Associates, Inc., employing the use of helicopter surveillance as well as ground-based surveys. The study confirmed that the RCW does not exist in contiguous habitat within 0.5 mile of the project study area. As a result of this work, the proposed improvements to US 64 will have no effect on the endangered red-cockaded woodpecker.

Comment: At this time the Service concludes that the requirements of Section 7 of the ESA have not been fulfilled. The Service recommends that the NCDOT complete the surveys as soon as possible. The Final EIS should reevaluate the

effect determinations in light of the new field data and the comments provided above.

Response: A reconsideration of each of the three species in question has resulted in re-formulations of effect determinations which are based, in part, on newly obtained information from interviews with experts and on field observations. (See section IV.A.5.4.1.)

Comment: In general, the Service believes that new location bypasses of rural communities should be avoided wherever possible. Therefore, we have reservations about Alternative 1 which bypasses Roper to the south. However, data presented in the Draft EIS indicate that the two alternatives, 3 and 4, which would allow a four-lane freeway near the existing US 64 through Roper would impact greater amounts of riverine wetlands (p. 9) and bottomland hardwood forests (p. 25). The Service wonders if this apparent paradox has resulted from a greater use of wetland bridging along Alternative 1. Sheets 1 and 2 of Figure 2 show four bridges on Alternative 1 from the western terminus of the project to the common junction of Alternatives 1, 3, and 4, northeast of Roper. In the same area, Alternative 4 appears to have only a single bridge and Alternative 3 has 3 bridges. The Service recommends that the NCDOT consider an increased use of bridging for Alternatives 3 and 4 in order to reduce impacts to riparian wetlands. The Service believes that if riparian wetland losses along Alternatives 3 or 4 could be significantly reduced, either route would be an attractive alternative.

Response: The Department acknowledges the Service's preference for avoiding new bypasses of rural communities. The reason Alternatives 3 and 4 would result in more impacts to riverine wetlands is that each of these alternatives cross more riverine wetlands than Alternative 1. Between the beginning of the project and Roper, Alternative 1 only crosses a single riverine wetland. If the focus is riverine wetlands, it is obvious that both Alternatives 3 and 4 must cross multiple natural streams. When examining the multiplicity of environmental factors, including relocations, it is apparent that the cost of multiple bridges, the cost of relocations and overall impacts to biotic communities makes either of these alternatives much less attractive than the same section of Alternative 1. If a consideration of bridging of all riverine wetlands for Alternatives 3 and 4 was entertained, the cost for these alternatives would increase accordingly. The advocacy of alternatives on existing location simply because new location routes can be more severely damaging to the natural environment, is often short-sighted. In this instance, Alternative 1, from its western terminus to east of Roper, will cross mostly agricultural and highly modified, pine plantation communities. The only significant natural community that would be encountered along the alignment segment being discussed is the Kendricks Creek community, which the Department has agreed to span. Even if all of the riverine crossings on Alternatives 3 and 4 were bridged, the realities of construction costs, right of way costs and social impacts would render these alternatives impracticable.

N.C. Department of Environment and Natural Resources-Division of Parks and Recreation-Natural Heritage Program

Comment: Previous comments on the proposed project from this Division (Hall, 5/7/97 and 1/5/98), have expressed concern about two issues that remain unresolved in the Draft EIS: wildlife crossings and projected impacts to the Scuppernong River Preserve, a Registered Natural Heritage Area. We fully support the construction of a causeway, or elevated roadway, through the Preserve as a means of achieving both goals. An elevated causeway would have the added ecological benefits of reducing the project's overall impacts to wetlands and restoring the hydrological connectivity of the Preserve. From a design standpoint, a causeway could also alleviate potential problems stemming from the short deceleration distance from the apex of the bridge into the town of Columbia. By shifting the rise of the bridge toward the western side of the river, there would be additional time and distance to slow down before entering Columbia. An elevated causeway is not an alternative outlined in the Draft EIS. We recommend that consideration be given to its inclusion in the project.

Response: As DENR's biologist pointed out in a recent field discussion with the Natural Heritage Program and the Nature Conservancy, virtually all impacts anticipated through the Preserve would occur within the existing utility corridor, which lies adjacent to the existing roadway. This area is a scrub-shrub zone in which vegetation management has been on-going for many years. For this reason, NCDOT does not recommend an elevated roadway (i.e. bridge, or trestle) through this area. However, NCDOT is certainly willing to discuss provisions for enhancing cross-drainage through this section of roadway and will entertain recommendations for a wildlife crossing if a consensus of environmental interests feels this would be a good location. Compared to anticipated impacts to natural communities lying west of this site, NCDOT biologists do not place as high a value on the utility corridor fringe that would be impacted by roadway improvements.

The Nature Conservancy-North Carolina Chapter

Comment: As you know, The Nature Conservancy owns and manages a 367-acre nature preserve on the Scuppernong River immediately west of the terminus of the US 64 bridge over that river. This preserve supports rare Atlantic White Cedar forest communities, and would be impacted by the proposed project. Specific, significant impacts to the preserve that would result from any of the four proposed alternatives outlined in the document include, but may not be limited to:

- direct physical damage to the preserve due to road and bridge construction;
- hydrological alterations, both temporary and long-term; and
- reduced ability of wildlife to safely cross the wider roadway with median(s).

We believe that the project impacts I identified in my 1/29/98 letter could be significantly reduced if the roadway crossing these high quality wetlands were elevated. If the roadway is elevated, the majority of our concerns regarding the project would be addressed as follows:

1) elevating the roadway, in conjunction with removing the existing roadbed fill, would enable the return of the hydrologic connection that is critical to the ecological viability of this significant Atlantic White Cedar forest site;
2) elevating the roadway would enable unimpaired wildlife crossings.

Response: See response to Natural Heritage Program comment above. In addition, it should be noted that the proposed roadway improvements will not impact any stands of Atlantic White Cedar.

Biodiversity Legal Foundation

Comment: The BLF strongly objects to the four build alternatives that are reviewed in the Draft EIS. As discussed below, the BLF does not believe that it is necessary or appropriate to increase US 64 to four lanes. Moreover, the four build alternatives that are discussed in the Draft EIS would have significant and unacceptable impacts on the environment. The BLF requests that the NCDOT abandon this proposal.

Response: The need for multi-laning US 64 from Plymouth to Columbia is clearly demonstrated in the Purpose and Need section of the document. Because US 64 is an intrastate highway, improving this section is part of improving the entire highway corridor across the state. A widened freeway facility with control of access will improve the safety and efficiency of traffic flow. The no build alternative does not meet the purpose and need of the project, and is, therefore, considered not reasonable or feasible.

Comment: The BLF does not understand how this level of traffic—or even a much lower amount of increase–could conceivably benefit the Outer Banks. Two-lane Highway 12—which goes from Whalebone Junction to Ocracoke–is already very congested with traffic during the summer, and putting tens of thousands of more vehicles on this road would bring traffic to a stop. The BLF strongly questions whether this level of traffic could be squeezed into the small villages on Hatteras Island (Buxton, Frisco, Hatteras and Avon), but if it could be accomplished, it would destroy the character of these villages and sharply diminish the quality of life for residents.

Response: All of the traffic expected on US 64 between Plymouth and Columbia does not and will not continue on to the Outer Banks. This section of US 64 was found to have independent utility by the Federal and State regulatory and review agencies. Much of the total predicted traffic will be generated and terminate in the immediate two-county region. In fact, current and past traffic volume data show that traffic east of Columbia on US 64 has been about one-half the amount west of Columbia. Another important fact is that water and sewer capacities, land use and

development management all dictate the extent of growth on the Outer Banks, not the capacity of the roadways serving the area.

Comment: In addition, while the Draft EIS does not justify "improvements" to this segment of US 64 based on the reasoning that a larger capacity facility would assist with hurricane evacuation, others have used this rationale in supporting the changes to US 64. In contrast, the BLF is very concerned that additional capacity for US 64 actually would increase the risk of injuries to vacationers. Unlike the situation with US 64, which has (in theory) land available to expand the lanes, Highway 12 passes through a group of barrier islands which are very narrow in certain locations. For years, in the area just north of Buxton, the area just north of Hatteras, and the area south of the ferry docks on Ocracoke, storms cause salt water to flow over the dunes and onto Highway 12, and there is not enough dry land between the sound and the ocean to increase the number of lanes of Highway 12 in these areas. In addition, Highway 12 through the Rodanthe, Waves and Salvo area is at a low elevation, and when there is a strong westerly wind (southwest, west, or northwest), portions of the road flood, reducing traffic speeds to five to ten miles per hour at the most. As traffic coming in to the Outer Banks on the "improved" US 64 would be spread out over Friday, Saturday, and Sunday, some limited increase above current levels may be able to occur. However, when the time comes to evacuate, will there be sufficient capacity for those people to evacuate from Hatteras and Ocracoke islands? Under the current levels of tourism and even with staggered evacuations that are currently used, there are traffic backups on Highway 12 as a result of Highway 12's capacity. Sharply increasing the amount of people in this area would only increase the risk that people will be stuck in traffic when a hurricane hits.

Response: Hurricane evacuation was not part of the purpose and need of this project. However, the construction of the project will reduce travel times for people evacuating coastal and other areas of low elevation during a hurricane. As stated in the previous response, this project has independent utility, and the secondary and cumulative impacts are not expected to extend to the Outer Banks. There is simply no rationale in the hypothethis that building this project will "sharply increase the amount of people in this [Outer Banks] area." As stated before, land use and development management, which considers the ability of the area to provide services such as water and sewer, will determine how and how much the Outer Banks will grow.

Comment: Of course, the above discussion assumes that the NCDOT traffic calculations are correct, and traffic levels will go from 4,500 to 55,200 vpd. However, the BLF questions whether these calculations accurately estimate the level of growth, and the BLF requests that the NCDOT elaborate on the methodology, as well as the assumptions which form the basis for the analysis. Because the Outer Banks are coastal barrier islands, there are inherent limitations on water and electrical systems, as well as the ability of the islands to accommodate increasing numbers of septic systems. Most obviously, there are clear limitations on the amount of land that can be developed. In addition, as congestion increases, some of the people who would have visited this area undoubtedly will decide not to

come. As the natural values that make this area attractive to visit are adversely affected by overcrowding, visitation rates will diminish. The DOT justifies the proposal by the claims of increased traffic levels, but given the limited discussion in the Draft EIS, the BLF questions the analysis and conclusions.

Response: The traffic volumes cited are comparing the low end of the existing daily traffic volumes on a year-round basis from the eastern end of the project to the high end of traffic volumes in 2020 from the western end of the project on a peak summer weekend. The latter volume was derived by taking the 2020 average daily traffic of about 15,300 vpd on the proposed US 64 freeway and factoring by 1.6 to account for seasonal variations or peaks during the summer months. The resulting volume of 24,500 vpd is factored by 2.4 to indicate what the "worst-case" summer weekend (Saturday or Sunday) traffic volumes could be, as was explained in the Draft EIS. But as stated in a previous response, the amount of traffic expected east of Columbia has traditionally been lower than the amount west of that town.

Comment: The Draft EIS states that anadromous fish utilize the Scuppernong River, Kendrick Creek, Deep Creek and Chapel Swamp, and that 'Moratoria against in-stream construction will be required at all of the major stream crossings as a measure to protect late-winter and spring migrations of anadromous fish.' Draft EIS at 23-24. While this would minimize impacts during construction, the Draft EIS is not clear as to what structures would be constructed for each of the alternatives, or how each structure would impact fish migrations. There is a discussion of the bridge over the Scuppernong River, but another section states that water resources will be "crossed by pipes, culverts and/or bridges" and that structures may result in a change in water velocities and redirected surficial flows. Draft EIS at 28. The BLF requests that the Final EIS fully discuss these issues and include an analysis of whether the proposed structures would allow unimpeded passage of fish during late-winter and spring migrations. If the structures would not allow such passage, the BLF requests modifications to allow passage.

Response: Since Alternative 1 was approved by an interagency review committee as the LEDPA, the NCDOT has completed enough preliminary design to identify general hydraulic structures at stream crossings. A summary of hydraulic recommendations is included on pages 14-17 of the Final EIS. Whether a recommended structure is a bridge, a pipe or a culvert, such designs must meet the approval of the Division of Marine Fisheries, the Corps of Engineers and other state and federal agencies. One of the important considerations in these approvals is the effects on anadromous fisheries.

Comment: Immediately west of the terminus of the US 64 bridge over the Scuppernong River, the Nature Conservancy manages a 367-acre preserve that supports rare Atlantic White Cedar forest communities. The Draft EIS does not adequately address the impacts to this area due to road and bridge construction, hydrologic alternations, the fragmentation of the area due to increased width of the roadway and increased wildlife mortality; the BLF requests that the Final EIS address this important area.

Response: See responses to the Natural Heritage Program and The Nature Conservancy, above.

Comment: The BLF requests that the Final EIS address how vehicle use can cause chemical contamination of wetlands and streams near roads. This should include the impacts of the many fluids that are associated with—and leak from—vehicles (e.g., oil, coolant fluid, etc.), and whether these fluids will end up in wetlands and streams as a result of runoff during rain, and NCDOT's use of deicing chemicals on the existing highway and the impacts of these solvents. The BLF also requests that the Final EIS address the impacts that could occur from an accident (truck or tanker spill) near a stream or wetland area and what measures would be implemented to contain and remediate such a spill.

Response: Since most of the project will be constructed with shoulder sections, runoff from roadway surfaces will pass across vegetated shoulders and slopes and into adjacent, vegetated ditches. This is generally held to be the most environmentally friendly approach to the discharge of stormwater from road surfaces. Hazardous spill catchments at either approach to streams is required in North Carolina at high quality streams, certain water supply watersheds and Outstanding Resource Waters. See information starting on page 14 for a more detailed discussion of NCDOT's plans at the Scuppernong River.

Comment: The BLF is very concerned that both the black bear and the red wolf would be adversely affected by the proposed "improvements." Even though the four build alternatives would not be located inside of the Refuge, adverse impacts from all of the build alternatives clearly would occur, due to the increase in traffic levels through the Refuge. The "improved" section of US 64 cannot be separated from the remainder of US 64; the traffic to the coast will have to go through the Refuge—either on the existing two lane section or on another alignment. Inevitably, road kills of these species will occur, as it currently does, and the increased traffic levels will result in increased levels of mortality. See, e.g., Terry Gilbert and John Wooding, An Overview of Black Bear Roadkills in Florida 1976-1995, in Trends in Addressing Transportation Related Wildlife Mortality; Proceedings of the Transportation Related Wildlife Mortality Seminar 2 (Gary L. Evink, Paul Garrett, David Zeigler and John Barry eds., 1996). (Graph depicting bear roadkill totals and average daily vehicle trips "illustrate similar trends in traffic levels and roadkills. The data do not demonstrate cause and effect, however, we believe that the increase in the number of roadkills is partially due to an increase in traffic levels, an increase in the bear population in some regions, and a more consistent and systematic effort to document bear deaths."). The NCDOT should address the impacts to these, as well as the impacts to all other species in the refuge (mammals, birds, reptiles, amphibians and invertebrates), that would be adversely affected by increased traffic levels on US 64.

Response: The NCDOT is interested in ensuring that wildlife movements are properly accommodated by the proposed improvements to US 64. We have stated at the outset that wildlife crossing opportunities should be provided. The NCDOT is

now obtaining assistance from state and federal agencies to properly locate these crossings.

Comment: The DEIS justifies the widening of US 64 with references to this action boosting the Outer Banks economy due to "increased tourism." However, the Draft EIS fails to address the vast range of adverse environmental impacts that the four build alternatives would cause to the Outer Banks. As a Federal District Court noted in finding that the decision not to prepare an EIS on a bridge replacement project to a coastal barrier island in North Carolina violated the National Environmental Policy Act, it "is a irrefutable reality that the easier it is to get somewhere, the more people will be inspired to do so." Mullin v. Skinner, 756 F. Supp. 904, 921 (D.N.C. 1990). The Outer Banks are renowned for their environmental significance. The area includes Pea Island National Seashore. Numerous areas on the Outer Banks are listed as significant natural heritage areas by the State of North Carolina, which means that these areas are at least of regional environmental significance. See Division of Parks and Recreation, Department of Environment, Health, and Natural Resources. North Carolina Natural Heritage Program Biennial Protection Plan, List of Significant Natural Heritage Areas (1997). In addition, on the Outer Banks portion of Dare County alone, five of these areas—Buxton Woods, Cape Hatteras Point, Pea Island National Wildlife Refuge, Jockeys Ridge State Park, and Kitty Hawk Woods—have a site significance of "A," id at 24-25, which means that these areas are "[n]ationally significant sites [that] contain examples of natural communities, rare plant or animal populations, or geologic features that are among the highest quality or best of their kind in the nation, or clusters of such elements that are among the best in the nation." Id. at i. The BLF is very concerned that the increased population levels brought about by the increased traffic levels from the "improvement" of US 64 would have significant adverse effects on the environment of the Outer Banks. For example, Buxton Woods on Hatteras Island encompasses approximately 3,000 acres of dense maritime forest and associated communities; as of June 1996, 900 acres are within the Cape Hatteras National Seashore and 818 acres are in the Buxton Woods Coastal Reserve, with the remainder in privately owned parcels. Division of Coastal Management, North Carolina Department of Environment, Health and Natural Resources, Final Management Plan for the Buxton Woods Component of the North Carolina Coastal Reserve (June, 1996). Three plant communities of "global significance" are found on the Reserve property, and Buxton Woods is considered "nationally significant," because "it represents the largest remaining area of maritime forest associated with eolian dunes." Buxton Woods is just one of the significant environmental areas where public and privately owned parcels are located in close proximity. In the Buxton Woods, as well as all other areas of mixed ownership, the privately owned parcels would face increased development pressure, resulting in habitat destruction and fragmentation and associated impacts to wildlife and plant species. Even in those areas that are publicly owned such as the Cape Hatteras National Seashore, there would be drastically higher levels of visitation. The BLF is very concerned that these increased levels would adversely affect natural values. Impacts include, but are not limited to, damage and destruction of vegetation on both the sound and ocean sides from foot as well as off-road vehicle

traffic; increased lighting and human activity impacting listed sea turtles; increased construction of facilities resulting in habitat destruction; increases in the size of parking areas and resulting impacts to sound side habitats of the seashore due to increased recreational use; and adverse impacts from recreation (e.g., jet skis). In addition, 363 species of birds have been reported to use the Cape Hatteras National Seashore. James F. Parnell, Wm. David Webster, and Thomas L. Quay. Birds and Mammals of the Cape Hatteras National Seashore (1992). The BLF is very concerned that increased human presence and associated effects (e.g., off-road vehicles, noise and pets) will adversely affect nesting and foraging areas for certain colonial or solitary bird species which utilize the coastal area. See e.g., Joanna Burger, Beach Recreation and Nesting Birds, in Wildlife and Recreationists, Coexistence through Management and Research (Richard L. Knight and Kevin J. Gutzwiller eds., (1995), In raising these issues, the BLF is not attempting to impugn the ability or dedication of the National Park Service and Fish and Wildlife Service employees. Unfortunately, once the capacity of US 64 is increased, there is only so much that government agencies or anyone else can do to mitigate the resulting impacts of increased levels of human activity on public and private lands. If there were 55,200 vehicles per day utilizing US 64, and even with the best intentions and efforts to regulate the effects, we would be deluding ourselves if we did not recognize that there would be serious adverse environmental impacts from this huge increase in the number of people. Rather than justifying the proposal with superficial references to increased tourism, the BLF strongly urges the NCDOT to first determine what population increase the Outer Banks can sustain without serious adverse impacts, and then determine whether to modify US 64. The BLF believes that such an analysis would conclude that the proposed "improvements" actually would be a huge step backwards for this area.

Response: Increased tourism was not presented as part of the purpose and need for the proposed project in the Draft EIS. It was mentioned under the section of the document dealing with effects to the environment. The increased tourism is not only for the Outer Banks, which already has tourism as its main economic base, but for Washington and Tyrrell Counties which are part of a regional effort to build off-season and nature based eco-tourism. Please refer to Section IV.D.4. in this document. The ultimate development of the Outer Banks is primarily controlled by local government policies, as well as, the availability of water and sewer. The impact of this project, reducing travel times by a few minutes on a 4-to-6 hour drive from the population centers of the Piedmont, is not expected to be a major influence on Outer Banks development.

Comment: North Carolina is "improving" Highway 168 from two lanes to four lanes from the North Carolina border to the point where Highway 168 intersects with the existing five lane US 158. In addition, the BLF understands that Virginia has plans to increase the amount of lanes on Highway 168 in Virginia. These improvements will dramatically increase the amount of people that can visit the Outer Banks from the north, including traffic from the heavily populated areas of Norfolk, Richmond, and Washington, D.C. Thus, the Outer Banks will not only have the impacts of increased traffic from the west on US 64; it will also have the impacts from the

increased capacity to the north on Highway 168. The BLF requests that the final EIS address these cumulative impacts.

Response: The improved highways will improve the capacity of the roads serving the region. This will make it easier and safer for all travel in the region. This does not necessarily mean travel will increase. For example, existing US 64 is not restricting travel now. This highway project is only expected to have a limited impact on the extent of growth or tourism on the Outer Banks, some 45 miles away. Please refer to the secondary and cumulative impacts section of this report.

Comment: The Draft EIS segments the analysis of the impacts of "improving" US 64. Based on statements published in the Virginia Pilot, as well as statements made at the public hearing, NCDOT currently intends to increase US 64 to four lanes from Columbia to Manns Harbor. To do this, NCDOT will either have to add two more lanes to the existing US 64 through the refuge or make a four-lane road in a new corridor through the refuge. The DEIS does not address the direct impacts to the refuge, nor does the Draft EIS address the habitat fragmentation that would be caused by the additional lanes. Increasing the capacity of US 64 on all other areas, and then increasing the capacity through the Refuge, is a completely backwards process. NCDOT first should determine whether it is feasible and appropriate to increase US 64 to four lanes through the Refuge, and if NCDOT determines that it can somehow avoid the severe environmental impacts—which BLF does not believe it can—only then should the NCDOT proceed with increasing the capacity of US 64 from Plymouth to Columbia. In the event the NCDOT continues to believe it is appropriate to proceed with increasing the amount of lanes on US 64, the BLF requests that the NCDOT publish a revised draft EIS that reviews, in one document, the full, direct, indirect and cumulative impacts of not only the Plymouth to Columbia segment, but also the Columbia to Manns Harbor segment. The BLF does not believe that the Plymouth to Columbia has independent utility, and even if it did, the Columbia to Manns Harbor segment should be included in the review because of the associated indirect and cumulative impacts.

Response: The project from Plymouth to Columbia was deemed to have independent utility (see previous response to comment by the US Fish and Wildlife Service). A feasibility study is currently underway for projects R-2544 and R-2545, studying US 64 from Columbia to Manns Harbor.

Sierra Club

Comment: The Draft EIS states that the proposed improvements are "part of a statewide improvement project to the Outer Banks" which "will do much to increase tourism, thereby boosting the economy." Clearly, the Plymouth-to-Columbia piece is part of a wider effort to increase the capacity of several roads leading to the Outer Banks. The Draft EIS, however, treats the Plymouth-to-Columbia piece as a lone entity and fails to address the indirect and cumulative adverse impacts on the various environmental and social assets currently present on the Outer Banks.

Response: While the Plymouth-to-Columbia section will be an improved part of US 64 that runs across the entire state, this section of US 64 was determined to have independent utility by the Federal and State regulatory and review agencies. This highway project is only expected to have a limited impact on the extent of growth on the Outer Banks, some 45 miles away. The primary factors in the eventual growth on the Outer Banks are the current and future capacities of the area to provide water and sewer, and local land use and development management. Washington and Tyrrell Counties are expected to benefit from the new, widened highway. Please refer to the secondary and cumulative impacts section of this report.

Comment: ...although the "statewide improvement project" will clearly contribute to increased human populations, both permanent and tempory, on the Outer Banks, the Draft EIS provides no estimates of these populations over various time periods. Neither does it provide estimates of population levels that can be supported by the available natural resources, (e.g., land area, and especially water) over the long term.

Response: As stated in the previous response, this project has independent utility, and the secondary and cumulative impacts are not expected to extend to the Outer Banks. As you point out, water and sewer capacities in conjunction with land use, are local issues that will determine how and how much the Outer Banks will grow.

Comment: The Draft EIS fails to identify consequences of project-induced human population increases, e.g., congestion, draw-down of water tables, increased air and water pollution and loss of native flora and fauna, open space and scenic beauty on the Outer Banks. The Draft EIS provides no estimates of when these negative impacts will occur and their subsequent effects on the ecology and livability of the Outer Banks. Failure of the Draft EIS to identify indirect cumulative impacts to areas of special ecological importance on the Outer Banks (e.g., Cape Hatteras National Seashore, Pea Island National Wildlife Refuge, Currituck National Wildlife Refuge, Jockeys Ridge State Park and several small Natural Heritage Sites such as Buxton Woods and Kitty Hawk Woods) is a major deficiency. The Draft EIS also fails to consider indirect cumulative effects on the Alligator River National Wildlife Refuge. These impacts must be considered since improvement of US 64 between Columbia and Manns Harbor, as another piece of the entire plan, is a forgone conclusion. Such impacts are likely to include loss of wetlands and increased collisions between vehicles and large animals such as deer, bear and wolves – the consequences of larger roads with more vehicles traveling at higher speeds. Furthermore, if the improvement in this section involves realignment into the refuge, additional wetland losses would occur.

Response: As stated in a previous response, the project from Plymouth to Columbia was deemed to have independent utility. Secondary and cumulative impacts of the Plymouth-to-Columbia segment of US 64 are not expected to extend to the Outer Banks. A feasibility study is currently underway for projects R-2544 and R-2545, studying US 64 from Columbia to Manns Harbor. By earlier agreement,

NCDOT will study the Columbia to Manns Harbor sections of US 64 in a single N.E.P.A. document.

C. Scoping and Agency Meetings

Since the initiation of the planning phase of this project in 1991, The NCDOT has conducted many scoping and agency meetings. The initial scoping meeting, which is held in the beginning stage of the project planning process, was held on April 24, 1992. At this meeting the purpose of the project was to widen the existing US 64 from its 2-lane configuration to a multi-lane facility. These meetings can also occur whenever a major change in the scope of the project takes place. Such a follow-up scoping meeting was held on May 25, 1995, when the new location alternative was first introduced. Finally, a third scoping meeting was held on August 21, 1996 to discuss the upgrading of the project to a freeway facility.

Agency meetings are those that involve all State and Federal agencies having an important capacity in the project. The NCDOT held its initial agency meeting on July 7, 1992 and another the following week. Due to the length and complexity of the project, a special steering committee was established. The first meeting of the committee, which is to used a team approach in guiding the planning and environmental phase to completion, was held on October 15, 1996. A second steering committee meeting was held on June 10, 1997.

D. Public Involvement

Several Citizens' Informational Workshops have been held over the course of the planning phase. The first was held on September 24, 1992. Many people living between the start of the project and Roper, a predominately minority neighborhood, objected strongly to an improved US 64 running close and in front of their homes, where many children play in the front yards. As new alternatives developed as a result of the public outcry, a second workshop was held on February 7, 1995. For these first two workshops, two separate meetings were held in Columbia and in Roper. When the scope of the project expanded to include new location alternatives, additional workshops were held on September 19, 1995 and on October 3, 1996. The majority of the comments submitted to NCDOT favored a highway on new location compared to the widening of the existing facility. The NCDOT has attempted to keep the public fully informed of this highway project and all of its ongoing changes.

Combined design public hearings were held at the Tidewater Research Station and at Columbia High School on March 10 and 11, 1998, respectively. The purpose of the public hearings is to include the public as part of the project's planning process. Preliminary highway designs showing potentially affected landowners were presented for public review and comment. All of the substantial

issues raised at the hearings and NCDOT's responses to them can be found in section V.A., Public Comments.

E. Correspondence

Copies of pertinent documentation can be found in Appendix C to this report.

Appendix A — Figures

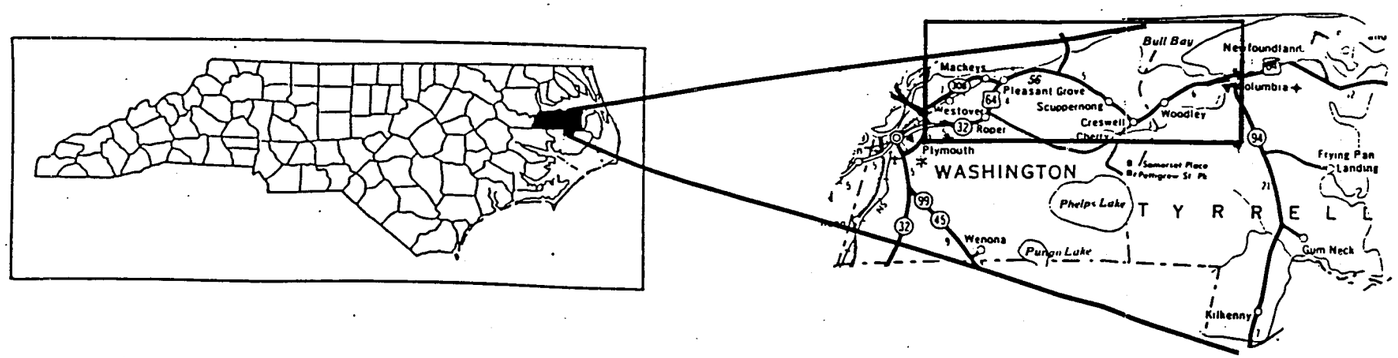
PLYMOUTH

BEGIN PROJECT

RECOMMENDED ALT. 1 (LEDPA)

COLUMBIA

END PROJECT

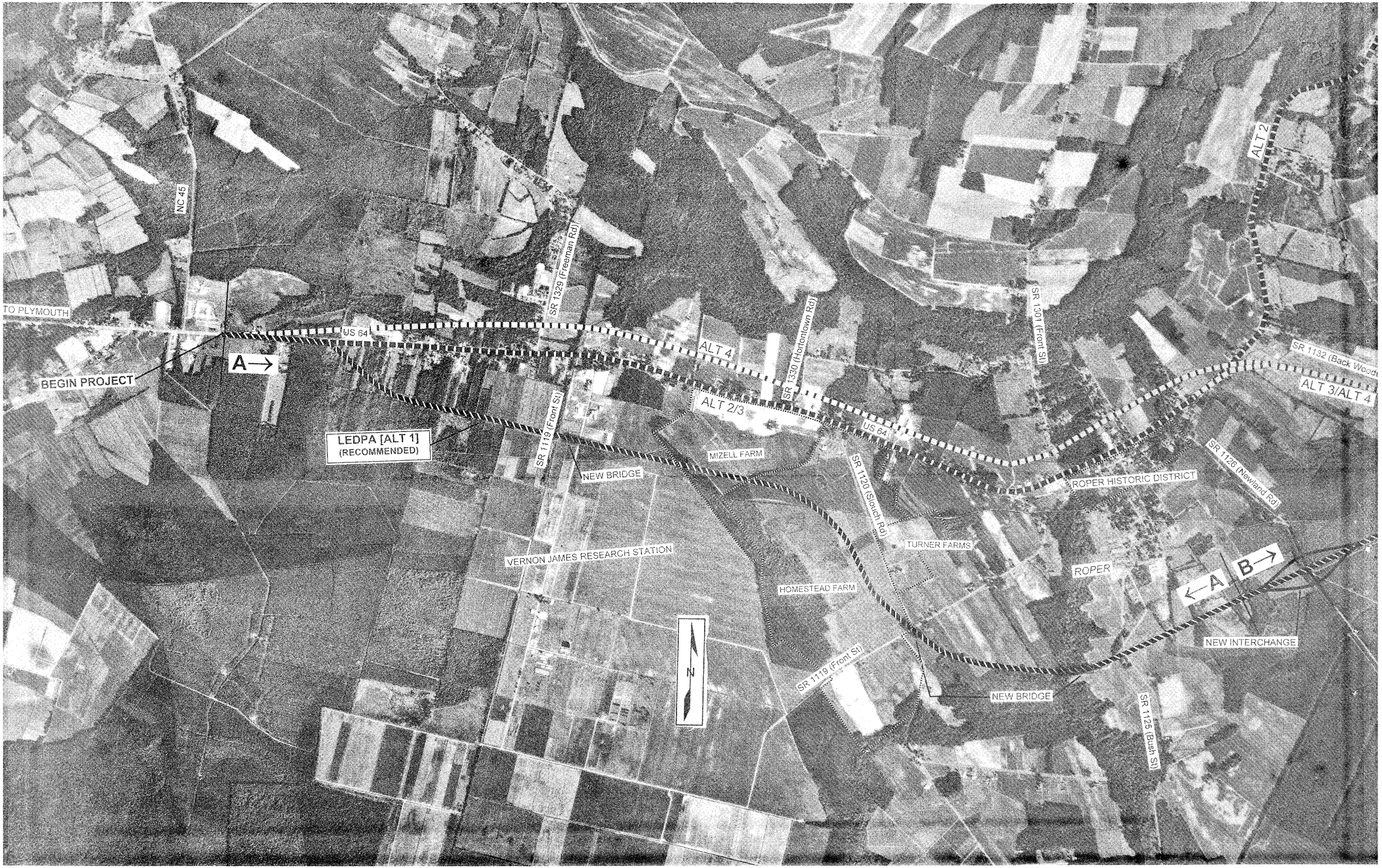


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 64
from East of NC 45 to 0.7 mi. East of
School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

Figure not to scale

FIG. 1


TO PLYMOUTH
NC 45
US 64
SR 1329 (Freeman Rd)
BEGIN PROJECT
A
LEDPA [ALT 1]
(RECOMMENDED)
SR 1119 (Front St)
NEW BRIDGE
VERNON JAMES RESEARCH STATION
ALT 4
ALT 2/3
SR 1330 (Hortontown Rd)
MIZELL FARM
HOMESTEAD FARM
SR 1120 (Slouch Rd)
SR 1301 (Front St)
ALT 2
SR 1132 (Back Woods
ALT 3/ALT 4
SR 1126 (Newland Rd)
ROPER HISTORIC DISTRICT
TURNER FARMS
ROPER
B
NEW INTERCHANGE
SR 1119 (Front St)
NEW BRIDGE
SR 1125 (Bush St)
N

PLEASANT GROVE

NC 308

US 64

REHOBOTH CHURCH

US 64

ALT 2

SR 1132 (Back Woods Rd)

ALT 3/ALT 4

SR 1126 (Newland Rd)

SR 1139 (Beasley Rd)

NEW INTERCHANGE

TYSON

← A B →

← B C →

WEYERHAUSER

NEW INTERCHANGE

LEDPA [ALT 1]
(RECOMMENDED)

N

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 64
from East of NC 45
to 0.7 mi. East of
School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

0 feet 1600

FIG. 2

N

SR 1304 (Mile Wrech Rd)

SCUPPERNONG

←C D→

US 64

NEW INTERCHANGE

SR 1141 (Cedar Wretch Rd)

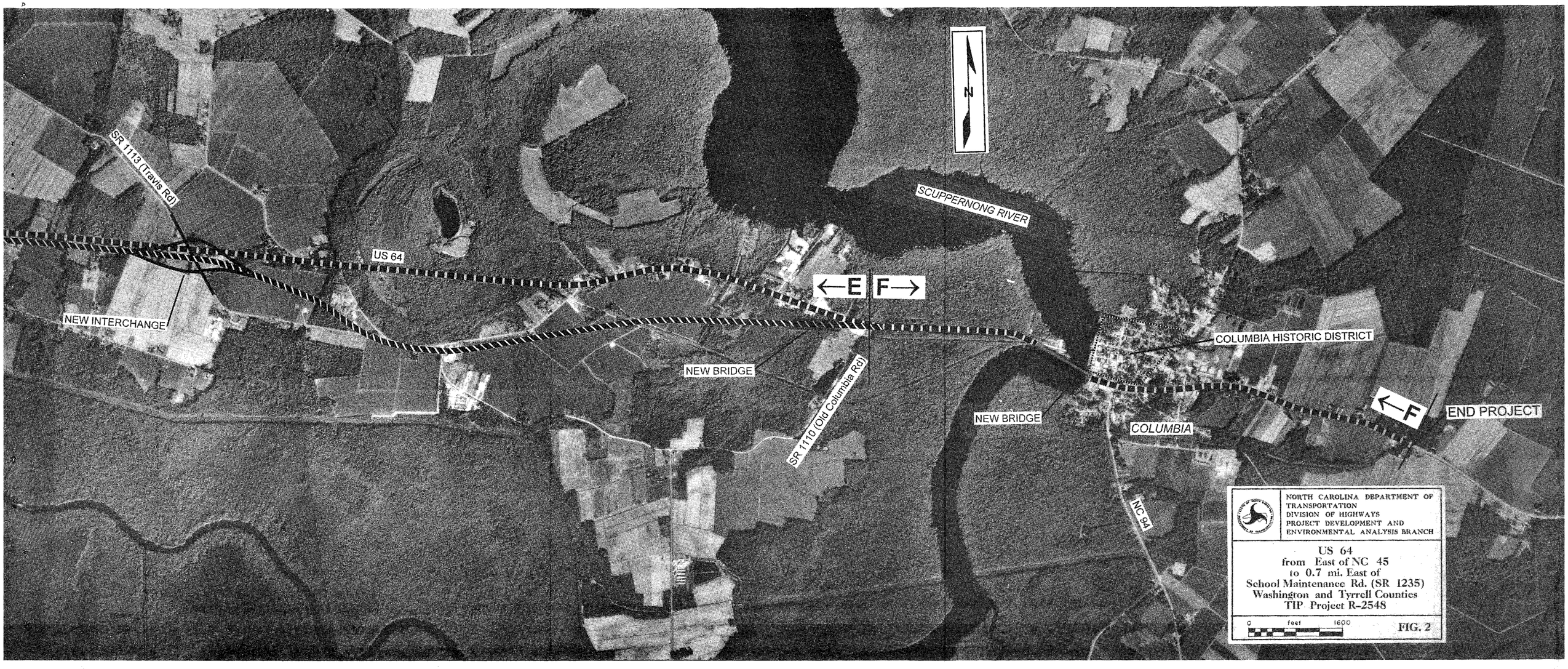
SR 1169 (Meadow Ln)

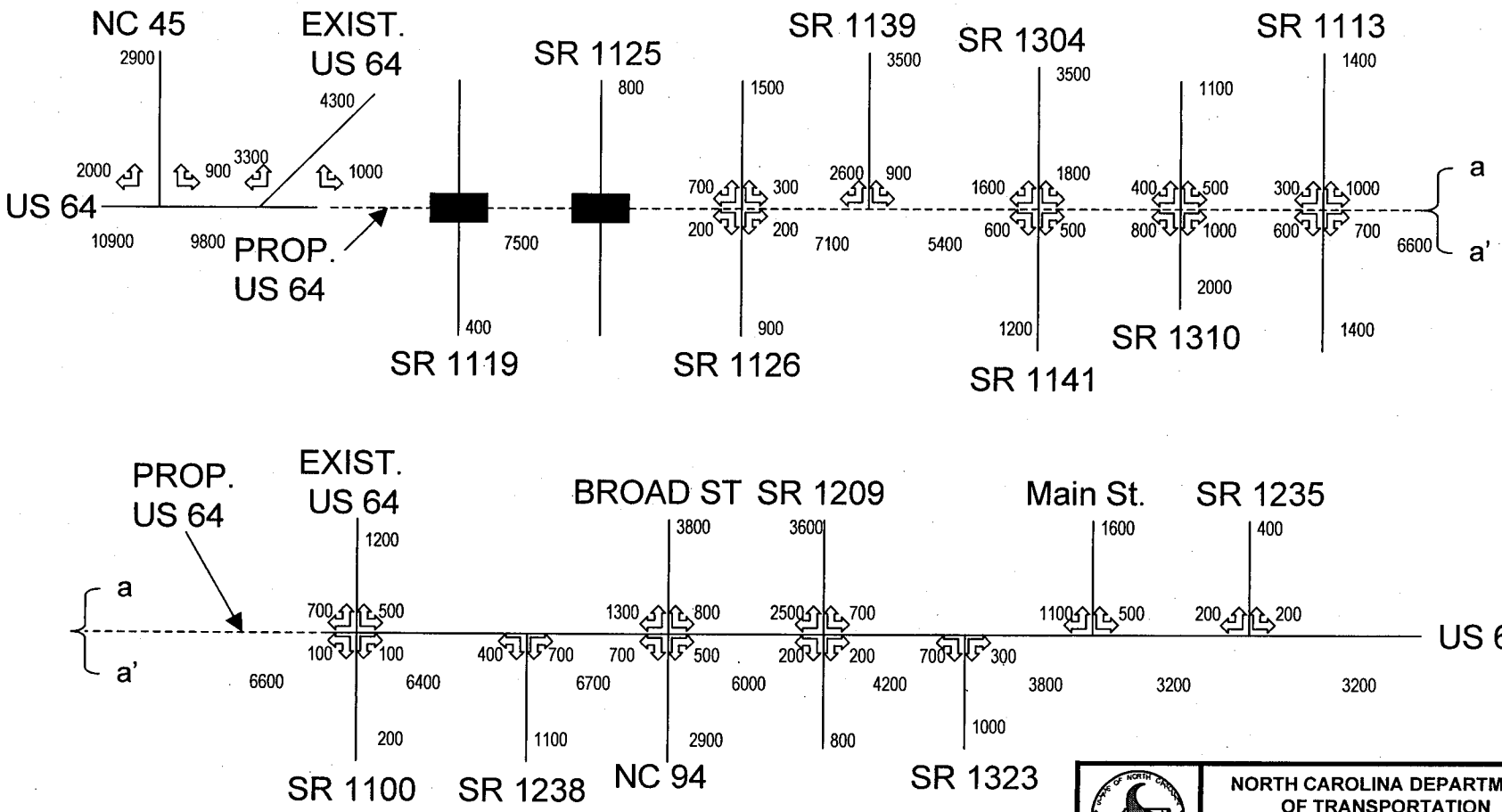
NEW INTERCHANGE

BLUESTONE FARMS

EDPA [ALT 1]
(COMMENDED)


SR 1304 (Mi
SCUPPERNONG
C
D
SR 1141 (Cedar Wretch Rd)
US 64
SR 1169 (Meadow Ln)
NEW INTERCHANGE
SR 1310 (Sixth St)
CRESWELL
SR 1158 (Old Creswell Rd)
BELGRADE AND ST. DAVID'S CHAPEL
TYRRELL CO.
WASHINGTON CO.
SR 1116 (Woodley Station Rd)
D
E
ALT 2
NEW INT
LEDPA [ALT 1]
(RECOMMENDED)
N
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH
US 64
from East of NC 45
to 0.7 mi. East of
School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548
0 feet 1600
FIG. 2


SR 1113 (Travis Rd)
US 64
NEW INTERCHANGE
NEW BRIDGE
SR 1110 (Old Columbia Rd)
SCUPPERNONG RIVER
E
F
COLUMBIA HISTORIC DISTRICT
NEW BRIDGE
COLUMBIA
F
END PROJECT
NC 94
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH
US 64
from East of NC 45
to 0.7 mi. East of
School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548
0 feet 1600
FIG. 2



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

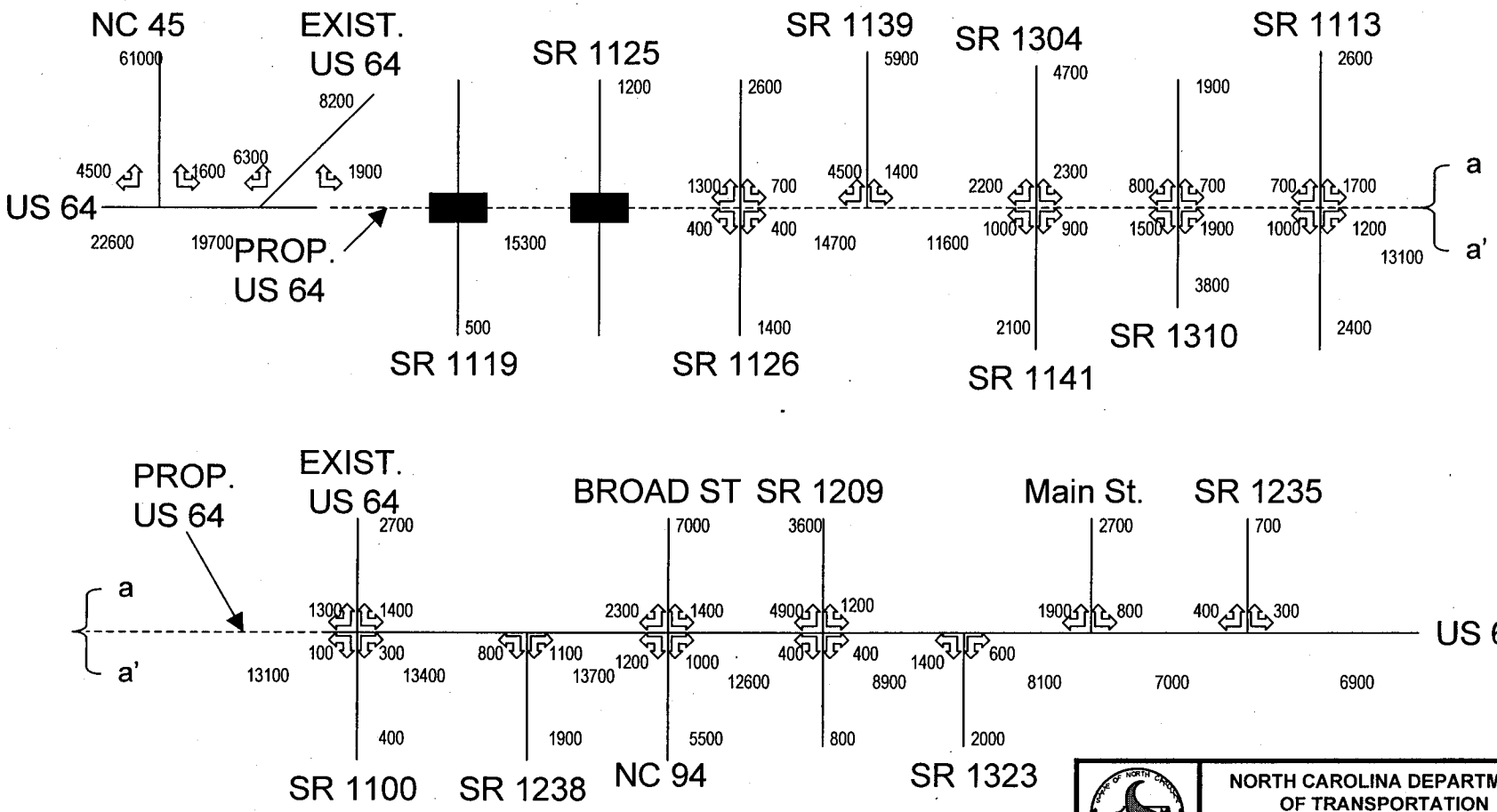
US 64
from East of NC 45 to 0.7 mi. East of School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

Figure not to scale

FIG. 3

Volumes represent 2-way flows

Estimated 1998 Average Daily Traffic Volumes



Volumes represent 2-way flows

Estimated 2020 Average Daily Traffic Volumes

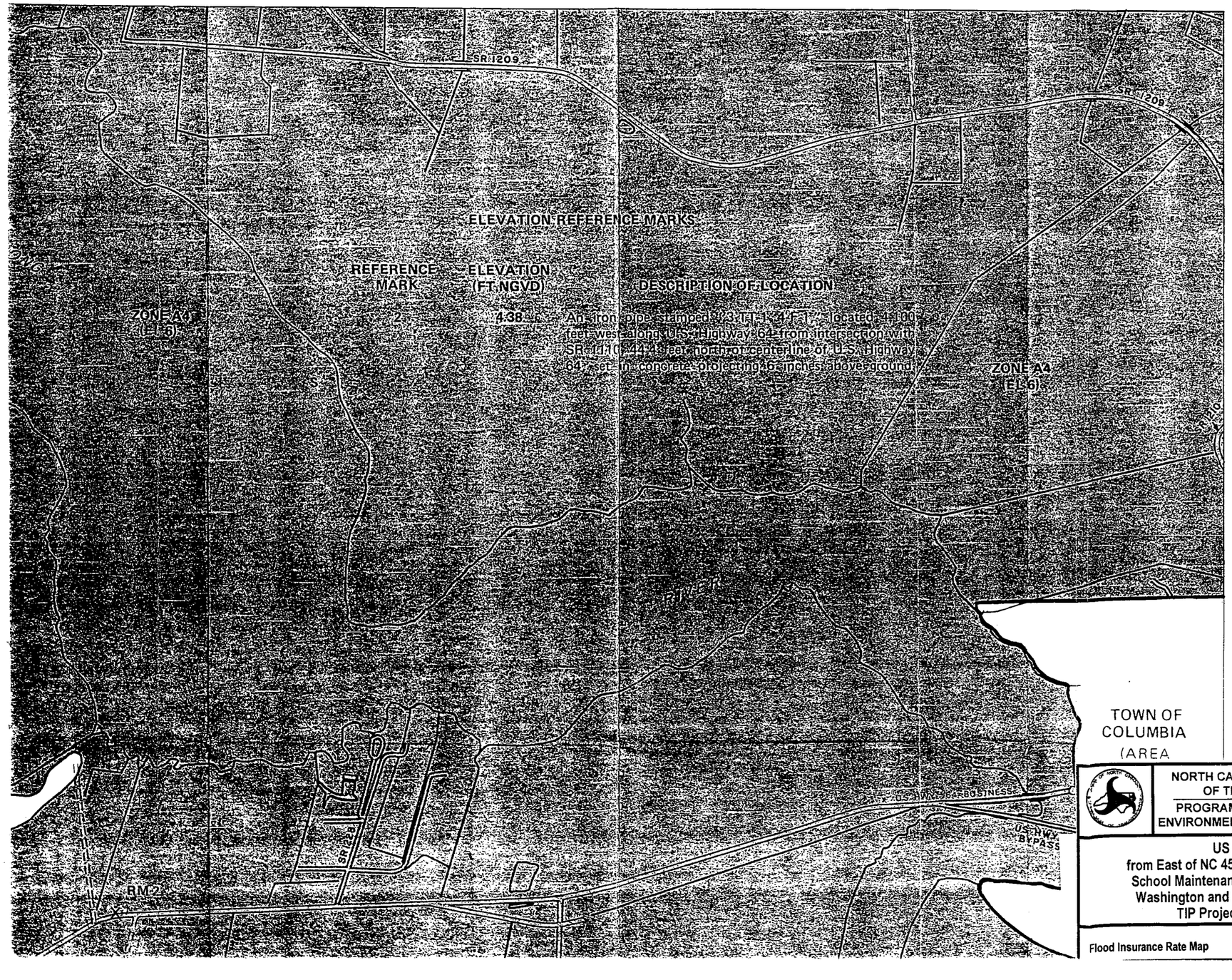
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 64
from East of NC 45 to 0.7 mi. East of School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

Figure not to scale

FIG. 3

JOINS PANEL 185



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
2	4.38	An iron pipe stamped "3 FT 1 4 F 1" located 4100 feet west along U.S. Highway 64 from intersection with SR-1010, 44.4 feet north of centerline of U.S. Highway 64, set in concrete, projecting 46 inches above ground.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 64
from East of NC 45 to 0.7 mi. East of School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

Flood Insurance Rate Map — FIG. 4a

KEY TO MAP

500-Year Flood Boundary	
100-Year Flood Boundary	
Zone Designations*	ZONE B / ZONE B
100-Year Flood Boundary	
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (Zones A and V) may be protected by flood control structures.

This map is for flood insurance and flood plain management purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

The coastal flooding elevations shown may include the effects of wave action and may differ significantly from those developed by the National Weather Service for hurricane evacuation planning. Coastal base flood elevations apply only landward of the shoreline shown on this map.

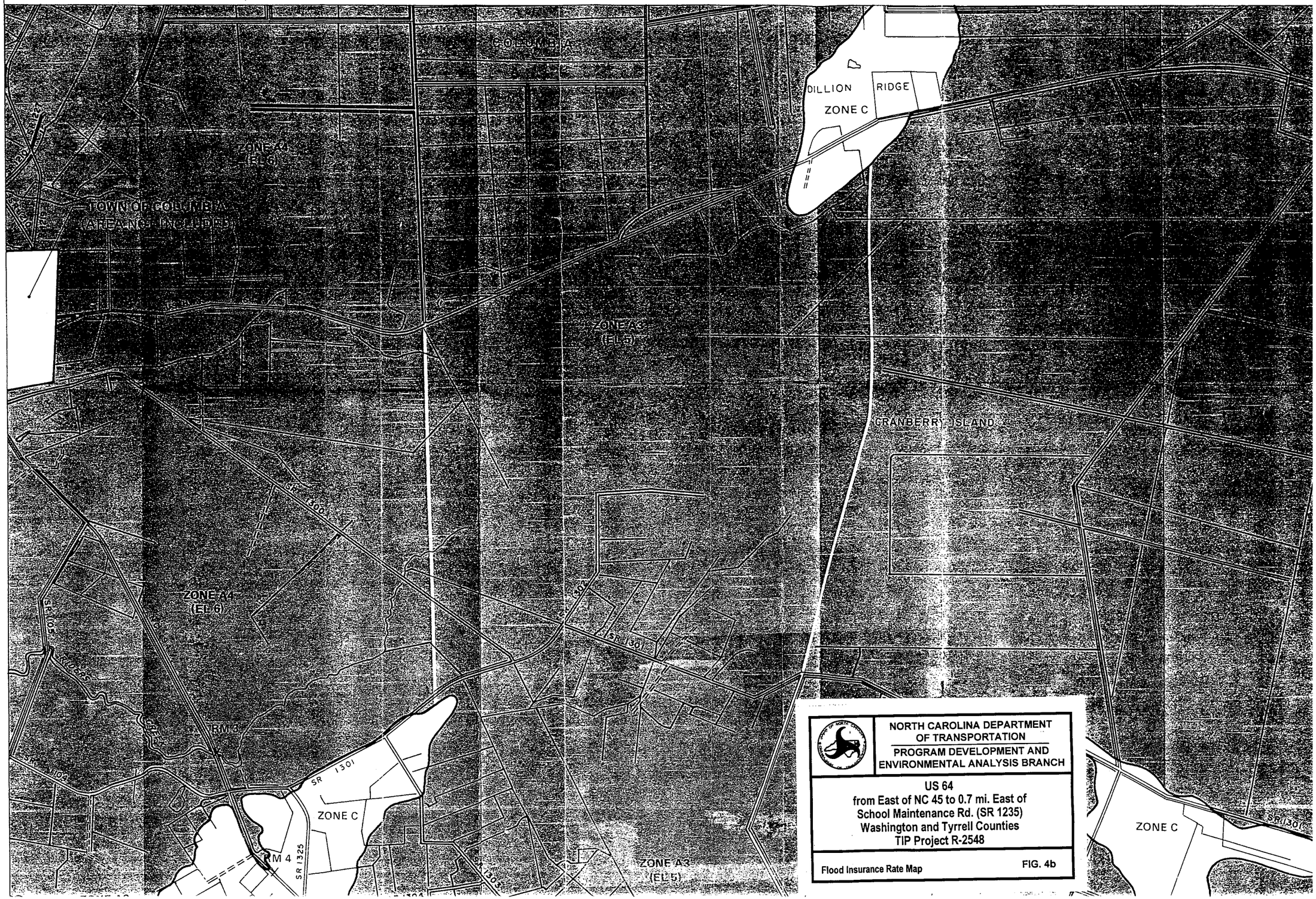
For adjoining map panels, see separately printed Map Index.

INITIAL IDENTIFICATION

JOINS PANEL 205

JOINS PANEL 210

JOINS PANEL 195



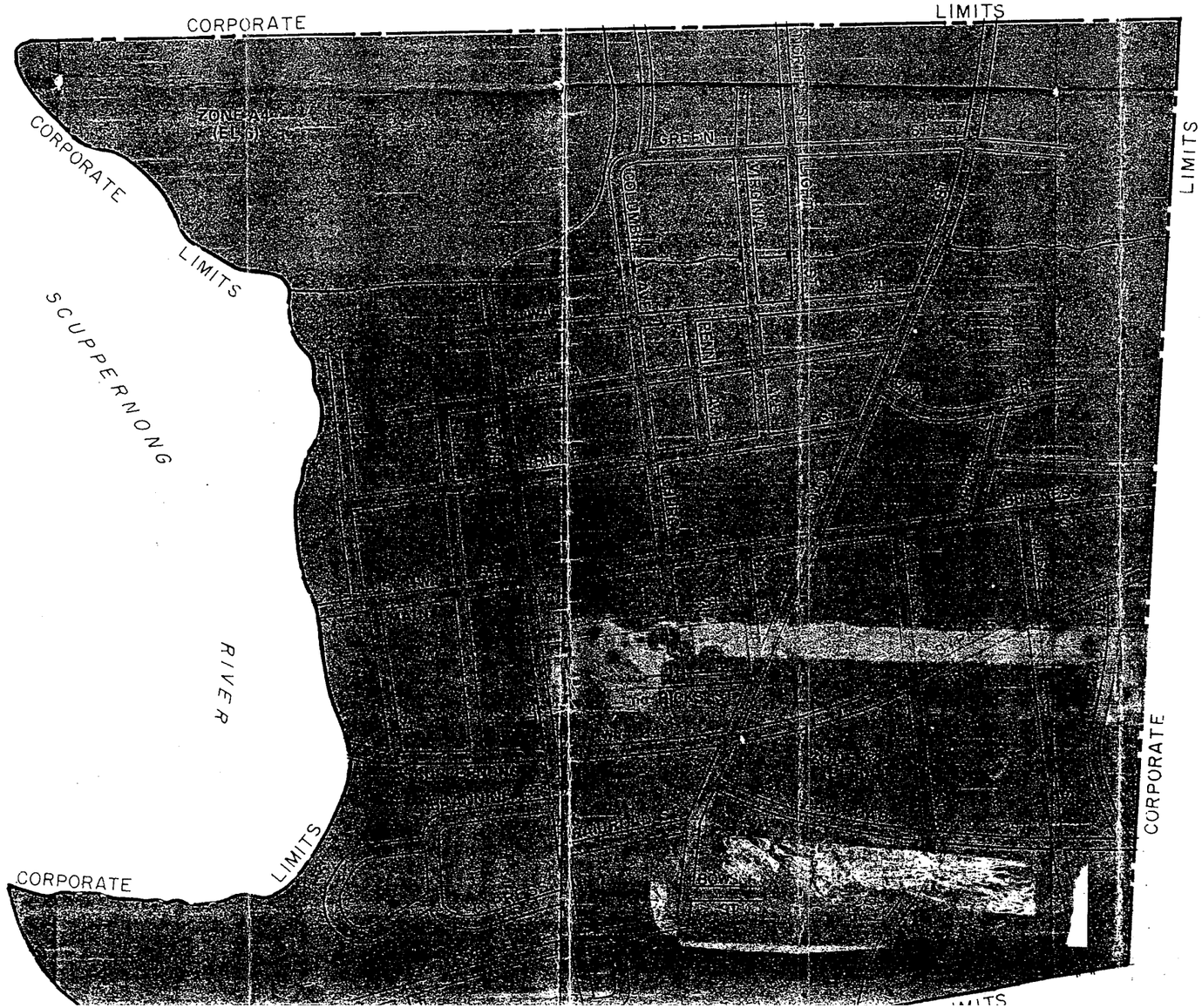
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROGRAM DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 64
from East of NC 45 to 0.7 mi. East of School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

Flood Insurance Rate Map

FIG. 4b



A0	Areas are bel of inur are det
AH	Areas are be elevatic are det
A1-A30	Areas flood h
A99	Areas protect elevatio
B	Areas b year flo ing with the con mile; or (Mediur
C	Areas o
D	Areas o
V	Areas o action); not dete
V1-V30	Areas o action); determir

Certain areas not in t
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This map is for flo
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special flood hazard

The coastal flooding
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FLOOD INS

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 64
from East of NC 45 to 0.7 mi. East of
School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

Flood Insurance Rate Map — FIG. 4c

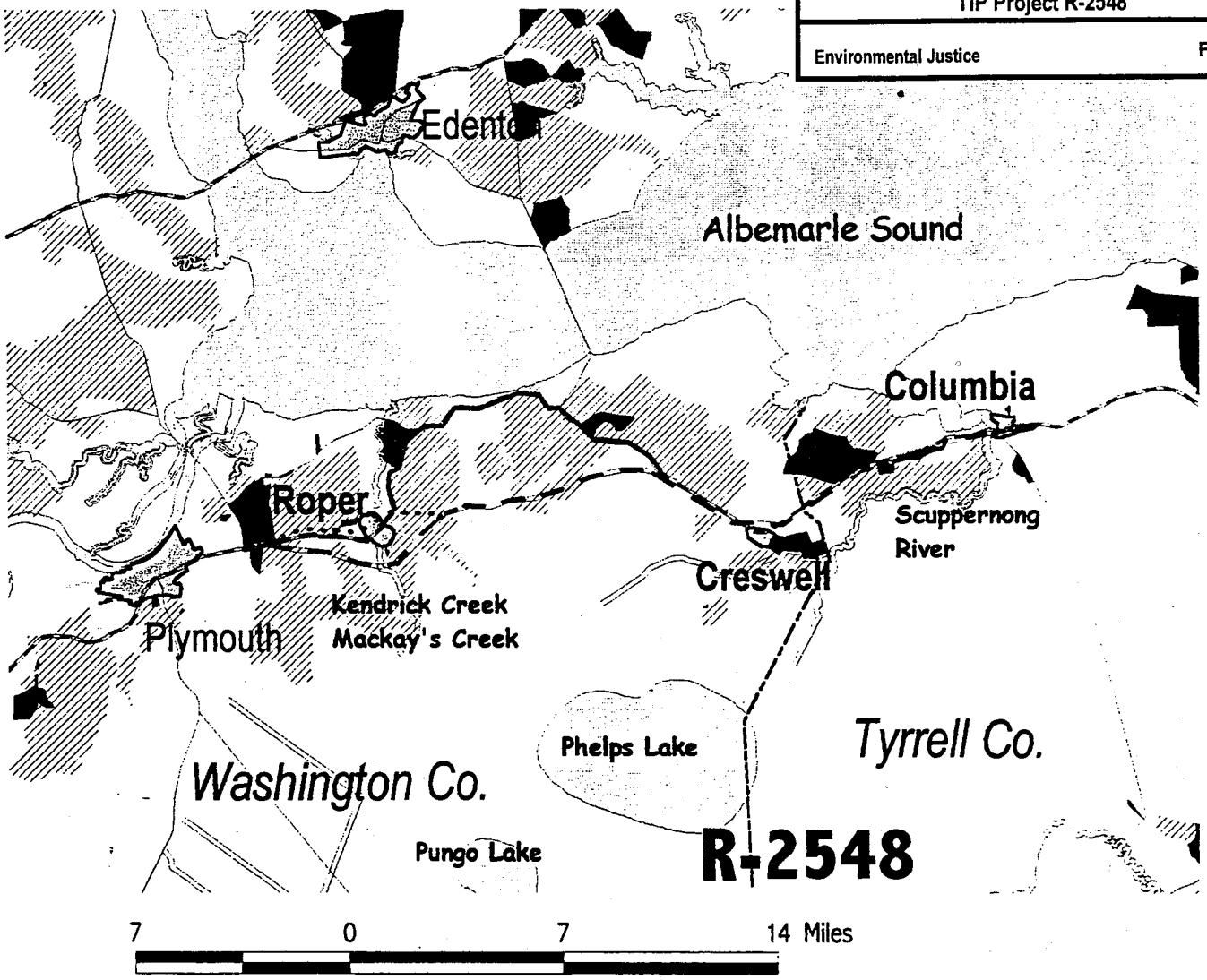
To determine if floo
contact your insuran

Environmental Justice Analysis

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 64
from East of NC 45 to 0.7 mi. East of School Maintenance Rd. (SR 1235)
Washington and Tyrrell Counties
TIP Project R-2548

Environmental Justice FIG. 5



"County Average" refers to the percentage of non-white population by Census block. The 1990 non-white population for Washington Co. was 45.9% and for Tyrrell Co. was 40.9%.

Environmental Justice (Tiger 1990)
- 3xCo.Ave. to 100%
- 2xCo.Ave. to 3xCo.Ave.
- Co.Ave. to 2xCo.Ave.

Environmental Justice is the equitable treatment of people and communities by identifying and avoiding any disproportionate health or environmental impacts to minority or low income populations. NCDOT's efforts involve proactive planning and analysis to ensure equitable treatment of all people and communities regarding transportation systems.

Appendix B — Air Quality/Traffic Noise Tables

TABLE A1

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2000, 55-MPH
DATE: 04/01/96 TIME: 14:57

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 108. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 1.8 PPM

LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. Far Lane Link	11.0	-804.7	11.0	804.7	1609.	360. AG	271.	13.3	0.0	13.4	
2. Near Lane Link	0.0	804.7	0.0	-804.7	1609.	180. AG	271.	13.3	0.0	13.4	

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2000, 55-MPH
DATE: 04/01/96 TIME: 14:57

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. r/w, 90'L CL, RES	-21.9	0.0	1.8

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.- 20.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1
MAX	2.0
DEGR.	0

TABLE A2

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2020, 55-MPH
DATE: 04/01/96 TIME: 14:57

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 108. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 1.8 PPM

LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. Far Lane Link	11.0	-804.7	11.0	804.7	1609.	360. AG	1259.	9.8	0.0	13.4	
2. Near Lane Link	0.0	804.7	0.0	-804.7	1609.	180. AG	1259.	9.8	0.0	13.4	

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2020, 55-MPH
DATE: 04/01/96 TIME: 14:57

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. r/w, 90'L CL, RES	-21.9	0.0	1.8

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.- 20.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1
MAX	2.5
DEGR.	4

TABLE A3

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2000, 50-MPH
DATE: 04/01/96 TIME: 14:57

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 108. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 1.8 PPM

LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. Far Lane Link	3.7	-804.7	3.7	804.7	1609.	360.	AG	271.	13.2	0.0	9.8		
2. Near Lane Link	0.0	804.7	0.0	-804.7	1609.	180.	AG	271.	13.2	0.0	9.8		

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2000, 50-MPH
DATE: 04/01/96 TIME: 14:57

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. r/w, 90'L CL, RES	-25.6	0.0	1.8

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.- 20.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1
MAX	2.0
DEGR.	0

TABLE A4

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0, JANUARY 1992

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2000, 35-MPH
DATE: 04/01/96 TIME: 14:57

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 108. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 1.8 PPM

LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. Far Lane Link	3.7	-804.7	3.7	804.7	1609.	360.	AG	1259.	14.8	0.0	9.8		
2. Near Lane Link	0.0	804.7	0.0	-804.7	1609.	180.	AG	1259.	14.8	0.0	9.8		

JOB: US 64 Washington County RUN: BUILD, 5-LN/12'LNS, YR-2000, 35-MPH
DATE: 04/01/96 TIME: 14:57

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. r/w, 90'L CL, RES	-25.6	0.0	1.8

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.- 20.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1
MAX	2.8
DEGR.	6

TABLE N1

HEARING: SOUNDS BOMBARDING US DAILY

DECIBELS		
140	Shotgun blast, jet 30 m away at takeoff	PAIN
	Motor test chamber	HUMAN EAR PAIN THRESHOLD
130		
	Firecrackers	
120	Severe thunder, pneumatic jackhammer	
	Hockey crowd	
	Amplified rock music	UNCOMFORTABLY LOUD
110		
	Textile loom	
100	Subway train, elevated train, farm tractor	
	Power lawn mower, newspaper press	
	Heavy city traffic, noisy factory	LOUD
90		
	Diesel truck 65 kmph 15 m away	
80	Crowded restaurant, garbage disposal	
	Average factory, vacuum cleaner	
	Passenger car 80 kmph 15 m away	MODERATELY LOUD
70		
	Quiet typewriter	
60	Singing birds, window air-conditioner	
	Quiet automobile	
	Normal conversation, average office	QUIET
50		
	Household refrigerator	
	Quiet office	VERY QUIET
40		
	Average home	
30	Dripping faucet	
	Whisper 1.5 m away	
20	Light rainfall, rustle of leaves	
		AVERAGE PERSON'S THRESHOLD OF HEARING
	Whisper	JUST AUDIBLE
10		
0		THRESHOLD FOR ACUTE HEARING

Sources: World Book, Rand McNally Atlas of the Human Body, Encyclopedia Americana, "Industrial Noise and Hearing Conversation" by J. B. Olishifski and E. R. Harford (Researched by N. Jane Hunt and published in the Chicago Tribune in an illustrated graphic by Tom Heinz.)

TABLE N2

NOISE ABATEMENT CRITERIA

Hourly A-Weighted Sound Level - decibels (dBA)

Activity Category	Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary 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.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: Title 23 Code of Federal Regulations (CFR) Part 772, U. S. Department of Transportation, Federal Highway Administration

DEFINITION OF SUBSTANTIAL INCREASE

Hourly A-Weighted Sound Level - decibels (dBA)

Existing Noise Level in Leq(h)	Increase in dBA from Existing Noise Levels to Future Noise Levels
< 50	> 15
> 50	> 10

Source: North Carolina Department of Transportation Noise Abatement Policy.

TABLE N3

AMBIENT NOISE LEVELS
(Leq)

US 64
From NC 45 East of Plymouth to
US 64 Business West of Columbia
Washington/Tyrrell Counties
State Project # 6.149001T, TIP # R-2548

SITE	LOCATION	DESCRIPTION	NOISE LEVEL (dBA)
1.	US 64, .01 Mile East of SR 1330	Paved	66
2.	US 64, .02 Mile East of SR 1126	Paved	65
3.	US 64, .07 Mile East of SR 1133	Paved	61
4.	US 64, .03 Mile West of SR 1319	Paved	66
5.	US 64, .09 Mile West of NC 32	Paved	67
6.	US 64, .01 Mile West of SR 1304	Paved	65
7.	US 64, .01 Mile East of SR 1158	Paved	64
8.	US 64, .09 Mile West of SR 1113	Paved	63
9.	US 64, .02 Mile East of SR 1113	Paved	66
10.	US 64, .25 Mile East of Columbia	Grassy	63
1B.	NC 45, .25 Mile South of US 64	Grassy	64
2B.	SR 1126, .97 Mile South of US 64	Gravel	64
3B.	SR 1132, 1 Mile South of US 64	Grassy	45

Note: The ambient noise level sites were measured at 50 feet from the center of the nearest lane of traffic.

TABLE N4.1

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #1

RECEPTOR INFORMATION ID #	LAND USE CATEGORY		NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From Beginning of Project to US 64/NC 32													
2	Church	E	US 64	130	L	60/40	US 64	130	L	-	-	70/50	+ 10/10
3	Residence	B	"	60	L	66	"	60	L	----------R/W----------			
3A	Residence	B	"	110	R	62	"	110	R	-	-	* 72	* + 10
3B	Residence	B	"	115	R	61	"	115	R	-	-	* 71	* + 10
4	Residence	B	"	120	R	61	"	120	R	-	-	* 71	* + 10
5	Residence	B	"	130	R	60	"	130	R	-	-	* 70	* + 10
6	Residence	B	"	120	R	61	"	120	R	-	-	* 71	* + 10
7	Residence	B	"	80	R	64	"	80	R	----------R/W----------			
8	Residence	B	"	100	R	62	"	100	R	-	-	* 72	* + 10
9	Residence	B	"	150	L	59	"	150	L	-	-	* 69	* + 10
10	Residence	B	"	60	L	66	"	80	L	----------R/W----------			
From US 64/NC 32 to SR 1126													
10A	Residence	B	US 64	80	R	64	US 64	0	L	----------R/W----------			
10B	Residence	B	"	80	R	64	"	240	L	62.7	64.4	* 66	+ 2
11	Residence	B	"	70	R	65	"	360	R	58.0	65.3	* 66	+ 1
12	Residence	B	"	120	R	61	"	340	R	58.6	61.4	63	+ 2
13	Residence	B	"	150	R	59	"	300	R	60.1	59.5	62	+ 3
14	Residence	B	"	100	R	62	"	520	R	53.4	62.9	63	+ 1
15	Residence	B	"	100	R	62	"	600	R	51.5	62.9	63	+ 1
15A	Residence	B	"	220	R	56	"	420	R	56.2	56.1	59	+ 3
15B	Residence	B	"	360	R	50	"	280	R	60.9	50.8	61	+ 11
16	Residence	B	"	120	L	61	"	840	L	47.0	61.4	61	0
17	Residence	B	"	60	R	66	"	680	R	49.8	66.3	* 66	0
18	Residence	B	"	60	R	66	"	660	R	50.2	66.3	* 66	0
19	Residence	B	"	60	R	66	"	760	R	48.3	66.3	* 66	0
20	Church	E	"	60	L	66/46	"	1020	L	45.0	66.3	66/46	0/0
21	Residence	B	"	70	R	65	"	900	R	46.3	65.3	65	0
21A	Residence	B	"	235	R	55	"	820	L	47.0	55.4	55	0
21B	Residence	B	"	300	R	52	"	780	L	47.7	52.7	53	+ 1
21C	Residence	B	"	390	R	49	"	695	L	49.2	49.9	52	+ 3
21D	Residence	B	"	455	R	48	"	580	L	51.6	48.0	53	+ 5
22	Residence	B	"	80	R	64	"	940	R	45.9	64.4	64	0
27	Residence	B	"	160	R	58	"	940	R	45.9	58.9	59	+ 1
28	Residence	B	"	80	R	64	"	960	R	45.6	64.4	64	0

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.1

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #1

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From US 64/NC 32 to SR 1126 (Cont'd)													
50	Residence	B	US 64	340	R	51	US 64	1020	L	44.8	51.4	52	+ 1
51	Residence	B	"	560	R	45	"	820	L	47.0	45.3	49	+ 4
54	Business	C	SR 1119	200	R	53	"	720	L	49.0	53.6	54	+ 1
55	Residence	B	SR 1120	220	R	52	"	1240	L	43.0	52.7	53	+ 1
56	Residence	B	SR 1119	80	R	61	"	400	L	56.8	61.1	62	+ 1
57	Residence	B	"	200	R	53	"	680	L	49.8	53.6	55	+ 2
58	Residence	B	"	100	R	59	"	1260	L	42.9	59.6	59	0
59	Residence	B	SR 1124	140	R	56	"	980	L	45.4	56.7	57	+ 1
60	Residence	B	"	120	R	58	"	1180	L	43.5	58.1	58	0
61	Residence	B	"	100	R	59	"	380	L	57.4	59.6	61	+ 2
62	Residence	B	"	100	R	59	"	520	L	53.4	59.6	60	+ 1
63	Business	C	"	70	R	62	"	1520	L	41.0	62.0	62	0
From SR 1126 to Existing US 64 & SR 1304													
64	Residence	B	PR. ROAD	120	R	45	US 64	880	R	46.5	45.0	48	+ 3
326	Business	C	US 64	40	L	65	"	1160	L	43.7	70.5	70	+ 5
327	Business	C	"	80	L	61	"	680	L	49.8	66.6	66	+ 5
328	Business	C	"	160	L	56	"	440	L	55.7	61.1	62	+ 6
329	Residence	B	"	70	L	62	"	300	L	60.1	67.5	* 68	+ 6
330	Residence	B	"	60	L	63	"	200	L	64.5	68.5	* 69	+ 6
331	Residence	B	"	180	L	55	"	180	L	-	-	65	* + 10
332	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
333	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
334	Residence	B	"	120	R	58	"	120	R	-	-	* 69	* + 11
335	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
336	Residence	B	"	150	L	56	"	150	L	-	-	* 67	* + 11
337	Residence	B	"	160	L	56	"	160	L	-	-	* 66	* + 10
338	Business	C	"	120	L	58	"	120	L	-	-	69	* + 11
From Existing US 64 & SR 1304 to SR 1158													
339	Residence	B	US 64	150	R	57	US 64	150	R	-	-	* 66	+ 9
340	Business	C	"	110	R	59	"	110	R	-	-	69	* + 10
341	Residence	B	"	90	R	61	"	90	R	----------		R/W	----------
342	Business	C	"	100	R	60	"	100	R	-	-	70	* + 10
343	Residence	B	"	110	L	59	"	110	L	-	-	* 69	* + 10

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.1

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #1

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From Existing US 64 and SR 1304 to SR 1158 (Cont'd)													
344	Business	C	US 64	120	L	59	US 64	120	L	-	-	69	* + 10
345	Business	C	"	100	R	60	"	100	R	-	-	70	* + 10
346	Residence	B	"	70	R	63	"	70	R	----------R/W----------			
347	Business	C	"	130	R	58	"	130	R	-	-	68	* + 10
348	Residence	B	"	180	R	55	"	180	R	-	-	64	+ 9
349	Residence	B	"	250	R	52	"	250	R	-	-	61	+ 9
350	Residence	B	"	170	R	56	"	170	R	-	-	65	+ 9
351	Residence	B	"	110	L	59	"	110	L	-	-	* 69	* + 10
352	Residence	B	"	150	L	57	"	150	L	-	-	* 66	+ 9
353	Residence	B	"	190	L	55	"	190	L	-	-	64	+ 9
354	Residence	B	"	220	L	53	"	220	L	-	-	62	+ 9
355	Business	C	"	110	L	59	"	110	L	-	-	69	* + 10
356	Business	C	"	70	L	63	"	70	L	----------R/W----------			
357	Business	C	"	70	R	63	"	70	R	----------R/W----------			
358	Residence	B	"	130	R	58	"	130	R	-	-	* 68	* + 10
359	Residence	B	"	80	L	62	"	300	R	59.5	62.0	63	+ 1
360	Residence	B	"	60	L	64	"	400	R	56.2	64.0	64	0
361	Residence	B	"	70	L	63	"	440	R	55.1	63.0	63	0
362	Residence	B	"	60	L	64	"	480	R	53.9	64.0	64	0
363	Business	C	"	90	L	61	"	520	R	52.8	61.0	61	0
364	Residence	B	"	60	L	64	"	640	R	50.0	64.0	64	0
365	Business	C	"	100	L	60	"	640	R	50.0	60.0	60	0
366	Business	C	"	70	L	63	"	680	R	47.7	63.0	63	0
367	Business	C	"	120	R	59	"	940	R	43.9	59.0	59	0
368	Business	C	"	100	L	60	"	700	R	47.3	60.0	60	0
369	Residence	B	"	180	L	55	"	600	R	49.3	55.0	56	+ 1
370	Business	C	"	80	L	62	"	720	R	46.9	62.0	62	0
371	Residence	B	"	150	L	57	"	700	R	47.3	57.0	57	0
372	Residence	B	"	150	R	57	"	940	R	43.9	57.0	57	0
373	Business	C	"	80	R	62	"	1000	R	43.2	62.0	62	0
374	Business	C	"	130	R	58	"	1100	R	42.3	58.0	58	0
375	Business	C	"	220	R	53	"	1100	R	42.3	53.0	53	0
376	Business	C	"	140	R	57	"	900	R	44.3	57.0	57	0
377	Business	C	"	140	R	57	"	1000	R	43.2	57.0	57	0
378	Business	C	"	100	R	60	"	960	R	43.7	60.0	60	0
379	Church	E	"	170	R	56/<40	"	900	R	44.3	56.0	56/<40	0/ 0
380	Business	C	"	140	R	57	"	790	R	45.7	57.0	57	0
381	Residence	B	"	120	L	59	"	600	R	49.3	59.0	59	0

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.1

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #1

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1158 to SR 1113													
381A	Residence	B	US 64	360	L	47	US 64	360	R	55.6	47.0	56	+ 9
382	Residence	B	"	120	R	58	"	640	R	48.2	58.0	58	0
382A	Residence	B	"	400	L	46	"	300	R	57.7	46.0	57	+ 11
383	Residence	B	"	120	L	58	"	480	R	52.1	58.0	58	0
383A	Residence	B	"	500	L	45	"	140	R	65.8	43.0	65	* + 20
384	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
385	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
386	Business	C	"	60	L	63	"	60	L	----------R/W----------			
387	Business	C	"	100	L	60	"	100	L	-	-	68	+ 8
388	Residence	B	"	100	L	60	"	100	L	-	-	* 68	+ 8
389	Residence	B	"	110	L	59	"	110	L	-	-	* 67	+ 8
390	Business	C	"	150	L	56	"	150	L	-	-	65	+ 9
391	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
392	Residence	B	"	130	L	57	"	130	L	-	-	* 66	+ 9
393	Residence	B	"	180	L	54	"	180	L	-	-	63	+ 9
394	Residence	B	"	90	L	60	"	90	L	----------R/W----------			
395	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
396	Residence	B	"	80	L	61	"	80	L	----------R/W----------			
397	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
398	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
399	Business	C	"	190	L	54	"	190	L	-	-	62	+ 8
400	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
401	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
402	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
403	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
404	Business	C	"	250	R	51	"	250	R	-	-	59	+ 8
405	Church	E	"	220	R	53/<40	"	220	R	-	-	61/<40	+ 8/ 0
406	Residence	B	"	90	R	60	"	90	R	----------R/W----------			
407	Residence	B	"	160	L	56	"	160	L	-	-	64	+ 8
408	Residence	B	"	160	L	56	"	160	L	-	-	64	+ 8
409	Residence	B	"	180	R	54	"	180	R	-	-	63	+ 9
410	Residence	B	"	200	R	54	"	200	R	-	-	62	+ 8
411	Residence	B	"	150	R	56	"	150	R	-	-	65	+ 9
412	Business	C	"	70	L	62	"	70	L	----------R/W----------			
413	Residence	B	"	220	R	53	"	300	R	-	-	57	+ 4
414	Residence	B	"	400	R	46	"	480	R	-	-	52	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.1

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #1

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From SR 1113 to Scuppernong River													
415	Business	C	US 64	100	R	60	US 64	100	R	-	-	67	+ 7
416	Business	C	"	100	R	60	"	100	R	-	-	67	+ 7
417	Residence	B	"	70	L	62	"	70	L	----------	R/W	----------	
418	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
419	Residence	B	"	70	R	62	"	70	R	----------	R/W	----------	
420	Residence	B	"	70	R	62	"	70	R	----------	R/W	----------	
421	Residence	B	"	90	R	60	"	90	R	----------	R/W	----------	
422	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
423	Residence	B	"	130	L	57	"	130	L	-	-	65	+ 8
424	Business	C	"	120	L	58	"	120	L	-	-	66	+ 8
425	Residence	B	"	90	L	60	"	90	L	----------	R/W	----------	
426	Business	C	"	120	L	58	"	120	L	-	-	66	+ 8
427	Residence	B	"	70	L	62	"	70	L	----------	R/W	----------	
428	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
429	Residence	B	"	140	R	57	"	140	R	-	-	64	+ 7
430	Residence	B	"	150	R	56	"	150	R	-	-	63	+ 7
431	Residence	B	"	120	R	58	"	120	R	-	-	* 66	+ 8
432	Residence	B	"	140	R	57	"	140	R	-	-	64	+ 7
433	Residence	B	"	170	R	55	"	170	R	-	-	62	+ 7
434	Residence	B	"	160	L	56	"	160	L	-	-	63	+ 7
434A	Residence	B	"	200	L	54	"	200	L	-	-	61	+ 7
435	Residence	B	"	120	L	58	"	120	L	-	-	* 66	+ 8
436	Residence	B	"	110	L	59	"	110	L	-	-	* 66	+ 7
437	Residence	B	"	70	R	62	"	70	R	----------	R/W	----------	
438	Residence	B	"	160	R	56	"	160	R	-	-	63	+ 7
439	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
440	Residence	B	"	70	R	62	"	70	R	----------	R/W	----------	
441	Residence	B	"	120	R	58	"	120	R	-	-	* 66	+ 8
442	Residence	B	"	120	L	58	"	120	L	-	-	* 66	+ 8
443	Residence	B	"	110	R	59	"	110	R	-	-	* 66	+ 7
444	Residence	B	"	90	R	60	"	90	R	----------	R/W	----------	
445	Residence	B	"	160	R	56	"	160	R	-	-	63	+ 7
From the Scuppernong River to End of Project													
446	Business	C	US 64	150	L	55	US 64	150	L	-	-	62	+ 7
447	Business	C	"	170	L	54	"	170	L	-	-	61	+ 7

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.1

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #1

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to End of Project (Cont'd)													
448	Business	C	US 64	80	L	60	US 64	80	L	-	-	67	+ 7
449	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
450	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
451	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
452	Residence	B	"	160	L	55	"	160	L	-	-	61	+ 6
453	Residence	B	"	80	L	60	"	80	L	-	-	* 67	+ 7
454	Residence	B	"	170	L	54	"	170	L	-	-	61	+ 7
455	Residence	B	"	130	L	56	"	130	L	-	-	63	+ 7
456	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
457	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
458	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
459	Business	C	"	80	L	60	"	80	L	-	-	67	+ 7
460	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
461	Church	E	"	80	L	60/<40	"	80	L	-	-	67/42	+ 7/+ 2
462	Residence	B	"	70	R	61	"	70	R	-	-	* 68	+ 7
463	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
464	Residence	B	"	60	R	62	"	60	R	-	-	* 69	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
467	Residence	B	"	150	R	55	"	150	R	-	-	62	+ 7
468	Residence	B	"	90	R	59	"	90	R	-	-	* 66	+ 7
469	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
470	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
471	Residence	B	"	120	L	57	"	120	L	-	-	64	+ 7
472	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
473	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
474	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
475	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
476	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
477	Apartments	B	"	130	L	57	"	130	L	-	-	63	+ 6
478	Residence	B	"	80	L	61	"	80	L	-	-	* 67	+ 6
479	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
480	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
481	Business	C	"	50	R	64	"	50	R	-	-	70	+ 6
482	Business	C	"	90	R	60	"	90	R	-	-	66	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.1

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #1

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to End of Project (Cont'd)													
483	Residence	B	US 64	160	L	55	US 64	160	L	-	-	61	+ 6
484	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
485	Church	E	"	70	L	62/<40	"	70	L	-	-	68/43	+ 6/+ 3
486	School	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/ 0
487	Residence	B	"	120	L	58	"	120	L	-	-	64	+ 6
488	Residence	B	"	120	R	58	"	120	R	-	-	64	+ 6
489	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
490	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
491	Residence	B	"	70	R	62	"	70	R	-	-	* 68	+ 6
492	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
493	Business	C	"	70	L	62	"	70	L	-	-	68	+ 6
494	Residence	B	"	200	R	53	"	200	R	-	-	59	+ 6
495	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
496	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
497	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
498	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
499	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
500	Residence	B	"	150	R	56	"	150	R	-	-	62	+ 6
501	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
502	Residence	B	"	100	R	59	"	100	R	-	-	65	+ 6
503	Church	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/ 0
504	Business	C	"	240	R	51	"	240	R	-	-	57	+ 6
505	Business	C	"	70	R	62	"	70	R	-	-	68	+ 6
506	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
507	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
508	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
509	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
510	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
511	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
512	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
513	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
514	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
515	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST NAME	ROADWAY DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From NC 45 to SR 1119(1)													
2	Church	E	US 64	130	L	60/40	US 64	130	L	-	-	69/49	+ 9/9
3	Residence	B	"	60	L	66	"	60	L	R/W			
3A	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
3B	Residence	B	"	115	R	61	"	115	R	-	-	* 70	+ 9
4	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
5	Residence	B	"	130	R	60	"	130	R	-	-	* 69	+ 9
6	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
7	Residence	B	"	80	R	64	"	80	R	R/W			
8	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
9	Residence	B	"	150	L	59	"	150	L	-	-	* 68	+ 9
10	Residence	B	"	60	L	66	"	60	L	R/W			
10A	Residence	B	"	315	R	52	"	315	R	-	-	60	+ 8
10B	Residence	B	"	50	R	67	"	50	R	R/W			
11	Residence	B	"	70	R	65	"	70	R	R/W			
12	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
13	Residence	B	"	150	R	59	"	150	R	-	-	* 68	+ 9
14	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
15	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
15A	Residence	B	"	205	R	56	"	205	R	-	-	65	+ 9
15B	Residence	B	"	335	R	51	"	335	R	-	-	60	+ 9
16	Residence	B	"	120	L	61	"	120	L	-	-	* 70	+ 9
17	Residence	B	"	60	R	66	"	60	R	R/W			
18	Residence	B	"	60	R	66	"	60	R	R/W			
19	Residence	B	"	60	R	66	"	60	R	R/W			
20	Church	E	"	60	L	66/41	"	60	L	R/W			
21	Residence	B	"	70	R	65	"	70	R	R/W			
22	Residence	B	"	80	R	64	"	80	R	R/W			
23	Residence	B	"	90	L	63	"	90	L	R/W			
24	Residence	B	"	80	L	64	"	80	L	R/W			
25	Residence	B	"	50	L	67	"	50	L	R/W			
26	Residence	B	"	60	L	66	"	60	L	R/W			
27	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
28	Residence	B	"	80	R	64	"	80	R	R/W			
29	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
30	Residence	B	"	80	R	64	"	80	R	R/W			
31	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
32	Residence	B	"	90	R	63	"	90	R	R/W			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From NC 45 to SR 1119(1) Cont'd													
33	Residence	B	US 64	80	R	64	US 64	80	R	R/W			
34	Residence	B	"	60	L	66	"	60	L	R/W			
35	Residence	B	"	60	L	66	"	60	L	R/W			
36	Residence	B	"	60	L	66	"	60	L	R/W			
37	Residence	B	"	60	L	66	"	60	L	R/W			
38	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
39	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
40	Residence	B	"	70	L	65	"	70	L	R/W			
41	Residence	B	"	80	R	64	"	80	R	R/W			
41A	Residence	B	"	70	R	65	"	70	R	R/W			
41B	Residence	B	"	70	R	65	"	70	R	R/W			
41C	Residence	B	"	70	R	65	"	70	R	R/W			
41D	Residence	B	"	65	R	65	"	65	R	R/W			
42	Residence	B	"	90	L	63	"	90	L	R/W			
43	Residence	B	"	80	R	64	"	80	R	R/W			
44	Residence	B	"	90	R	63	"	90	R	R/W			
45	Residence	B	"	140	L	60	"	140	L	-	-	* 69	+ 9
46	Residence	B	"	80	R	64	"	80	R	R/W			
47	Residence	B	"	160	L	58	"	160	L	-	-	* 67	+ 9
48	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
49	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
50	Residence	B	"	90	R	63	"	90	R	R/W			
51	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
52	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
53	Residence	B	"	80	L	64	"	80	L	R/W			
From SR 1119(1) to SR 1330													
54	Residence	B	US 64	180	L	57	US 64	180	L	-	-	* 66	+ 9
55	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
56	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
57	Residence	B	"	90	R	63	"	90	R	R/W			
57A	Residence	B	"	95	R	63	"	95	R	R/W			
58	Residence	B	"	240	R	55	"	240	R	-	-	63	+ 8
59	Residence	B	"	60	R	66	"	60	R	R/W			
60	Residence	B	"	90	R	63	"	90	R	R/W			
61	Residence	B	"	80	R	64	"	80	R	R/W			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE CATEGORY		NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1119(1) to SR 1330 (Cont'd)													
62	Residence	B	US 64	100	R	62	US 64	100	R	-	-	* 71	+ 9
63	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
64	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
65	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
66	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
67	Residence	B	"	80	R	64	"	80	R	----------R/W----------			
68	Residence	B	"	90	L	63	"	90	L	----------R/W----------			
69	Residence	B	"	130	L	60	"	130	L	-	-	* 69	+ 9
70	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
71	Residence	B	"	110	L	62	"	110	L	-	-	* 71	+ 9
71A	Residence	B	"	120	L	61	"	120	L	-	-	* 70	+ 9
72	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
73	Business	C	"	100	R	62	"	100	R	-	-	* 71	+ 9
74	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
75	Residence	B	"	60	L	66	"	60	L	----------R/W----------			
76	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
77	Business	C	"	60	R	66	"	60	R	----------R/W----------			
78	Residence	B	"	40	R	68	"	40	R	----------R/W----------			
79	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
80	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
81	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
82	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
83	Residence	B	"	60	L	66	"	60	L	----------R/W----------			
84	Residence	B	"	60	L	66	"	60	L	----------R/W----------			
85	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
86	Residence	B	"	60	L	66	"	60	L	----------R/W----------			
87	Residence	B	"	60	R	66	"	60	R	----------R/W----------			
88	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
89	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
From SR 1330 to SR 1119(2)/SR 1301 (Front Street)													
90	Church	E	US 64	60	L	66/41	US 64	60	L	----------R/W----------			
91	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
92	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
93	Residence	B	"	60	L	66	"	60	L	----------R/W----------			
94	Residence	B	"	70	L	65	"	70	L	----------R/W----------			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1330 to SR 1119(2)/SR 1301 (Front Street) Cont'd													
95	Residence	B	US 64	130	L	60	US 64	130	L	-	-	* 69	+ 9
96	Business	C	"	270	L	53	"	270	L	-	-	62	+ 9
97	Business	C	"	150	L	59	"	150	L	-	-	68	+ 9
98	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
99	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
100	Business	C	"	60	R	66	"	60	R	----------R/W----------			
101	Residence	B	"	180	L	57	"	180	L	-	-	* 66	+ 9
102	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
103	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
104	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
105	Residence	B	"	50	L	67	"	50	L	----------R/W----------			
105A	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
105B	Residence	B	"	65	L	65	"	65	L	----------R/W----------			
105C	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
105D	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
106	Business	C	"	50	R	67	"	50	R	----------R/W----------			
107	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
108	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
109	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
110	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
111	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
112	Residence	B	"	170	R	58	"	170	R	-	-	* 67	+ 9
113	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
114	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
115	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
116	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
117	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
118	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
119	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
120	Residence	B	"	150	R	59	"	150	R	-	-	* 68	+ 9
121	Business	C	"	170	R	58	"	170	R	-	-	67	+ 9
122	Business	C	"	80	L	64	"	80	L	----------R/W----------			
123	Business	C	"	100	L	62	"	100	L	-	-	* 71	+ 9
124	Business	C	"	130	L	60	"	130	L	-	-	69	+ 9
125	Residence	B	"	200	L	57	"	200	L	-	-	65	+ 8
126	Business	C	"	100	R	62	"	100	R	-	-	* 71	+ 9
127	Business	C	"	120	R	61	"	120	R	-	-	70	+ 9

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1119(2)/SR 1301 (Front Street) to SR 1132													
128	Residence	B	US 64	190	R	56	US 64	190	R	-	-	64	+ 8
129	Residence	B	"	80	R	63	"	80	R	R/W			
130	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
131	Residence	B	"	260	R	53	"	260	R	-	-	61	+ 8
132	Residence	B	"	190	R	56	"	190	R	-	-	64	+ 8
133	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
134	Residence	B	"	70	R	64	"	70	R	R/W			
135	Residence	B	"	70	R	64	"	70	R	R/W			
136	Business	C	"	70	R	64	"	70	R	R/W			
137	Residence	B	"	150	R	58	"	150	R	-	-	* 67	+ 9
138	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
139	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
140	Residence	B	"	140	R	58	"	140	R	-	-	* 67	+ 9
141	Residence	B	"	260	R	53	"	260	R	-	-	61	+ 8
142	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
143	Business	C	"	90	R	62	"	90	R	R/W			
144	Residence	B	"	260	R	53	"	260	R	-	-	61	+ 8
145	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
146	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
147	Business	C	"	130	R	59	"	130	R	-	-	68	+ 9
148	Business	C	"	80	R	63	"	80	R	R/W			
149	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
150	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
151	Residence	B	"	100	L	61	"	100	L	-	-	* 70	+ 9
152	Residence	B	"	50	R	66	"	50	R	R/W			
153	Residence	B	"	150	R	58	"	150	R	-	-	* 67	+ 9
154	Residence	B	"	200	L	55	"	200	L	-	-	64	+ 9
155	Residence	B	"	100	L	61	"	100	L	-	-	* 70	+ 9
156	Residence	B	"	150	L	58	"	150	L	-	-	* 67	+ 9
157	Business	C	"	70	R	64	"	70	R	R/W			
158	Residence	B	"	100	R	61	"	100	R	-	-	* 70	+ 9
159	Church	E	"	180	L	56/<40	"	180	L	-	-	65/45	+ 9/5
160	Residence	B	"	80	R	63	"	80	R	R/W			
161	Residence	B	"	80	R	63	"	80	R	R/W			
162	Residence	B	"	70	R	64	"	70	R	R/W			
163	Church	E	"	70	L	64/<40	"	70	L	R/W			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548.

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1132 to NC 308													
164	Business	C	US 64	60	R	65	US 64	60	R	R/W			
165	Residence	B	"	150	R	58	"	150	R	-	-	* 67	+ 9
166	Residence	B	"	100	R	61	"	100	R	-	-	* 71	* + 10
167	Residence	B	"	160	L	57	"	160	L	-	-	* 67	* + 10
168	Residence	B	"	90	R	62	"	90	R	R/W			
169	Residence	B	"	130	L	59	"	130	L	-	-	* 69	* + 10
170	Residence	B	"	70	L	64	"	70	L	R/W			
171	Residence	B	"	60	L	65	"	60	L	R/W			
172	Residence	B	"	130	R	59	"	130	R	-	-	* 69	* + 10
173	Residence	B	"	160	L	57	"	160	L	-	-	* 67	* + 10
174	Residence	B	"	150	L	58	"	150	L	-	-	* 67	+ 9
175	Residence	B	"	90	R	62	"	90	R	R/W			
176	Residence	B	"	260	R	53	"	260	R	-	-	61	+ 8
177	Residence	B	"	130	R	59	"	130	R	-	-	* 69	* + 10
178	Residence	B	"	160	R	57	"	160	R	-	-	* 67	* + 10
179	Residence	B	"	170	R	57	"	170	R	-	-	* 66	+ 9
180	Residence	B	"	130	R	59	"	130	R	-	-	* 69	* + 10
181	Residence	B	"	90	L	62	"	90	L	R/W			
182	Residence	B	"	120	L	60	"	120	L	-	-	* 69	+ 9
183	Residence	B	"	130	R	59	"	130	R	-	-	* 69	* + 10
184	Residence	B	"	120	R	60	"	120	R	-	-	* 69	+ 9
185	Residence	B	"	100	R	61	"	100	R	-	-	* 71	* + 10
186	Residence	B	"	130	R	59	"	130	R	-	-	* 69	* + 10
187	Residence	B	"	120	R	60	"	120	R	-	-	* 69	+ 9
188	Residence	B	"	100	L	61	"	100	L	-	-	* 71	* + 10
189	Residence	B	"	100	L	61	"	100	L	-	-	* 71	* + 10
190	Residence	B	"	100	L	61	"	100	L	-	-	* 71	* + 10
191	Residence	B	"	100	R	61	"	100	R	-	-	* 71	* + 10
192	Residence	B	"	100	R	61	"	100	R	-	-	* 71	* + 10
193	Residence	B	"	170	R	57	"	170	R	-	-	* 66	+ 9
194	Business	C	"	90	L	62	"	90	L	R/W			
195	Residence	B	"	80	R	63	"	80	R	R/W			
196	Residence	B	"	80	R	63	"	80	R	R/W			
197	Residence	B	"	70	R	64	"	70	R	R/W			
198	Residence	B	"	70	R	64	"	70	R	R/W			
199	Residence	B	"	70	R	64	"	70	R	R/W			
200	Residence	B	"	220	L	54	"	220	L	-	-	63	+ 9

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
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TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION			NEAREST ROADWAY			AMBIENT NOISE	NEAREST PROPOSED ROADWAY			PREDICTED NOISE LEVELS			NOISE LEVEL
ID #	LAND USE	CATEGORY	NAME	DISTANCE(ft)		LEVEL	NAME	DISTANCE(ft)		-L-	-Y-	MAXIMUM	INCREASE
	From SR 1132 to NC 308 (Cont'd)												
201	Residence	B	US 64	70	L	64	US 64	70	L			R/W	
202	Residence	B	"	90	L	62	"	90	L			R/W	
203	Residence	B	"	100	R	61	"	100	R	-	-	* 71	* + 10
204	Residence	B	"	100	L	61	"	100	L	-	-	* 71	* + 10
205	Business	C	"	160	R	57	"	160	R	-	-	67	* + 10
206	Residence	B	"	60	R	65	"	60	R			R/W	
207	Residence	B	"	50	R	65	"	50	R			R/W	
208	Residence	B	"	100	R	61	"	100	R	-	-	* 71	* + 10
209	Residence	B	"	70	R	64	"	70	R			R/W	
210	Residence	B	"	150	L	58	"	150	L	-	-	* 67	+ 9
211	Residence	B	"	70	L	64	"	70	L			R/W	
212	Business	C	"	50	L	65	"	50	L			R/W	
213	Residence	B	"	40	L	65	"	40	L			R/W	
214	Residence	B	"	40	L	65	"	40	L			R/W	
215	Residence	B	"	60	L	65	"	60	L			R/W	
216	Residence	B	"	40	L	65	"	40	L			R/W	
217	Residence	B	"	140	L	58	"	140	L	-	-	* 68	* + 10
218	Residence	B	"	50	L	65	"	50	L			R/W	
219	Residence	B	"	250	L	53	"	250	L	-	-	62	+ 9
220	Business	C	"	90	L	62	"	90	L			R/W	
221	Residence	B	"	80	R	63	"	80	R			R/W	
222	Residence	B	"	50	R	65	"	50	R			R/W	
	From NC 308 to SR 1319												
223	Residence	B	US 64	150	L	59	US 64	150	L	-	-	* 67	+ 8
224	Residence	B	"	90	L	63	"	90	L			R/W	
225	Residence	B	"	200	L	56	"	200	L	-	-	65	+ 9
226	Residence	B	"	80	L	64	"	80	L			R/W	
227	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
228	Residence	B	"	200	L	56	"	200	L	-	-	65	+ 9
229	Residence	B	"	70	R	65	"	70	R			R/W	
230	Business	C	"	100	L	62	"	100	L	-	-	* 71	+ 9
231	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
232	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
233	Residence	B	"	130	R	60	"	130	R	-	-	* 69	+ 9
234	Residence	B	"	210	R	56	"	210	R	-	-	64	+ 8

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From NC 308 to SR 1319 (Cont'd)													
235	Business	C	US 64	70	R	65	US 64	70	R		R/W		
236	Residence	B	"	140	R	59	"	140	R	-	-	* 68	+ 9
237	Residence	B	"	170	R	58	"	170	R	-	-	* 66	+ 8
238	Residence	B	"	90	L	63	"	90	L		R/W		
239	Residence	B	"	150	L	59	"	150	L	-	-	* 67	+ 8
240	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
241	Residence	B	"	70	R	65	"	70	R		R/W		
242	Residence	B	"	90	R	63	"	90	R		R/W		
243	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
244	Residence	B	"	110	R	61	"	110	R	-	-	* 70	+ 9
From SR 1319 to NC 32													
245	Residence	B	US 64	230	R	56	US 64	230	R	-	-	64	+ 8
246	Residence	B	"	60	L	67	"	60	L		R/W		
247	Residence	B	"	230	L	56	"	230	L	-	-	64	+ 8
248	Residence	B	"	120	R	62	"	120	R	-	-	* 70	+ 8
249	Residence	B	"	150	R	60	"	150	R	-	-	* 68	+ 8
250	Residence	B	"	80	R	65	"	80	R		R/W		
251	Residence	B	"	110	R	63	"	110	R	-	-	* 71	+ 8
252	Residence	B	"	150	L	60	"	150	L	-	-	* 68	+ 8
253	Residence	B	"	110	L	63	"	110	L	-	-	* 71	+ 8
254	Residence	B	"	70	R	66	"	70	R		R/W		
255	Residence	B	"	60	R	67	"	60	R		R/W		
256	Residence	B	"	70	R	66	"	70	R		R/W		
257	Residence	B	"	160	R	59	"	160	R	-	-	* 67	+ 8
258	Residence	B	"	130	L	61	"	130	L	-	-	* 69	+ 8
259	Business	C	"	90	R	64	"	90	R		R/W		
260	Residence	B	"	110	L	63	"	110	L	-	-	* 71	+ 8
261	Residence	B	"	240	L	55	"	240	L	-	-	63	+ 8
262	Residence	B	"	150	R	60	"	150	R	-	-	* 68	+ 8
263	Residence	B	"	70	R	66	"	70	R		R/W		
264	Residence	B	"	80	L	65	"	80	L		R/W		
265	Residence	B	"	150	L	60	"	150	L	-	-	* 68	+ 8
266	Residence	B	"	50	R	68	"	50	R		R/W		
267	Residence	B	"	230	R	56	"	230	R	-	-	64	+ 8
268	Residence	B	"	60	R	67	"	60	R		R/W		

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1319 to NC 32 (Cont'd)													
269	Residence	B	US 64	80	R	65	US 64	80	R	R/W			
270	Residence	B	"	90	R	64	"	90	R	R/W			
271	Residence	B	"	170	R	59	"	170	R	-	-	* 67	+ 8
272	Business	C	"	80	L	65	"	80	L	R/W			
273	Residence	B	"	150	L	60	"	150	L	-	-	* 68	+ 8
274	Residence	B	"	160	L	59	"	160	L	-	-	* 67	+ 8
275	Residence	B	"	150	R	60	"	150	R	-	-	* 68	+ 8
276	Residence	B	"	200	R	57	"	200	R	-	-	65	+ 8
277	Business	C	"	100	R	63	"	100	R	-	-	* 72	+ 9
278	Residence	B	"	100	L	63	"	100	L	-	-	* 72	+ 9
279	Residence	B	"	200	L	57	"	200	L	-	-	65	+ 8
280	Residence	B	"	100	L	63	"	100	L	-	-	* 72	+ 9
281	Church	E	"	170	R	59/<40	"	170	R	-	-	67/47	+ 8/7
282	Church	E	"	120	L	62/42	"	120	L	-	-	70/50	+ 8/8
283	Residence	B	"	190	R	58	"	190	R	-	-	* 66	+ 8
284	Residence	B	"	100	R	63	"	100	R	-	-	* 72	+ 9
285	Residence	B	"	70	R	66	"	70	R	R/W			
286	Residence	B	"	160	R	59	"	160	R	-	-	* 67	+ 8
287	Residence	B	"	120	R	62	"	120	R	-	-	* 70	+ 8
288	Residence	B	"	130	L	61	"	130	L	-	-	* 69	+ 8
289	Business	C	"	120	R	62	"	120	R	-	-	70	+ 8
From NC 32 to West City Limits of Creswell													
290	Business	C	US 64	100	L	61	US 64	100	L	-	-	* 72	* + 11
291	Residence	B	"	80	R	62	"	80	R	R/W			
292	Residence	B	"	60	R	64	"	60	R	R/W			
293	Residence	B	"	200	L	55	"	200	L	-	-	65	* + 10
294	Residence	B	"	110	R	60	"	110	R	-	-	* 71	* + 11
295	Residence	B	"	180	R	56	"	180	R	-	-	* 66	* + 10
296	Residence	B	"	350	R	49	"	350	R	-	-	59	+ 10
297	Residence	B	"	50	R	65	"	50	R	R/W			
298	Residence	B	"	90	R	62	"	90	R	R/W			
299	Residence	B	"	150	R	57	"	150	R	-	-	* 68	* + 11
300	Residence	B	"	70	L	63	"	70	L	R/W			
301	Residence	B	"	70	L	63	"	70	L	R/W			
302	Residence	B	"	60	L	64	"	60	L	R/W			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From NC 32 to West City Limits of Creswell (Cont'd)													
303	Residence	B	US 64	140	R	58	US 64	140	R	-	-	* 69	* + 11
304	Residence	B	"	110	R	60	"	110	R	-	-	* 71	* + 11
305	Residence	B	"	90	L	62	"	90	L	----------R/W----------			
306	Residence	B	"	80	R	62	"	80	R	----------R/W----------			
307	Residence	B	"	80	L	62	"	80	L	----------R/W----------			
308	Residence	B	"	140	R	58	"	140	R	-	-	* 69	* + 11
309	Residence	B	"	70	R	63	"	70	R	----------R/W----------			
310	Residence	B	"	100	L	61	"	100	L	-	-	* 72	* + 11
311	Residence	B	"	100	R	61	"	100	R	-	-	* 72	* + 11
312	Residence	B	"	200	R	55	"	200	R	-	-	65	* + 10
313	Residence	B	"	100	R	61	"	100	R	-	-	* 72	* + 11
314	Residence	B	"	60	L	64	"	60	L	----------R/W----------			
315	Residence	B	"	60	L	64	"	60	L	----------R/W----------			
316	Residence	B	"	50	L	65	"	50	L	----------R/W----------			
317	Residence	B	"	100	L	61	"	100	L	-	-	* 72	* + 11
318	Business	C	"	60	R	64	"	60	R	----------R/W----------			
319	Residence	B	"	50	L	65	"	50	L	----------R/W----------			
320	Business	C	"	300	L	51	"	300	L	-	-	61	* + 10
321	Business	C	"	50	L	65	"	50	L	----------R/W----------			
322	Business	C	"	260	L	52	"	260	L	-	-	63	* + 11
323	Residence	B	"	100	L	61	"	100	L	-	-	* 72	* + 11
324	Residence	B	"	100	L	61	"	100	L	-	-	* 72	* + 11
325	Residence	B	"	150	L	57	"	150	L	-	-	* 68	* + 11
326	Residence	B	"	70	L	63	"	70	L	----------R/W----------			
327	Residence	B	"	70	L	63	"	70	L	----------R/W----------			
328	Residence	B	"	110	L	60	"	110	L	-	-	* 71	* + 11
329	Residence	B	"	70	L	63	"	70	L	----------R/W----------			
330	Residence	B	"	60	L	64	"	60	L	----------R/W----------			
331	Residence	B	"	180	L	56	"	180	L	-	-	* 66	* + 10
332	Business	C	"	140	L	58	"	140	L	-	-	69	* + 11
333	Residence	B	"	140	L	58	"	140	L	-	-	* 69	* + 11
334	Residence	B	"	120	R	59	"	120	R	-	-	* 70	* + 11
335	Residence	B	"	140	L	58	"	140	L	-	-	* 69	* + 11
336	Residence	B	"	150	L	57	"	150	L	-	-	* 68	* + 11
337	Residence	B	"	160	L	57	"	160	L	-	-	* 68	* + 11
338	Business	C	"	120	L	59	"	120	L	-	-	70	* + 11
339	Residence	B	"	150	R	57	"	150	R	-	-	* 68	* + 11

NOTE: Distances are from center of the existing or proposed roadways.
All noise levels are hourly A-weighted noise levels.
Category E noise levels shown as exterior/interior (58/48).

-L-=> Proposed roadway's noise level contribution.
-Y-=> Noise level from other contributing roadways.
* => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CAT	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From NC 32 to West City Limits of Creswell (Cont'd)													
340	Business	C	US 64	110	R	60	US 64	110	R	-	-	* 71	* + 11
341	Residence	B	"	90	R	62	"	90	R	R/W			
342	Business	C	"	100	R	61	"	100	R	-	-	* 72	* + 11
343	Residence	B	"	110	L	60	"	110	L	-	-	* 71	* + 11
344	Business	C	"	120	L	59	"	120	L	-	-	70	* + 11
345	Business	C	"	100	R	61	"	100	R	-	-	* 72	* + 11
346	Residence	B	"	70	R	63	"	70	R	R/W			
347	Business	C	"	130	R	59	"	130	R	-	-	70	* + 11
348	Residence	B	"	180	R	56	"	180	R	-	-	* 66	* + 10
349	Residence	B	"	250	R	53	"	250	R	-	-	63	* + 10
350	Residence	B	"	170	R	56	"	170	R	-	-	* 67	* + 11
351	Residence	B	"	110	L	60	"	110	L	-	-	* 71	* + 11
352	Residence	B	"	150	L	57	"	150	L	-	-	* 68	* + 11
353	Residence	B	"	190	L	55	"	190	L	-	-	* 66	* + 11
354	Residence	B	"	220	L	54	"	220	L	-	-	64	* + 10
355	Business	C	"	110	L	60	"	110	L	-	-	* 71	* + 11
356	Business	C	"	70	L	63	"	70	L	R/W			
357	Business	C	"	70	R	63	"	70	R	R/W			
358	Residence	B	"	130	R	59	"	130	R	-	-	* 70	* + 11
359	Residence	B	"	80	R	62	"	80	R	R/W			
360	Residence	B	"	60	L	64	"	60	L	R/W			
361	Residence	B	"	70	L	63	"	70	L	R/W			
362	Residence	B	"	60	L	64	"	60	L	R/W			
363	Business	C	"	90	L	62	"	90	L	R/W			
364	Residence	B	"	60	L	64	"	60	L	R/W			
365	Business	C	"	100	L	61	"	100	L	-	-	* 72	* + 11
From West City Limits of Creswell to SR 1158													
366	Business	C	US 64	70	L	62	US 64	70	L	R/W			
367	Business	C	"	120	R	58	"	120	R	-	-	70	* + 12
368	Business	C	"	100	L	60	"	100	L	-	-	* 71	* + 11
369	Residence	B	"	180	L	55	"	180	L	-	-	* 66	* + 11
370	Business	C	"	80	L	61	"	80	L	R/W			
371	Residence	B	"	150	L	56	"	150	L	-	-	* 68	* + 12
372	Residence	B	"	150	R	56	"	150	R	-	-	* 68	* + 12
373	Business	C	"	80	R	61	"	80	R	R/W			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From West City Limits of Creswell to SR 1158 (Cont'd)													
374	Business	C	US 64	130	R	58	US 64	130	R	-	-	69	* + 11
375	Business	C	"	220	R	53	"	220	R	-	-	64	* + 11
376	Business	C	"	140	R	57	"	140	R	-	-	68	* + 11
377	Business	C	"	140	R	57	"	140	R	-	-	68	* + 11
378	Business	C	"	100	R	60	"	100	R	-	-	* 71	* + 11
379	Church	E	"	170	R	55/<40	"	170	R	-	-	66/46	* + 11/6
380	Business	C	"	140	R	57	"	140	R	-	-	68	* + 11
From SR 1158 to West of Azalea Gardens Cemetery													
381	Residence	B	US 64	120	L	58	US 64	120	L	-	-	* 70	* + 12
382	Residence	B	"	120	R	58	"	120	R	-	-	* 70	* + 12
383	Residence	B	"	120	L	58	"	120	L	-	-	* 70	* + 12
384	Residence	B	"	70	L	62	"	70	L	----------	R/W	----------	
385	Residence	B	"	120	L	58	"	120	L	-	-	* 70	* + 12
386	Business	C	"	60	L	63	"	60	L	----------	R/W	----------	
387	Business	C	"	100	L	59	"	100	L	-	-	* 72	* + 13
388	Residence	B	"	100	L	59	"	100	L	-	-	* 72	* + 13
389	Residence	B	"	110	L	59	"	110	L	-	-	* 71	* + 12
390	Business	C	"	150	L	56	"	150	L	-	-	68	* + 12
391	Residence	B	"	120	L	58	"	120	L	-	-	* 70	* + 12
392	Residence	B	"	130	L	57	"	130	L	-	-	* 69	* + 12
393	Residence	B	"	180	L	54	"	180	L	-	-	* 66	* + 12
394	Residence	B	"	90	L	60	"	90	L	----------	R/W	----------	
395	Residence	B	"	120	L	58	"	120	L	-	-	* 70	* + 12
396	Residence	B	"	80	L	61	"	80	L	----------	R/W	----------	
397	Residence	B	"	70	L	62	"	70	L	----------	R/W	----------	
398	Residence	B	"	70	L	62	"	70	L	----------	R/W	----------	
399	Business	C	"	190	L	54	"	190	L	-	-	66	* + 12
400	Residence	B	"	70	L	62	"	70	L	----------	R/W	----------	
401	Residence	B	"	50	L	64	"	50	L	----------	R/W	----------	
402	Residence	B	"	50	L	64	"	50	L	----------	R/W	----------	
403	Residence	B	"	50	L	64	"	50	L	----------	R/W	----------	
404	Business	C	"	250	R	51	"	250	R	-	-	63	* + 12
405	Church	E	"	220	R	52/<40	"	220	R	-	-	64/<40	* + 12/0
406	Residence	B	"	90	R	60	"	90	R	----------	R/W	----------	

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From West of Azalea Gardens Cemetery to the Scuppernong River													
407	Residence	B	US 64	160	L	58	US 64	160	L	-	-	* 67	+ 9
408	Residence	B	"	160	L	58	"	160	L	-	-	* 67	+ 9
409	Residence	B	"	180	R	57	"	180	R	-	-	* 66	+ 9
410	Residence	B	"	200	R	56	"	200	R	-	-	65	+ 9
411	Residence	B	"	150	R	59	"	150	R	-	-	* 68	+ 9
412	Business	C	"	70	L	64	"	70	L	----------R/W----------			
413	Residence	B	"	220	R	55	"	220	R	-	-	64	+ 9
414	Residence	B	"	400	R	49	"	400	R	-	-	57	+ 8
415	Business	C	"	100	R	62	"	100	R	-	-	* 71	+ 9
416	Business	C	"	100	R	62	"	100	R	-	-	* 71	+ 9
417	Residence	B	"	70	L	64	"	70	L	----------R/W----------			
418	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
419	Residence	B	"	70	R	64	"	70	R	----------R/W----------			
420	Residence	B	"	70	R	64	"	70	R	----------R/W----------			
421	Residence	B	"	90	R	63	"	90	R	----------R/W----------			
422	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
423	Residence	B	"	130	L	60	"	130	L	-	-	* 69	+ 9
424	Business	C	"	120	L	61	"	120	L	-	-	70	+ 9
425	Residence	B	"	90	L	63	"	90	L	----------R/W----------			
426	Business	C	"	120	L	61	"	120	L	-	-	70	+ 9
427	Residence	B	"	70	L	64	"	70	L	----------R/W----------			
428	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
429	Residence	B	"	140	R	59	"	140	R	-	-	* 68	+ 9
430	Residence	B	"	150	R	59	"	150	R	-	-	* 68	+ 9
431	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
432	Residence	B	"	140	R	59	"	140	R	-	-	* 68	+ 9
433	Residence	B	"	170	R	58	"	170	R	-	-	* 66	+ 8
434	Residence	B	"	160	L	58	"	160	L	-	-	* 67	+ 9
434A	Residence	B	"	200	L	56	"	200	L	-	-	65	+ 9
435	Residence	B	"	120	L	61	"	120	L	-	-	* 70	+ 9
436	Residence	B	"	110	L	61	"	110	L	-	-	* 70	+ 9
437	Residence	B	"	70	R	64	"	70	R	----------R/W----------			
438	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
439	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
440	Residence	B	"	70	R	64	"	70	R	----------R/W----------			
441	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
442	Residence	B	"	120	L	61	"	120	L	-	-	* 70	+ 9

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From West of Azalea Gardens Cemetery to the Scuppernong River (Cont'd)													
443	Residence	B	US 64	110	R	61	US 64	110	R	-	-	* 70	+ 9
444	Residence	B	"	90	R	63	"	90	R	----------R/W----------			
445	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
From the Scuppernong River to End of Project													
446	Business	C	US 64	150	L	55	US 64	150	L	-	-	62	+ 7
447	Business	C	"	170	L	54	"	170	L	-	-	61	+ 7
448	Business	C	"	80	L	60	"	80	L	-	-	67	+ 7
449	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
450	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
451	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
452	Residence	B	"	160	L	55	"	160	L	-	-	61	+ 6
453	Residence	B	"	80	L	60	"	80	L	-	-	* 67	+ 7
454	Residence	B	"	170	L	54	"	170	L	-	-	61	+ 7
455	Residence	B	"	130	L	56	"	130	L	-	-	63	+ 7
456	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
457	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
458	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
459	Business	C	"	80	L	60	"	80	L	-	-	67	+ 7
460	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
461	Church	E	"	80	L	60/<40	"	80	L	-	-	67/42	+ 7/2
462	Residence	B	"	70	R	61	"	70	R	-	-	* 68	+ 7
463	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
464	Residence	B	"	60	R	62	"	60	R	-	-	* 69	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
467	Residence	B	"	150	R	55	"	150	R	-	-	62	+ 7
468	Residence	B	"	90	R	59	"	90	R	-	-	* 66	+ 7
469	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
470	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
471	Residence	B	"	120	L	57	"	120	L	-	-	64	+ 7
472	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
473	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to End of Project (Cont'd)													
474	Residence	B	US 64	180	L	54	US 64	180	L	-	-	60	+ 6
475	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
476	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
477	Apartments	B	"	130	L	57	"	130	L	-	-	63	+ 6
478	Residence	B	"	80	L	61	"	80	L	-	-	* 67	+ 6
479	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
480	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
481	Business	C	"	50	R	64	"	50	R	-	-	70	+ 6
482	Business	C	"	90	R	60	"	90	R	-	-	66	+ 6
483	Residence	B	"	160	L	55	"	160	L	-	-	61	+ 6
484	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
485	Church	E	"	70	L	62/<40	"	70	L	-	-	68/43	+ 6/3
486	School	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/0
487	Residence	B	"	120	L	58	"	120	L	-	-	64	+ 6
488	Residence	B	"	120	R	58	"	120	R	-	-	64	+ 6
489	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
490	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
491	Residence	B	"	70	R	62	"	70	R	-	-	* 68	+ 6
492	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
493	Business	C	"	70	L	62	"	70	L	-	-	68	+ 6
494	Residence	B	"	200	R	53	"	200	R	-	-	59	+ 6
495	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
496	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
497	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
498	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
499	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
500	Residence	B	"	150	R	56	"	150	R	-	-	62	+ 6
501	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
502	Residence	B	"	100	R	59	"	100	R	-	-	65	+ 6
503	Church	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/0
504	Business	C	"	240	R	51	"	240	R	-	-	57	+ 6
505	Business	C	"	70	R	62	"	70	R	-	-	68	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.2

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate #2

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to the End of Project (Cont'd)													
506	Residence	B	US 64	130	L	57	US 64	130	L	-	-	63	+ 6
507	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
508	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
509	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
510	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
511	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
512	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
513	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
514	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
515	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6

NOTE: Distances are from center of the existing or proposed roadways.
All noise levels are hourly A-weighted noise levels.
Category E noise levels shown as exterior/interior (58/48).

-L-=> Proposed roadway's noise level contribution.
-Y-=> Noise level from other contributing roadways.
* => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From NC 45 to SR 1119(1)													
2	Church	E	US 64	130	L	60/40	US 64	130	L	-	-	69/49	+ 9/9
3	Residence	B	"	60	L	66	"	60	L			R/W	
3A	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
3B	Residence	B	"	115	R	61	"	115	R	-	-	* 70	+ 9
4	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
5	Residence	B	"	130	R	60	"	130	R	-	-	* 69	+ 9
6	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
7	Residence	B	"	80	R	64	"	80	R			R/W	
8	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
9	Residence	B	"	150	L	59	"	150	L	-	-	* 68	+ 9
10	Residence	B	"	60	L	66	"	60	L			R/W	
10A	Residence	B	"	315	R	52	"	315	R	-	-	60	+ 8
10B	Residence	B	"	50	R	67	"	50	R			R/W	
11	Residence	B	"	70	R	65	"	70	R			R/W	
12	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
13	Residence	B	"	150	R	59	"	150	R	-	-	* 68	+ 9
14	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
15	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
15A	Residence	B	"	205	R	56	"	205	R	-	-	65	+ 9
15B	Residence	B	"	335	R	51	"	335	R	-	-	60	+ 9
16	Residence	B	"	120	L	61	"	120	L	-	-	* 70	+ 9
17	Residence	B	"	60	R	66	"	60	R			R/W	
18	Residence	B	"	60	R	66	"	60	R			R/W	
19	Residence	B	"	60	R	66	"	60	R			R/W	
20	Church	E	"	60	L	66/41	"	60	L			R/W	
21	Residence	B	"	70	R	65	"	70	R			R/W	
22	Residence	B	"	80	R	64	"	80	R			R/W	
23	Residence	B	"	90	L	63	"	90	L			R/W	
24	Residence	B	"	80	L	64	"	80	L			R/W	
25	Residence	B	"	50	L	67	"	50	L			R/W	
26	Residence	B	"	60	L	66	"	60	L			R/W	
27	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
28	Residence	B	"	80	R	64	"	80	R			R/W	
29	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
30	Residence	B	"	80	R	64	"	80	R			R/W	
31	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
32	Residence	B	"	90	R	63	"	90	R			R/W	

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From NC 45 to SR 1119(1) Cont'd													
33	Residence	B	US 64	80	R	64	US 64	80	R			R/W	
34	Residence	B	"	60	L	66	"	60	L			R/W	
35	Residence	B	"	60	L	66	"	60	L			R/W	
36	Residence	B	"	60	L	66	"	60	L			R/W	
37	Residence	B	"	60	L	66	"	60	L			R/W	
38	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
39	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
40	Residence	B	"	70	L	65	"	70	L			R/W	
41	Residence	B	"	80	R	64	"	80	R			R/W	
41A	Residence	B	"	70	R	65	"	70	R			R/W	
41B	Residence	B	"	70	R	65	"	70	R			R/W	
41C	Residence	B	"	70	R	65	"	70	R			R/W	
41D	Residence	B	"	65	R	65	"	65	R			R/W	
42	Residence	B	"	90	L	63	"	90	L			R/W	
43	Residence	B	"	80	R	64	"	80	R			R/W	
44	Residence	B	"	90	R	63	"	90	R			R/W	
45	Residence	B	"	140	L	60	"	140	L	-	-	* 69	+ 9
46	Residence	B	"	80	R	64	"	80	R			R/W	
47	Residence	B	"	160	L	58	"	160	L	-	-	* 67	+ 9
48	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
49	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
50	Residence	B	"	90	R	63	"	90	R			R/W	
51	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
52	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
53	Residence	B	"	80	L	64	"	80	L			R/W	
From SR 1119(1) to SR 1330													
54	Residence	B	US 64	180	L	57	US 64	180	L	-	-	* 66	+ 9
55	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
56	Residence	B	"	160	R	58	"	160	R	-	-	* 67	+ 9
57	Residence	B	"	90	R	63	"	90	R			R/W	
57A	Residence	B	"	95	R	63	"	95	R			R/W	
58	Residence	B	"	240	R	55	"	240	R	-	-	63	+ 8
59	Residence	B	"	60	R	66	"	60	R			R/W	
60	Residence	B	"	90	R	63	"	90	R			R/W	
61	Residence	B	"	80	R	64	"	80	R			R/W	

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From SR 1119(1) to SR 1330 (Cont'd)													
62	Residence	B	US 64	100	R	62	US 64	100	R	-	-	* 71	+ 9
63	Residence	B	"	70	R	65	"	70	R			R/W	
64	Residence	B	"	70	R	65	"	70	R			R/W	
65	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
66	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
67	Residence	B	"	80	R	64	"	80	R			R/W	
68	Residence	B	"	90	L	63	"	90	L			R/W	
69	Residence	B	"	130	L	60	"	130	L	-	-	* 69	+ 9
70	Residence	B	"	80	L	64	"	80	L			R/W	
71	Residence	B	"	110	L	62	"	110	L	-	-	* 71	+ 9
71A	Residence	B	"	120	L	61	"	120	L	-	-	* 70	+ 9
72	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
73	Business	C	"	100	R	62	"	100	R	-	-	* 71	+ 9
74	Residence	B	"	80	L	64	"	80	L			R/W	
75	Residence	B	"	60	L	66	"	60	L			R/W	
76	Residence	B	"	70	L	65	"	70	L			R/W	
77	Business	C	"	60	R	66	"	60	R			R/W	
78	Residence	B	"	40	R	68	"	40	R			R/W	
79	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
80	Residence	B	"	70	R	65	"	70	R			R/W	
81	Residence	B	"	70	R	65	"	70	R			R/W	
82	Residence	B	"	70	R	65	"	70	R			R/W	
83	Residence	B	"	60	L	66	"	60	L			R/W	
84	Residence	B	"	60	L	66	"	60	L			R/W	
85	Residence	B	"	70	L	65	"	70	L			R/W	
86	Residence	B	"	60	L	66	"	60	L			R/W	
87	Residence	B	"	60	R	66	"	60	R			R/W	
88	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
89	Residence	B	"	70	L	65	"	70	L			R/W	
From SR 1330 to SR 1119(2)/SR 1301 (Front Street)													
90	Church	E	US 64	60	L	66/41	US 64	60	L			R/W	
91	Residence	B	"	80	L	64	"	80	L			R/W	
92	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
93	Residence	B	"	60	L	66	"	60	L			R/W	
94	Residence	B	"	70	L	65	"	70	L			R/W	

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1330 to SR 1119(2)/SR 1301 (Front Street) Cont'd													
95	Residence	B	US 64	130	L	60	US 64	130	L	-	-	* 69	+ 9
96	Business	C	"	270	L	53	"	270	L	-	-	62	+ 9
97	Business	C	"	150	L	59	"	150	L	-	-	68	+ 9
98	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
99	Residence	B	"	120	R	61	"	120	R	-	-	* 70	+ 9
100	Business	C	"	60	R	66	"	60	R	----------R/W----------			
101	Residence	B	"	180	L	57	"	180	L	-	-	* 66	+ 9
102	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
103	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
104	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
105	Residence	B	"	50	L	67	"	50	L	----------R/W----------			
105A	Residence	B	"	100	L	62	"	100	L	-	-	* 71	+ 9
105B	Residence	B	"	65	L	65	"	65	L	----------R/W----------			
105C	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
105D	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
106	Business	C	"	50	R	67	"	50	R	----------R/W----------			
107	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
108	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
109	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
110	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
111	Residence	B	"	100	R	62	"	100	R	-	-	* 71	+ 9
112	Residence	B	"	170	R	58	"	170	R	-	-	* 67	+ 9
113	Residence	B	"	110	R	62	"	110	R	-	-	* 71	+ 9
114	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
115	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
116	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
117	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
118	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
119	Residence	B	"	80	L	64	"	80	L	----------R/W----------			
120	Residence	B	"	150	R	59	"	150	R	-	-	* 68	+ 9
121	Business	C	"	170	R	58	"	170	R	-	-	67	+ 9
122	Business	C	"	80	L	64	"	80	L	----------R/W----------			
123	Business	C	"	100	L	62	"	100	L	-	-	* 71	+ 9
124	Business	C	"	130	L	60	"	130	L	-	-	69	+ 9
125	Residence	B	"	200	L	57	"	200	L	-	-	65	+ 8
126	Business	C	"	100	R	62	"	100	R	-	-	* 71	+ 9
127	Business	C	"	120	R	61	"	120	R	-	-	70	+ 9

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1119(2)/SR 1301 (Front Street) to SR 1132													
128	Residence	B	US 64	190	R	56	US 64	190	R	-	-	64	+ 8
129	Residence	B	"	80	R	63	"	80	R	R/W			
130	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
131	Residence	B	"	260	R	53	"	260	R	-	-	61	+ 8
132	Residence	B	"	190	R	56	"	190	R	-	-	64	+ 8
133	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
134	Residence	B	"	70	R	64	"	70	R	R/W			
135	Residence	B	"	70	R	64	"	70	R	R/W			
136	Business	C	"	70	R	64	"	70	R	R/W			
137	Residence	B	"	150	R	58	"	150	R	-	-	* 67	+ 9
138	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
139	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
140	Residence	B	"	140	R	58	"	140	R	-	-	* 67	+ 9
141	Residence	B	"	260	R	53	"	260	R	-	-	61	+ 8
142	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
143	Business	C	"	90	R	62	"	90	R	R/W			
144	Residence	B	"	260	R	53	"	260	R	-	-	61	+ 8
145	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
146	Residence	B	"	250	R	53	"	250	R	-	-	62	+ 9
147	Business	C	"	130	R	59	"	130	R	-	-	68	+ 9
148	Business	C	"	80	R	63	"	80	R	R/W			
149	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
150	Residence	B	"	230	R	54	"	230	R	-	-	63	+ 9
151	Residence	B	"	100	L	61	"	100	L	-	-	* 70	+ 9
152	Residence	B	"	50	R	66	"	50	R	R/W			
153	Residence	B	"	150	R	58	"	150	R	-	-	* 67	+ 9
154	Residence	B	"	200	L	55	"	200	L	-	-	64	+ 9
155	Residence	B	"	100	L	61	"	100	L	-	-	* 70	+ 9
156	Residence	B	"	150	L	58	"	150	L	-	-	* 67	+ 9
157	Business	C	"	70	R	64	"	70	R	R/W			
158	Residence	B	"	100	R	61	"	100	R	-	-	* 70	+ 9
159	Church	E	"	180	L	56/<40	"	180	L	-	-	65/45	+ 9/5
160	Residence	B	"	80	R	63	"	80	R	R/W			
161	Residence	B	"	80	R	63	"	80	R	R/W			
162	Residence	B	"	70	R	64	"	70	R	R/W			
163	Church	E	"	70	L	64/44	"	70	L	R/W			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 West of Columbia
Washington/Tyrrell Counties
State Project# 6.149001T TIP# R-2548

ALTERNATE # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From Existing US 64 @ SR 1132 to Existing US 64 & SR 1304 (Relocation)													
164	Business	C	US 64	60	R	65	US 64	520	L	48.9	65.2	65	0
637	Residence	B	"	220	R	54	"	220	L	58.8	54.9	60	+ 6
639	Residence	B	"	590	R	45	"	450	L	-	-	50	+ 5
640	Residence	B	"	1090	R	45	"	380	L	-	-	52	+ 7
641	Residence	B	Backwoods	40	L	45	"	365	L	-	-	53	+ 8
642	Residence	B	"	40	L	45	"	355	L	-	-	53	+ 8
643	Residence	B	"	35	L	45	"	380	L	-	-	52	+ 7
644	Residence	B	"	65	L	45	"	490	L	-	-	49	+ 4
645	Residence	B	"	70	L	45	"	600	L	-	-	46	+ 1
646	Residence	B	"	100	R	45	"	600	L	-	-	46	+ 1
647	Residence	B	"	140	R	45	"	530	L	-	-	48	+ 3
648	Residence	B	"	75	R	45	"	725	L	-	-	45	0
649	Residence	B	"	75	R	45	"	730	L	-	-	45	0
650	Residence	B	"	85	R	45	"	735	L	-	-	45	0
64	Residence	B	PR. ROAD	120	R	45	"	880	R	46.5	45.0	48	+ 3
326	Business	C	US 64	40	L	65	"	1160	L	43.7	70.5	70	+ 5
327	Business	C	"	80	L	61	"	680	L	49.8	66.6	66	+ 5
328	Business	C	"	160	L	56	"	440	L	55.7	61.1	62	+ 6
329	Residence	B	"	70	L	62	"	300	L	60.1	67.5	* 68	+ 6
330	Residence	B	"	60	L	63	"	200	L	64.5	68.5	* 69	+ 6
331	Residence	B	"	180	L	55	"	180	L	-	-	65	* + 10
332	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
333	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
334	Residence	B	"	120	R	58	"	120	R	-	-	* 69	* + 11
335	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
336	Residence	B	"	150	L	56	"	150	L	-	-	* 67	* + 11
337	Residence	B	"	160	L	56	"	160	L	-	-	* 66	* + 10
338	Business	C	"	120	L	58	"	120	L	-	-	69	* + 11
From Existing US 64 & SR 1304 to SR 1158													
339	Residence	B	US 64	150	R	57	US 64	150	R	-	-	* 66	+ 9
340	Business	C	"	110	R	59	"	110	R	-	-	69	* + 10
341	Residence	B	"	90	R	61	"	90	R	----------R/W----------			
342	Business	C	"	100	R	60	"	100	R	-	-	70	* + 10
343	Residence	B	"	110	L	59	"	110	L	-	-	* 69	* + 10

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From Existing US 64 & SR 1304 to SR 1158 (Cont'd)													
344	Business	C	US 64	120	L	59	US 64	120	L	-	-	69	* + 10
345	Business	C	"	100	R	60	"	100	R	-	-	70	* + 10
346	Residence	B	"	70	R	63	"	70	R	R/W			
347	Business	C	"	130	R	58	"	130	R	-	-	68	* + 10
348	Residence	B	"	180	R	55	"	180	R	-	-	64	+ 9
349	Residence	B	"	250	R	52	"	250	R	-	-	61	+ 9
350	Residence	B	"	170	R	56	"	170	R	-	-	65	+ 9
351	Residence	B	"	110	L	59	"	110	L	-	-	* 69	* + 10
352	Residence	B	"	150	L	57	"	150	L	-	-	* 66	+ 9
353	Residence	B	"	190	L	55	"	190	L	-	-	64	+ 9
354	Residence	B	"	220	L	53	"	220	L	-	-	62	+ 9
355	Business	C	"	110	L	59	"	110	L	-	-	69	* + 10
356	Business	C	"	70	L	63	"	70	L	R/W			
357	Business	C	"	70	R	63	"	70	R	R/W			
358	Residence	B	"	130	R	58	"	130	R	-	-	* 68	* + 10
359	Residence	B	"	80	L	62	"	300	R	59.5	62.0	63	+ 1
360	Residence	B	"	60	L	64	"	400	R	56.2	64.0	64	0
361	Residence	B	"	70	L	63	"	440	R	55.1	63.0	63	0
362	Residence	B	"	60	L	64	"	480	R	53.9	64.0	64	0
363	Business	C	"	90	L	61	"	520	R	52.8	61.0	61	0
364	Residence	B	"	60	L	64	"	640	R	50.0	64.0	64	0
365	Business	C	"	100	L	60	"	640	R	50.0	60.0	60	0
366	Business	C	"	70	L	63	"	680	R	47.7	63.0	63	0
367	Business	C	"	120	R	59	"	940	R	43.9	59.0	59	0
368	Business	C	"	100	L	60	"	700	R	47.3	60.0	60	0
369	Residence	B	"	180	L	55	"	600	R	49.3	55.0	56	+ 1
370	Business	C	"	80	L	62	"	720	R	46.9	62.0	62	0
371	Residence	B	"	150	L	57	"	700	R	47.3	57.0	57	0
372	Residence	B	"	150	R	57	"	940	R	43.9	57.0	57	0
373	Business	C	"	80	R	62	"	1000	R	43.2	62.0	62	0
374	Business	C	"	130	R	58	"	1100	R	42.3	58.0	58	0
375	Business	C	"	220	R	53	"	1100	R	42.3	53.0	53	0
376	Business	C	"	140	R	57	"	900	R	44.3	57.0	57	0
377	Business	C	"	140	R	57	"	1000	R	43.2	57.0	57	0
378	Business	C	"	100	R	60	"	960	R	43.7	60.0	60	0
379	Church	E	"	170	R	56/<40	"	900	R	44.3	56.0	56/<40	0/0
380	Business	C	"	140	R	57	"	790	R	45.7	57.0	57	0
381	Residence	B	"	120	L	59	"	600	R	49.3	59.0	59	0

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1158 to SR 1113													
381A	Residence	B	US 64	360	L	47	US 64	360	R	55.6	47.0	56	+ 9
382	Residence	B	"	120	R	58	"	640	R	48.2	58.0	58	0
382A	Residence	B	"	400	L	46	"	300	R	57.7	46.0	57	+ 11
383	Residence	B	"	120	L	58	"	480	R	52.1	58.0	58	0
383A	Residence	B	"	500	L	43	"	140	R	65.8	43.0	65	* + 22
384	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
385	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
386	Business	C	"	60	L	63	"	60	L	----------R/W----------			
387	Business	C	"	100	L	60	"	100	L	-	-	68	+ 8
388	Residence	B	"	100	L	60	"	100	L	-	-	* 68	+ 8
389	Residence	B	"	110	L	59	"	110	L	-	-	* 67	+ 8
390	Business	C	"	150	L	56	"	150	L	-	-	65	+ 9
391	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
392	Residence	B	"	130	L	57	"	130	L	-	-	* 66	+ 9
393	Residence	B	"	180	L	54	"	180	L	-	-	63	+ 9
394	Residence	B	"	90	L	60	"	90	L	----------R/W----------			
395	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
396	Residence	B	"	80	L	61	"	80	L	----------R/W----------			
397	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
398	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
399	Business	C	"	190	L	54	"	190	L	-	-	62	+ 8
400	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
401	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
402	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
403	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
404	Business	C	"	250	R	51	"	250	R	-	-	59	+ 8
405	Church	E	"	220	R	53/<40	"	220	R	-	-	61/<40	+ 8/0
406	Residence	B	"	90	R	60	"	90	R	----------R/W----------			
407	Residence	B	"	160	L	56	"	160	L	-	-	64	+ 8
408	Residence	B	"	160	L	56	"	160	L	-	-	64	+ 8
409	Residence	B	"	180	R	54	"	180	R	-	-	63	+ 9
410	Residence	B	"	200	R	54	"	200	R	-	-	62	+ 8
411	Residence	B	"	150	R	56	"	150	R	-	-	65	+ 9
412	Business	C	"	70	L	62	"	70	L	----------R/W----------			
413	Residence	B	"	220	R	53	"	300	R	-	-	57	+ 4
414	Residence	B	"	400	R	46	"	480	R	-	-	52	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST NAME	ROADWAY DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From SR 1113 to Scuppernong River													
415	Business	C	US 64	100	R	60	US 64	100	R	-	-	67	+ 7
416	Business	C	"	100	R	60	"	100	R	-	-	67	+ 7
417	Residence	B	"	70	L	62	"	70	L	----------	----------	R/W	----------
418	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
419	Residence	B	"	70	R	62	"	70	R	----------	----------	R/W	----------
420	Residence	B	"	70	R	62	"	70	R	----------	----------	R/W	----------
421	Residence	B	"	90	R	60	"	90	R	----------	----------	R/W	----------
422	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
423	Residence	B	"	130	L	57	"	130	L	-	-	65	+ 8
424	Business	C	"	120	L	58	"	120	L	-	-	66	+ 8
425	Residence	B	"	90	L	60	"	90	L	----------	----------	R/W	----------
426	Business	C	"	120	L	58	"	120	L	-	-	66	+ 8
427	Residence	B	"	70	L	62	"	70	L	----------	----------	R/W	----------
428	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
429	Residence	B	"	140	R	57	"	140	R	-	-	64	+ 7
430	Residence	B	"	150	R	56	"	150	R	-	-	63	+ 7
431	Residence	B	"	120	R	58	"	120	R	-	-	* 66	+ 8
432	Residence	B	"	140	R	57	"	140	R	-	-	64	+ 7
433	Residence	B	"	170	R	55	"	170	R	-	-	62	+ 7
434	Residence	B	"	160	L	56	"	160	L	-	-	63	+ 7
434A	Residence	B	"	200	L	54	"	200	L	-	-	61	+ 7
435	Residence	B	"	120	L	58	"	120	L	-	-	* 66	+ 8
436	Residence	B	"	110	L	59	"	110	L	-	-	* 66	+ 7
437	Residence	B	"	70	R	62	"	70	R	----------	----------	R/W	----------
438	Residence	B	"	160	R	56	"	160	R	-	-	63	+ 7
439	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
440	Residence	B	"	70	R	62	"	70	R	----------	----------	R/W	----------
441	Residence	B	"	120	R	58	"	120	R	-	-	* 66	+ 8
442	Residence	B	"	120	L	58	"	120	L	-	-	* 66	+ 8
443	Residence	B	"	110	R	59	"	110	R	-	-	* 66	+ 7
444	Residence	B	"	90	R	60	"	90	R	----------	----------	R/W	----------
445	Residence	B	"	160	R	56	"	160	R	-	-	63	+ 7
From the Scuppernong River to End of Project													
446	Business	C	US 64	150	L	55	US 64	150	L	-	-	62	+ 7
447	Business	C	"	170	L	54	"	170	L	-	-	61	+ 7

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to End of Project (Cont'd)													
448	Business	C	US 64	80	L	60	US 64	80	L	-	-	67	+ 7
449	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
450	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
451	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
452	Residence	B	"	160	L	55	"	160	L	-	-	61	+ 6
453	Residence	B	"	80	L	60	"	80	L	-	-	* 67	+ 7
454	Residence	B	"	170	L	54	"	170	L	-	-	61	+ 7
455	Residence	B	"	130	L	56	"	130	L	-	-	63	+ 7
456	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
457	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
458	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
459	Business	C	"	80	L	60	"	80	L	-	-	67	+ 7
460	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
461	Church	E	"	80	L	60/<40	"	80	L	-	-	67/42	+ 7/2
462	Residence	B	"	70	R	61	"	70	R	-	-	* 68	+ 7
463	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
464	Residence	B	"	60	R	62	"	60	R	-	-	* 69	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
467	Residence	B	"	150	R	55	"	150	R	-	-	62	+ 7
468	Residence	B	"	90	R	59	"	90	R	-	-	* 66	+ 7
469	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
470	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
471	Residence	B	"	120	L	57	"	120	L	-	-	64	+ 7
472	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
473	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
474	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
475	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
476	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
477	Apartments	B	"	130	L	57	"	130	L	-	-	63	+ 6
478	Residence	B	"	80	L	61	"	80	L	-	-	* 67	+ 6
479	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
480	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
481	Business	C	"	50	R	64	"	50	R	-	-	70	+ 6
482	Business	C	"	90	R	60	"	90	R	-	-	66	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.3

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 3

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to End of Project (Cont'd)													
483	Residence	B	US 64	160	L	55	US 64	160	L	-	-	61	+ 6
484	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
485	Church	E	"	70	L	62/<40	"	70	L	-	-	68/43	+ 6/3
486	School	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/0
487	Residence	B	"	120	L	58	"	120	L	-	-	64	+ 6
488	Residence	B	"	120	R	58	"	120	R	-	-	64	+ 6
489	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
490	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
491	Residence	B	"	70	R	62	"	70	R	-	-	* 68	+ 6
492	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
493	Business	C	"	70	L	62	"	70	L	-	-	68	+ 6
494	Residence	B	"	200	R	53	"	200	R	-	-	59	+ 6
495	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
496	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
497	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
498	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
499	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
500	Residence	B	"	150	R	56	"	150	R	-	-	62	+ 6
501	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
502	Residence	B	"	100	R	59	"	100	R	-	-	65	+ 6
503	Church	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/0
504	Business	C	"	240	R	51	"	240	R	-	-	57	+ 6
505	Business	C	"	70	R	62	"	70	R	-	-	68	+ 6
506	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
507	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
508	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
509	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
510	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
511	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
512	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
513	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
514	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
515	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST NAME	ROADWAY DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From Beginning of Project to SR 1119/SR 1301													
2	Church	E	US 64	130	L	60/40	US 64	75	L	R/W			
3	Residence	B	"	60	L	66	"	0	R	R/W			
3A	Residence	B	"	110	R	62	"	110	R	70.9	63.5	* 71	+ 9
3B	Residence	B	"	115	R	61	"	115	R	70.5	63.1	* 71	* + 10
4	Residence	B	"	120	R	61	"	190	R	65.5	62.7	* 67	+ 6
5	Residence	B	"	130	R	60	"	175	R	66.4	62.0	* 67	+ 7
6	Residence	B	"	120	R	61	"	210	R	64.5	62.7	* 66	+ 5
7	Residence	B	"	80	R	64	"	185	R	65.8	65.7	* 68	+ 4
8	Residence	B	"	100	R	62	"	235	R	63.4	64.2	* 66	+ 4
9	Residence	B	"	150	L	59	"	0	L	R/W			
10	Residence	B	"	60	L	66	"	5	R	R/W			
10A	Residence	B	"	315	R	52	"	315	R	60.0	53.5	60	+ 8
10B	Residence	B	"	50	R	67	"	50	R	R/W			
11	Residence	B	"	70	R	65	"	195	R	65.3	66.6	* 68	+ 3
12	Residence	B	"	120	R	61	"	235	R	63.4	62.7	* 66	+ 5
13	Residence	B	"	150	R	59	"	300	R	60.6	60.8	63	+ 4
14	Residence	B	"	100	R	62	"	200	R	65.0	64.2	* 67	+ 5
15	Residence	B	"	100	R	62	"	225	R	63.8	64.2	* 67	+ 5
15A	Residence	B	"	205	R	56	"	205	R	64.8	58.1	65	+ 9
15B	Residence	B	"	335	R	51	"	335	R	59.3	52.8	60	+ 9
16	Residence	B	"	120	L	61	"	35	L	R/W			
17	Residence	B	"	60	R	66	"	205	R	64.8	67.6	* 69	+ 3
18	Residence	B	"	60	R	66	"	195	R	65.3	67.6	* 69	+ 3
19	Residence	B	"	60	R	66	"	195	R	65.3	67.6	* 69	+ 3
20	Church	E	"	60	L	66/41	"	0	R	R/W			
21	Residence	B	"	70	R	65	"	205	R	64.8	66.6	* 68	+ 3
22	Residence	B	"	80	R	64	"	245	R	63.0	65.7	* 67	+ 3
23	Residence	B	"	90	L	63	"	0	R	R/W			
24	Residence	B	"	80	L	64	"	25	R	R/W			
25	Residence	B	"	50	L	67	"	40	R	R/W			
26	Residence	B	"	60	L	66	"	35	R	R/W			
27	Residence	B	"	160	R	58	"	215	R	64.3	60.2	65	+ 7
28	Residence	B	"	80	R	64	"	225	R	63.8	65.7	* 67	+ 3
29	Residence	B	"	100	R	62	"	250	R	62.8	64.2	* 66	+ 4
30	Residence	B	"	80	R	64	"	225	R	63.8	65.7	* 67	+ 3
31	Residence	B	"	100	R	62	"	235	R	63.4	64.2	* 66	+ 4
32	Residence	B	"	90	R	63	"	220	R	64.1	64.9	* 67	+ 4

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From Beginning of Project to SR 1119/SR 1301 (Cont'd)													
33	Residence	B	US 64	80	R	64	US 64	210	R	64.5	65.7	* 68	+ 4
34	Residence	B	"	60	L	66	"	0	L	----------R/W----------			
35	Residence	B	"	60	L	66	"	35	R	----------R/W----------			
36	Residence	B	"	60	L	66	"	30	R	----------R/W----------			
37	Residence	B	"	60	L	66	"	35	R	----------R/W----------			
38	Residence	B	"	160	R	58	"	295	R	60.8	60.2	63	+ 5
39	Residence	B	"	110	R	62	"	240	R	63.2	63.5	* 66	+ 4
40	Residence	B	"	70	L	65	"	5	R	----------R/W----------			
41	Residence	B	"	80	R	64	"	245	R	63.0	65.7	* 67	+ 3
41A	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
41B	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
41C	Residence	B	"	70	R	65	"	70	R	----------R/W----------			
41D	Residence	B	"	65	R	65	"	65	R	----------R/W----------			
42	Residence	B	"	90	L	63	"	25	R	----------R/W----------			
43	Residence	B	"	80	R	64	"	200	R	65.0	65.7	* 68	+ 4
44	Residence	B	"	90	R	63	"	225	R	63.8	64.9	* 67	+ 4
45	Residence	B	"	140	L	60	"	0	L	----------R/W----------			
46	Residence	B	"	80	R	64	"	205	R	64.8	65.7	* 68	+ 4
47	Residence	B	"	160	L	58	"	25	L	----------R/W----------			
603	Residence	B	"	280	L	53	"	110	L	70.9	54.8	* 71	* + 18
604	Residence	B	"	260	L	54	"	120	L	70.1	55.6	* 70	* + 16
605	Residence	B	"	500	L	46	"	360	L	58.5	48.1	58	+ 12
606	Residence	B	"	720	L	45	"	580	L	-	-	52	+ 7
48	Residence	B	"	100	L	62	"	5	R	----------R/W----------			
49	Residence	B	"	100	R	62	"	235	R	63.4	64.2	* 66	+ 4
50	Residence	B	"	90	R	63	"	235	R	63.4	64.9	* 67	+ 4
51	Residence	B	"	160	R	58	"	320	R	59.8	60.2	63	+ 5
52	Residence	B	"	100	R	62	"	230	R	63.6	64.2	* 66	+ 4
53	Residence	B	"	80	L	64	"	0	R	----------R/W----------			
54	Residence	B	"	180	L	57	"	0	R	----------R/W----------			
55	Residence	B	"	160	R	58	"	275	R	61.6	60.2	63	+ 5
56	Residence	B	"	160	R	58	"	285	R	61.2	60.2	63	+ 5
57	Residence	B	"	90	R	63	"	230	R	63.6	64.9	* 67	+ 4
57A	Residence	B	"	95	R	63	"	95	R	----------R/W----------			
58	Residence	B	"	240	R	55	"	345	R	59.0	56.4	60	+ 5
59	Residence	B	"	60	R	66	"	230	R	63.6	67.6	* 69	+ 3
60	Residence	B	"	90	R	63	"	275	R	61.6	64.9	* 66	+ 3

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From Beginning of Project to SR 1119/SR 1301 (Cont'd)													
61	Residence	B	US 64	80	R	64	US 64	300	R	60.6	65.7	* 66	+ 2
62	Residence	B	"	100	R	62	"	320	R	59.8	64.2	65	+ 3
63	Residence	B	"	70	R	65	"	335	R	59.3	66.6	* 67	+ 2
64	Residence	B	"	70	R	65	"	355	R	58.6	66.6	* 67	+ 2
65	Residence	B	"	110	R	62	"	375	R	58.0	63.5	64	+ 2
66	Residence	B	"	100	R	62	"	45	R	----------R/W----------			
67	Residence	B	"	80	R	64	"	50	R	----------R/W----------			
68	Residence	B	"	90	L	63	"	90	R	----------R/W----------			
69	Residence	B	"	130	L	60	"	35	R	----------R/W----------			
70	Residence	B	"	80	L	64	"	95	R	----------R/W----------			
71	Residence	B	"	110	L	62	"	105	R	----------R/W----------			
71A	Residence	B	"	120	L	61	"	120	L	70.1	62.7	* 70	+ 9
72	Residence	B	"	120	R	61	"	160	R	67.3	62.7	* 68	+ 7
73	Business	C	"	100	R	62	"	455	R	55.8	64.2	64	+ 2
74	Residence	B	"	80	L	64	"	500	R	54.5	65.7	* 66	+ 2
83	Residence	B	"	60	L	66	"	385	R	57.7	67.6	* 68	+ 2
84	Residence	B	"	60	L	66	"	525	R	53.8	67.6	* 67	+ 1
86	Residence	B	"	60	L	66	"	495	R	54.6	67.6	* 67	+ 1
87	Residence	B	"	60	R	66	"	505	R	54.3	67.6	* 67	+ 1
88	Residence	B	"	120	R	61	"	485	R	54.9	62.7	63	+ 2
89	Residence	B	"	70	L	65	"	435	R	56.3	66.6	* 66	+ 1
90	Church	E	"	60	L	66/41	"	185	R	65.8	67.6	69/44	+ 3/3
91	Residence	B	"	80	L	64	"	145	R	68.4	65.7	* 70	+ 6
92	Residence	B	"	100	L	62	"	65	R	----------R/W----------			
93	Residence	B	"	60	L	66	"	145	R	68.4	67.6	* 71	+ 5
94	Residence	B	"	70	L	65	"	115	R	70.5	66.6	* 71	+ 6
95	Residence	B	"	130	L	60	"	55	R	----------R/W----------			
96	Business	C	"	270	L	53	"	55	L	----------R/W----------			
97	Business	C	"	150	L	59	"	90	L	----------R/W----------			
98	Residence	B	"	120	R	61	"	325	R	59.6	62.7	64	+ 3
99	Residence	B	"	120	R	61	"	320	R	59.8	62.7	64	+ 3
100	Business	C	"	60	R	66	"	235	R	63.4	67.6	69	+ 3
101	Residence	B	"	180	L	57	"	30	L	----------R/W----------			
102	Residence	B	"	80	L	64	"	15	R	----------R/W----------			
103	Residence	B	"	80	L	64	"	25	R	----------R/W----------			
104	Residence	B	"	70	L	65	"	30	R	----------R/W----------			
105	Residence	B	"	50	L	67	"	0	R	----------R/W----------			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE LEVELS -Y-	MAXIMUM	NOISE LEVEL INCREASE
From Beginning of Project to SR 1119/SR 1301 (Cont'd)													
105A	Residence	B	US 64	100	L	62	US 64	100	L	----------R/W----------			
105B	Residence	B	"	65	L	65	"	65	L	----------R/W----------			
105C	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
105D	Residence	B	"	70	L	65	"	70	L	----------R/W----------			
106	Business	C	"	50	R	67	"	0		----------R/W----------			
107	Residence	B	"	70	R	65	"	245	R	63.0	66.6	* 68	+ 3
108	Residence	B	"	70	R	65	"	0		----------R/W----------			
109	Residence	B	"	70	R	65	"	240	R	63.2	66.6	* 68	+ 3
110	Residence	B	"	70	R	65	"	255	R	62.5	66.6	* 68	+ 3
111	Residence	B	"	100	R	62	"	375	R	58.0	64.2	65	+ 3
112	Residence	B	"	170	R	58	"	455	R	55.8	59.7	61	+ 3
113	Residence	B	"	110	R	62	"	450	R	55.9	63.5	64	+ 2
114	Residence	B	"	80	L	64	"	70	R	----------R/W----------			
115	Residence	B	"	80	L	64	"	80	R	----------R/W----------			
116	Residence	B	"	80	L	64	"	95	R	----------R/W----------			
117	Residence	B	"	80	L	64	"	140	R	68.7	65.7	* 70	+ 6
118	Residence	B	"	80	L	64	"	180	R	66.1	65.7	* 68	+ 4
119	Residence	B	"	80	L	64	"	215	R	64.3	65.7	* 68	+ 4
122	Business	C	"	80	L	64	"	365	R	58.3	67.6	68	+ 4
123	Business	C	"	100	L	62	"	375	R	58.0	62.7	63	+ 1
124	Business	C	"	130	L	60	"	405	R	57.1	62.0	63	+ 3
125	Residence	B	"	200	L	57	"	315	R	60.0	62.7	64	+ 7
612	Residence	B	"	710	L	45	"	170	L	66.7	43.6	* 66	* + 21
613	Business	C	"	930	L	45	"	370	L	-	-	58	+ 13
614	Residence	B	"	1030	L	45	"	480	L	-	-	55	+ 10
From SR 1119/SR 1301 to Existing US 64 @ SR 1132													
149	Residence	B	US 64	100	L	61	US 64	455	R	56.6	65.1	65	+ 4
149A	Residence	B	"	300	L	51	"	255	R	63.3	54.9	63	* + 12
149B	Residence	B	"	390	L	48	"	145	R	69.1	52.1	* 69	* + 21
149C	Apartments	B	"	320	L	50	"	225	R	64.6	54.2	65	* + 15
149D	Apartments	B	"	355	L	49	"	130	R	70.1	53.1	* 70	* + 21
149E	Business	C	"	305	L	51	"	155	R	68.4	54.8	68	* + 17
149F	Apartments	B	"	500	L	45	"	45	R	----------R/W----------			
149G	Apartments	B	"	450	L	46	"	85	R	----------R/W----------			
149H	Residence	B	"	430	L	47	"	80	R	----------R/W----------			

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED -L-	NOISE -Y-	LEVELS MAXIMUM	NOISE LEVEL INCREASE
From SR 1119/SR 1301 to Existing US 64 @ SR 1132 (Cont'd)													
1491	Residence	B	US 64	550	L	45	US 64	10	R			R/W	
151	Residence	B	"	90	L	62	"	460	R	56.4	65.7	* 66	+ 4
155	Residence	B	"	90	L	62	"	455	R	56.6	65.7	* 66	+ 4
156	Residence	B	"	240	L	53	"	295	R	61.6	57.3	62	+ 9
159	Church	E	"	180	L	56/<40	"	315	R	60.8	60.1	63/43	+ 7/3
163	Church	E	"	70	L	64/<40	"	10	R			R/W	
615	Residence	B	"	1000	L	45	"	460	L	-	-	56	+ 11
616	Residence	B	"	990	L	45	"	450	L	-	-	56	+ 11
617	Residence	B	"	960	L	45	"	430	L	-	-	57	+ 12
618	Residence	B	"	1030	L	45	"	490	L	-	-	55	+ 10
619	Residence	B	"	1060	L	45	"	530	L	-	-	54	+ 9
620	Residence	B	"	1150	L	45	"	620	L	-	-	52	+ 7
621	Residence	B	"	1120	L	45	"	580	L	-	-	53	+ 8
622	Residence	B	"	1170	L	45	"	630	L	-	-	52	+ 7
623	Residence	B	"	1130	L	45	"	590	L	-	-	53	+ 8
624	Residence	B	"	1170	L	45	"	630	L	-	-	52	+ 7
625	Residence	B	"	930	L	45	"	380	L	-	-	58	+ 13
626	Residence	B	"	1100	L	45	"	570	L	-	-	53	+ 8
627	Residence	B	"	940	L	45	"	390	L	-	-	58	+ 13
628	Residence	B	"	980	L	45	"	330	L	-	-	60	* + 15
629	Residence	B	"	900	L	45	"	330	L	-	-	60	* + 15
630	Residence	B	"	880	L	45	"	290	L	-	-	61	* + 16
631	Residence	B	"	1030	L	45	"	440	L	-	-	57	+ 12
632	Residence	B	"	1200	L	45	"	620	L	-	-	52	+ 7
633	Residence	B	"	870	L	45	"	270	L	-	-	62	* + 17
634	Residence	B	"	1130	L	45	"	530	L	-	-	54	+ 9
635	Residence	B	"	70	L	64	"	50	L			R/W	
636	Residence	B	"	70	L	64	"	140	L	69.4	67.4	* 71	+ 7
From Existing US 64 @ SR 1132 to Existing US 64 & SR 1304													
164	Business	C	US 64	60	R	65	US 64	520	L	54.7	68.4	65	0
637	Residence	B	"	220	R	54	"	220	L	64.8	58.3	65	* + 11
639	Residence	B	"	590	R	45	"	450	L	-	46.8	56	+ 11
640	Residence	B	"	1090	R	45	"	380	L	-	-	58	+ 13
641	Residence	B	Backwoods	40	L	45	"	365	L	-	-	59	+ 14
642	Residence	B	"	40	L	45	"	355	L	-	-	59	+ 14

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE CATEGORY		NEAREST NAME	ROADWAY DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From Existing US 64 @ SR 1132 to Existing US 64 & SR 1304 (Cont'd)													
643	Residence	B	Backwoods	35	L	45	US 64	380	L	-	-	58	+ 13
644	Residence	B	"	65	L	45	"	490	L	-	-	55	+ 10
645	Residence	B	"	70	L	45	"	600	L	-	-	52	+ 7
646	Residence	B	"	100	R	45	"	600	L	-	-	52	+ 7
647	Residence	B	"	140	R	45	"	530	L	-	-	54	+ 9
648	Residence	B	"	75	R	45	"	725	L	-	-	50	+ 5
649	Residence	B	"	75	R	45	"	730	L	-	-	50	+ 5
650	Residence	B	"	85	R	45	"	735	L	-	-	50	+ 5
64	Residence	B	PR. ROAD	120	R	45	"	880	R	46.5	45.0	48	+ 3
326	Business	C	US 64	40	L	65	"	1160	L	43.7	70.5	70	+ 5
327	Business	C	"	80	L	61	"	680	L	49.8	66.6	66	+ 5
328	Business	C	"	160	L	56	"	440	L	55.7	61.1	62	+ 6
329	Residence	B	"	70	L	62	"	300	L	60.1	67.5	* 68	+ 6
330	Residence	B	"	60	L	63	"	200	L	64.5	68.5	* 69	+ 6
331	Residence	B	"	180	L	55	"	180	L	-	-	65	* + 10
332	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
333	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
334	Residence	B	"	120	R	58	"	120	R	-	-	* 69	* + 11
335	Residence	B	"	140	L	57	"	140	L	-	-	* 68	* + 11
336	Residence	B	"	150	L	56	"	150	L	-	-	* 67	* + 11
337	Residence	B	"	160	L	56	"	160	L	-	-	* 66	* + 10
338	Business	C	"	120	L	58	"	120	L	-	-	69	* + 11
From Existing US 64 & SR 1304 to SR 1158													
339	Residence	B	US 64	150	R	57	US 64	150	R	-	-	* 66	+ 9
-340	Business	C	"	110	R	59	"	110	R	-	-	69	* + 10
341	Residence	B	"	90	R	61	"	90	R	----------R/W----------			
342	Business	C	"	100	R	60	"	100	R	-	-	70	* + 10
343	Residence	B	"	110	L	59	"	110	L	-	-	* 69	* + 10
344	Business	C	"	120	L	59	"	120	L	-	-	69	* + 10
345	Business	C	"	100	R	60	"	100	R	-	-	70	* + 10
346	Residence	B	"	70	R	63	"	70	R	----------R/W----------			
347	Business	C	"	130	R	58	"	130	R	-	-	68	* + 10
348	Residence	B	"	180	R	55	"	180	R	-	-	64	+ 9
349	Residence	B	"	250	R	52	"	250	R	-	-	61	+ 9
350	Residence	B	"	170	R	56	"	170	R	-	-	65	+ 9

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From Existing US 64 & SR 1304 to SR 1158 (Cont'd)													
351	Residence	B	US 64	110	L	59	US 64	110	L	-	-	* 69	* + 10
352	Residence	B	"	150	L	57	"	150	L	-	-	* 66	+ 9
353	Residence	B	"	190	L	55	"	190	L	-	-	64	+ 9
354	Residence	B	"	220	L	53	"	220	L	-	-	62	+ 9
355	Business	C	"	110	L	59	"	110	L	-	-	69	* + 10
356	Business	C	"	70	L	63	"	70	L	----------R/W----------			
357	Business	C	"	70	R	63	"	70	R	----------R/W----------			
358	Residence	B	"	130	R	58	"	130	R	-	-	* 68	* + 10
359	Residence	B	"	80	L	62	"	300	R	59.5	62.0	63	+ 1
360	Residence	B	"	60	L	64	"	400	R	56.2	64.0	64	0
361	Residence	B	"	70	L	63	"	440	R	55.1	63.0	63	0
362	Residence	B	"	60	L	64	"	480	R	53.9	64.0	64	0
From Existing US 64 & SR 1304 to SR 1158 (Cont'd)													
363	Business	C	US 64	90	L	61	US 64	520	R	52.8	61.0	61	0
364	Residence	B	"	60	L	64	"	640	R	50.0	64.0	64	0
365	Business	C	"	100	L	60	"	640	R	50.0	60.0	60	0
366	Business	C	"	70	L	63	"	680	R	47.7	63.0	63	0
367	Business	C	"	120	R	59	"	940	R	43.9	59.0	59	0
368	Business	C	"	100	L	60	"	700	R	47.3	60.0	60	0
369	Residence	B	"	180	L	55	"	600	R	49.3	55.0	56	+ 1
370	Business	C	"	80	L	62	"	720	R	46.9	62.0	62	0
371	Residence	B	"	150	L	57	"	700	R	47.3	57.0	57	0
372	Residence	B	"	150	R	57	"	940	R	43.9	57.0	57	0
373	Business	C	"	80	R	62	"	1000	R	43.2	62.0	62	0
374	Business	C	"	130	R	58	"	1100	R	42.3	58.0	58	0
375	Business	C	"	220	R	53	"	1100	R	42.3	53.0	53	0
376	Business	C	"	140	R	57	"	900	R	44.3	57.0	57	0
377	Business	C	"	140	R	57	"	1000	R	43.2	57.0	57	0
378	Business	C	"	100	R	60	"	960	R	43.7	60.0	60	0
379	Church	E	"	170	R	56/<40	"	900	R	44.3	56.0	56/<40	0/0
380	Business	C	"	140	R	57	"	790	R	45.7	57.0	57	0
381	Residence	B	"	120	L	59	"	600	R	49.3	59.0	59	0

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1158 to SR 1113													
381A	Residence	B	US 64	360	L	47	US 64	360	R	55.6	47.0	56	+ 9
382	Residence	B	"	120	R	58	"	640	R	48.2	58.0	58	0
382A	Residence	B	"	400	L	46	"	300	R	57.7	46.0	57	+ 11
383	Residence	B	"	120	L	58	"	480	R	52.1	58.0	58	0
383A	Residence	B	"	500	L	45	"	140	R	65.8	43.0	65	* + 20
384	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
385	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
386	Business	C	"	60	L	63	"	60	L	----------R/W----------			
387	Business	C	"	100	L	60	"	100	L	-	-	68	+ 8
388	Residence	B	"	100	L	60	"	100	L	-	-	* 68	+ 8
389	Residence	B	"	110	L	59	"	110	L	-	-	* 67	+ 8
390	Business	C	"	150	L	56	"	150	L	-	-	65	+ 9
391	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
392	Residence	B	"	130	L	57	"	130	L	-	-	* 66	+ 9
393	Residence	B	"	180	L	54	"	180	L	-	-	63	+ 9
394	Residence	B	"	90	L	60	"	90	L	----------R/W----------			
395	Residence	B	"	120	L	58	"	120	L	-	-	* 67	+ 9
396	Residence	B	"	80	L	61	"	80	L	----------R/W----------			
397	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
398	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
399	Business	C	"	190	L	54	"	190	L	-	-	62	+ 8
400	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
401	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
402	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
403	Residence	B	"	50	L	64	"	50	L	----------R/W----------			
404	Business	C	"	250	R	51	"	250	R	-	-	59	+ 8
405	Church	E	"	220	R	53/<40	"	220	R	-	-	61/<40	+ 8/0
406	Residence	B	"	90	R	60	"	90	R	----------R/W----------			
407	Residence	B	"	160	L	56	"	160	L	-	-	64	+ 8
408	Residence	B	"	160	L	56	"	160	L	-	-	64	+ 8
409	Residence	B	"	180	R	54	"	180	R	-	-	63	+ 9
410	Residence	B	"	200	R	54	"	200	R	-	-	62	+ 8
411	Residence	B	"	150	R	56	"	150	R	-	-	65	+ 9
412	Business	C	"	70	L	62	"	70	L	----------R/W----------			
413	Residence	B	"	220	R	53	"	300	R	-	-	57	+ 4
414	Residence	B	"	400	R	46	"	480	R	-	-	52	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From SR 1113 to Scuppernong River													
415	Business	C	US 64	100	R	60	US 64	100	R	-	-	67	+ 7
416	Business	C	"	100	R	60	"	100	R	-	-	67	+ 7
417	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
418	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
419	Residence	B	"	70	R	62	"	70	R	----------R/W----------			
420	Residence	B	"	70	R	62	"	70	R	----------R/W----------			
421	Residence	B	"	90	R	60	"	90	R	----------R/W----------			
422	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
423	Residence	B	"	130	L	57	"	130	L	-	-	65	+ 8
424	Business	C	"	120	L	58	"	120	L	-	-	66	+ 8
425	Residence	B	"	90	L	60	"	90	L	----------R/W----------			
426	Business	C	"	120	L	58	"	120	L	-	-	66	+ 8
427	Residence	B	"	70	L	62	"	70	L	----------R/W----------			
428	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
429	Residence	B	"	140	R	57	"	140	R	-	-	64	+ 7
430	Residence	B	"	150	R	56	"	150	R	-	-	63	+ 7
431	Residence	B	"	120	R	58	"	120	R	-	-	* 66	+ 8
432	Residence	B	"	140	R	57	"	140	R	-	-	64	+ 7
433	Residence	B	"	170	R	55	"	170	R	-	-	62	+ 7
434	Residence	B	"	160	L	56	"	160	L	-	-	63	+ 7
434A	Residence	B	"	200	L	54	"	200	L	-	-	61	+ 7
435	Residence	B	"	120	L	58	"	120	L	-	-	* 66	+ 8
436	Residence	B	"	110	L	59	"	110	L	-	-	* 66	+ 7
437	Residence	B	"	70	R	62	"	70	R	----------R/W----------			
438	Residence	B	"	160	R	56	"	160	R	-	-	63	+ 7
439	Residence	B	"	100	R	60	"	100	R	-	-	* 67	+ 7
440	Residence	B	"	70	R	62	"	70	R	----------R/W----------			
441	Residence	B	"	120	R	58	"	120	R	-	-	* 66	+ 8
442	Residence	B	"	120	L	58	"	120	L	-	-	* 66	+ 8
443	Residence	B	"	110	R	59	"	110	R	-	-	* 66	+ 7
444	Residence	B	"	90	R	60	"	90	R	----------R/W----------			
445	Residence	B	"	160	R	56	"	160	R	-	-	63	+ 7
From the Scuppernong River to End of Project													
446	Business	C	US 64	150	L	55	US 64	150	L	-	-	62	+ 7
447	Business	C	"	170	L	54	"	170	L	-	-	61	+ 7

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to End of Project (Cont'd)													
448	Business	C	US 64	80	L	60	US 64	80	L	-	-	67	+ 7
449	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
450	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
451	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
452	Residence	B	"	160	L	55	"	160	L	-	-	61	+ 6
453	Residence	B	"	80	L	60	"	80	L	-	-	* 67	+ 7
454	Residence	B	"	170	L	54	"	170	L	-	-	61	+ 7
455	Residence	B	"	130	L	56	"	130	L	-	-	63	+ 7
456	Business	C	"	80	R	60	"	80	R	-	-	67	+ 7
457	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
458	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
459	Business	C	"	80	L	60	"	80	L	-	-	67	+ 7
460	Business	C	"	70	L	61	"	70	L	-	-	68	+ 7
461	Church	E	"	80	L	60/<40	"	80	L	-	-	67/42	+ 7/2
462	Residence	B	"	70	R	61	"	70	R	-	-	* 68	+ 7
463	Business	C	"	70	R	61	"	70	R	-	-	68	+ 7
464	Residence	B	"	60	R	62	"	60	R	-	-	* 69	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
465	Residence	B	"	80	R	60	"	80	R	-	-	* 67	+ 7
466	Residence	B	"	110	R	58	"	110	R	-	-	65	+ 7
467	Residence	B	"	150	R	55	"	150	R	-	-	62	+ 7
468	Residence	B	"	90	R	59	"	90	R	-	-	* 66	+ 7
469	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
470	Residence	B	"	60	L	62	"	60	L	-	-	* 69	+ 7
471	Residence	B	"	120	L	57	"	120	L	-	-	64	+ 7
472	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
473	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
474	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
475	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
476	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
477	Apartments	B	"	130	L	57	"	130	L	-	-	63	+ 6
478	Residence	B	"	80	L	61	"	80	L	-	-	* 67	+ 6
479	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
480	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
481	Business	C	"	50	R	64	"	50	R	-	-	70	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N4.4

Leq TRAFFIC NOISE EXPOSURES

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project# 6.149001T TIP# R-2548

Alternate # 4

RECEPTOR INFORMATION ID #	LAND USE	CATEGORY	NEAREST ROADWAY NAME	DISTANCE(ft)		AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY NAME	DISTANCE(ft)		PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
From the Scuppernong River to End of Project (Cont'd)													
482	Business	C	US 64	90	R	60	US 64	90	R	-	-	66	+ 6
483	Residence	B	"	160	L	55	"	160	L	-	-	61	+ 6
484	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
485	Church	E	"	70	L	62/<40	"	70	L	-	-	68/43	+ 6/3
486	School	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/0
487	Residence	B	"	120	L	58	"	120	L	-	-	64	+ 6
488	Residence	B	"	120	R	58	"	120	R	-	-	64	+ 6
489	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
490	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
491	Residence	B	"	70	R	62	"	70	R	-	-	* 68	+ 6
492	Residence	B	"	200	L	53	"	200	L	-	-	59	+ 6
493	Business	C	"	70	L	62	"	70	L	-	-	68	+ 6
494	Residence	B	"	200	R	53	"	200	R	-	-	59	+ 6
495	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
496	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
497	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
498	Residence	B	"	60	L	63	"	60	L	-	-	* 69	+ 6
499	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
500	Residence	B	"	150	R	56	"	150	R	-	-	62	+ 6
501	Residence	B	"	60	R	63	"	60	R	-	-	* 69	+ 6
502	Residence	B	"	100	R	59	"	100	R	-	-	65	+ 6
503	Church	E	"	160	R	55/<40	"	160	R	-	-	61/<40	+ 6/0
504	Business	C	"	240	R	51	"	240	R	-	-	57	+ 6
505	Business	C	"	70	R	62	"	70	R	-	-	68	+ 6
506	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
507	Residence	B	"	130	L	57	"	130	L	-	-	63	+ 6
508	Residence	B	"	150	L	56	"	150	L	-	-	62	+ 6
509	Residence	B	"	180	L	54	"	180	L	-	-	60	+ 6
510	Residence	B	"	70	L	62	"	70	L	-	-	* 68	+ 6
511	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
512	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
513	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
514	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6
515	Residence	B	"	50	L	64	"	50	L	-	-	* 70	+ 6

NOTE: Distances are from center of the existing or proposed roadways. -L-=> Proposed roadway's noise level contribution.
All noise levels are hourly A-weighted noise levels. -Y-=> Noise level from other contributing roadways.
Category E noise levels shown as exterior/interior (58/48). * => Traffic noise impact (per 23 CFR Part 772).

TABLE N5.1

FHWA NOISE ABATEMENT CRITERIA SUMMARY

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 1

Description	Maximum Predicted Leq Noise Levels dBA 50'	100'	200'	Contour Distances (Maximum) 72 dBA	67 dBA	Approximate Number of Impacted Receptors According to Title 23 CFR Part 772 A	B	C	D	E
1. Beginning to US 64/NC 32	75	71	66	111'	192'	0	7	0	0	0
2. US 64/NC 32 to SR1126	72	68	63	94'	157'	0	6	0	0	0
2A.SR 1126 to Existing US 64 & SR 1304	72	68	63	94'	157'	0	9	1	0	0
3. From Existing US 64 & SR 1304 to SR 1158	72	68	62	88'	149'	0	5	6	0	0
4. From SR 1158 to SR 1113	71	66	61	57'	114'	0	7	0	0	0
5. From SR 1113 to Scuppernong River	70	66	60	69'	123'	0	10	0	0	0
6. From Scuppernong River to End	72	67	60	50'	87'	0	26	0	0	0
				TOTALS		0	70	7	0	0

NOTES - 1. 50', 100', and 200' distances are measured from center of nearest travel lane.
2. 72 dBA and 67 dBA contour distances are measured from center of proposed roadway.

TABLE N5.2

FHWA NOISE ABATEMENT CRITERIA SUMMARY

US 64
From NC 45 (East of Plymouth) to US 64 Business (West of Columbia)
Washington/Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 2

Description	Maximum Predicted Leq Noise Levels dBA 50'	100'	200'	Contour Distances (Maximum) 72 dBA	67 dBA	Approximate Number of Impacted Receptors According to Title 23 CFR Part 772 A	B	C	D	E
1. NC 45 to SR 1119	74	70	65	99'	175'	0	23	0	0	0
1A. SR 1119 to SR 1330	74	70	65	99'	175'	0	12	1	0	0
1B. SR 1330 to SR 1119/1301	74	70	65	99'	175'	0	10	2	0	0
2. SR 1119/1301 to SR 1332	73	69	63	84'	151'	0	7	0	0	0
3. SR 1132 to NC 308	73	68	63	95'	160'	0	28	1	0	0
4. NC 308 to SR 1319	74	70	64	109'	181'	0	11	1	0	0
5. SR 1319 to NC 32	73	69	64	104'	173'	0	21	1	0	0
6. NC 32 to West City Limits of Creswell	74	70	64	107'	178'	0	38	6	0	0
7. West City Limits of Creswell to SR 1158	74	70	64	94'	167'	0	9	2	0	1
8. SR 1158 to West of Azalea Gardens Cemetary	73	69	64	104'	175'	0	12	2	0	1
9. West of Azalea Gardens Cemetary to Scuppernong River	74	70	64	95'	168'	0	22	2	0	0
10. From Scuppenong River to End of Project	72	67	60	50'	87'	0	26	0	0	0
					TOTALS	0	219	18	0	2

NOTES - 1. 50', 100', and 200' distances are measured from center of nearest travel lane.
2. 72 dBA and 67 dBA contour distances are measured from center of proposed roadway.

TABLE N5.3

FHWA NOISE ABATEMENT CRITERIA SUMMARY

US 64
From NC 45 (East of Plymouth) to US 64 Business (West of Columbia)
Washington/Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 3

Description	Maximum Predicted Leq Noise Levels dBA 50'	100'	200'	Contour Distances (Maximum) 72 dBA	67 dBA	Approximate Number of Impacted Receptors According to Title 23 CFR Part 772 A	B	C	D	E
1. NC 45 to SR 1119	74	70	65	99'	175'	0	23	0	0	0
1A.SR 1119 to SR 1330	74	70	65	99'	175'	0	12	1	0	0
1B.SR 1330 to SR 1119/1301	74	70	65	99'	175'	0	10	2	0	0
2. SR 1119/1301 to SR 1332	73	69	63	84'	151'	0	7	0	0	0
2A.Ex. US64/SR1132 to Ex. US64/SR1304	72	68	63	94'	157'	0	8	1	0	0
3. From Existing US 64 & SR 1304 to SR 1158	72	68	62	88'	149'	0	5	6	0	0
4. From SR 1158 to SR 1113	71	66	61	57'	114'	0	7	0	0	0
5. From SR 1113 to Scuppernong River	70	66	60	69'	123'	0	10	0	0	0
6. From Scuppernong River to End	72	67	60	50'	87'	0	26	0	0	0
				TOTALS		0	108	10	0	0

NOTES - 1. 50', 100', and 200' distances are measured from center of nearest travel lane.
2. 72 dBA and 67 dBA contour distances are measured from center of proposed roadway.

TABLE N5.4

FHWA NOISE ABATEMENT CRITERIA SUMMARY

US 64
From NC 45 (East of Plymouth) to US 64 Business (West of Columbia)
Washington/Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 4

Description	Maximum Predicted Leq Noise Levels dBA 50'	100'	200'	Contour Distances (Maximum) 72 dBA	67 dBA	Approximate Number of Impacted Receptors According to Title 23 CFR Part 772 A	B	C	D	E
1. NC 45 to SR 1119/SR 1301	73	69	63	98'	165'	0	54	0	0	0
2. SR 1119/1301 to Ex. US 64 at SR 1132	74	69	64	105'	177'	0	11	1	0	0
2A.Ex. US64/SR1132 to Ex. US64/SR1304	74	69	64	105'	177'	0	10	1	0	0
3. From Existing US 64 & SR 1304 to SR 1158	72	68	62	88'	149'	0	5	6	0	0
4. From SR 1158 to SR 1113	71	66	61	57'	114'	0	7	0	0	0
5. From SR 1113 to Scuppernong River	70	66	60	69'	123'	0	10	0	0	0
6. From Scuppernong River to End	72	67	60	50'	87'	0	26	0	0	0
					TOTALS	0	123	8	0	0

NOTES - 1. 50', 100', and 200' distances are measured from center of nearest travel lane.
2. 72 dBA and 67 dBA contour distances are measured from center of proposed roadway.

TABLE N6.1

TRAFFIC NOISE LEVEL INCREASE SUMMARY

US 64
From NC 45 East of Plymouth to US 64 Business
Washington-Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 1

Section	Receptor Exterior Noise Level Increases							Substantial Noise Level Increases(1)	Impacts Due to Both Criteria(2)
	<=0	1-4	5-9	10-14	15-19	20-24	>=25		
1. Beginning to US 64/NC 32	0	0	0	8	0	0	0	7	7
2. US 64/NC 32 to SR 1126	12	19	1	1	0	0	0	0	6
2A.SR1126 to Ex. US64/SR1304	0	1	5	8	0	0	0	8	6
3. Ex. US64/SR1304 to SR 1158	13	0	17	13	0	0	0	9	3
4. SR 1158 to SR 1304	1	1	31	2	0	1	0	1	0
5. SR 1304 to Scuppernong River	0	0	32	0	0	0	0	0	0
6. Scuppernong River to End	0	0	72	0	0	0	0	0	0
TOTALS	26	21	158	32	0	1	0	25	22

(1) As defined by only a substantial increase (See bottom of Table N2).
(2) As defined by both criteria in Table N2.

TABLE N6.2

TRAFFIC NOISE LEVEL INCREASE SUMMARY

US 64
From NC 45 (East of Plymouth) to US 64 Business (West of Columbia)
Washington/Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 2

Section	Receptor Exterior Noise Level Increases							Substantial Noise Level Increases(1)	Impacts Due to Both Criteria(2)
	<=0	1-4	5-9	10-14	15-19	20-24	>=25		
1. NC 45 to SR 1119	0	0	27	0	0	0	0	0	0
1A.SR 1119 to SR 1330	0	0	14	0	0	0	0	0	0
1B.SR 1330 to SR 1119/1301	0	0	18	0	0	0	0	0	0
2. SR 1119/1301 to SR SR 1132	0	0	24	0	0	0	0	0	0
3. SR 1132 to NC 308	0	0	11	21	0	0	0	21	20
4. NC 308 to SR 1319	0	0	15	0	0	0	0	0	0
5. SR 1319 to NC 32	0	0	31	0	0	0	0	0	0
6. NC 32 to West City Limits of Creswell	0	0	0	45	0	0	0	44	34
7. West City Limits of Creswell to SR 1158	0	0	0	12	0	0	0	12	5
8. SR 1158 to West of Azalea Gardens Cemetary	0	0	0	15	0	0	0	15	11
9. West of Azalea Gardens Cemetary to Scuppernong River	0	0	30	0	0	0	0	0	0
10.From Scuppernong River to End of Project	0	0	72	0	0	0	0	0	0
TOTALS	0	0	242	93	0	0	0	92	70

(1) As defined by only a substantial increase (See bottom of Table N2).
(2) As defined by both criteria in Table N2.

TABLE N6.3

TRAFFIC NOISE LEVEL INCREASE SUMMARY

US 64
From NC 45 (East of Plymouth) to US 64 Business (West of Columbia)
Washington/Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 3

Section	Receptor Exterior Noise Level Increases							Substantial Noise Level Increases(1)	Impacts Due to Both Criteria(2)
	<=0	1-4	5-9	10-14	15-19	20-24	>=25		
1. NC 45 to SR 1119	0	0	27	0	0	0	0	0	0
1A.SR 1119 to SR 1330	0	0	14	0	0	0	0	0	0
1B.SR 1330 to SR 1119/1301	0	0	18	0	0	0	0	0	0
2. SR 1119/1301 to SR SR 1132	0	0	24	0	0	0	0	0	0
2A.Ex. US 64/SR1132-US64/SR1304	4	5	11	8	0	0	0	8	6
3. Ex. US64/SR1304 to SR 1158	13	0	17	13	0	0	0	9	3
4. SR 1158 to SR 1304	1	1	31	2	0	1	0	1	0
5. SR 1304 to Scuppernong River	0	0	32	0	0	0	0	0	0
6. Scuppernong River to End	0	0	72	0	0	0	0	0	0
TOTALS	18	6	246	23	0	1	0	18	9

(1) As defined by only a substantial increase (See bottom of Table N2).
(2) As defined by both criteria in Table N2.

TABLE N6.4

TRAFFIC NOISE LEVEL INCREASE SUMMARY

US 64
From NC 45 (East of Plymouth) to US 64 Business (West of Columbia)
Washington/Tyrrell Counties
State Project # 6.149001T TIP # R-2548

ALTERNATE # 4

Section	Receptor Exterior Noise Level Increases							Substantial Noise Level Increases(1)	Impacts Due to Both Criteria(2)
	<=0	1-4	5-9	10-14	15-19	20-24	>=25		
1. NC 45 to SR 1119/SR 1301	0	54	24	4	2	1	0	4	4
2. SR 1119/1301 to US64/SR1132	0	3	12	8	6	2	0	9	2
2A.Ex. US64/SR1132-US64/SR1304	1	1	11	15	0	0	0	9	6
3. Ex. US64/SR1304 to SR 1158	13	0	17	13	0	0	0	9	3
4. SR 1158 to SR 1304	1	1	31	2	0	1	0	1	0
5. SR 1304 to Scuppernong River	0	0	32	0	0	0	0	0	0
6. Scuppernong River to End	0	0	72	0	0	0	0	0	0
TOTALS	15	59	199	42	8	4	0	32	15

(1) As defined by only a substantial increase (See bottom of Table N2).
(2) As defined by both criteria in Table N2.

Appendix C — Correspondence

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

REPLY TO
ATTENTION OF

October 27, 1998

Regulatory Division

Subject: Action ID. 199703132

Mr. William D. Gilmore, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Gilmore:

Please reference your September 14, 1998, correspondence requesting our written concurrence on the "Least Environmentally Damaging Practicable Alternative" (LEDPA) to be carried forward in the Final Environmental Impact Statement (FEIS) regarding the proposed improvements to US 64 from NC 45 east of Plymouth to US 64 (Business) west of Columbia in Washington and Tyrrell Counties, North Carolina (State Project No. 6.149001T, TIP Project No. R-2548).

This transportation project has been listed as a priority in the new interagency agreement to integrate Section 404 and NEPA requirements ("A Team Approach For Transportation Projects in North Carolina"). A project team was assembled in Raleigh on September 15, 1998, to discuss the LEDPA to be presented in the FEIS. The following individuals comprised the project team: Mr. Michael Bell, Regulatory Project Manager/NCDOT Coordinator, Mr. Richard Brewer of your staff, Mr. David Moye of the North Carolina Division of Coastal Management, Mr. Ron Sechler of the National Marine Fisheries Service, Mr. Lee Pelej from the Environmental Protection Agency, Mr. David Cox of the North Carolina Wildlife Resources Commission, Mr. Tom McCartney of U.S. Fish and Wildlife Service, Ms. Cyndi Bell of the North Carolina Division of Water Quality, and Ms. Sara Winslow of the North Carolina Division Marine Fisheries. Messrs. Sechler, Pelej and Ms. Winslow did not attend the meeting.

The project team came to a consensus on the LEDPA to be presented in the FEIS (Concurrence Point #3). The selected LEDPA is designated as Alternative 1 in the Draft Environmental Impact Statement. The selection of Alternative 1 as the LEDPA is contingent upon the commitments made in your September 14, 1998, letter mentioned above. During subsequent telephone conversations, Ms. Winslow and Mr. Sechler concurred with Alternative 1 as the LEDPA, subject to the same September 14, 1998, commitments. Mr. Pelej concurred with Alternative 1 by letter dated July 13, 1998.

We encourage you to include a proposed compensatory mitigation plan in the FEIS to expedite the permit process. Once you circulate the FEIS, please contact me to schedule the next team meeting to discuss the minimization and compensatory mitigation requirements for this proposed project. We are extremely concerned that NCDOT had chosen not to address the secondary and cumulative impacts of the proposed project. We were informed by NCDOT on August 20, 1997, that the secondary and cumulative impacts of the proposal would not be addressed in the FEIS. NCDOT will have to supply this information to the public in the FEIS for the project to stay on scheduel. The secondary and cumulative impacts of a proposed project must be considered before a DA Permit will be issued.

We appreciate the opportunity to coordinate with you at this early stage of project design. If you have any questions, please do not hesitate to contact me at the Washington Regulatory Field Office, telephone (919)975-1616, extension 26.

Sincerely,

Michael F. Bell, P.W.S.
Project Manager

Copies Furnished:

Mr. Randall Turner
Division 1 Environmental Officer
Planning and Environmental Branch
Post Office Box 850
Edenton, North Carolina 27932

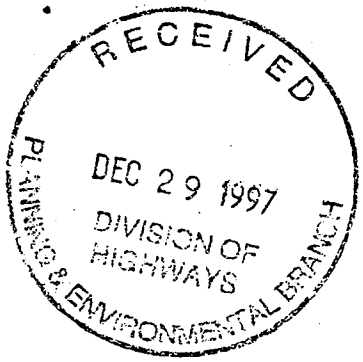
Mr. John Parker
Division of Coastal Management
North Carolina Department of Environment,
Health and Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

December 19, 1997

Planning 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 October 29, 1997, requesting our comments on the "State Draft Environmental Impact Statement for US 64, from NC 45 East of Plymouth to approximately 1.1 km (0.7 mi) East of SR 1235 (School Maintenance Road), Washington and Tyrrell Counties, State Project 6.149001T, TIP No. R-2548" (Regulatory Branch Action I.D. No. 199703312).

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 these issues.

We appreciate the opportunity to comment on this project. If we can be of further assistance, please contact us.

Sincerely,

James H. Bradley, P.E.
Chief, Technical Services Division

Enclosure

U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT, COMMENTS ON:

"State Draft Environmental Impact Statement for US 64, from NC 45 East of Plymouth to approximately 1.1 km (0.7 mi) East of SR 1235 (School Maintenance Road), Washington and Tyrrell Counties, State Project 6.149001T, TIP No. R-2548" (Regulatory Branch Action I.D. No. 199703312)

1. **FLOOD PLAINS: POC - Bobby L. Willis, Planning Services Section, at (910) 251-4728**

Comments on flood plains were provided to you previously by letter of July 24, 1997, a copy of which is contained in Appendix C of the State Draft Environmental Impact Statement (DEIS). We wish to add the following comments. In Washington County, one or more of the alternatives appear to cross the detail study streams of Kendrick Creek Tributary, Lees Mill Creek, (shown as Old Mill Creek on Figure 1 of the DEIS), Deep Creek, and two tributaries to Albemarle Sound. It appears that these streams are generally flooded by coastal storm surge and do not have floodways defined. The detailed study crossing of Mill Creek, referred to in our earlier letter, is located within the jurisdiction of the town of Roper, which is also a participant in the National Flood Insurance Program (NFIP).

The only additional comment is to change the point of contact on NFIP requirements in the North Carolina Division of Emergency Management. The POC is Mr. Phil Letsinger at (919) 733-3359.

2. **CORPS OF ENGINEERS PROJECTS: POC - Howard Varnam, Navigation Section , at (910) 251-4411**

We have no further comments beyond those furnished in our earlier letter.

3. **WATERS AND WETLANDS: POC - Mike Bell, NCDOT Coordinator/Regulatory Project Manager, Washington Field Office, Regulatory Division, at (919) 975-1616, Extension 26**

a. Please reference our letter from Mr. Michael Smith, Assistant Chief, Regulatory Division, to Mr. Frank Vick, P.E., Manager, Planning and Environmental Branch, dated September 5, 1997. This correspondence references the August 20, 1997, project team meeting which discussed the proposed project's purpose and need statement and the alternatives to be carried forward. The project team came to consensus on the purpose and need for the project and on the five project alternatives.

U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT, COMMENTS ON:

"State Draft Environmental Impact Statement for US 64, from NC 45 East of Plymouth to approximately 1.1 km (0.7 mi) East of SR 1235 (School Maintenance Road), Washington and Tyrrell Counties, State Project 6.149001T, TIP No. R-2548" (Regulatory Branch Action I.D. No. 199703312)

3. WATERS AND WETLANDS: (Continued)

b. Page ii. D. "Areas of Controversy/Major Unresolved Issues." This section should include compensation for, and the bridging of, high quality wetlands as major unresolved issues. The DEIS states that NCDOT will prepare a mitigation plan to compensate for wetland impacts. As you are aware, it is our policy that prior to issuance of a Department of the Army (DA) Permit, NCDOT will provide this office with an approved, final mitigation plan for this project. Development of these plans can require a significant amount of time and could lead to delays in the issuance of permits if not addressed in a timely manner. Accordingly, NCDOT should pursue development of this plan as early as possible.

The DEIS further states that NCDOT will use cross-pipes, or surface water equalizer canals, where warranted, in addition to prescribed hydrologic structures in causeways at high quality riverine wetland areas. This office appreciates this effort to minimize riverine wetland impacts. However, the applicant is required to exhaust all avoidance measures to these high quality wetland systems before minimization efforts are entertained. Bridging high quality wetland systems is an appropriate avoidance measure for this project.

c. Page 9. "**TABLE 2.**" Table 2 summarizes the alternative impacts into a matrix with relocations being a topic of consideration. The relocation numbers for alternatives 2, 3, and 4 appear to be excessive. A summary of the relocation report should be included in the DEIS with a copy sent to the Washington Regulatory Field Office, PO Box 1000, Washington, North Carolina 27889. If the relocation numbers are accurate, an early effort should be made to minimize the relocations with each alternative. The minimization efforts should include reducing median widths, curb and gutter sections in populated areas, and lane shifts to either or both sides of the existing alignment. In other words, the relocation impacts have not been minimized to the maximum extent possible. If the proposed project requires large numbers of relocations, we question whether the limited amount of benefits attained from this project would justify the social and environmental impacts.

d. Page 12. "Drainage/Hydraulics." This section states several times that "it is anticipated that the proposed facility will be difficult to drain and may require some off-site easements to convey runoff to adequate outfalls." If roadside ditching is the method to provide the drainage, then wetland impacts would increase for each alternative. NCDOT is encouraged to avoid ditching which drains wetlands or to summarize the effects of the ditch impacts in Table 2, located on page 9 of the DEIS.

U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT, COMMENTS ON:

"State Draft Environmental Impact Statement for US 64, from NC 45 East of Plymouth to approximately 1.1 km (0.7 mi) East of SR 1235 (School Maintenance Road), Washington and Tyrrell Counties, State Project 6.149001T, TIP No. R-2548" (Regulatory Branch Action I.D. No. 199703312)

3. WATERS AND WETLANDS: (Continued)

e. Page 35. "5.5.1 Waters of the U.S." A representative of the Corps of Engineers will need to be contacted to confirm all designated wetland areas in the DEIS.

f. Page 61. B. "Public Involvement." This paragraph discussed several citizen's workshops held during the planning phase. The paragraph states that the first one was held on September 24, 1992, in which many people living between the start of the project and Roper objected to making the existing US 64 a 4-lane facility. The document states that "As new alternatives developed as a result of the public outcry, a second workshop was held on February 7, 1995." According to the statement, the "public outcry" drove NCDOT from the existing alignment to new alternatives. The minutes of this significant hearing should be summarized in the DEIS with a copy of the full minutes and citizen comments sent to our Washington Regulatory Field Office, PO Box 1000, Washington, North Carolina 27889, for inclusion into our public interest review.

g. The following paragraph should be added to the DEIS:

"NCDOT and its contractors and/or agents shall not excavate, fill, or perform landclearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by the Department of the Army (DA) permit or any modification to the permit. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this project without appropriate modification of the individual permit. To ensure that all borrow and waste activities occur on high ground, except as authorized by individual DA permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with this project will be available to the Corps on request."

h. The Corps supports recommendations by the NC Wildlife Resources Commission, the US Fish and Wildlife Service and the NC Division of Water Quality for the provision of wildlife crossings throughout the project corridor. This concept could be combined with the bridging of riverine wetlands as avoidance measures in high quality wetlands while providing wildlife crossings. These provisions would also reduce the cost of wetland compensation by alleviating the need to restore riverine wetlands.

As a major permitting agency, we appreciate the opportunity to coordinate with your staff prior to the finalization of the DEIS. If you have any questions regarding our comments, please do not hesitate to contact Mr. Bell.

127 Cc: RB Davis

U.S. Department of Transportation
United States Coast Guard

Commander
United States Coast Guard
Atlantic Area

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: Aowb
Phone: (757)398-6227

16591
03 Dec 98

Mr. William D. Gilmore, P.E., Manager
Planning and Environmental Branch
P.O. Box 25201
Raleigh, NC 27611-5201

Dear Mr. Gilmore:

This is in reference to my recent telephone conversations with Richard Brewer and Richard Davis of your office concerning possible 4(f) involvement relating to Coast Guard NEPA responsibility in issuing a bridge permit for the proposed widening of the existing bridge on U.S. 64 across Scuppernong River at Columbia, North Carolina.

Since widening of the bridge would occur with or without construction of the bypass approximately 25 miles from the bridge site, there is no causal relationship between the bridge and the bypass. Since any impact to the historic farm will result from construction of the bypass, there is no Section 4(f) involvement as far as our NEPA jurisdiction in issuing the bridge permit.

If you have further questions, please call me at (757) 398-6222.

Sincerely,

Ann B. Deaton

ANN B. DEATON
Chief, Bridge Administration 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

August 10, 1998

Memorandum

To: David Cox, WRC, Creedmoor, NC
Mark Jones, WRC, Bridgeton, NC
William Wescott, WRC, Washington, NC
Steve Hall, Natural Heritage Program, Raleigh, NC
file - US 64 expansion/realignment (Plymouth to Columbia section)

From: Tom McCartney, FWS, Raleigh, NC Tom McCartney

Re: Wildlife Passage siting and monitoring protocol and design, assessing fragmentation affects of proposed US 64 realignment between Plymouth and Columbia

Meeting convened on July 10, 1998 with above state biologists and Tom McCartney and Kevin Moody of the USFWS. The meeting's purpose was to discuss provisions for animal passage under (around) roadways, in particular the proposed realignment of US 64 between Plymouth (Washington County) and Columbia (Tyrell County), North Carolina.

We reviewed some data/reports: (1) 21% of black bear harvest (reported) during the 96-97 hunting season occurred in Washington and Tyrell counties (Districts 1 and 2). (2) Box culverts for black bears were tried in Florida - the results were unsatisfactory. Concluded that bridges are a better solution. (3) Florida has constructed special "bridges" or underpasses for Florida panthers - indications are the underpasses are utilized by panthers and other animals. (4) Over and under passes were successful in reducing mule deer mortality in Utah; 8 foot high fencing contributed to the effectiveness. Even so, the over and under passes are cost-effective long term solutions to collisions between large mammals and automobiles. (5) Roads need to be fenced, and behavioral guides need to direct animals to crossing locations. The surrounding area should be a natural travel corridor - wooded or otherwise fairly undisturbed. (6) The data from Florida was quantifiable, to an extent, because they had monitored the movement of a number of animal; it appears that pre and post-project monitoring, preferably by radiotelemetry tracking, is an important component of siting and measuring success.

Since that meeting, unpublished data on the effects of a road-related mountain out on a flying squirrel population has become available. The affected population was, for all intents and purposes, split into two isolated populations by the roadway. No consideration had been made for the unique requirements of flying squirrels (they seem to require tall trees for launching on both sides of the road cut). Simple and inexpensive design criteria could have prevented the

fragmentation effect.

We agreed on a number of issues:

- We will target large mammals such as black bear, white-tail deer, and red wolves since there is some literature available on this size animal, and quantifiable (?) criteria for need, location, and success can be established.

- The Florida panther model appears to be a reasonable one for our first big foray into wildlife passage. The subject design is a bridge structure with 8 foot clearance, a minimum 100 ft width, and (apparently) ambient light conditions. Critical additional elements include exclusion fencing, ambient lighting as needed, and guidance and diversion structures/options.

- Conservation easements around both sides of the passage facilities will be necessary to limit landclearing, undesirable vegetation control and development, establish travel corridors and greenways, and to develop and maintain "funneling" structures (which may be vegetation screens). For the time being, we will refer to these areas as "greenway corridors."

- Since the state of knowledge in this subject area is very limited, it does not appear that any real short cuts or standardized approaches are valid. We will need to assess local population and movement dynamics/patterns and design effectiveness. Further, we will need to continuously evaluate our professional assumptions as data becomes available. The agencies will strive to provide DOT with cost and ecologically effective passage facility designs, but, we all need to recognize that this is the first step of an iterative process, and that the *best available* design will evolve over time as our base of knowledge increases.

- Ambient light will probably not be an issue with this particular project; if it is, two likely solutions are (1) vertical culverts with grated tops, or (2) angled tubes with glass bricks on either end. Ambient lighting should be provided by low to zero maintenance, VERY low cost design features.

We also developed a set of study requirements (for siting and effectiveness):

- A survey, lasting at least one year, will be conducted to identify areas or conditions where most animal movement through the new road alignment will be. This study will include a combination of spot light counts, animal track observations, and barbed wire impediments (three strands of wire will be strung along the alignment - an unknown percentage of animals crossing the wire will leave traces of fur or hair. These will be collected and identified on a frequent basis). Agricultural fields, which tend to congregate deer, will be excluded from the barbed wire studies (and may not be preferred

locations for wildlife crossing facilities).

- A multi-year radiotelemetry (tracking) survey is necessary to identify (1) pre- and post-construction movement patterns of individual black bears, (2) the ranges and habitat preferences of the affected black bear population, and (3) help us quantify success of the wildlife passage facilities and the fragmentation affects of this design roadway. This will identify movement patterns over all seasons for at least two years prior to and two years after the project is constructed and opened.

- An assessment of fragmentation affects is critical to determining the success of the wildlife passage facilities, and to identifying impacts that such facilities do not mitigate. This assessment will be incorporated into the above-mentioned radiotelemetry study of black bears.

- A statistical survey, using existing WRC data and follow-up site visits, to correlate topographic and vegetative landscape features with bear crossing/road kill data.

- A threshold number (for each species or in aggregate) needs to be developed to focus the site selection process. That threshold value should be determined after the surveys have provided baseline data.

FWS will coordinate with the red wolf program at Alligator River NWR; they may have ongoing studies that can either compliment or lower costs of the studies proposed here.

Meeting adjourned.

FWS/R4:\wildpass.wpd

Hart | Brewer

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

December 11, 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 October 29, 1997, requesting comments from the U.S. Fish and Wildlife Service (Service) on the State Draft Environmental Impact Statement (SDEIS), dated October 9, 1997, for the Improvement of US 64 from NC 45 near Plymouth to east of Columbia, (TIP No. R-2548), Washington and Tyrrell Counties, North Carolina. 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 SDEIS, the North Carolina Department of Transportation (NCDOT) proposes to upgrade the existing two-lane section of US 64 from just east of NC 45, the western terminus in Washington County, to approximately 0.7 mile east of SR 1235 (School Maintenance Road), the eastern terminus in Tyrrell County. The existing US 64 in the specified area is approximately 31.5 miles. The use of new location alignments would reduce the distance to approximately 27.8 miles. The project would also remove two existing bridges over the Scuppernong River and replace these bridges with a new 5-lane bridge at the same location, just west of Columbia.

The Service is pleased that the current project is being considered in an Environmental Impact Statement rather than an Environmental Assessment, as originally proposed. While the level of analysis may have been similar for the two documents, the Service could not have concurred with a Finding of No Significant Impact for this project.

The Service remains concerned that the present project is merely one of several segments in the upgrading of US 64. The SDEIS notes (p. 4) that US 64 ". . . is and will continue to be a highway transporting vacationers and tourists between the Outer Banks and other parts of the state and region." As the Service stated in a letter to the Corps of Engineers on June 25, 1996, this project is apparently part of the larger effort to increase traffic flows between Plymouth and points west to the Outer Banks. As such, the primary utility of this project is not independent from Projects R-2545, R-2544, and R-2551 which will ultimately connect Columbia to the Outer Banks.

Purpose and Need

The SDEIS presents (pp. 2-5) the purpose and need for the project. In general, the project would: (1) provide a link in the State's Intrastate Highway System; and, (2) increase safety and efficiency of travel in the project area.

A Service biologist attended the interagency meeting on August 20, 1997, at which project purpose and need were discussed. While the Service did not object the purposes presented, we do not support the use of legislative mandates to justify specific solutions to transportation need. The transportation issues which form the basis for legislation are valid problems requiring solutions, but not the legislation itself. In general, the desire to increase safety and prevent a deterioration of service along the project corridor are adequate justifications for improvements to the existing transportation infrastructure.

Alternatives analysis

The SDEIS presents (pp. 7-11) four build alternatives and a "no-build" or "do nothing" alternative. Alternative 2 would widen the existing US 64 throughout the entire project corridor, while Alternatives 1, 3, and 4 would require varying amounts of construction on new location. At the August 20 meeting the Service concurred with the range of alternatives to be considered.

While the SDEIS does eliminate the no action alternative, there is no stated preference among the four, build alternatives. The Service commends the NCDOT for the relatively balanced description on the four build alternatives and the concise listing of the positive and negative features of each alternative.

The Service retains the right to recommend other alternatives if data not contained in this SDEIS becomes available and to provide comments on the final alignment on the highway within the corridor selected. Furthermore, the Service has not endorsed any plan regarding the placement or design of interchanges.

General Design Features and Construction Techniques

The SDEIS notes (p. 24) that construction on new location will fragment the habitat of certain wildlife species and result in larger numbers of road-killed animals. The Service believes that proper design features could minimize these adverse impacts. If passageways independent of waterways are deemed impractical, then at a minimum all waterway crossings should be expanded to include areas for dry land passage.

Median barriers should not hinder wildlife movement across the road. While the Service supports the use of narrow, barrier-type structures in place of wide medians in wetland areas, we share the concerns of the NC Natural Heritage Program (Letter of May 7, 1997, p. C-46) that solid, raised medians could be detrimental to wildlife. The Service recommends that the NCDOT consider the use of separate, cylindrical posts as barriers. The use of such posts, which could be relatively large, would allow animal movement across the road.

The SDEIS states (p. 21) that the white-tailed deer (*Odocoileus virginianus*) and black bear (*Urus americanus*) occur in the project area. Without such passageways, there is an increased danger of collisions with such larger animals along freeways which traverse relatively undeveloped areas. Properly designed and constructed animal passageways would enhance motorist safety.

The SDEIS states (p. 12-14) that the topography of the project area produces poor drainage and that the new road may be difficult to drain. The document notes that the NCDOT will work to develop a final design which provides adequate drainage without causing adverse effects on the floodplain. The recommended environmental commitments mention the use of cross-pipes, surface water equalizer canals, and prescribed hydraulic structures in causeways. The existing drainage patterns would be maintained, "to the extent practicable." The Service believes that maintaining the natural surface hydrology is critical in preserving the fish and wildlife habitat in the project area. We recommend that the NCDOT consider all feasible methods, including the extensive use of drainage pipes and water collection-distribution system, to ensure that the project does not seriously disrupt surface water hydrology.

The Service is pleased that the NCDOT has committed (p. 24) to a construction moratorium at all major stream crossing in order to protect migrating anadromous fish.

Wetlands

Table 12 (p. 36) presents comprehensive data on wetland impacts for the four, build alternatives. However, these data would be more useful if a map had been provided to indicate the location of each wetland site. Total wetland impacts would range from 95 acres for Alternative 2, the upgrading of the existing highway to 113.5 acres for Alternative 4.

Avoidance of Wetland Impacts - The SDEIS indicates that the NCDOT has endeavored to avoid some wetland impacts. These measures include: (1) a realignment of alternative 1 to avoid 30 acres of wetlands north of Tyson Farm (p. 8); and, (2) the use of a partial cloverleaf interchange design at the proposed Bush Street interchange (p. 11). While these design features are commendable, the most significant aspect of wetland avoidance will be the full consideration wetland quantities and qualities in the selection of a preferred alternative.

Minimization of Wetland Impacts - While the SDEIS indicates (p. 29) that the minimization of wetland impacts will be a "serious issue", the document defers any detailed discussion of design features and construction techniques until a preferred alternative is selected. The Service believes that such a delay is unnecessary. The types of wetlands to be impacted by the four built alternatives are very similar and should not preclude a discussion of wetland bridging, median widths through wetlands, the extent of lateral ditching, the extent of mechanized land clearing, and fill slopes. The Service is pleased that the SDEIS (p. 7) calls for the use of only a four-foot painted median through the wetlands west of the Scuppernong River.

Compensatory Wetlands Mitigation - The Service is pleased that the SDEIS provides (p. 29) a commitment to compensate for unavoidable wetland losses. The Service concurs that compensation should be near areas where losses occur and on an in-kind basis. However, to date the NCDOT has only visited prospective mitigation sites. The Service believes that a complete assessment of long-term wetland impacts requires some discussion of the type and location of compensatory mitigation.

The SDEIS notes (p. 24) that large-scale farms in the study area have noticeable effects on the local drainage. Presumably, areas drained in the past for agriculture or silviculture could provide adequate areas for wetland restoration.

A major goal of the compensatory mitigation effort should be the establishment of links, or corridors, between wetland areas which have been severed by past development.

Section 7

Species protected by the ESA in Washington and Tyrrell Counties are the bald eagle (*Haliaeetus leucocephalus*), red-cockaded woodpecker (*Picoides borealis*), red wolf (Canis rufus), and American alligator (*Alligator mississippiensis*). The alligator is only listed due to a similarity of appearance with the American crocodile (*Crocodylus acutus*) which has a range in this country limited to southern Florida. Therefore, this species does not need to be considered in the fulfillment of Section 7 requirements.

Regarding the bald eagle, the Service believes that the lack of actual sightings should not form the basis for a determination of no effect. The real potential for harm to this species would be the loss or disturbance of a nesting site. While the SDEIS states (p. 38) that "no nest sites were encountered", there is no information regarding the extent of or systematic nature of searches for bald eagle nests. The Service concurs that most of the project corridor would be unsuitable for bald eagle nesting, but we recommend that the State Final EIS contain a description of the systematic surveys for eagle nest sites within and adjacent to the proposed corridor where suitable nesting trees exist.

The non-essential, experimental status of the red wolf in the project area excludes the species from the full protection of the ESA. On private land this population is only considered as being proposed for listing. However, the SDEIS does indicate (p. 38) that the project would have "no effect" on this species. The Service finds the basis for this determination to be limited to only a potential loss of habitat. The proposed project is far more likely to affect this species through direct mortality resulting from collisions with cars and secondary impacts resulting from the widening of US 64 to the east, particularly project R-2544 which will cross the Alligator River National Wildlife Refuge (ARNWR).

The State Final EIS should consider the consequences of car-wolf collisions on the proposed road. The project may replace the slower traffic movement on the existing road with faster travel on a wider, four-lane freeway. Such a change would increase the likelihood of red wolf mortality due to collisions with cars. Furthermore, the present project will have secondary effects of facilitating the four-laning of US 64 to the Outer Banks, an area that includes the ARNWR. The completed four-lane facility from

Plymouth to Manteo will increase the volume of cars and thereby increase the risk of red wolf mortality on the highway. While the Service acknowledges that precise impacts of this project may be difficult to define, we cannot concur with NCDOT's "no effect" determination.

As noted above, a system of passageways for larger terrestrial animals would not only protect wildlife, but would also enhance motorist safety. Any design features which facilitate the passage of animals across or under the new highway would benefit the red wolf.

The SDEIS acknowledges (p. 39) that project impacts on the red-cockaded woodpecker are "unresolved" due to an absence of definitive field surveys in suitable habitat. The Service considers the lack of such information to be a serious deficiency in the SDEIS. Furthermore, the Service believes that field data on the presence of listed species should be a factor in establishing initial corridors and certainly a major consideration in the selection of a preferred alternative.

At this time the Service concludes that the requirements of Section 7 of the ESA have not been fulfilled. The Service recommends that the NCDOT complete the surveys as soon as possible. The State Final EIS should reevaluate the effect determinations in light of the new field data and the comments provided above.

Summary

Due to the lack of precise data on the presence of federally protected species in the project area, the Service cannot endorse any alternative. However, we offer the following comments for consideration by the NCDOT.

In general, the Service believes that new location bypasses of rural communities should be avoided wherever possible.

Therefore, we have reservations about Alternative 1 which bypasses Roper to the south. However, data presented in the SDEIS indicate that the two alternatives, 3 and 4, which would allow a four-lane freeway near the existing US 64 through Roper would impact greater amounts of riverine wetlands (p. 9) and bottomland hardwood forests (p. 25). The Service wonders if this apparent paradox has resulted from a greater use of wetland bridging along Alternative 1. Sheets 1 and 2 of Figure 2 show four bridges on Alternative 1 from the western terminus of the project to the common junction of Alternatives 1, 3, and 4, northeast of Roper. In the same area, Alternative 4 appears to have only a single bridge and Alternative 3 has 3 bridges. The

Service recommends that the NCDOT consider an increased use of bridging for Alternatives 3 and 4 in order to reduce impacts to riparian wetlands. The Service believes that if riparian wetland losses along Alternatives 3 or 4 could be significantly reduced, either route would be an attractive alternative.

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,

John M. Hefner
Field Supervisor

cc:

Frank McBride, NCWRC, Northside, NC
John Dorney, NCDWQ, Raleigh, NC
Mike Bell, USA Corps of Engineers, Wilmington
Nicholas Graf, FHWA, Raleigh, NC
Melgaard, US EPA, Atlanta, GA
Charles Bruton, NCDOT, Raleigh, NC
Mike Bryan, Alligator River, NWR, Manteo, NC
Steve Hall, NC Natural Heritage Program, Raleigh, NC

FWS/R4:HHall:12/11/97:WP:A:tyrr2548.d97

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

December 1, 1997

Mr. H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
N.C. Division of Highways
P.O. Box 25201
Raleigh, North Carolina 27611

Dear Mr. Vick:

The National Marine Fisheries Service (NMFS) has reviewed the State Draft Environmental Impact Statement (DEIS) for the US 64, from NC 45 East of Plymouth to approximately 0.7 miles East of SR 1235 (School Maintenance Road), Washington and Tyrrell Counties, State Project No. 6.149001T, TIP No. R-2548. The purpose of the project is to improve the existing level of highway service within the project area.

The DEIS adequately addresses fishery resources under NMFS purview. Therefore, we have no comments.

Sincerely,

Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

Hart/Brewer

North Carolina
Department of Administration

James B. Hunt, Jr., Governor

Katie G. Dorsett, Secretary

January 6, 1998

cc: Clark
orig PM
1-8-98

Mr. Whit Webb
N.C. Dept. of Transportation
Program Development Branch
Transportation Building
Raleigh, NC 27611

Dear Mr. Webb:

Re: SCH File # 98-E-4220-0328; Draft Environmental Impact Statement Columbia, NC - Proposed Improvements to US 64 from NC 45 East of Plymouth to 0.7 Miles East of SR 1215; Washington & Tyrrell Counties; TIP #R-2548

The above referenced environmental impact information has been reviewed through the State Clearinghouse under the provisions of the North Carolina Environmental Policy Act.

Attached to this letter are comments made by State department(s) in the course of this review. The comment(s) need to be addressed in the Final Environmental Impact Statement. This document should be submitted to the State Clearinghouse upon completion for compliance with the North Carolina Environmental Policy Act.

Best regards.

Sincerely,

Chrys Baggett

Mrs. Chrys Baggett, Director
N. C. State Clearinghouse

Attachments

cc: Region R
Melba McGee, DEHNR

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

MEMORANDUM

TO: Chrys Baggett

FROM: Melba McGee

RE: DEIS - 98-0328 US 64 Improvements, Washington, Columbia, Tyrrell and Plymouth Counties

DATE: January 5, 1998

The Department of Environment and Natural Resources (DENR) has reviewed the DEIS for the proposed project.

The department asks that the Department of Transportation work with our review agencies to incorporate their concerns in the final environmental document.

Our agencies welcome the opportunity to assist the Department of Transporation in making final project decisions.

attachments

P.O. BOX 27687, RALEIGH NC 27611-7687 / 512 NORTH SALISBURY STREET, RALEIGH NC 27604
PHONE 919-733-4984 FAX 919-715-3060 WWW.EHNR.STATE.NC.US/EHNR/

12/22
11869

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Water Quality

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
A. Preston Howard, Jr., P.E., Director

DEHNR

November 25, 1997

MEMORANDUM

To: Michelle Suverkrubbe

Through: John Dorney

From: Cyndi Bell

Subject: State Draft Environmental Impact Statement for US 64 from NC 45 East of Plymouth to approximately 1.1 km (0.7 mi) East of SR 1235 (School Maintenance Road)
Washington and Tyrrell Counties
State Project No. 6.149001T, T.I.P. No. R-2548; EHNR #98-0328

97 DEC -2 AM 11:40

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. This project is being planned under the combined 404/NEPA process. Improvements to US 64 on existing and/or new alignment will involve from 95.0 to 113.5 acres of fill in wetlands, depending on the alternative ultimately selected. Potential impacts to perennial streams were not quantified in the DEIS. Overall, the Draft EIS provides balanced information with respect to the four Build Alternatives. DWQ will participate in future meetings, when a preferred alternative will be selected to carry forward to the Final EIS. With this in mind, there are several issues which we suggest that DOT should be prepared to discuss at upcoming meetings and in the Final EIS.

1) This project will involve new bridge and culvert crossings at numerous locations throughout the project corridor, regardless of the alternative selected. The potential linear distances of these stream impacts were not included in the DEIS. It would be helpful if NCDOT included stream geometry data for each perennial stream in the study area. NCDOT is reminded that stream relocations, new culverts or culvert extensions exceeding 150 feet linear distance of stream channel impact at any perennial stream crossing will require mitigation in accordance with current DWQ Wetland Rules {15A NCAC 2H.0506(b)(6)}. If necessary, the stream mitigation proposal must be included with the permit application. The Wetland Restoration Program will be available to use for stream mitigation for this project.

Environmental Sciences Branch • 4401 Reedy Creek Road • Raleigh, North Carolina 27607
Telephone 919-733-9960 FAX # 733-9959

2) DOT divided their general description of aquatic communities into "ditch systems" and "natural stream systems". This is reasonable considering that the ditch communities were largely created to drain farmland within the region, and as such are degraded by runoff from farms and are not as important to aquatic flora and fauna. We advise DOT to determine whether or not these ditches support fish and invertebrate populations. If these systems are not sufficiently naturalized or the water quality is inadequate to support animal life, then mitigation may not be required. The quality of these ditches as opposed to natural streams will also have a direct bearing on our selection of a preferred alternative.

3) DWQ supports recommendations by the NC Wildlife Resources Commission and U.S. Fish and Wildlife Service for the provision of wildlife crossings throughout the project corridor. This concept could be combined with minimization techniques where the project crosses riverine wetlands. We suggest that bridges at riverine wetlands would provide logical locations for a number of purposes, including

- demonstration of wetland impact avoidance and minimization,
- protection of aquatic communities supported by these wetlands,
- it would help to allay the cost to DOT of wetland mitigation, and
- provision of crossings where wildlife would have more available cover.

4) DOT has acknowledged that wetland mitigation will be required for this project. NCDOT is also aware that in-kind mitigation will be required for wetland impacts, and we must emphasize the need for riverine mitigation for impacts to riverine wetlands. DOT has already located a number of potential mitigation sites within the Pasquotank River Basin and has conducted field reviews. We applaud DOT's efforts to include wetland mitigation early in the planning process. We look forward to reviewing specific plans to be prepared for the site(s) DOT selects. 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.

5) We encourage NCDOT to investigate whether or not temporary fill will be required to build haul roads and place culverts. DOT is advised that full restoration (including removal of fill material and planting/monitoring of vegetation) of temporary fill areas exceeding one acre 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 has gone to Public Notice and will be finalized prior to construction of this project.

6) NCDOT should describe how stormwater is to be diverted along the project corridor. Wherever possible, we encourage DOT to divert highway runoff onto vegetated swales or into wetlands, rather than directly into streams.

Based upon the wetland impacts described in the DEIS, 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 DEIS. 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: Mike Bell, COE, Washington
Howard Hall, FWS
David Cox, WRC

R2548DEIS.DOC

DEPARTMENT OF ENVIRONMENT, HEALTH,
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Inter-Agency Project Review Response

Project Number 98E0328

County Washington/Tyrrell

Project Name US 64 from NC45 Type of Project EIS

☐ 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 progra m, 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, Parker Lincoln Building, Raleigh, North Carolina, (919) 733-2460.

Reviewer	Section/Branch	Date
	TMSS/CSB	12/17/97

cc: Hart/Brewer

State of North Carolina
Department of Environment
and Natural Resources
Division of Marine Fisheries

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
Preston P. Pate, Jr., Director

NCDENR
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

15 December 1997

MEMORANDUM

TO: Franklin Vick, P.E. Manager
Planning and Environmental Branch
N.C.Division of Highways
P.O. Box 25201
Raleigh, NC 27611

FROM: P.A. Wojciechowski

SUBJECT: Draft EIS - US 64 - Washington and Tyrrell Counties
State Project No. 6.14900IT, TIP No. R-2548

Attached is the Division's reply for the above referenced project. If you have any questions, please don't hesitate to contact me.

PAW/bc
permits\admin\sbcover.ltr

P.O. Box 769, Morehead City, North Carolina 28557-0769 Telephone 919-726-7021 FAX 919-726-0254

State of North Carolina
Department of Environment
and Natural Resources
Division of Marine Fisheries

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
Preston P. Pate, Jr., Director

NCDENR
North Carolina Department of
Environment and Natural Resources

MEMORANDUM:

TO: H. Franklin, Vick, P. E. Manager, NC DOT

THROUGH: P. A. Wojciechowski, Permit Coordinator

FROM: Sara E. Winslow, Biologist Supervisor SEW

SUBJECT: Draft EIS - US 64 - Washington and Tyrrell Counties; State Project No. 6.14900IT, TIP No. R-2548

DATE: December 5, 1997

The North Carolina Division of Marine Fisheries appreciates the opportunity to review and provide comments on the draft EIS for US 64.

The Division is concerned with the impacts and/or loss of wetlands. The importance of wetlands to fisheries production has been well documented. These areas are of great importance to fisheries resources, serving as sources of biological productivity, providing food directly and indirectly. Finally, wetlands perform important roles in modifying acute impacts of hydrologic events, moderating stormwater flows, trapping sediments and providing nutrients for incorporation into resident plants. This agency supports the mitigation for the unavoidable losses of wetlands on an "in kind" basis. These mitigation sites should be near the sites and at an appropriate ratio (greater than 2:1).

As stated in the EIS, this agency will request a moratorium for in-stream construction. The moratorium period will be February 15 through June 30. This will ensure the environmental integrity of the area is protected during critical times of usage by various species.

This agency would recommend pursuing Alternative 1 and Alternative 3. The Division is concerned with the total wetland impacts associated with Alternative 1, even though it has the least acreage impact to riverine wetlands and the lowest number of stream crossings. The major concern however, with Alternative 1 are the impacts that would result to high-quality wetlands on Kendrick Creek. Alternative 3 impacts the second fewest acres of riverine wetlands and is second in stream crossings. This alternative would avoid the high-quality wetland area on Kendrick Creek that would be impacts by Alternative 1.

P.O. Box 769, Morehead City, North Carolina 28557-0769 Telephone 919-726-7021 FAX 919-726-0254

State of North Carolina
Department of Environment, Health and Natural Resources
Division of Land Resources

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
Charles H. Gardner, P.G., P.E.
Director and State Geologist

DEHNR

PROJECT REVIEW COMMENTS

Project Number: 98-E-0328 County: Washington/Tyrrell

Project Name: US 64, from Roper - Columbia

NC Office of State Planning - Geodetic Survey

✓ This project will impact 22 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 a geodetic monument is a violation of N.C. General Statute 102-4.

10-Tyrell
12-Washington

_____ This project will have no impact on geodetic survey markers.

_____ Other (comments attached)

For more information contact the N.C. Office of State Planning, Geodetic Survey Office at 919/733-3836.

Amy Walker
Reviewer

11/13/97
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 Wade
Reviewer

C-27

11/14/97
Date

Geological Survey Section
(919) 733-2423
FAX: (919) 733-0900

Land Quality Section
(919) 733-4574
FAX: 733-2876

Geodetic Survey Section
(919) 733-3836
FAX: 733-4407

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-3833 FAX 919-733-4407

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, DENR

FROM: David Cox, Highway Projects Coordinator
Habitat Conservation Program

DATE: December 31, 1997

SUBJECT: Draft Environmental Impact Statement (DEIS) for US 64 improvements, from Plymouth to Columbia, Tyrrell and Washington counties, North Carolina. TIP No. R-2548, SCH Project No. 98-E-0328.

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 North Carolina Environmental Policy Act (G.S. 113A-1 et seq., as amended; 1 NCAC 25).

The proposed project involves the construction of a four-lane divided freeway on new location from NC 45 east of Plymouth to just east of SR 1235. Build alternatives include upgrade of the existing US 64, and 3 alternatives partially on new location. Length varies with the alternative but ranges from 25 to 30 miles. Wetland impact also varies with alternative from 95 to approximately 113 acres.

The subject document adequately discusses benefits, social impacts, and traffic analysis of the final build alternatives. The document also adequately describes anticipated impacts to the natural environment. We remain concerned over the significant wetland impacts that would occur with any alternative. We feel that bridging all riverine wetlands is the only practicable way to minimize wetland impacts for any alternative.

We are also particularly concerned over the impacts to wildlife habitat that will occur with the new location alternatives. The final document should discuss measures that will be employed to maintain wildlife habitat connectivity. Although the project area is a mosaic of developed and undeveloped land, we do not consider agricultural land a disturbance of the magnitude of a high-speed freeway. In some of these areas, resident populations of big-game animals are dependent on this agri-development for food and

would likely not be able to support existing population levels without it. The new roadway will likely separate some preferred wildlife feeding areas from bedding areas or escape cover and increased roadkills will undoubtedly result. This can pose a significant hazard to motorists, especially in the case of black bears. We urge NCDOT to closely review design plans and aerial photographs to determine if wildlife crossing structures or exclusion fencing may be appropriate.

At this time, we concur with the DEIS for this project. We request that the final document describe proposed mitigation in more detail and include further discussion on the items noted above. Also, we were unable to locate a discussion on the need for stream channel modification. This should be included in the final document along with a proposal for stream mitigation if any is required.

Thank you for the opportunity to review and comment on this DEIS. If I can further assist your office, please contact me at (919) 528-9886.

cc: Howard Hall, U.S. Fish and Wildlife Service, Raleigh
Cyndi Bell, DWQ, Raleigh
Mike Bell, USACOE, Washington

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Mike Bell, U.S. Army Corps of Engineer
Washington Field Office

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: August 17, 1998

SUBJECT: U.S. Army Corps of Engineers Public Notice for Action ID No. 199830725, review of application for North Carolina Department of Transportation (NCDOT) to discharge dredged or fill material into waters of the United States to improve US 64 from Plymouth to Columbia, Washington and Tyrrell counties, North Carolina. TIP No. R-2548.

Staff biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided by the U.S. Army Corps of Engineers. Our comments are provided in accordance with certain provisions of the Clean Water Act of 1977 (33 U.S.C. 466 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

We do not object to the selection of a new location alternative for this project provided sufficient efforts are made to minimize highway related wildlife mortality. Large areas of undeveloped woodlands and agricultural fields will be bisected by the new location alternatives under consideration. Species of wildlife that are likely to occur in these habitats include the wild turkey, white-tailed deer, black bear, red wolf, coyote, red and gray fox, bobcat, and numerous small mammals and reptiles. NCWRC big game harvest data shows that 21% of the black bears harvested in Districts 1 and 2 during the 1996-1997 hunting season were taken in Washington and Tyrrell counties. Due to few hydrologic crossings, there will be little opportunity for these animals to safely cross the new highway. The result will be high rates of wildlife/vehicular collisions, which may pose a serious safety hazard to motorists.

NCDOT has indicated a willingness to provide wildlife crossings along the new roadway. If designed and located properly these can reduce highway related wildlife mortality. NCWRC has conducted a literature review and has the following recommendations:

1. Spot light counts should be performed to determine the deer/bear population densities along the new location segments of this project.

2. The NCWRC collects data on all black bear roadkills in the state. This data could be used along segments that are close to existing roadways. There may be data also available from law enforcement or insurance companies regarding deer/vehicle collisions.

3. In order to fine tune the locations of these crossings, in areas where the project will pass through large areas of forest, a three strand barbed-wire fence should be constructed. On a regular basis (a minimum of every two weeks), the barbed wire should be checked for hair to identify major travel routes and to identify the species using those routes.

4. A study in Utah dealing with mule deer concluded that wildlife overpasses and underpasses may represent the most cost-effective, long-term solution in areas with high roadway mortality.

5. A black bear study was conducted in Florida where large box culverts were used to provide passage underneath two lane roadways. A recommendation from that study was that bridge structures should be used.

6. Florida's wildlife crossing design for panthers are as follows: Bridges with 8 feet vertical clearance and an opening a minimum of 100 feet wide. Black bears have been observed using these structures.

7. To direct the animals to the crossings the entire road should be fenced in areas where the road bisects large wooded tracts.

8. The barrier fences used in the studies we reviewed were approximately 8 feet in height.

9. It is important that vegetated buffers be preserved adjacent to any wildlife crossing structures to provide travel corridors and escape cover for animals using the crossing structures. NCDOT should include a preservation area as an integral part of any planned structure so that future development will not diminish the effectiveness.

10. There is the potential for valuable data to be gathered regarding the impacts of this roadway on black bears before, during and after construction. This could involve a radio telemetry study to determine the response of local bear populations to the new roadway. We are aware that monies for such a study may be available through the Federal Highway Administration or one of the universities that is doing transportation research.

We have reviewed aerial photographs and have noted several areas where there are natural topographic features that would be likely wildlife travel corridors. Four sites were identified with a fifth as an additional or alternate site. We wish to discuss the locations of the proposed crossing structures with NCDOT and the other concerned agencies at a future meeting. The locations of these crossing structures will need to be fine tuned by using barbed wire and doing hair analysis. This study should continue for a period of one year to allow sufficient data collection to select the best site for the structures and to include seasonal movements of the target animals.

When sites are selected, we suggest that NCDOT consider the implementation of a radio telemetry study to evaluate the effects of the roadway construction on the local black bear populations. This study should proceed for a sufficient period of time to encompass all phases of the project. When the crossing structures are in place with all fencing and vegetated buffers, a track study should be initiated to assess the use of the structures by wildlife. This would reveal the species using the crossings as well as the number of trips per species. This data could be compared to the data collected from the radio telemetry study to determine the effect of the highway on individual bears home ranges.

We are willing to work closely with NCDOT in their efforts to minimize vehicle related wildlife mortality. We feel that through these efforts the effects of a new location roadway on wildlife movements can be minimized.

Thank you for the opportunity to review and comment on this permit application. If we can be of any further assistance please call me at (919) 528-9886.

cc: Randy Turner, NCDOT, Edenton
U.S. Fish and Wildlife Service, Raleigh
John Parker, Inland 404 Coordinator, DCM
Cyndi Bell, DWQ, Raleigh

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-4220-0328
APPLICANT: N.C. DEPARTMENT OF TRANSPORTATION

DESC: COLUMBIA, NC - PROPOSED IMPROVEMENTS TO U.S. 64 FROM N.C. 45 EAST OF PLYMOUTH TO 0.7 MILES EAST OF SR 1215; WASHINGTON & TYRRELL COUNTIES; TIP #R-2548

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

116 West Jones Street • Raleigh, North Carolina 27603-1335 • Telephone (919) 733-3867
An Equal Opportunity / Affirmative Action Employer

NC Division Forest Resources
2411 Old US 70 West
Clayton, NC 27520
December 10, 1997

MEMORANDUM

TO: Melba McGee, Office of Legislative Affairs

FROM: Bill Pickens, NC Division Forest Resources

SUBJECT: DOT DEIS for US 64 Improvements from NC45 to SR 1215 in Washington County, TIP No. R-2548

PROJECT #: 98-0328

The NC Division of Forest Resources have reviewed the referenced DEIS and have the following concerns.

1. Alternatives 1,2,3,and 4 will have a negative impact on our existing county headquarters facility. This facility is located on the northern side of US 64 at Scuppernong. We request that this facility be avoided and provisions be taken to allow easy access to the highway for our fire control equipment. A fire signal light would provide that access.

2. Alternative 1 would impact the property where our future county headquarters is to be located. We understand that the ROW will pass through this 2 acre site. The Division would need to be compensated for this property and provisions made for east and safe access to the highway for our fire control equipment.

3. Alternatives 1,3, and 4 have a heavy impact on woodlands particularly high value pine plantations and forested wetlands. We would prefer Alternative 2 since it impacts the least forest lands if our concerns about impacts to our facilities are addressed.

4. We were not included in the Steering Interagency Committee and did not get the opportunity to provide input.

5. The DEIS does not address the need for contractors to obtain a burning permit as required by G.S. 113-60.23 High Hazard Counties, if ROW burning is done during construction. This should be included in the final EIS.

6. No provision was made concerning the question of timber salvage. We feel that all merchantable timber should be utilized during ROW construction.

cc: Derryl Walden, Warren Boyette -CO
Jim Sain - R1
David Lane - D-13

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 8, 1998

MEMORANDUM

TO: H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
Division of Highways
Department of Transportation

FROM: David Brook RSH for David Brook
Deputy State Historic Preservation Officer

SUBJECT: US 64 from NC 45 east of Plymouth to 0.7 mile east of SR 1215, Tyrrell and Washington Counties, R-2548, State Project 6.149001T, 98-E-4220-0328

We have received the DEIS for the above project from the State Clearinghouse and would like to comment.

In terms of historic architectural resources, additional consultation is necessary before compliance with Section 106 of the National Historic Preservation Act is complete. In our letter of August 26, 1997, we concurred with the North Carolina Department of Transportation's determinations of eligibility for most of the properties evaluated in the survey report. However, we raised questions about the eligibility of the Former Schoolhouse and Downing-Spruill House and requested additional information about the Tarkenton House, Holy Disciples Church, and the Will Chesson House. Once these questions have been answered, we look forward to consultation regarding the project's effects on historic properties.

We believe our concerns for archaeological resources have been adequately addressed.

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: State Clearinghouse
Mike Bell, Army Corps of Engineers, Washington, NC
B. Church
T. Padgett

109 East Jones Street • Raleigh, North Carolina 27601-2807

Appendix D — Memorandum of Agreement

FINDING OF ADVERSE EFFECT DOCUMENTATION

AND

SUPPLEMENTARY DOCUMENTATION
SUBMITTED WITH THE MEMORANDUM OF AGREEMENT

FOR

THE IMPROVEMENT OF US 64 FROM
NC 45 EAST OF PLYMOUTH TO SR 1235 EAST OF COLUMBIA
WASHINGTON AND TYRRELL COUNTIES, NORTH CAROLINA
TIP NO. R-2548, STATE PROJECT NO. 6.149001T

Prepared and Submitted by
North Carolina Department of Transportation

March 1999

1. *Brief description of the undertaking*:

The North Carolina Department of Transportation (NCDOT) proposes to improve US 64, from NC 45 east of Plymouth (Washington County) to approximately 1.1 km (0.7 miles) east of SR 1235 in Tyrrell County. The length of US 64 along this project is 50.7 km (31.5 miles). Three of the four proposed build alternatives are characterized by a large new location section which would shorten the travel distance along the project to 44.7 km (27.8 miles). The project vicinity and general location of the alternatives is shown on pages 10-16 of the enclosed architectural resources survey report prepared by NCDOT on June 17, 1997. The four build alternatives for the project are discussed below, as is the no-build alternative.

Alternative 1 (recommended): From NC 45 to the community of Scuppernong construct a 4-lane divided freeway on new location; from Scuppernong to SR 1110 (Old Columbia Road, Tyrrell County) construct a freeway parallel to existing US 64, including a new location freeway bypassing the town of Creswell to the north; from SR 1110 to the west bank of the Scuppernong River widen US 64 to a 4-lane expressway divided by a 1.2m (4 foot) wide planted median; by staged construction. build a new 5-lane bridge over the Scuppernong River; from the east bank of the river to approximately 1.1 km (0.7 mile) east of SR 1235 (School Maintenance Road) widen US 64 to a 5-lane curb-and-gutter facility.

Alternative 1 is recommended because it takes the lowest acreage of riverine wetlands, crosses the fewest number of streams, and relocates the fewest number of houses. However this alternative does create an adverse impact upon three historic properties, the Homestead Farm, the Mizell Farm, and the Turner Farms, all of which are eligible for listing in the National Register of Historic Places.

Alternative 2: Widening the existing US 64 to a multi-lane facility, including a bypass of Creswell on new location.

Although Alternative 2 would be less costly to construct, this alternative impacts a large number of riverine wetlands, crosses the largest number of streams, relocates a large number of houses and businesses, would likely impact two National Register-Listed properties as well as 12 other properties eligible for the Register, and fails to provide an acceptable level of safety or efficiency.

Alternative 3: Widening the existing US 64 to a 4- and/or 5-lane expressway facility from the project's start to just west of SR 1132 (Back Woods Road); construct a freeway on new location to connect with the freeway section described above under Alternative 1.

Although Alternative 3 is the least costly to construct, this alternative impacts a greater acreage of wetlands in Roper and the highway users costs and accident potential are considerable for this alternative.

Alternative 4: Construct a 4-lane freeway north of the existing facility from the project's start to just west of SR 1132; construct a freeway on new location to connect with the freeway section described above under Alternative 1.

While Alternative 4 avoids the Tidewater Research Station and farms, there will be high numbers of residential and business relocations as well as takes the largest are of biotic communities.

The **No-Build or "do nothing" alternative** was also considered but discarded because of the results of a capacity analysis based on seasonally-adjusted traffic volumes for the years 1995 and 2020. The existing two-lane US 64 currently operates at a Level of Service (LOS) D and if the no-build option were selected, seasonal peak traffic flows in the year 2020 would operate at LOS F, forced flow conditions. Characteristics of flow at LOS F are highly variable speeds and stop-and-go traffic progression. Breakdowns in flow can occur with or without accidents, creating long back-ups in the traffic stream. All build alternatives will improve the flow of traffic on US 64 in 2020 and perhaps beyond. However, the freeway sections provide a distinct benefit in level of service. In addition, the freeway allows high-speed operations and minimal conflict with turning traffic, and thereby propagates safety and efficiency.

2. *Description of the efforts to identify historic properties*:

See the enclosed architectural resources survey report prepared by NCDOT on June 17, 1997.

3. *Description of the affected historic property*:

Please refer to Property #32 (W.W. Mizell Farm) on pages 76-84, Property #35 (Homestead Farm) on pages 85-107, and Properties #41&42 (Turner Farms) on page 4s 108-122 in the above-referenced report.

4. *Description of the undertaking's effects on the historic property*:

A section of the recommended alignment, Alternative 1, is designed to be a 4-lane divided freeway on new location from NC 45 to the community of Scuppernong. This 4-lane divided freeway will cross the historic boundaries of both the Mizell Farm and the. Homestead Farm, creating an obvious adverse effect on these properties. In order for this road to be constructed, NCDOT must acquire property from two farms that have been determined eligible for the National Register. The Right-of-Way (ROW) limits needed for the freeway through these farms range from 225 to 300 feet. Also, the new freeway will be raised 6 to 8 feet above the existing grade. Furthermore, this four-lane divided freeway will adversely affect the rural surroundings of the nearby Turner Farms, which have also been determined eligible for the National Register. While, the road will not cross the boundary of the Turner Farms, the proximity of a raised freeway and grade separation will greatly alter the rural landscape that provides an appropriate setting for this significant farm. A map showing the four-lane divided freeway and the historic boundaries of the three farms is enclosed.

5. *Description of any proposed mitigation measures or alternatives considered to deal with the undertaking's effects on the historic property*:

The Memorandum of Agreement (MOA) stipulates that USACE will condition the Department of Army permit as follows:

> I. NCDOT will provide windbreak planting along the ROW through the Mizell Farm and the Homestead Farm and in the viewshed of the Turner Farms, which includes native plants commonly found grown up along rural fencelines (examples: Yaupun Holly, Wax Myrtle, Red Maple, Loblolly Bay, Longleaf Pine, Pond Pine, Atlantic White Cedar, Tulip Tree, and Bald Cypress)

II. NCDOT will utilize large wire mesh fencing, composed of 4" squares and wooden posts, along their controlled access boundary.

III. NCDOT will regulate development in the areas around the Mizell Farm, the Homestead Farm, and the Turner Farms, [from Station 40 (L) to Station 55 (L-revised) as shown on the attached design plans dated January 25, 1999] by providing full control of access and if, in the future, there are applications for driveway permits between these two points, NCDOT agrees to provide SHPO with copies of the applications for their review and comment.

6. *Summary of the views of SHPO and any interested parties*:

Please see the attached letters dated August 26, 1997, May 1, 1998, May 20, 1998 and the Concurrence Form for Assessment of Effects, dated January 7, 1999.

MEMORANDUM OF AGREEMENT
BETWEEN THE UNITED STATES ARMY CORPS OF ENGINEERS AND THE
NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36 CFR PART 800.6(a)
REGARDING THE IMPROVEMENT OF US 64 FROM
NC 45 EAST OF PLYMOUTH TO SR 1235 EAST OF COLUMBIA
WASHINGTON AND TYRRELL COUNTIES, NORTH CAROLINA
TIP NO. R-2548, STATE PROJECT NO. 6.149001T

WHEREAS, the United States Army Corps of Engineers (USACE) is considering issuance of a Department of Army permit for the improvement of US 64 from NC 45 East of Plymouth to SR 1235 East of Columbia in Washington and Tyrrell Counties, North Carolina (the undertaking); and

WHEREAS, the USACE has determined that the work covered by the issuance of a permit for the undertaking will have an effect upon three properties, the Homestead Farm, the Mizell Farm, and the Turner Farms, all of which are eligible for inclusion in the National Register of Historic Places; and has consulted with the North Carolina State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the North Carolina Department of Transportation (NCDOT) participated in the consultation and has been invited to concur in this Memorandum of Agreement;

NOW, THEREFORE, USACE and the North Carolina SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take in to account the effect of the undertaking on the Homestead Farm, the Mizell Farm, and the Turner Farms.

STIPULATIONS

USACE will condition the Department of Army permit as follows:

I. NCDOT will provide windbreak planting along the ROW through the Mizell Farm and the Homestead Farm and in the viewshed of the Turner Farms, which includes native plants commonly found grown up along rural fencelines (examples: Yaupun Holly, Wax Myrtle, Red Maple, Loblolly Bay, Longleaf Pine, Pond Pine, Atlantic White Cedar, Tulip Tree, and Bald Cypress)

II. NCDOT will utilize large wire mesh fencing, composed of 4" squares and wooden posts, along their controlled access boundary.

III. NCDOT will regulate development in the areas around the Mizell Farm, the Homestead Farm, and the Turner Farms, [from Station 40 (L) to Station 55

(L-revised) as shown on the attached design plans dated January 25, 1999] by providing full control of access and if, in the future, there are applications for driveway permits between these two points, NCDOT agrees to provide SHPO with copies of the applications for their review and comment.

Execution of this Memorandum of Agreement by USACE and the North Carolina SHPO and implementation of its terms is evidence that USACE has afforded the Advisory Council on Historic Preservation an opportunity to comment on the improvement of US 64 from NC 45 East of Plymouth to SR 1235 East of Columbia and its effects on three historic properties, and that USACE has taken into account the effects of the undertaking on the historic properties.

UNITED STATES ARMY CORPS OF ENGINEERS DATE

NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER DATE

Nathaniel O. Kilmore 4 Mar 99

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DATE

ADVISORY COUNCIL ON HISTORIC PRESERVATION DATE