Independence Boulevard Extension

New Hanover County, North Carolina
Federal-Aid Project No. STPDA-1209(5)
WBS Element 37764.1.1
STIP U-4434

DRAFT ENVIRONMENTAL IMPACT STATEMENT



Submitted Pursuant to the National Environmental Policy Act (42 U.S.C. 4332(2)(c))
by U.S. Department of Transportation, Federal Highway Administration, and North Carolina Department of Transportation

Docusign Envelope ID: B0A51870-DE53-4217-A369-1B6119DFAFFC

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The documented needs for the transportation project in New Hanover County are presented in the report. The existing conditions of the study area are described, and the alternatives are assessed in terms of environmental impacts, compatibility with local planning goals, relative cost-effectiveness, and public opinion.

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Prepared by AECOM Technical Services, Inc. (URS Corporation – North Carolina)

9/30/2025
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Project Commitments

SR 1209 (Independence Boulevard)
From Randall Parkway to US 74 (Martin Luther King Jr. Parkway)
New Hanover County, North Carolina
Federal-Aid Project No. STPDA-1209(5)
WBS Element 37764.1.1
NCDOT STIP Project U-4434

The project commitments listed below are preliminary in nature and will be further evaluated upon selection of the least environmentally damaging practicable alternative and the development of more detailed designs and environmental impact analysis that is part of the Final Environmental Impact Statement (FEIS). The FEIS will include a more definitive list of project commitments that includes those listed below, as applicable, as well as other needs that come to light during the public and agency review process, as well as during the development of the FEIS.

Hydraulic Design Unit

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), the delegated state agency for administering the Federal Emergency Management Agency (FEMA) National Flood Insurance Program, to determine the status of the project with regard to applicability of NCDOT's Memorandum of Agreement with FMP (dated December 14, 2020), or approval of a Conditional Letter of Map Revision and subsequent final Letter of Map Revision.

Division 3 Construction

This project involves construction activities on or adjacent to FEMA-regulated streams. Therefore, NCDOT Division 3 shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying the drainage structure(s) and roadway embankment located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

NCDOT Public Involvement

This project involves impacts to local families and communities. NCDOT Division 3 will continue coordination and outreach with impacted residences to identify appropriate mitigation for property impacts, relocations, and loss of community cohesion. NCDOT will work to keep residents within their existing communities and social support networks to the extent possible and desired. Early coordination among the City of Wilmington, Wilmington Housing Authority, Wave Transit, and NCDOT relocation assistance staff will occur to identify comparable housing near transit services and pedestrian infrastructure and may be beneficial in minimizing impacts to relocated residents. NCDOT is committed

to exploring enhanced relocation options and efforts. We aim to incorporate context-sensitive design and solutions derived from ongoing community engagement efforts into the project design. Additionally, NCDOT commits to collaborate with local agencies and the City of Wilmington to establish a community working group. This group will play a pivotal role in the development of mitigation measures, including the creation of a neighborhood plan.

Cultural Resources

If avoidance of archaeological site 31NH887 is unavoidable by the proposed project, the Department will complete data recovery excavations to mitigate impacts as noted in the letter from the North Carolina State Historic Preservation Office, dated March 31, 2020.

Summary

Proposed Action

The North Carolina Department of Transportation (NCDOT) is proposing to construct a multi-lane facility on new location in New Hanover County, North Carolina. Located within the urban core of the City of Wilmington, the proposed 1.7-mile-long project would be an extension of existing Independence Boulevard (State Route [SR] 1209) from the intersection with Randall Parkway and Mercer Avenue to Martin Luther King Jr. Parkway (United States [US] 74). The proposed action (or proposed project) is designated in the 2024-2033 NCDOT State Transportation Improvement Program (STIP) as project number U-4434 and described as "SR 1209 (Independence Boulevard Extension), Randall Parkway to US 74 (Martin Luther King Jr. Parkway) in Wilmington; multi-lanes on new location."

Federal Highway Administration

Administrative Action: Draft Environmental Impact Statement (DEIS).

The content of this DEIS conforms to the procedural provisions of National Environmental Policy Act of 1969 (NEPA) and the Federal Highway Administration's (FHWA) Guidance for Preparing and Processing Environmental and Section 4(f) Documents, Technical Advisory T 6640.8A. (FHWA 1987).

On January 20, 2025, President Trump signed Executive Order (EO) 14148 – *Initial Rescissions of Harmful Executive Orders and Actions* and EO 14154 – *Unleashing American Energy*. The EOs revoked EO 13990 – *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* (January 20, 2021) and EO 14008 – *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021). Subsequently on January 29, 2025, Secretary Duffy signed a Memorandum for Secretarial Offices and Heads of Operating Administrations – *Implementation of Executive Orders Addressing Energy, Climate Change, Diversity, and Gender*. On February 25, 2025, the Council on Environmental Quality (CEQ) published an Interim Final Rule removing the CEQ's NEPA implementing regulations, effective April 11, 2025 (90 Fed. Reg. 10610). As a result of these actions, FHWA will not include greenhouse gas emissions and climate change analyses in the federal environmental review process. Any purported greenhouse gas emissions and climate change impacts will not be considered in the federal decision. Accordingly, no greenhouse gas emissions or climate change analyses are included in this DEIS.

The January 20, 2025 EOs also revoked EO 14096 – *Revitalizing Our Nation's Commitment to Environmental Justice for All* (April 21, 2023). Subsequently on January 21, 2025, President Trump signed EO 14173 – *Ending Illegal Discrimination and Restoring Merit-Based Opportunity*. This EO revoked EO 12898 – *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994). On February 25, 2025, the CEQ published an Interim Final Rule

removing the CEQ's NEPA implementing regulations, effective April 11, 2025 (90 Fed. Reg. 10610). As a result of these actions, all federal environmental justice requirements are revoked and no longer apply to the federal environmental review process. FHWA, Federal Transit Administration, and Federal Railroad Administration's Joint NEPA regulations (23 Code of Federal Regulations [CFR] part 771) and the agencies Interim Final Guidance on *Section 139 Environmental Review Process: Efficient Environmental Reviews for Project Decision-making and One Federal Decision* (December 17, 2024) do not require an environmental justice analysis. Accordingly, no analysis of environmental justice is included in this DEIS. Any purported environmental justice impacts will not be considered in the federal decision. Social, economic, and community impacts will continue to be disclosed where applicable in accordance with 23 CFR 771.

FHWA and NCDOT are the lead agencies for the proposed project.

Contacts

The following individuals may be contacted for additional information regarding the DEIS:

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Overview

The process of completing a DEIS helps FHWA, NCDOT, and regulatory agencies make an informed decision on the selection of a preferred alternative. It assists them in developing alternatives that would meet the objectives of the proposed project, analyzing the pros and cons of each alternative, and selecting a preferred alternative. It is also a means of informing the public regarding how and why decisions were made.

For this project, the first step in the DEIS process was developing a purpose and need statement describing why the project is necessary and what objectives the project would meet or accomplish. During this process, NCDOT considered and evaluated alternatives developed in previous studies, as well as alternatives that were determined to be reasonable and met the purpose and need. In addition, a No-Build Alternative was included in the analysis as a baseline to measure the other alternatives against; the No-Build Alternative is considered a viable alternative throughout the DEIS process. The focus of the DEIS is providing an in-depth analysis of potential impacts from the project.

Within the framework of the DEIS development, the selection of the preferred alternative is often a complicated process. The preferred alternative must meet the purpose and need and comply with federal and state laws and regulations. These include the Endangered Species Act of 1973, Clean Water Act of 1977, National Historic Preservation Act of 1966, Section 4(f) of the US Department of Transportation Act of 1966, and various other federal, state, and local laws and regulations, which are

referenced throughout this document. Project decision makers, which include FHWA and NCDOT, also consider potential impacts to the social, physical, and natural environments and input received from regulatory agencies and the public.

The results of the alternatives analysis contained in this DEIS are being made available to regulatory agencies and the public for comments and feedback. No decision will be made on a preferred alternative until after the public hearing and comment period. All comments received will be considered in the selection of the preferred alternative.

The following summary provides a synopsis of the more detailed information presented in the body of the DEIS. At the end of this summary, Table S-1 presents a quantitative summary of the proposed project's impacts.

All technical studies for the proposed project can be accessed via the project website at https://www.ncdot.gov/projects/independence-boulevard/Pages/technical-reports.aspx.

Potential visualization mitigation is included in Appendix E3, Attachment 4 and a project flyover video is available on the project's website that details what the project would look like once constructed. The video can be viewed at https://www.ncdot.gov/projects/independence-boulevard/Pages/photos-videos.aspx.

Purpose and Need

What is the Independence Boulevard Extension project and where is it?

NCDOT is proposing to construct a multi-lane facility on new location in New Hanover County, North Carolina. The 1.7-mile proposed project would extend existing Independence Boulevard on a new location from Randall Parkway to Martin Luther King Jr. Parkway. The proposed project would consist of two travel lanes in each direction separated by a variable width median. A greenway is proposed along the east side of the proposed project that would connect the City of Wilmington Cross-City Trail to Maides Park.

Why is the Independence Boulevard Extension project needed?

The Independence Boulevard extension is needed to improve connectivity, traffic capacity, and system linkage in central Wilmington. The proposed project would enhance regional mobility, improve overall traffic capacity, provide needed north-south connectivity, and facilitate intrastate/intermodal linkage within central Wilmington in a way that is consistent with local and state transportation plans.

In addition to addressing the primary needs, the potential exists for additional benefits as a result of the proposed project. These secondary benefits were considered when evaluating alternatives but were not used as a basis for eliminating alternatives based on the purpose and need or used as a screening factor to determine which alternatives were advanced in the development of the project. Additional benefits include improvement to emergency evacuation routes, increased safety, and improvement to east-west traffic operations.

What is the history of the Independence Boulevard Extension?

The proposed project was included in Wilmington's first Thoroughfare Plan adopted in 1972 (NCSCH 1972). The plan showed Independence Boulevard as a proposed thoroughfare extending from Market Street to the proposed Smith Creek Parkway (current Martin Luther King Jr. Parkway) and continuing north to tie into 23rd Street. The proposed project was also included in the 1985 Thoroughfare Plan but altered to terminate at the proposed Smith Creek Parkway (NCDOT 1985). The 1985 version of the proposed project continued to be included in the Greater Wilmington Urban Area Transportation Plan presented to the public in November 1992 and adopted in September 1993 (NCDOT 1993). The proposed project was also included in the 1997 version of the Greater Wilmington Urban Area Transportation Plan, in which Independence Boulevard was identified as an over capacity corridor between Carolina Beach Road and Market Street (NCDOT 1997). The proposed project was then included in the Wilmington Urban Area Metropolitan Planning Organization (WMPO) Wilmington Urban Area 2030 Long-Range Transportation Plan adopted in 2005 (WMPO 2005). In 2008, the WMPO Transportation Advisory Committee voted to amend the functional classification map for the portion of Independence Boulevard from Shipyard Boulevard to Martin Luther King Jr. Parkway (including the portion contained within the proposed project) to the Urban Principal Arterial classification. The proposed project is currently included in the WMPO *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan* (MTP) adopted in 2020 (WMPO 2020).

NCDOT completed a feasibility study for the proposed project in July 2002 (NCDOT 2002). The proposed project was then included in the NCDOT's 2004-2010 STIP and is currently included in the 2024-2033 STIP as project number U-4434. Funding updates will be addressed in future NEPA documentation for the proposed project.

How would traffic operate if the project is not built?

If the project is not built and traffic increases as projected, travel times would increase and the traffic level of service (LOS) would decrease. The 2040 No-Build LOS on the existing roadway corridor between the Montgomery Avenue/Market Street intersection and the Independence Boulevard/Randall Parkway intersection ranges from LOS E to LOS F (Figure 1-7).

All nine intersections (Figure 1-7) exhibited poor LOS of LOS E or F in one or both peak hours in the 2040 No-build conditions. Additionally, massive amounts of spillback queuing is observed at the westbound approach to the intersection of Market Street and Covil Avenue/Montgomery Avenue, which extends into and beyond the intersections upstream, including the intersections of Market Street and Evans Street, Market Street and Clay Street, and Market Street and Darlington Avenue/Henry Street. Therefore, several intersections do not adequately handle queues and need additional storage. This excessive level of congestion would hinder traffic flow and negatively impact the regional growth.

Alternatives

What alternatives are under consideration?

NEPA requires that a full range of reasonable alternatives be considered for the proposed project. Five types of alternatives were considered and were evaluated to determine whether they could meet the stated purpose and need. The No-Build Alternative assumes that the study area would evolve as currently planned without constructing the proposed project. Transportation System Management alternatives would coordinate the individual elements of the transportation system to achieve the maximum efficiency, productivity, and utility of the existing system while minimizing cost and inconvenience to motorists. They could include improving signal timing and coordination, minor realigning of intersections, and adding turning lanes. Travel Demand Management alternatives would improve the efficiency of the transportation system by reducing travel demand rather than increasing the capacity of the roadway. Measures such as ridesharing, flexible work schedules, telecommuting, bicycling, and walking are often used. Mass Transit alternatives would provide high-capacity, energy-efficient transportation through the use of bus or passenger rail facilities. Build alternatives would include construction of transportation facilities to improve the traffic operations of the transportation system. These could be located on existing roadway facilities or on new location.

What other alternatives were examined and then eliminated from further consideration?

The Transportation System Management, Travel Demand Management, and Mass Transit Alternatives were determined to not be reasonable because they would not meet the purpose of and need for the proposed project.

Five initial corridors were developed for the proposed project, with the Independence Boulevard Corridor moving forward for further study and design. The 16th/17th Street, 23rd Street, Kerr Avenue, and College Road Corridors were eliminated due to the high number of residential and business impacts and their inability to meet the purpose of and need for the proposed project.

Eight build alternatives (Alternatives 1 through 8) with various interchange configurations, resulting in a total of 48 options, were then developed and analyzed. Nine detailed study alternatives (DSA) were chosen from the 48 to be carried forward to the preliminary design phase. These included three variations each for Alternatives 2, 7, and 8.

A separate study investigating the feasibility of a raised rail option and a depressed facility option was completed prior to moving forward with the nine DSAs. The study found that the raised rail and depressed facility options are not feasible due to the significantly higher costs associated with each.

Alternatives 2, 7, and 8 were evaluated and Alternative 8 was eliminated due to the impact it would have to a new City of Wilmington police facility. Several design and interchange revisions were then made on Alternatives 2 and 7, resulting in a total of four DSAs. These included Alternative 2 with a Single Point Urban Interchange (SPUI), Alternative 2 with a Tight Urban Diamond Interchange (TUDI), Alternative 7 with a SPUI, and Alternative 7 with a TUDI.

The No-Build Alternative must be carried forward under NEPA to allow for a basis of comparison with the DSAs.

What alternatives were selected for detailed study?

Following the evaluation of the remaining four DSAs, two build alternatives were selected for detailed study, Alternative 7 with a SPUI and Alternative 7 with a TUDI. Alternative 2 with a TUDI and Alternative 2 with a SPUI were eliminated from further study due to high costs and human and environmental impacts.

How would traffic operate for each of the alternatives once the proposed project is constructed?

The 2040 build conditions for both DSAs show several improvements in the overall LOS within the study area. Both DSAs were found to have a LOS D or better in the 2040 build conditions.

How much would each alternative cost?

The cost for the DSAs includes the cost to purchase the right-of-way for the roadway, construct the roadway, and relocate utilities. The total cost for each is as follows:

- Alternative 7 with SPUI Option: $204,790,700
- Alternative 7 with TUDI Option: $214,649,000

Affected Environment and Environmental Consequences

Community Effects

How would the project impact community facilities and services?

There are six local parks within the study area. The proposed project would not impact the use of any of the parks in the study area. The proposed greenway along the east side of the roadway connects the Cross-City Trail at Randall Parkway to Maides Park.

There are two churches with the potential to be relocated as a result of the proposed project. One of the churches would be relocated with either alternative option, the Iglesia Vision 3D Trinidad Divina Pentecostes and their theological education center, Universidad Teologica Internacional. The Iglesia Vision 3D Trinidad Divina Pentecostes and Universidad Teologica Internacional consist of two buildings on a single parcel that are owned and operated by the Iglesia Vision 3D Trinidad Divina Pentecostes parish. The second church, Vino Nuevo Ministry, would be relocated with the TUDI Option only. The relocation report is located in Appendix D.

No schools, community centers, or cemeteries would be impacted as a result of the proposed project.

The proposed project would likely have an overall positive effect on police, fire, and other safety operations in the study area due to increased north-south mobility between Shipyard Boulevard and Martin Luther King Jr. Parkway.

How would the project affect neighborhoods and community cohesion?

There are several well-established neighborhoods throughout the study area that range from modest developments along Princess Place Drive, East Wilmington, and Creekwood neighborhoods to the more affluent Forest Hills neighborhood. There were a number of indicators of community cohesion in the study area. During site visits, visible community interactions and pedestrian activity were observed, particularly in the neighborhoods to the north of Market Street along Montgomery Avenue. City of Wilmington city planners indicated neighborhoods within the study area have a high occupancy rate partially due to a mix of price points, varied densities, and proximity to goods and services.

The construction of a thoroughfare on a new location through a residential area that is well-established is likely to impact community cohesion and stability. According to the relocation reports developed in March 2022 (Appendix D), the project would result in 59 residential relocations if the SPUI interchange is selected, and 71 residential relocations if the TUDI interchange is selected (NCDOT 2022a).

The proposed project would be elevated on a berm from approximately the intersection of Randall Parkway north to Market Street. While a new connection would be provided to cross via an extension of Darlington Avenue beneath the berm, this berm would change the physical makeup of the community and serve as a barrier, particularly if the proposed project includes noise walls along the roadway. Community cohesion impacts are likely to be most acute to the residents who remain on the east side of Covil Avenue and the west side of Mercer Avenue to the south of Market Street, and to the residents whose property would not be purchased along 31st and Evans Streets north of Market Street. However, given that the surrounding area is flat, the introduction of an elevated roadway through established neighborhoods is likely to cause impacts to community cohesion. An elevated roadway providing no access while reducing connectivity would likely reduce housing values within its vicinity.

How would the project affect concentrations of low-income or minority populations?

Notably adverse community impacts are anticipated with the proposed project and these effects appear to affect Title VI populations more than the general population. Benefits and burdens resulting from the proposed project are not anticipated to be equitably distributed throughout the community. Disparate impacts are anticipated under Title VI of the Civil Rights Act of 1964.

Due to the location and length of the proposed project, impacts to Title VI populations are not avoidable. Five build alternative corridors were identified and investigated at the onset of the conceptual design phase in 2011. These included the 16th/17th Street Corridor, 23rd Street Corridor, Independence Boulevard Corridor, Kerr Avenue Corridor, and College Road Corridor. Although the 23rd Street Corridor and College Road Corridor would have less impacts to Title VI communities, these corridors were eliminated for other fatal flaws. The 23rd Street Corridor would have high relocations and cut off access to several residential streets. It also would require that the intersection with Martin Luther King Jr. Parkway be constructed on an existing bridge. This would require the closure of Martin Luther King Jr. Parkway during construction. This corridor was eliminated due to relocations, cost, and engineering constraints. The College Road Corridor was found to not meet the purpose of and need for the proposed project. It is part of another existing NCDOT STIP project and will continue to experience capacity issues even after the planned improvements.

The Independence Boulevard build alternative corridor was selected because it would have the least number of relocations and meet the purpose of and need for the proposed project.

Upon selection of the Independence Boulevard Corridor in 2011, eight alternative alignments were developed. All eight alternative alignments would have the same impacts to Title VI populations.

Modifications have been incorporated into the project design to alleviate and/or minimize impacts to the community that would be impacted by the proposed project. These modifications include the reduction of the typical section for the roadway, design type, and proposed speed limit as well as the addition of grade-separated crossings to maintain connectivity beneath the elevated roadway. Preliminary designs for the DSAs did not allow for connectivity beneath Independence Boulevard between North 30th Street and Maides Avenue. To provide more east-west connectivity, a grade separation at both Darlington Avenue and Hurst Street was included in revised designs.

Finding comparable housing for the affected community would be challenging in Wilmington, where rents are rising and there is a shortage of affordable housing. Many residents may be forced to move away from the area to find comparable housing.

NCDOT's standard right-of-way process would be used to assist residents and businesses relocated by the proposed project. This would include a real estate appraisal and an offer at current market value of the property at its highest and best use when appraised. NCDOT would provide assistance on locations of comparable housing and/or commercial establishments, moving procedures, and moving aid. Additional monetary compensation is available to help homeowners cope with mortgage increases, increased value of comparable homes, and other such expenses. NCDOT cannot require a resident to move unless at least one comparable dwelling is made available to the resident and the resident has been given at least a 90-day notice in writing. Programs are also available to assist business owners.

Tenants being relocated are also provided assistance through the standard right-of-way process in the form of rental assistance payments. The payments are designed to help tenants rent a comparable dwelling. If relocation rental costs are higher than current rental costs, further rental assistance may be provided.

The standard right-of-way process represents the minimum that is provided to relocatees. However, NCDOT is committed to ensuring that adequate compensation and aid is made available for the community and would be working closely with residents and businesses to develop mitigation measures.

Door-to-door outreach was conducted in February 2022 for EJ residences along streets within the study area with the potential to be impacted and/or relocated by the proposed project. The purpose of the outreach was to inform residents about the project, answer any questions they may have, and begin having conversations about the type of mitigation measures they would like to see included with the project. NCDOT would continue coordination and outreach with potentially impacted EJ residences to identify appropriate mitigation measures for property impacts and relocations throughout the life of the proposed project. Community concerns and potential mitigation strategies are included in Section 3.1.4 and in Appendix E.

Would the project be consistent with local and regional plans?

The proposed project has been considered by local and regional plans since 1972. It is included in the current WMPO Cape Fear Moving Forward 2045 MTP (WMPO 2020).

How would the project affect bicycle and pedestrian transportation?

The proposed project would have a positive effect on bicycle and pedestrian transportation in the study area by providing additional bicycle and pedestrian connection through the area. The addition of the mixed-use path adjacent to the proposed project would provide an extension of the existing Cross-City Trail. This supports the recommendation in the Wilmington-New Hanover County Comprehensive Greenway Plan to construct a greenway connection between McCrary Park and Maides Park (City of Wilmington 2013). It would also address the recommendation for crossing facilities at the current intersection of Covil Avenue and Market Street made in Walk Wilmington: Wilmington Pedestrian Plan Update (City of Wilmington 2023).

Would the project require relocating any houses, businesses, or cemeteries?

The proposed project would require the relocation of houses and businesses under both DSAs. Alternative 7 with the SPUI Option would require the relocation of 59 residences, 31 businesses, and 1 church for a total of 91 relocations. Alternative 7 with the TUDI Option would require the relocation of 71 residences, 37 businesses, and 2 churches for a total of 110 relocations.

There are two churches with the potential to be relocated as a result of the proposed project. One of the churches would be relocated with either alternative option, the Iglesia Vision 3D Trinidad Divina Pentecostes (and its associated Universidad Teologica Internacional). The second church, Vino Nuevo Ministry, would be relocated with the TUDI Option only. The relocation report is located in Appendix D.

No cemeteries would be impacted as a result of the proposed project.

How would the existing business community be affected?

Existing businesses along Covil Avenue and the Covil Avenue/Market Street intersection would be impacted by relocation and/or traffic diversion resulting from the construction of an interchange. Those not directly affected may be temporarily affected during construction due to traffic delays or detours.

Physical Characteristic Effects

How would traffic noise levels change?

To identify noise-sensitive receptors potentially affected by traffic noise, predicted noise levels for the DSAs in 2040 were calculated and compared to the existing noise levels. The term “affected” is defined as the noise-sensitive receptors that are predicted to experience noise levels that approach or exceed the Noise Abatement Criteria (NAC) or that substantially exceed existing noise levels with the DSAs.

Noise impacts are predicted for 182 receptors for Alternative 7 with the SPUI Option and 195 receptors for Alternative 7 with the TUDI Option.

Would the project include noise abatement?

Because noise levels at locations within the study area were determined to approach or exceed the NAC, the feasibility and reasonableness of noise abatement measures was evaluated. The primary noise abatement measures evaluated for highway projects include highway alignment changes, traffic system management measures, establishment of buffer zones, noise barriers, and noise insulation. For each of these measures, benefits versus allowable abatement quantity (reasonableness), engineering feasibility and effectiveness, and other factors were included in the noise abatement considerations.

The only abatement measure determined to be a viable option for the proposed project is noise barriers. A traffic noise evaluation was performed in 2019 that identified six locations for Alternative 7 with the SPUI Option and seven locations for Alternative 7 with the TUDI Option where noise barriers preliminarily meet feasibility and reasonableness criteria found in the NCDOT Traffic Noise Policy (NCDOT 2016b).

How would the project affect air quality?

All areas within North Carolina are designated as attainment, non-attainment, or unclassifiable with respect to each of the six criteria pollutants under the National Ambient Air Quality Standards (NAAQS). New Hanover County is in attainment with the NAAQS. The proposed project is not anticipated to create any adverse effects on the air quality of this attainment area.

How would the visual quality be changed?

Temporary visual impacts would affect properties adjacent to areas where construction, staging, and stockpiling operations occur. Upon project completion, the contractor would be required to remove all equipment and excess materials and reseed any disturbed areas. Visual quality would be enhanced or improved for those using the roadway and degraded for those viewing the roadway from surrounding communities.

The proposed project would result in a moderately high level of impact to viewers. Adverse effects would likely result from the location, proximity, and size of the proposed infrastructure relative to potential viewers. Mitigation measures with input from the public such as landscaping, street tree plantings, and context-sensitive design solutions could decrease the level of adverse effects on viewers.

How would the project affect hazardous material sites?

Based on preliminary evaluations of hazardous materials within the study area, 31 sites of concern were identified within the study area including sites that may contain underground storage tanks (17 sites), automotive repair facilities (5 sites), dry cleaning facilities (0 sites), hazardous waste producing sites (2 sites), Superfund sites (2 sites), landfills (1 site), and other potentially contaminated sites (4 sites).

Of the 31 sites identified, 11 would be impacted by the proposed project.

How would the project affect floodplains?

Due to the linear nature of the project and the existing roadway configurations, no practicable alternative exists that would completely avoid impacts to floodplains and floodways. Impacts to

floodplains and floodways would be minimized to the greatest extent possible. Floodplain impacts anticipated for the DSAs are very similar, with Alternative 7 with the SPUI Option calculated at 4.9 acres and Alternative 7 with the TUDI Option calculated at 5.0 acres for the 100-year floodplain and 0.4 acre of floodway impacts for both DSAs.

How would the project affect traffic during construction?

Detours and road closures may be required in locations where the proposed project utilizes or crosses existing roadways. Maintenance of traffic and construction sequencing would be planned and scheduled to minimize traffic delays within the project limits. Temporary lane closures and detours may be required at times during construction. A traffic control plan would be prepared during the final design phase of the proposed project, which would detail impacts to existing traffic patterns and road closures or realignments.

Cultural Resource Effects

Would historic architectural resources be affected?

No historic resources would be affected by the proposed project.

Would archaeological resources be affected?

One archaeological resource has been recommended as eligible for the National Register of Historic Places within the study area. Site 2 (31NH887) is a prehistoric site on the south side of Martin Luther King Jr. Parkway that produced numerous ceramic sherds. The site was found to consist of artifacts from at least four different time periods.

Site 31NH887 would be impacted by either DSA. The entirety of the site (1.53 acres) falls within the proposed project footprint.

The archaeological assessment recommends avoidance of 31NH887 if possible. If not possible, it is recommended that adverse effects to the site be mitigated as appropriate prior to any ground disturbing activities.

In a letter dated March 31, 2020, the North Carolina Historic Preservation Office concurred with the findings of the archaeological assessment and recommended “mitigation in the form of additional data recovery be conducted.”

Natural Resource Effects

How would biotic resources be affected?

Terrestrial communities found along the DSAs serve as shelter, nesting, and foraging habitat for a number of wildlife species. Both DSAs would result in direct impact to both natural and altered terrestrial communities through clearing of vegetation, grading, and paving. Fragmentation and loss of forested habitat may impact wildlife in the area by reducing potential nesting and foraging areas, as well as displacing animal populations.

What impacts would occur to waters under the jurisdiction of the United States Army Corps of Engineers?

The US Army Corps of Engineers has jurisdiction over wetlands and streams within the study area. Alternative 7 with the TUDI Option would impact approximately 1,919 linear feet of streams and 3.9 acres of wetlands, while Alternative 7 with the SPUI Option would impact approximately 1,900 linear feet of streams and 3.8 acres of wetlands.

Would habitat used by threatened and endangered species be affected?

The study area was evaluated for the potential presence of federally protected threatened and endangered species, under the Endangered Species Act of 1977, using the US Fish and Wildlife Service's (USFWS) IPaC (Information for Planning and Consultation) web tool on December 23, 2024 (USFWS 2024a). No waterways within the study area are identified as habitat by the National Oceanic and Atmospheric Administration (NOAA) Southeast Region ESA Section 7 Mapper (NOAA 2024).

Of the 14 species, 11 received the biological conclusion of "No Effect." One species, the American Alligator, was listed as protected due to its similarity in appearance with another protected species that was not listed for the study area, and no biological conclusion is required. The proposed endangered tricolored bat received the biological conclusion of "May Affect – Likely to Adversely Affect," although certain impacts may be allowable under a programmatic conference opinion from USFWS and affecting all NCDOT projects with a federal nexus. A biological conclusion for the proposed threatened monarch butterfly will be determined following surveys for host plants within the study area.

Alternative Comparison Matrix

Estimated environmental impacts associated with the DSAs are provided in the following table.

Table S-1: Alternative Comparison Matrix

Resource	Alternative 7 with SPUI Option	Alternative 7 with TUDI Option
Project Features		
Length of Corridor (miles)	1.7	1.7
Number of Interchanges	2	2
Number of Railroad Crossings	2	2
Number of Major Power Easement Crossings	1	1
Level of Service at Market Street Interchange (a.m., p.m.)	D, D	C, C
Construction Cost	$130,500,000	$122,350,000
Right-of-way Cost	$70,350,000	$88,667,000
Utility Cost	$3,940,700	$3,632,000
Total Cost	**$204,790,700**	**$214,649,000**
Socioeconomic Features		
Parks (number)	1	1
Places of Worship (number)	2	2

Resource	Alternative 7 with SPUI Option	Alternative 7 with TUDI Option
Cemeteries (number)	0	0
Schools (number)	2	2
Daycares (number)	1	1
Libraries (number)	0	0
Community Centers (number)	0	0
Greenways (number)	1	1
Fire Stations (number)	0	0
Hospitals (number)	0	0
Relocations		
Business Relocations (number)	31	37
Residential Relocations (number)	59	71
Church / Non-Profit (number)	1	2
Total (number)	**91**	**110**
Physical Environment		
Potential Noise Receptor Impacts (number)	174	183
Farmland Soils (acres)	N/A	N/A
Hazardous Materials Sites (number)	11	11
Floodplains – 100-year including Floodway (acres)[a]	4.9	5.0
Floodplains – 500-year (acres)[a]	1.3	1.3
Floodway (acres)[a]	0.4	0.4
Preservation Areas[b] (number)	1	1
Cultural Resources and Section 4(f)/6(f)		
Archaeological Sites (number)	1	1
Historic Properties (number)	0	0
Section 4(f) Resources (number)	1	1
Section 6(f) Resources (number)	0	0
Natural Environment		
Forested Land (acres)[c,d,e]	77.3	78.3
Stream Crossings (number)	5	5
Streams (linear feet)[a,f]	1,900	1,919
Wetlands (acres)[a]	3.8	3.9
Ponds (number)	0	0
Federally Protected Species Habitat Present	Yes	Yes
Terrestrial Communities		
Coastal Plain Bottomland Hardwoods	1.4	1.4
Cypress Gum Swamp	1.3	1.3
Maintained Disturbed	93.2	100.7

Resource	Alternative 7 with SPUI Option	Alternative 7 with TUDI Option
Mesic Mixed Hardwood Forest	0.3	0.9
Pine Flatwoods	68.3	68.7
Pine Scrub Oak Sandhill	3.9	3.9
Tidal Cypress Gum Swamp	2.0	2.0
Total Terrestrial Communities (acres)	**170.4**	**178.9**

Reasonably Foreseeable Effects

What reasonably foreseeable effects could be expected within the study area as a result of the project?

The scope of development, development intensity, and future shift of regional population growth is not anticipated to change because the proposed project includes full control of access and would not result in new access to undeveloped parcels. If built, the proposed project is likely to increase the rate of commercial development in the probable development areas, potentially creating a future shift in regional employment. Considering the scope of the project, annual population growth in the Future Land Use Study Area, and the amount of economic growth expected in the area, a determination of "indirect land use impacts not likely" resulted from NCDOT's Land Use Scenario Assessment Matrix.

What are the long-term and short-term uses of the environment and anticipated benefits?

The short-term effects on and uses of the environment in the vicinity of the DSAs are related to the long-term effects and maintenance and enhancement of long-term productivity. Short-term relates to the total duration of construction of the proposed project. Long-term refers to an indefinite period after construction of the proposed project and includes the long-term mitigation measures that may be implemented, as well as the ongoing operation and maintenance of the newly constructed roadway.

The most disruptive short-term impacts associated with the proposed project would occur during land acquisition and project construction, such as construction hauling, noise, lighting, and/or dust. However, these short-term uses of human, physical, economic, cultural, and natural resources would contribute to the long-term productivity of the study area.

It is anticipated that the proposed project would enhance long-term access and connectivity in New Hanover County and would support local, regional, and statewide commitments to transportation improvement and economic viability.

Required Permits and Actions

What permits would be required for the Independence Boulevard Extension project?

The project is anticipated to require the following permits:

- North Carolina Division of Water Resources: Section 401 Water Quality Certification

- US Army Corps of Engineers: Section 404 and Section 10 Permits
- North Carolina Division of Coastal Management: Coastal Area Management Act Major Permit

What are the unresolved issues for the Independence Boulevard Extension project?

Unresolved items include additional coordination, investigation, and documentation relating to archaeological resources, additional hazardous material investigations, coordination with permitting and regulatory agencies, and ongoing coordination and evaluation of impacts to the local community. Once a preferred alternative is identified, additional coordination would take place regarding archaeological resources, hazardous material investigations, and community cohesion to further investigate ways to avoid, minimize, and mitigate impacts. This coordination would be ongoing and continue throughout the development of the project and into final design. Coordination efforts could include, but are not limited to, public meetings, targeted outreach efforts, the development of a neighborhood plan, and identification of mitigation measures. Coordination would continue with permitting and regulatory agencies, and issues would be resolved prior to authorization of construction.

Sections 6(f) and 4(f)

Would resources that are protected by Section 6(f) of the Land and Water Conservation Act of 1965 be used?

Empie Park, at the southern end of the study area, is a Section 6(f) resource. The park received a grant from the Land and Water Conservation Fund in 1967 for the development of the park. There would be no impact to Empie Park because of the proposed project. While within the study area, the park is outside of any proposed right-of-way or construction areas.

Would resources that are protected by Section 4(f) of the Department of Transportation Act of 1966 be used?

Section 4(f) provides protection to cultural resources and public parks/recreation areas. Section 106 coordination is currently underway for the archaeological resources identified during surveys. The proposed greenway along the east side of the proposed roadway connects the Cross-City Trail at Randall Parkway to Maides Park. In order to make the connection, minor impacts are anticipated; however, the impacts anticipated include minor ground disturbance and would not impact the use of the park.

Would any of the impacts to resources protected by Section 4(f) be de minimis impacts?

A *de minimis* finding is anticipated for Maides Park due to the minor impacts proposed to the property that would not affect its intended use.

Public and Agency Involvement

What are the opportunities for public involvement in the Independence Boulevard Extension project?

Three public workshops have been held to present information, answer questions, and receive comments regarding the project. The first was held in June 2011 and the second was held in July 2019. The third was an event targeted to the community that would be relocated by the project and included door-to-door outreach and an open-house style meeting in February 2022. A public hearing will be held following the publication of this document and the public is strongly encouraged to attend, ask questions, and provide comments on the alternatives presented. Following the public hearing, outreach would continue in the form of ongoing small group meetings, neighborhood meetings, and engagement efforts for the community to develop mitigation measures for the proposed project.

As a result of EO 14148, EO 14154, EO 14173, and the removal of the Council on Environmental Quality's regulations, all federal environmental justice requirements are revoked and no longer applicable to the federal environmental review process. Accordingly, this DEIS does not consider public comments regarding environmental justice.

How do I provide comments on the Independence Boulevard Extension project?

Comments can be provided as either written or oral comments. Oral comments will be taken at the public hearing and through the project hotline at 601-300-5186, project code 4173. Written comments can be made in one of three ways: by e-mail at IndependenceBlvd@PublicInput.com, through the project website at www.ncdot.gov/projects/independence-boulevard/, or through mail to:

Alex D. Stewart, P.E., CPM
Highway Division 3 Project Manager
North Carolina Department of Transportation
5501 Barbados Boulevard
Castle Hayne, NC 28429

What comments and concerns have been expressed by the environmental resource and regulatory agencies?

Coordination with environmental resource and regulatory agencies has occurred throughout the project development process. Currently, no major comments and concerns have been raised by the agencies.

Next Steps

When will a preferred alternative be selected and how will the decision be made?

Following the publication of this DEIS, NCDOT will conduct a public hearing and collect comments from the public and regulatory agencies. At the end of the comment period, NCDOT would hold an internal meeting to review the comments and determine whether any additional studies need to be completed. Following the evaluation, FHWA and NCDOT would meet with regulatory agencies to recommend a

preferred alternative based upon an analysis of the alternatives from technical studies and the DEIS, and public input.

Will there be more information provided on the preferred alternative once it is selected?

Once a preferred alternative is identified for the project, any additional studies required for the project would be completed and a Final Environmental Impact Statement disclosing the impacts for the preferred alternative would be developed and presented to the public and agencies for comments.

When will construction on the Independence Boulevard Extension project begin?

NCDOT's 2024-2033 STIP shows construction for the project beginning in 2031. Funding updates will be addressed in future NEPA documentation for the proposed project.

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List of Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
ADT	Average daily traffic
AEC	Area of environmental concern
APE	Area of potential effect
CAC	Community Advisory Council
CAMA	Coastal Area Management Act
CBD	Central business district
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIA	Community Impact Assessment
CIW	Citizen informational workshop
CO	Carbon monoxide
CO_2e	Carbon dioxide equivalent
CRA	Career Readiness Academy
CTP	Comprehensive Transportation Plan
CWA	Clean Water Act of 1977
dB(A)	A-weighted decibel
DBE	Disadvantaged Business Enterprise
DDI	Diverging Diamond Interchange
DEIS	Draft Environmental Impact Statement
DOT	US Department of Transportation
DSA	Detailed study alternative
EMS	Emergency medical service
EO	Executive Order

EPA	Environmental Protection Agency
ESA	Endangered Species Act of 1973
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLUSA	Future Land Use Study Area
FPPA	Farmland Protection Policy Act
GIS	Geographic information system
HC	Hydrocarbons
HCM	Highway Capacity Manual
HEI	Health Effects Institute
ILM	Wilmington International Airport
LEP	Limited English proficiency
LOS	Level of service
LUSA	Land Use Scenario Assessment
LWCF	Land and Water Conservation Fund Act of 1965
mph	Miles per hour
MSAT	Mobile Source Air Toxics
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standard
NAC	Noise Abatement Criteria
NC HPO	North Carolina State Historic Preservation Office
NCAC	North Carolina Administrative Code
NC	North Carolina
NCDEQ	NC Department of Environmental Quality
NCDOT	North Carolina Department of Transportation
NCDWQ	North Carolina Division of Water Quality
NCNHP	North Carolina Natural Heritage Program
NCSHC	North Carolina State Highway Commission
NCWAM	NC Wetland Assessment Method

NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NHS	National Highway System
NLEB	Northern long-eared bat
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of intent
NO_x	Nitrogen Oxides
NRHP	National Register of Historic Places
NRTR	Natural Resources Technical Report
NSA	Noise Study Area
O_3	Ozone
Pb	Lead
PBO	Programmatic biological opinion
PCO	Programmatic conference opinion
PDA	Probable development areas
PM	Particulate matter
PM2.5	Particulate matter 2.5 micrometers in aerodynamic diameter and smaller
PM10	Particulate matter 10 micrometers in aerodynamic diameter and smaller
RCW	Red-cockaded woodpecker
ROD	Record of Decision
SO_2	Sulfur dioxide
SPUI	Single Point Urban Interchange
SR	State Route
STI	Strategic Transportation Investments law
STIP	State Transportation Improvement Program
TDM	Transportation demand management
TNM	Traffic Noise Model
TRB	Transportation Research Board
TSM	Transportation system management

TUDI	Tight Urban Diamond Interchange
UNCW	University of North Carolina at Wilmington
US	United States
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USDA	United States Department of Agriculture
USGS	United States Geological Survey
VMT	Vehicle miles travelled
WMPO	Wilmington Urban Area Metropolitan Planning Organization

1 Purpose of and Need for the Project

1.1 Introduction

In accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, a Draft Environmental Impact Statement (DEIS) is being prepared for the Independence Boulevard Extension project (proposed project). The DEIS is intended for use as an informational document by the decision-makers and the public. As such, it represents a disclosure of relevant environmental information concerning the proposed project.

On January 20, 2025, President Trump signed Executive Order (EO) 14148 – *Initial Rescissions of Harmful Executive Orders and Actions* and EO 14154 – *Unleashing American Energy*. The EOs revoked EO 14096 – *Revitalizing Our Nation's Commitment to Environmental Justice for All* (April 21, 2023). Subsequently on January 21, 2025, President Trump signed EO 14173 – *Ending Illegal Discrimination and Restoring Merit-Based Opportunity*. This EO revoked EO 12898 – *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994). On February 25, 2025, the Council on Environmental Quality (CEQ) published an Interim Final Rule removing the CEQ's NEPA implementing regulations, effective April 11, 2025 (90 Fed. Reg. 10610). As a result of these actions, all federal environmental justice requirements are revoked and no longer apply to the federal environmental review process. FHWA, Federal Transit Administration, and Federal Railroad Administration's Joint NEPA regulations (23 Code of Federal Regulations [CFR] part 771) and the agencies Interim Final Guidance on *Section 139 Environmental Review Process: Efficient Environmental Reviews for Project Decision-making and One Federal Decision* (December 17, 2024) do not require an environmental justice analysis. Accordingly, no analysis of environmental justice is included in this DEIS. Any purported environmental justice impacts will not be considered in the federal decision. Social, economic, and community impacts will continue to be disclosed where applicable in accordance with 23 CFR 771.

The content of this DEIS conforms to the Federal Highway Administration's (FHWA) Guidance for Preparing and Processing Environmental and Section 4(f) Documents (FHWA 1987).

1.2 Project Description

The North Carolina Department of Transportation (NCDOT) is proposing to construct a multi-lane facility on a new location in New Hanover County, North Carolina. The 1.7-mile proposed project would extend existing Independence Boulevard (State Route [SR] 1209) on a new location from Randall Parkway to Martin Luther King Jr. Parkway (United States [US] 74). The proposed project would consist of two travel lanes in each direction separated by a variable width median. As part of the proposed project, a greenway would be constructed along the east side of the proposed project that would connect the City

of Wilmington Cross-City Trail to Maides Park. The proposed project is currently included in NCDOT's 2024-2033 State Transportation Improvement Program (STIP) as project number U-4434.

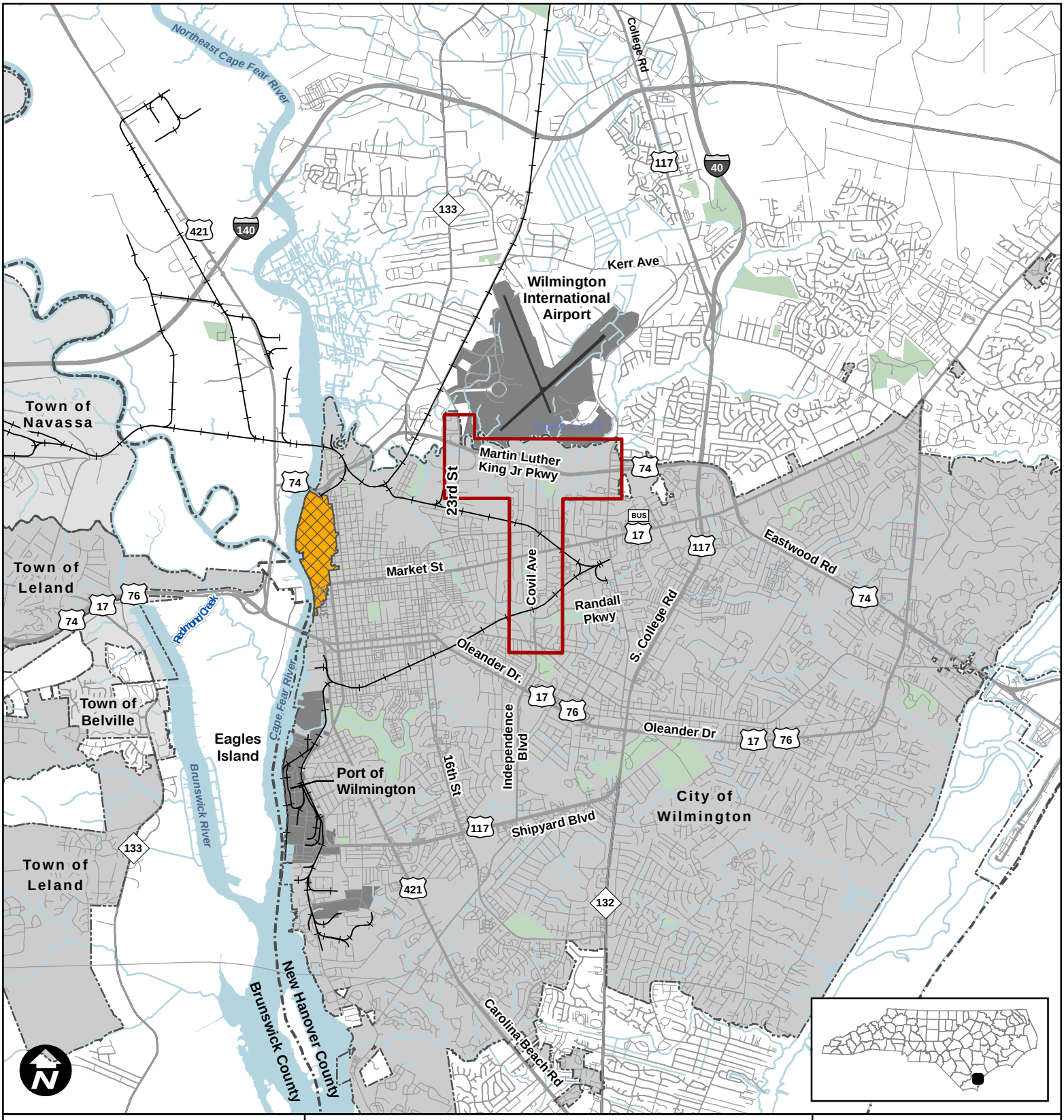
1.2.1 Project Setting

New Hanover County is situated in the coastal plain of North Carolina. The coastal plain physiographic province is characterized by flat land to gently rolling hills and valleys, with elevations ranging from sea level near the coast to 600 feet in the Sandhills (NC Department of Environmental Quality [NCDEQ] 2015). The Cape Fear River forms the western border of the county, while the east is bordered by the Atlantic Ocean. Major municipalities in New Hanover County include Wilmington, Carolina Beach, Kure Beach, and Wrightsville Beach.

The City of Wilmington is the most populated municipality in New Hanover County. It is the largest city in eastern North Carolina and has grown rapidly in recent years. Wilmington's central business district (CBD) is west of the proposed project and extends roughly from the Cape Fear River to 4th and 5th Streets (Figure 1-1).

The study area is located on the northern edge of the urban core of the city, just south of the Wilmington International Airport (ILM) and is a transition point to the rapidly developing area in northern New Hanover County. The study area boundaries are approximately Martin Luther King Jr. Parkway to the north, Randall Parkway to the south, Barclay Hill Drive to the east, and 30th Street to the west (Figure 1-2).

The study area consists of several land use types, including commercial, residential, and industrial properties. These land use types occur within the central and southern portions of the study area and along its major routes, including US 17 Business (Market Street) and Randall Parkway. The northern portion of the study area along Martin Luther King Jr. Parkway is largely undeveloped with the remainder of the study area including a mix of residential and open space.



Legend

- Railroad
- Study Area
- Central Business District
- Park
- Municipal Boundary
- County Boundary

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 1-1
Project Vicinity

Date: December 2024

0 0.5 1 2
Miles

1 inch = 8,000 feet

1.2.2 Project Details

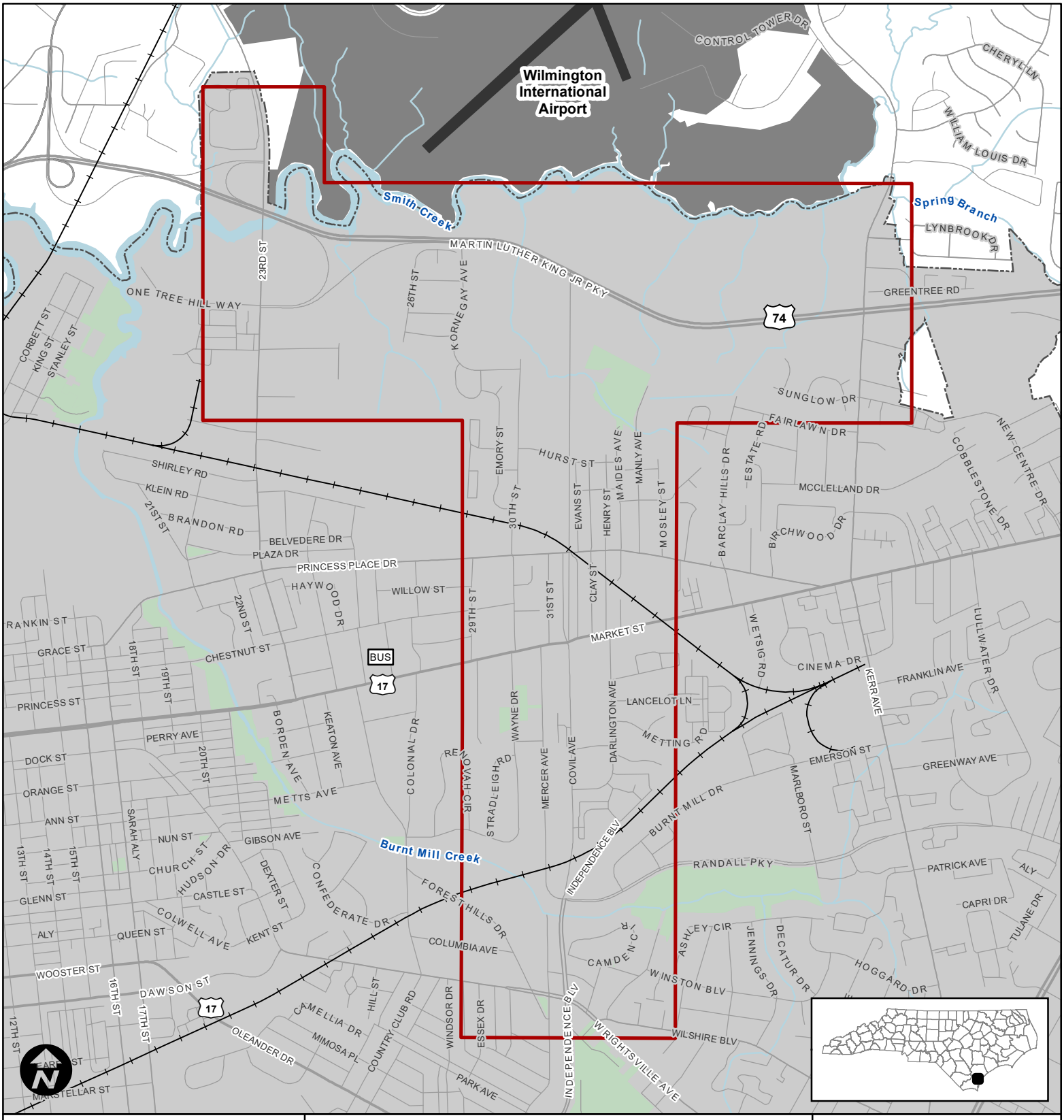
The proposed project would consist of two travel lanes in each direction separated by a variable width median. The project proposes new interchanges at Market Street and Martin Luther King Jr. Parkway, as well as bridge overpasses for both CSX railroad crossings within the study area – one at Princess Place Drive and the other at Hurst Street. Due to the anticipated high traffic volumes along the corridor and the need to bridge over railroads and Market Street, the proposed roadway would be elevated for much of its length.

The proposed project would begin at Randall Parkway with a reconstructed signalized intersection with Mercer Avenue. The roadway would be elevated over the CSX rail line just north of Randall Parkway. In order to maintain neighborhood connectivity in the southern portion of the study area, Darlington Avenue would be extended from Covil Avenue to Mercer Avenue. Due to heavy traffic predicted to enter the Independence Boulevard and Market Street intersection, an overpass and interchange would be used at this location.

There are currently two interchange options under consideration for the Independence Boulevard/Market Street intersection – a tight urban diamond interchange (TUDI) and a single-point urban interchange (SPUI). The proposed project would then continue (elevated) northward over Princess Place Drive, the CSX rail line, and Hurst Street until it reaches a new interchange with Martin Luther King Jr. Parkway. A trumpet interchange configuration is proposed at Martin Luther King Jr. Parkway.

A greenway is proposed along the east side of the proposed project that would connect the City of Wilmington Cross-City Trail to Maides Park.

The study area is shown on Figure 1-2.



Legend

- Railroad
- Stream
- Study Area
- Park
- Municipal Boundary
- County Boundary
- Municipal Boundary

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 1-2
Study Area

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

1.2.3 Existing Road Network

The existing roadway network that was analyzed for the proposed project includes the major transportation facilities within the study area. The roadway network in the Wilmington area consists of two interstate highways, several primary US and North Carolina (NC) routes, and numerous secondary and local streets. Most roadways vary from two-lane to six-lane segments and carry both local and regional traffic. The primary north-south routes in the project vicinity are I-40/NC 132 (College Road), existing Independence Boulevard, SR 1175 (Kerr Avenue), and 23rd Street, while the primary east-west roadways are Martin Luther King Jr. Parkway, Market Street, Randall Parkway, and US 76 (Oleander Drive). Princess Place Drive is a secondary route that carries east-west local traffic, and Covil Avenue, Mercer Avenue, and Montgomery Street are secondary routes that carry north-south traffic (Figure 1-1).

In addition to the roadways summarized in this section, CSX railroad has a major rail line that crosses through the study area twice. This rail line begins at the Port of Wilmington and stretches westward to a major train route intersection in Hamlet and Monroe before arriving in Charlotte.

Table 1-1 summarizes the typical sections and the presence of sidewalks along the roadways in the study area.

Table 1-1: Existing Road Network

Roadway Name	Typical Section	Sidewalks
North-South		
Independence Boulevard	4-lane divided	No
Covil Avenue	2-lane undivided	Yes, partial
Mercer Avenue	2-lane undivided	No
Montgomery Street	2-lane undivided	No
Kerr Avenue	4-lane divided	Yes, partial
College Road	4/6-lane divided	No
23rd Street	2-lane undivided	Yes, partial
East-West		
Martin Luther King Jr. Parkway	6-lane divided	No
Market Street	5-lane with center turn lane	Yes
Randall Parkway	4-lane divided	Yes
Oleander Drive	4/6-lane divided	Yes, partial
Princess Place Drive	2-lane with center turn lane	Yes, partial

1.2.3.1 Primary US Routes and NC Routes

US 17 / US 17 Business (Market Street)

US 17 is a north-south route that extends along the Atlantic Coast from Winchester, Virginia, to Fort Myers, Florida, and traverses New Hanover County. Currently, US 17 merges with US 421 (Carolina Beach Road) and travels north-south along the Cape Fear River just west of the study area before traveling along the I-140 corridor towards Hampstead. US 17 Business begins at the US 17 split slightly west of the Cape Fear River in Brunswick County and continues across the Cape Fear River by way of the Cape Fear Memorial Bridge in an east-west direction (as does US 76 and US 421). US 17 Business travels north along 3rd Street and then east/west along Market Street until it terminates at Military Cutoff Road. From the Cape Fear Memorial Bridge, US 17 continues along the one-way Wooster and Dawson Streets and continues along Oleander Drive and Military Cutoff Road and follows Market Street towards Hampstead. Within the vicinity of the project, US 17 Business is multi-lane with no control of access.

US 74 (Martin Luther King Jr. Parkway)

US 74 is an east-west route that runs from Chattanooga, Tennessee, to Wrightsville Beach, North Carolina (in New Hanover County). This is a major route for travelers coming from the Charlotte metropolitan region to the beaches of southeastern North Carolina. US 74 merges with US 76 in Columbus County, North Carolina, and then merges with US 17 Business before following the US 421 corridor to the Isabel Holmes Bridge crossing of the Cape Fear River. US 74 continues along Martin Luther King Jr. Parkway through the study area before continuing as Eastwood Road and terminating at Wrightsville Beach. The roadway is multi-lane with controlled access west of the proposed project and partially controlled access east of the proposed project.

US 76 (Oleander Drive)

US 76 is an east-west route that runs from Chattanooga, Tennessee, through the foothills of Georgia and South Carolina, to Wilmington, North Carolina. US 76 merges with US 74 in Columbus County, North Carolina, and US 17 Business in Brunswick County, near the Cape Fear River. It crosses the Cape Fear Memorial Bridge and enters Wilmington on the one-way Wooster and Dawson Streets. US 76 then veers south and is identified as Oleander Drive through much of the City of Wilmington. The roadway is multi-lane with no control of access within the vicinity of the proposed project.

US 117/NC 132 (College Road)

US 117 is a north-south route that begins at the Port of Wilmington and ends at US 301 near Wilson, North Carolina. US 117 exits the Port of Wilmington as Shipyard Boulevard and travels in the east-west direction before turning in the north-south direction and combining with NC 132 as College Road. The combined US 117/NC 132 roadway continues through the study area as College Road before US 117 connects to the eastern terminus of I-40, before splitting and running parallel to I-40 in the northwest direction. NC 132 is a north-south route that runs from US 117 to the eastern terminus of I-40, entirely within New Hanover County. The combined US 117/NC 132 (College Road) is a major route that serves as the terminus point for I-40, provides access to the urban core of Wilmington, and passes by the

University of North Carolina at Wilmington (UNCW). The roadway is multi-lane with no control of access within the vicinity of the proposed project.

1.2.3.2 Secondary Routes and Local Roads

Independence Boulevard (SR 1209)

Independence Boulevard is a north-south route that runs from River Road (SR 1576) to Randall Parkway. The roadway is a two-lane roadway with no control of access from River Road to Carolina Beach Road. Independence Boulevard is a four-lane, divided roadway with partial control of access from Carolina Beach Road to Randall Parkway.

Kerr Avenue (SR 1175)

Kerr Avenue is a north-south route that runs from College Road to Murrayville Road (SR 1322) before turning and continuing in an east-west direction to NC 133 (Castle Hayne Road). The roadway is a four-lane divided highway from Randall Parkway to Martin Luther King Jr. Parkway. An interchange at the intersection of Martin Luther King Jr. Parkway and Kerr Avenue has been proposed (U-3338C) with construction to begin in 2028.

Randall Parkway

Randall Parkway is an east-west route that runs from Independence Boulevard to Reynolds Drive and is maintained by the City of Wilmington as a major thoroughfare. The roadway is four-lane divided from Independence Boulevard to College Road.

Covil Avenue

Covil Avenue is a north-south route that runs from the Randall Parkway/Independence Boulevard intersection to Market Street. The roadway is a two-lane local road with no control of access.

Mercer Avenue

Mercer Avenue is a north-south route that parallels Covil Avenue to the west and turns eastward to intersect opposite Randall Parkway at the Independence Boulevard/Covil Avenue intersection. The roadway is a two-lane divided roadway with no control of access that utilizes speed humps to calm traffic.

Montgomery Avenue

Montgomery Avenue is a north-south route that runs from Market Street to Princess Place Drive. The roadway is a two-lane local road with no control of access.

Princess Place Drive

Princess Place Drive is an east-west route entirely within the study area that runs from 17th Street to Market Street. It is a three-lane road with a center turn lane and has no control of access.

23rd Street

23rd Street is a north-south route that begins at Market Street and ends at Castle Hayne Road just north of the study area. The roadway is a two-lane local road with no control of access and includes an interchange at Martin Luther King Jr. Parkway.

1.2.4 Project History

The proposed project was included in Wilmington's first Thoroughfare Plan adopted in 1972 (North Carolina State Highway Commission [NCSHC] 1972). The plan showed Independence Boulevard as a proposed thoroughfare extending from Market Street to the proposed Smith Creek Parkway (current Martin Luther King Jr. Parkway) and continuing north to tie into 23rd Street. The proposed project was also included in the 1985 Thoroughfare Plan but altered to terminate at the proposed Smith Creek Parkway (NCDOT 1985). The 1985 version of the proposed project continued to be included in the Greater Wilmington Urban Area Transportation Plan presented to the public in November 1992 and adopted in September 1993 (NCDOT 1993). The proposed project was also included in the 1997 version of the Greater Wilmington Urban Area Transportation Plan, in which Independence Boulevard was identified as an over capacity corridor between Carolina Beach Road and Market Street (NCDOT 1997b). The proposed project was then included in the Wilmington Urban Area Metropolitan Planning Organization (WMPO) Wilmington Urban Area 2030 Long Range Transportation Plan adopted in 2005 (WMPO 2005). In 2008, the WMPO Transportation Advisory Committee voted to amend the functional classification map for the portion of Independence Boulevard from Shipyard Boulevard to Martin Luther King Jr. Parkway (including the portion contained within the proposed project) to the Urban Principal Arterial classification. The proposed project was included in the WMPO Cape Fear Transportation 2040 Metropolitan Transportation Plan (MTP) adopted in 2015 (WMPO 2015) and is currently included in the WMPO Cape Fear Moving Forward 2045 MTP (WMPO 2020).

NCDOT completed a feasibility study for the proposed project in July 2002 (NCDOT 2002). The proposed project was then included in the NCDOT 2004-2010 STIP and is currently included in the 2024-2033 STIP as project number U-4434. Funding updates will be addressed in future NEPA documentation for the proposed project.

1.3 Proposed Action

NCDOT is proposing to construct a multi-lane facility on new location in New Hanover County, North Carolina. Located within the urban core of the City of Wilmington, the proposed 1.7-mile-long project would be an extension of existing Independence Boulevard from the intersection with Randall Parkway and Mercer Avenue to Martin Luther King Jr. Parkway. The proposed action (or proposed project) is designated in the 2024-2033 NCDOT STIP as project number U-4434 and described as "SR 1209 (Independence Boulevard Extension), Randall Parkway to US 74 (Martin Luther King Jr. Parkway) in Wilmington; multi-lanes on new location."

1.4 Need for the Proposed Action

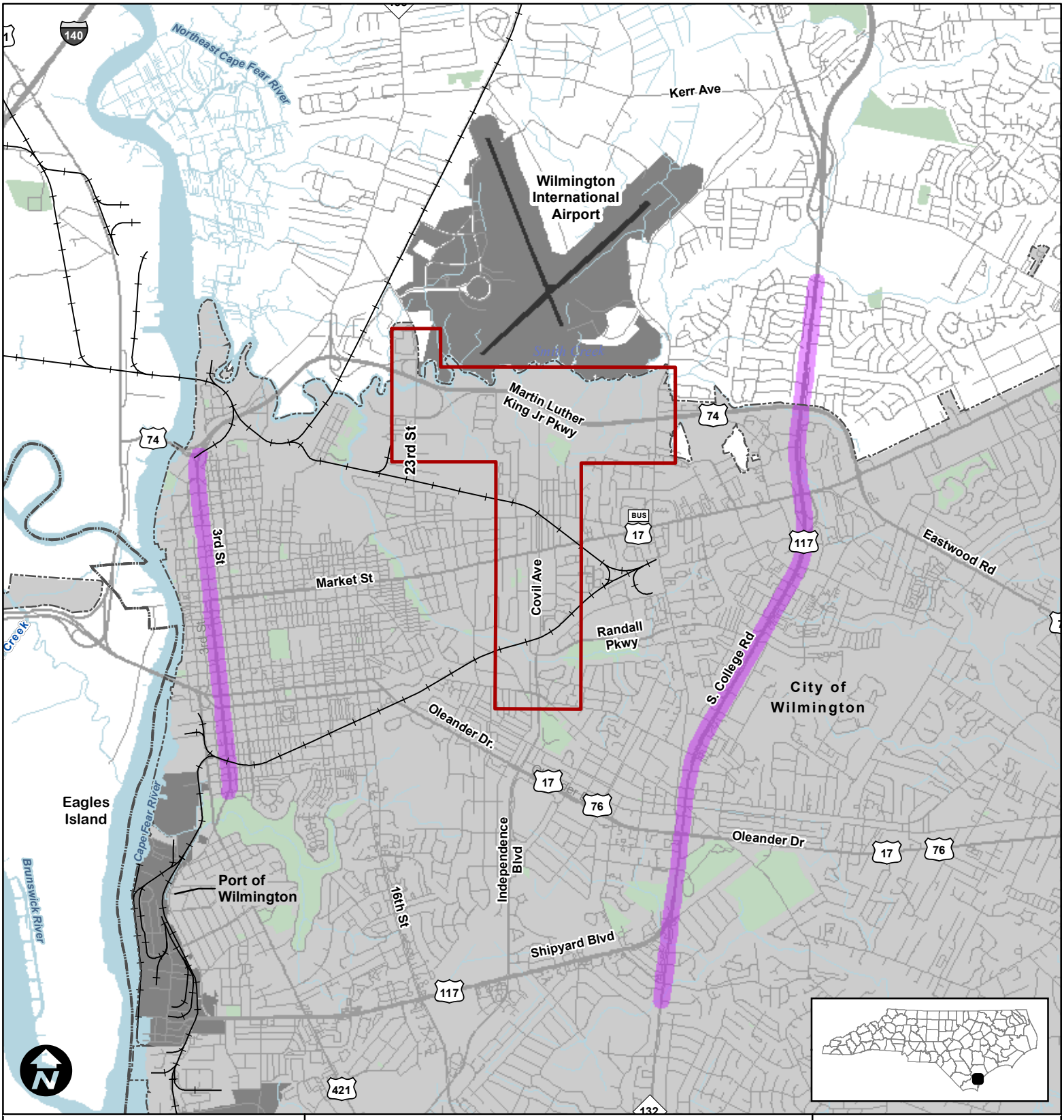
The need for the proposed project is demonstrated by the following:

- Deficient north-south regional roadway connectivity
- Deficient north-south system capacity
- Deficient linkage within and through New Hanover County

1.4.1 Connectivity

Deficient North-South Regional Roadway Connectivity

Figure 1-3 presents the existing network of regional routes in Wilmington, with north-south routes highlighted. The network consists primarily of continuous east-west roadways, including Martin Luther King Jr. Parkway, Market Street, Randall Parkway, Oleander Drive, and Shipyard Boulevard. However, Wilmington offers only two continuous north-south routes on the Cape Fear peninsula: 3rd Street and College Road. 3rd Street runs through the CBD and Wilmington Historic District adjacent to the Cape Fear River, whereas College Road runs along the peninsula center. The distance between the two routes varies from 3 to 4 miles. NCDOT completed the widening of Kerr Avenue (U-3338B) in 2019. Kerr Avenue is an additional north-south roadway in the project vicinity; but the purpose of U-3338B was to improve traffic capacity only, not to satisfy the demand for improved north-south roadway connectivity. The improved Kerr Avenue, along with the remaining north-south roadways in the project vicinity, offer short, discontinuous segments that force commuters to redirect from one north-south route onto east-west roadway segments that connect to the next north-south route. This weaving or "stair-step movement" north or south places considerable pressure on already full east-west routes, as well as signalized intersections in the network. The stair-step travel pattern causes additional left and right-turn movement volumes at intersections, which diminishes overall intersection capacity. Improving north-south connectivity would reduce the stair-step travel pattern, reduce turning movements, and increase capacity by promoting increased signal green-time to east-west and north-south through movements.



Legend

- Railroad
- North-South Roadway
- Study Area
- Central Business District
- Park
- Municipal Boundary
- County Boundary

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 1-3
North-South Regional Roadway Connectivity

Date: January 2025

0 0.25 0.5 1
Miles

1 inch = 5,000 feet

1.4.2 Capacity

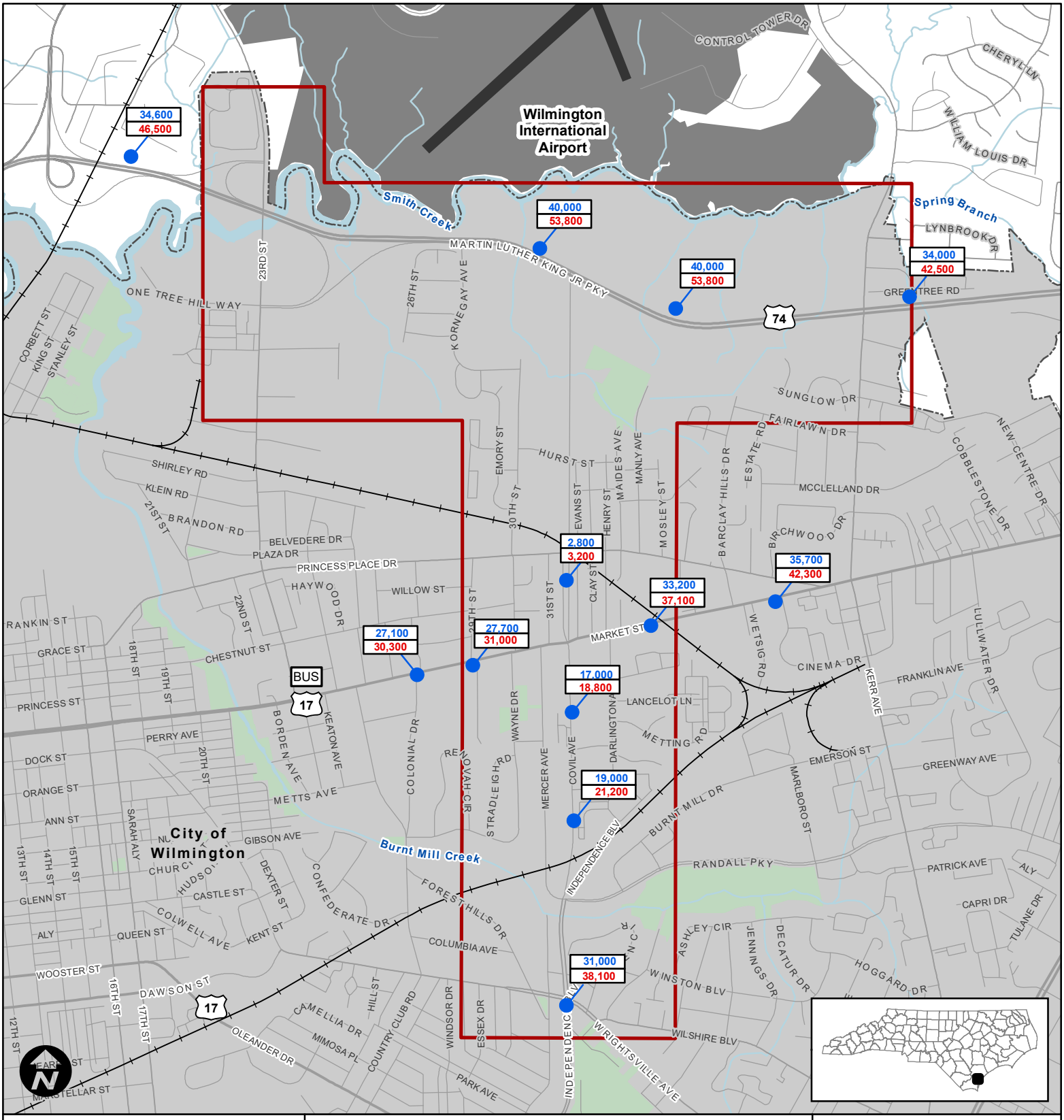
Deficient North-South System Capacity

Traffic modeling and capacity analyses for the transportation network show that additional traffic capacity is needed within the study area (NCDOT 2018a). System modeling confirms a high demand for north-south travel within central Wilmington from Independence Boulevard to College Road. The modeled demand exceeds the capacity of existing and planned improvements for the area. Numerous traffic generators to the north, south, and within the study area use the north-south routes in central Wilmington. The primary traffic generators and destinations to the north of the study area include I-40, Wilmington International Airport (ILM), the residential areas of northeast Wilmington, and access to the east and west along Martin Luther King Jr. Parkway. The primary traffic generators in the immediate vicinity of the study area include the businesses and residential areas along Market Street. To the south and east of the study area, the major traffic generators include Independence Mall, the Port of Wilmington, businesses along College Road, UNCW, the beaches of southern New Hanover County, and Fort Fisher.

Traffic forecasts (dated July 2017) provided average daily traffic (ADT) volumes for the transportation network within the study area for the Existing No-Build Conditions (year 2017), Future No-Build Conditions (year 2040), and Future Build Alternatives (year 2040) (NCDOT 2017b). Using this forecast and NCDOT's Intersection Analysis Utility tool, a.m. and p.m. peak hour volumes were developed for all of the scenarios being evaluated. The ADT volumes for existing roadways within the study area are shown on Figure 1-4. Traffic volumes for this scenario on Independence Boulevard within the study area range from 2,800 ADT to 31,000 ADT. Volumes on Market Street range from 27,700 ADT to 33,200 ADT.

The procedures used to define the operational qualities of the roadways are based on the concepts of capacity and level of service (LOS) as set forth in the Highway Capacity Manual (HCM) and range from LOS A to LOS F (Transportation Research Board [TRB] 2010). LOS A represents the best operating conditions along a road or at an intersection, while LOS F represents the worst conditions. A summary of the LOS results for unsignalized and signalized intersections for the Existing No-Build Conditions are included in Table 1-2, and the LOS results are shown on Figure 1-5. The intersection numbers in the table correspond to those assigned within the Synchro analysis. The results of the analysis show that eight of the nine intersections are currently operating at LOS E or worse (and a volume to capacity ratio of 0.85 or worse) during the a.m. peak hour, p.m. peak hour, or both. LOS results for the Future No-Build Conditions are shown on Figure 1-6.

The methodologies contained in the HCM were used to determine the existing LOS for the unsignalized and signalized intersections within the study area. The analyses were conducted in accordance with the latest *NCDOT Congestion Management Capacity Analysis Guidelines,* dated July 2015 (NCDOT 2015).



Legend

- Railroad
- Stream
- Study Area
- Park
- Municipal Boundary
- County Boundary

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 1-4
2017 Base Year / 2040 Future Year No-Build Average Annual Daily Traffic

Date: January 2025

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

Table 1-2: 2017 No-Build Alternative – Intersection Level of Service

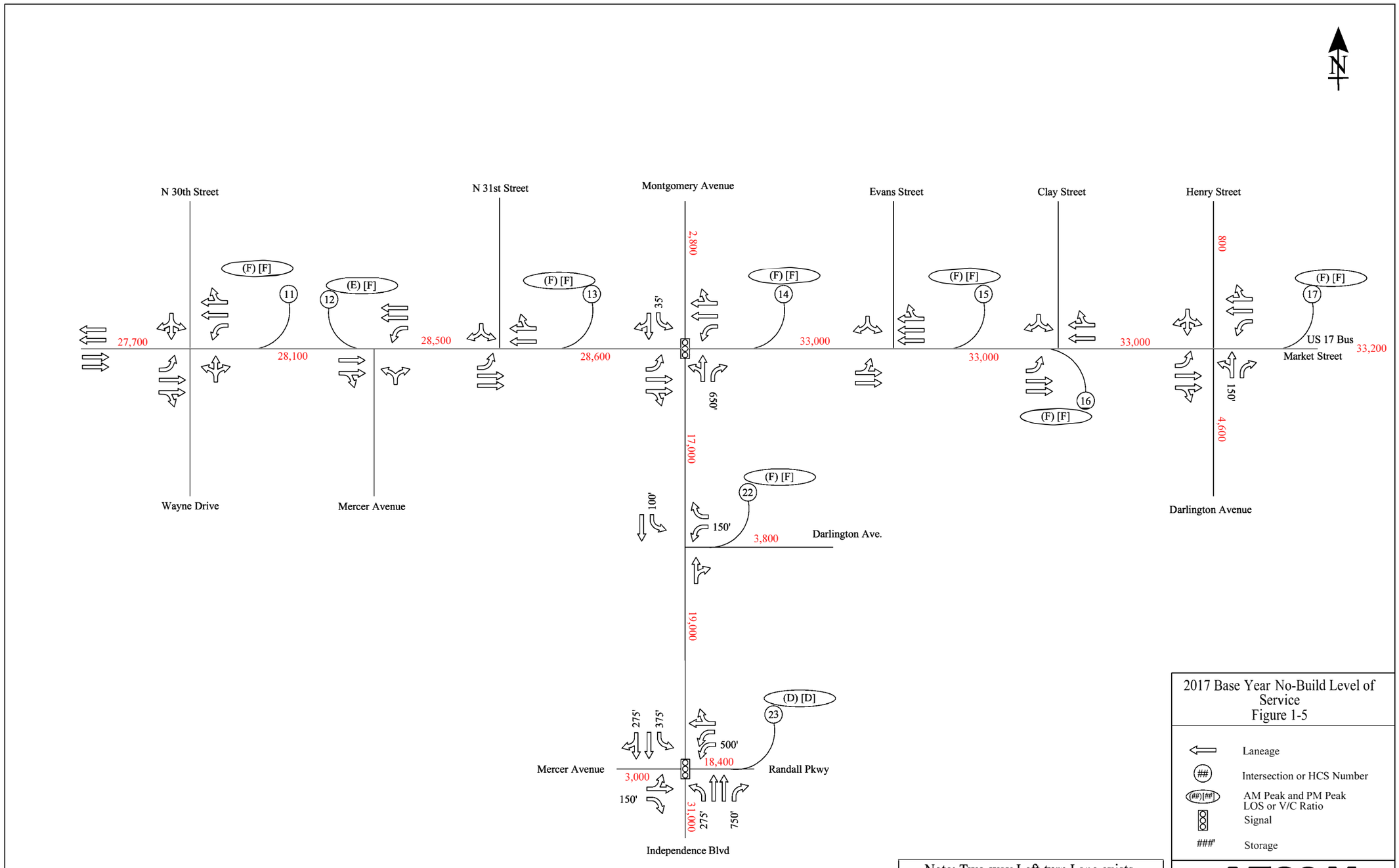
ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
11[a]	**Wayne Drive/30th Street at Market Street**	**F**	**F**
	Eastbound left	B	B
	Westbound Left	B	B
	Northbound left/through/right	F	F
	Southbound left/through/right	F	F
12[a]	**Mercer Avenue at Market Street**	**E**	**F**
	Westbound left	B	B
	Northbound left/right	E	F
13[a]	**Market Street at 31st Street**	**F**	**F**
	Eastbound left	B	B
	Southbound left/right	F	F
14	**Covil Avenue/Montgomery Avenue at Market Street**	**F**	**F**
	Eastbound left	D	D
	Eastbound through/right	F	F
	Westbound left	F	F
	Westbound through/right	C	D
	Northbound left/through	F	F
	Northbound right	C	B
	Southbound left	F	F
	Southbound through/right	F	F
15[b]	**Market Street at Evans Street**	**F**	**F**
	Eastbound left/through	A	A
	Southbound left/right	F	F
16[b]	**Market Street at Clay Street**	**F**	**F**
	Eastbound left	C	B
	Southbound left/right	F	F
17[b]	**Darlington Avenue/Henry Street at Market Street**	**F**	**F**
	Eastbound left	C	B
	Westbound left	B	C
	Northbound left/through	F	F
	Northbound right	B	B
	Southbound left/through/right	F	F
22[b]	**Covil Avenue and Darlington Avenue**	**F**	**F**
	Westbound left	F	F
	Westbound right	C	D
	Southbound left	B	B

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
23	**Independence Boulevard/Covil Avenue at Mercer Avenue/Randall Parkway**	**D**	**D**
	Eastbound left/through	E	E
	Eastbound right	E	E
	Westbound left	D	D
	Westbound through/right	C	C
	Northbound left	D	C
	Northbound through	D	D
	Northbound right	B	C
	Southbound left	E	F
	Southbound through/right	C	B

Source: Traffic Forecast for STIP No. U-4434 (NCDOT 2017b)

[a] Refer to Figure 1-6.

[b] Unsignalized Intersections



2017 Base Year No-Build Level of Service
Figure 1-5

Laneage

Intersection or HCS Number

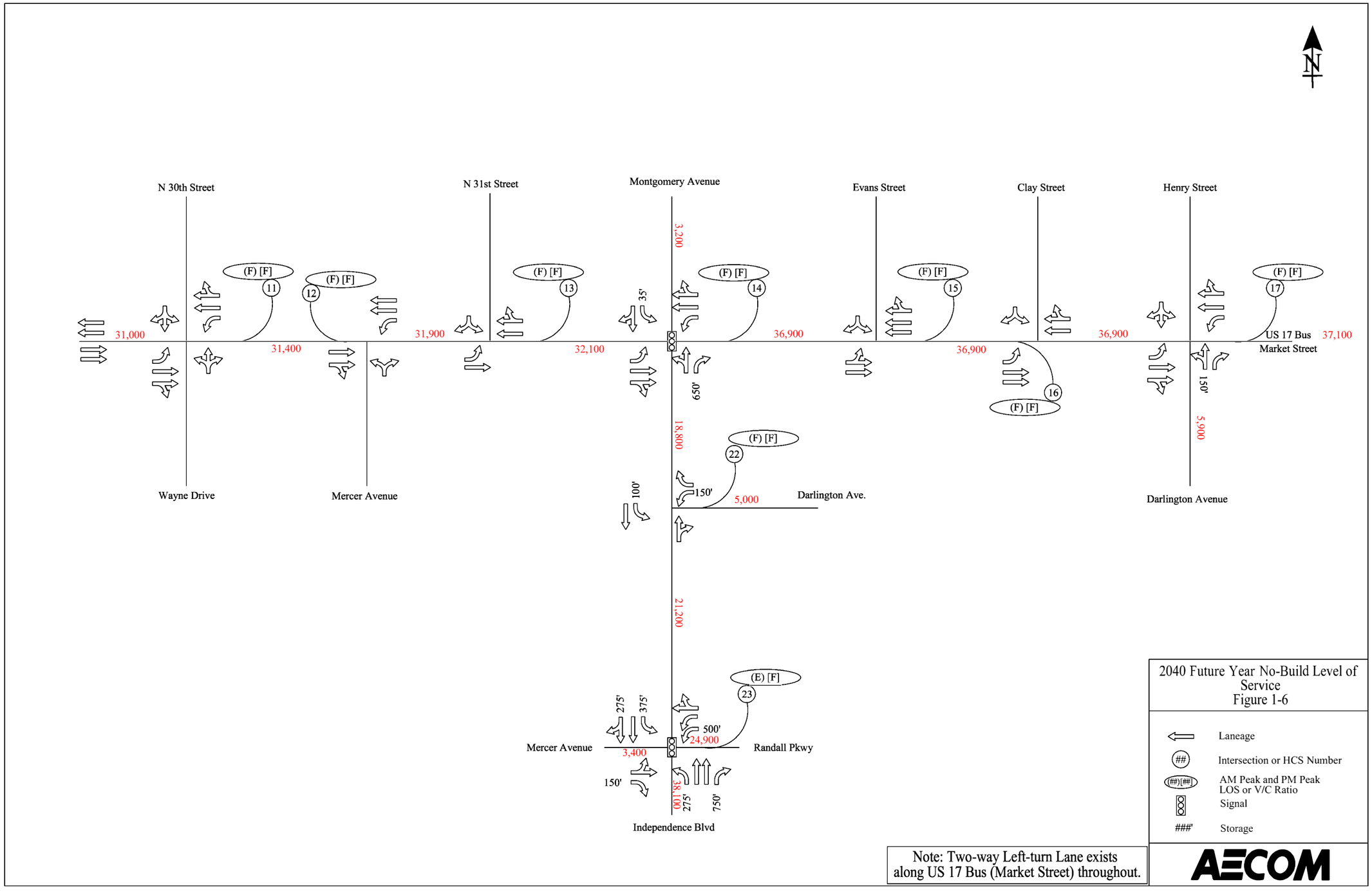
(##)[##] AM Peak and PM Peak LOS or V/C Ratio

Signal

###' Storage

Note: Two-way Left-turn Lane exists along US 17 Bus (Market Street) throughout.

AECOM



2040 Future Year No-Build Level of Service
Figure 1-6

Laneage
Intersection or HCS Number
(##)(##) AM Peak and PM Peak LOS or V/C Ratio
Signal
###' Storage

Note: Two-way Left-turn Lane exists along US 17 Bus (Market Street) throughout.

AECOM

1.4.3 System Linkage

Deficient Linkage Within and Through New Hanover County

The proposed project was identified in the Wilmington Urban Area Transportation Plan for 1999-2025 as a facility that would "complete a major north-south corridor from River Road in the south to Smith Creek Parkway (now Martin Luther King Jr. Parkway) in the north" (City of Wilmington 1999). The plan notes that the Independence Boulevard corridor "is listed in the Transportation Advisory Committees adopted Priority Needs list as the number one project since 1995."

Further, the proposed project is included in the WMPO Cape Fear Moving Forward 2045 MTP (WMPO 2020). The WMPO 2045 MTP calls for a safe, realistic, efficient, and reliable multimodal transportation network that embraces innovation and is environmentally and socially responsible. The proposed project is listed in the fiscally constrained roadway project list.

One of the goals for the greater Wilmington area is to develop an integrated regional transportation system by providing an intrastate link between designated activity centers. The WMPO 2040 MTP noted that the proposed project is an important connector for freight movement and important in promoting intermodal connections between the ports, highways, and rail networks.

Within the WMPO's 2016 Comprehensive Transportation Plan (CTP) (WMPO 2016a) the proposed project appears as a Recommended Boulevard, and within the City of Wilmington's Create Wilmington Comprehensive Plan (City of Wilmington 2016), Independence Boulevard and Market Street are designated as major corridors and regional parkways that would prioritize motor vehicle mobility with some walkable qualities such as buffered sidewalks and crosswalks. The plan focuses on growing Wilmington inward and upward by concentrating on infill and redevelopment, job growth, and housing options and integrating land uses to reduce traffic congestion.

1.5 Purpose of the Proposed Action

The primary purpose of the proposed project is to improve regional mobility, system traffic capacity, north-south connectivity, and transportation system (intrastate/intermodal) linkage from Randall Parkway, in the vicinity of Independence Boulevard, to Martin Luther King Jr. Parkway that is consistent with local and state transportation plans.

The proposed project would enhance regional mobility, improve overall traffic capacity, provide the needed north-south connectivity, and facilitate intrastate/intermodal linkage within central Wilmington. The proposed project would provide a solution that addresses the desired outcomes prescribed in the WMPO 2016 CTP (WMPO 2016a) and 2045 MTP (WMPO 2020).

Detailed study alternatives (DSA) for the proposed project were evaluated against the following performance measures, which were established to provide a quantifiable measure for determining the feasibility of an alternative relative to the purpose of the project:

- *Direct and Continuous North-South Connectivity*: To fulfill this purpose, the DSAs must provide a continuous north-south connection between the east-west major arterials in the

City of Wilmington – Shipyard Boulevard, Oleander Drive, Market Street, and Martin Luther King Jr. Parkway.

- *Improve Regional Mobility and System Traffic Capacity*: To fulfill this purpose, the DSAs must provide a systemic increase in the overall traffic capacity for north-south travel within central Wilmington.
- *Transportation System Linkage Consistent with Local and State Transportation Plans*: To fulfill this purpose, the DSAs must be consistent with the WMPO 2016 CTP and 2045 MTP.

1.6 Secondary Benefits

The potential exists for additional benefits as a result of the proposed project. These secondary benefits were considered when evaluating alternatives but were not used as a basis for eliminating alternatives based on the purpose and need or used as a screening factor to determine which alternatives were advanced in the project development. Additional benefits are described in the following sections.

1.6.1 Improvement to Emergency Evacuation Routes

Options are currently limited for emergency evacuation of the central Wilmington area. According to NCDOT, NC 133, US 74/76, US 17, US 117/NC 132, and US 421 are designated hurricane evacuation routes (NCDOT 2021).

The US 117/NC 132 (Shipyard Boulevard/College Road) corridor serves as the start point for the I-40 lane reversal for emergency evacuation during hurricanes. In addition, the I-40 lane reversal plan includes the use of Martin Luther King Jr. Parkway and Kerr Avenue to move traffic to I-40. The projected deficiencies in capacity on these routes and the predicted increase in hurricane evacuation clearance time for 2040 pose a threat to residents and visitors. Without improvements to the network, emergency evacuation would be hampered.

The State of North Carolina's statewide hurricane evacuation clearance time goal is 18 hours (North Carolina General Statutes Section 136-102.7), which is applied to a Category 3 hurricane with 75 percent tourist occupancy. Clearance time begins when the first vehicle enters the road network and ends when the last vehicle leaving reaches a point of safety. In this case, I-95 (at I-40) is considered the inland point of safety. The proposed project would provide an additional opportunity for connecting the currently designated evacuation routes, including better access to I-40 and US 421.

1.6.2 Safety

Providing a roadway with a high level of access management (minimizing driveways, median openings, left-over turn lanes in the median, etc.) is an effective means of improving safety by reducing conflicts between vehicles. Crash rates for primary routes in North Carolina show that the accident rate for a four-lane roadway without any control of access is 319 crashes per million vehicle miles traveled (VMT), while the rate for a controlled access facility drops to 121 crashes per million VMT (NCDOT 2019a). The proposed project would have a higher level of access control than the adjacent roadways. Safety of users improves when there is a high level of access control.

1.6.3 Improvement to East-West Traffic Operations

Options are currently limited for traveling in the north-south direction in Wilmington, with only one existing route connecting the four major arterials. Due to the limited connectivity of north-south corridors, motorists on these routes must also utilize main east-west routes and neighborhood streets in a "stair step" pattern. The development of an additional north-south route would likely consolidate much of the north-south traffic onto a single route and reduce the pressure that north-south commuters place onto east-west routes – which would improve the flow of traffic along the east-west corridors.

1.7 Relationships with Other Modes of Transportation

1.7.1 North Carolina State Ports

The Port of Wilmington (Port) is situated on the eastern bank of the Cape Fear River, southwest of the proposed project. A 42-foot- deep navigational channel provides access to the Port from the Atlantic Ocean. Existing Independence Boulevard intersects with Shipyard Boulevard, which is the primary access to the Port.

The Port offers terminal facilities serving military, container, bulk, breakbulk, and specialty cargo operations. The Port is one of the few South Atlantic ports with readily available berths and storage areas for containers and cargo. CSX railroad provides daily rail service for boxcar, tanker, and general cargo services.

The number of trucks entering and exiting the Port is expected to grow based on projected cargo forecasts. Future growth projections suggest that congestion levels on the local transportation network could hamper the Port's growth plans and competitiveness. Deficiencies in the existing transportation network diminish the ability to efficiently distribute goods and services from the Port.

1.7.2 Railroads

Freight rail service is provided to and from Wilmington by CSX railroad. CSX railroad has an interchange line with the Wilmington Terminal Railroad, L.P., which serves the Port south of the proposed project. The CSX railroad ACB-line and the CSX track to State Port line are the two rail lines present within the study area and crossed by the proposed project (Figure 1-2). The first crossing is along Covil Avenue slightly north of Randall Parkway. The second crossing is near Princess Place Drive, north of Market Street. The two rail lines currently carry two to four trains per day at 10 miles per hour (mph) (Harris 2017).

The number of trains crossing this rail line is subject to increase in the future and is dependent on freight demands associated with the Port. In 2017, CSX railroad in association with North Carolina Ports began a daily, intermodal rail service between Wilmington and Charlotte known as the Queen City Express. The double-stacked train was included in the Cape Fear Commutes 2035 Transportation Plan to create a more efficient rail route linking Mid-Atlantic ports with Midwestern markets (WMPO 2011).

As of December 2024, there is no passenger rail service serving the Wilmington area or southeastern North Carolina. In 2005, the NCDOT Rail Division completed a study that evaluated the possibility of

restoring passenger rail service to the Wilmington area (NCDOT 2005). The study recommended implementing passenger rail service from Raleigh to Wilmington via Fayetteville and Goldsboro in phases as funding becomes available. In 2004, NCDOT completed a feasibility study for southeastern North Carolina that provides conceptual level capital costs, operating costs, and a range of ridership and revenue associated with a new intercity passenger service connecting Wilmington with the existing state-supported passenger services in Raleigh (NCDOT 2024). The study recommends a route for service through Goldsboro.

1.7.3 Airports

ILM is located just northeast of the City of Wilmington and north of the proposed project. ILM can be accessed from NC 133 (via 23rd Street and Airport Boulevard). The airport is operated by the New Hanover County Airport Authority and provides 24 non-stop flights to destinations including Atlanta, Boston, Charlotte, Chicago, Dallas, Denver, Miami, New York City, Nashville, Newark, Orlando, Philadelphia, and Washington, DC. In addition, the airport has international charter, corporate, military, and recreational flights (ILM 2024).

ILM is designated as an international airport because it provides a port of entry through the International Arrivals Facility, which is a separate facility from the domestic passenger terminal. According to the 2045 MTP, ILM has seen an increase in both passenger and cargo enplanements every year since 2015. Fiscally constrained projects included in the 2045 MTP include runway extensions, taxiway expansions, airport expansion, terminal improvements, and rehabilitation of existing facilities, among other projects.

1.7.4 Public Transportation

Public transportation is provided through Wave Transit (previously known as Wilmington Transit Authority). Wave Transit provides shuttle services on and around the UNCW campus, trolley service around downtown Wilmington, point-to-point RideMICRO service, and bus and charter bus services. The Medical Center (105) fixed route serves Independence Boulevard to Wilshire Boulevard. The Shipyard Boulevard (106) fixed route serves Independence Boulevard and Covil Avenue to Market Street and the eastern portion of the study area. The Market Street Express (108) and Shipyard Boulevard (106) fixed routes serve Independence Boulevard north of Independence Mall, College Road, the shopping centers off New Centre Drive (between Market Street and College Road), and UNCW. The Oleander West (202) fixed route serves Independence Boulevard and Wrightsville Avenue. The Princess Place (101) fixed route serves the northern portion of the study area, the US Housing and Urban Development housing development just north of Prince Place Drive, downtown Wilmington, and the shopping center off Sigmon Road. All bus routes run between 6:00 a.m. and 8:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. Saturday, and 9:00 a.m. to 5:00 p.m. Sunday. Ride-sharing is coordinated through RideMICRO. RideMICRO offers point-to-point service to anyone traveling within the designated service network. Passengers can book an on-demand ride from a virtual stop within a RideMICRO zone and be connected to Wave Transit's fixed-route service or brought to a destination within a zone.

The 36,000-square foot Wave Transit Operations Center opened in June 2015. The Wilmington Multimodal Transportation Center/Downtown Transfer Station (Padgett Station) opened in January 2020. Padgett Station is the first phase of a large multimodal transportation project. The upgraded amenities offer customers and visitors a safe, convenient, and accessible location while using public transportation services. The station is a collaborative effort among the City of Wilmington, WMPO, and Wave Transit.

1.7.5 Pedestrians and Bicycles

Currently, within the Wilmington urban area, there are 694.1 miles of sidewalks, 56.1 miles of bicycle lanes, 35.6 miles of multi-use paths, and 5.0 miles of sharrow-marked roadways. The 2045 MTP includes 200 proposed bicycle and pedestrian projects. The 2045 MTP calls for bicycle and pedestrian facilities to be included in all new roadway and bridge projects within the Wilmington urban area.

The City of Wilmington adopted the Create Wilmington Comprehensive Plan (City of Wilmington 2016) in early 2016. The Covil Avenue and Market Street intersection area was identified as an Urban Mixed-Use Center and encourages moderate to high-density development patterns. Concentrated investment and revitalization are proposed to accommodate walkability, improve vitality, and create a sense of place. The plan further identified the area around Market Street and Covil Avenue as an area for suburban commercial retrofit, which would seek to encourage infill development in surface parking lots, improved pedestrian movement, and use of access management techniques to reduce the number of driveways along corridors. The plan also identified several roads in the project vicinity as corridors and complete streets. Independence Boulevard and Market Street were designated as major corridors and regional parkways that would prioritize motor vehicle mobility with some walkable qualities such as buffered sidewalks and crosswalks. Mercer Avenue, 30th Street, Princess Place Drive, and a small southern portion of Darlington Avenue (from Frog Pond Place south to Covil Avenue) were designated as community connectors. Community connectors are used to protect existing residential character and to create transitions from regional-scale roadways (such as major corridors) to neighborhood areas. Finally, Darlington Avenue, from Market Street to Frog Pond Place, is designated as a Main Street, which prioritizes pedestrians and encourages a mixture of land uses.

According to the 2013 Wilmington/New Hanover County Comprehensive Greenway Plan (City of Wilmington 2013), a greenway is proposed along the east side of Independence Boulevard from Randall Parkway to just south of Martin Luther King Jr. Parkway. This would tie into the existing Cross-City Trail that runs along Independence Boulevard for over 2 miles between Shipyard Boulevard and Park Avenue.

The Walk Wilmington: Wilmington Pedestrian Plan Update outlines a plan to improve existing and install new pedestrian facilities to upgrade safety, quality, and connectivity (City of Wilmington 2023). The study area falls within the plan's Priority Focus Area F: Market Street. It recommends sidepaths along the entirety of Independence Boulevard and Covil Avenue, continuing on to Montgomery Avenue and Evans Street. It also recommends crossing improvements at the intersections with Randall Parkway, Broad Avenue, Market Street, and Princess Place Drive.

1.8 Relationship to Other Designated Systems

There are currently two interstate routes in New Hanover County, I-40 and I-140. I-40 enters New Hanover County from the north and terminates just north of the Wilmington city limits where it becomes College Road. I-140, also known as the Wilmington Bypass, is currently open to traffic from US 17 northeast of Wilmington in New Hanover County to US 17 west of Leland in Brunswick County.

Martin Luther King Jr. Parkway is designated at the federal level as part of the National Highway System (NHS). The federal-aid highway system, which includes the interstate system and the NHS, is defined in 23 Code of Federal Regulations (CFR) 470.107. The NHS includes approximately 160,000 miles of roadway that are important to the nation's economy, defense, and mobility (FHWA 2016).

1.9 Transportation Demand

The study area is located within New Hanover County and is within the planning jurisdiction of the City of Wilmington. Documents and data relevant to population and employment trends, land use planning and zoning, and economic development planning for the project area are presented in this section.

The City of Wilmington is in southeastern North Carolina in New Hanover County and is the most populated municipality in the county. Wilmington is home to a historic downtown, a university, beaches, and other tourist destinations that draw visitors every year, particularly in the summer.

The U-4434 Community Impact Assessment Update Memo (NCDOT 2022a) uses US Census Tracts and Block Groups to delineate a study area that best illustrates the demographic characteristics of the community. This study area, called the demographic study area, is described in further detail in Chapter 3. Table 1-3 shows population growth for the demographic study area, the City of Wilmington, New Hanover County, and the State of North Carolina. Between 2010 and 2020, the demographic study area experienced a decline in population growth with an annualized growth rate of −0.7 percent, compared to an 0.8 percent annualized growth rate in Wilmington, and a 1.1 percent annualized growth rate in New Hanover County.

Table 1-3: Population Trends, 2010–2020

Area	2010 Population	2020 Population	Difference in Growth	% Change Growth	Annualized Growth Rate
Demographic study area	8,120	7,591	-529	-6.5%	-0.7%
Wilmington	106,476	115,451	8,975	8.4%	0.8%
New Hanover County	202,667	225,702	23,035	11.4%	1.1%
North Carolina	9,535,483	10,439,388	903,905	9.5%	0.9%

Source: U.S. Census Bureau, 2010 and 2020 Census Redistricting Data (Public Law 94-171)

1.10 Transportation Plans

Land use around the study area is a mixture of single-family residential communities, multi-family complexes, commercial and office centers, small stand-alone retail establishments, auto service shops, and vacant undeveloped land.

Several transportation plans, including local, regional, and statewide, relate to the study area. These include highway plans, transit plans, bicycle/pedestrian plans, coastal management plans, and freight plans. These plans would be considered throughout the design and development of the proposed project. The following plans are discussed in more detail in Chapter 3:

- NCDOT 2024-2033 STIP
- WMPO 2045 MTP (2020)
- Gary Shell Cross-City Trail Master Plan (2012)
- Wilmington/New Hanover County Comprehensive Greenway Plan (2013)
- Walk Wilmington: Wilmington Pedestrian Plan Update (2023)
- WMPO CTP (2016)
- Wilmington—New Hanover County Joint Coastal Area Management Plan 2006 Update
- WMPO US 17 Business Corridor Study, 3rd Street to Covil Avenue (2007)
- WMPO Market Street Corridor Study (2010)

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2 Description of Alternatives Considered

The alternatives considered for the proposed project are described in this chapter. Each alternative considered is evaluated with respect to its ability to meet the purpose of and need for the proposed project. Several preliminary alternatives were developed and evaluated during the early phases of the project studies, including the No-Build Alternative, transportation system management (TSM) alternatives, transportation demand management (TDM) alternatives, and build alternatives. A discussion of the alternatives considered for the proposed project, the process of elimination of those alternatives not determined reasonable, and the basis for the selection of the alternatives carried forward for detailed study are provided in this chapter.

The evaluation of alternatives for the proposed project was accomplished through a phased approach that allowed for a full range of alternatives to be considered, ultimately resulting in the selection of DSAs to be carried forward. The three phases included:

- Qualitative Screening of Alternative Concepts
- Conceptual Design Alternative Evaluation
- Detailed Study Alternative Evaluation

A general description of the methodology is shown on Figure 2-1. Figure 2-2 contains an overall summary of the progression of alternatives and reasons for retention or elimination of each. Additional details are discussed throughout this chapter.

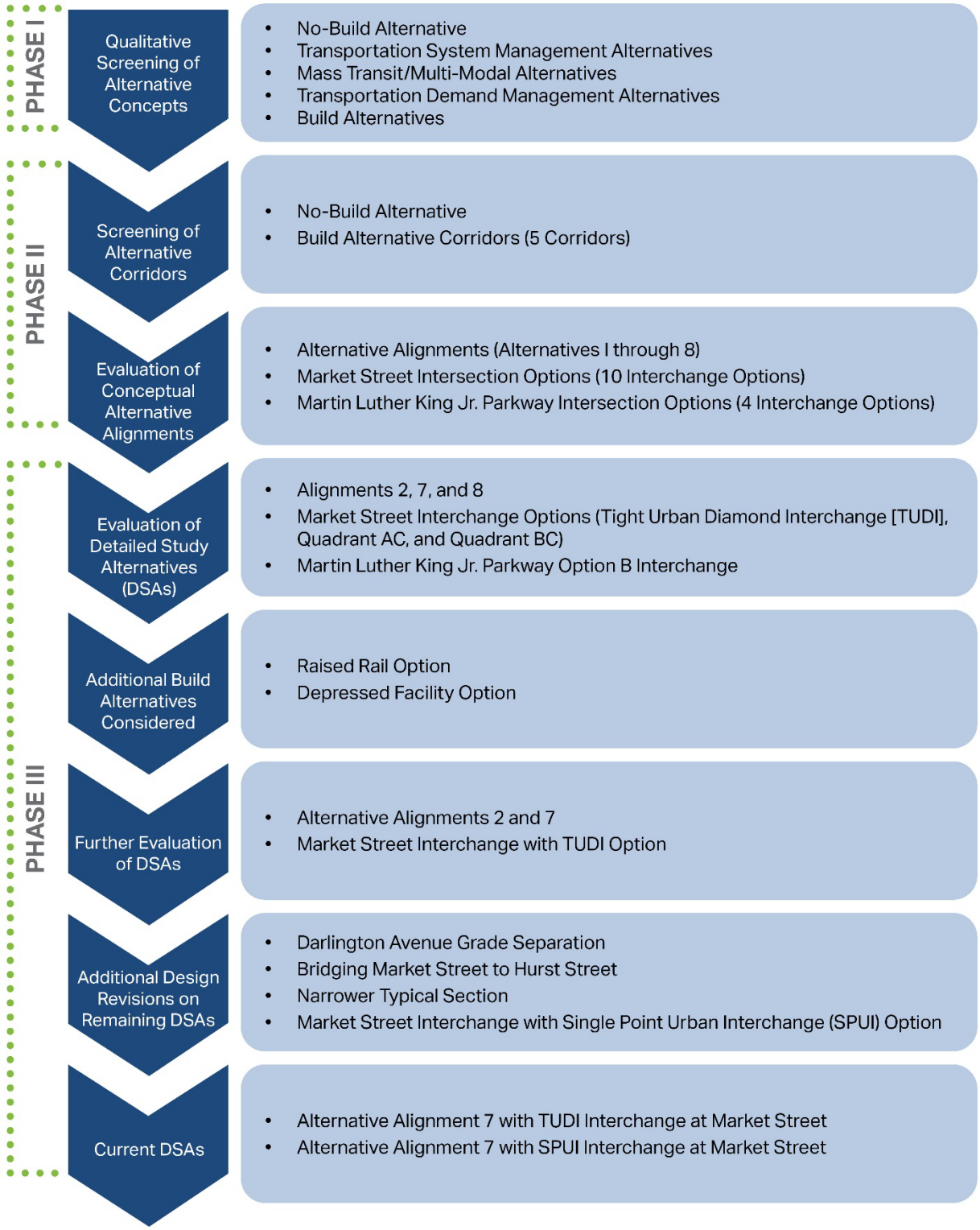


Figure 2-1: Alternative Evaluation Methodology

					Justification for Elimination
Phase I					
Qualitative Screening 2011	No-Build Alternative		✓		
	Transportation System Management Alternatives		✗		Does not provide north-south connectivity or system linkage
	Mass Transit/Multi-Modal Alternatives		✗		Won't divert enough traffic, does not provide north-south connectivity or system linkage
	Transportation Demand Management Alternatives		✗		Low usage, does not provide north-south connectivity or system linkage
	Build Alternatives (overall concept, no corridor locations identified)		✓		
Screening Conceptual Design Corridors 2011	No-Build Alternative		✓		
	Build Alternative Corridors (5 Corridors)	16th/17th Street Corridor	✗		High residential and business impacts, high natural resource impacts, connection with Martin Luther King Jr. Parkway and NC 133 is problematic
		23rd Street Corridor	✗		High residential impacts. Skewed rail crossing, many cross streets would be cut off, long and circuitous route - doubles project length, would require additional lanes at interchange with Martin Luther King Jr. Parkway. Martin Luther King Jr. Parkway interchange would occur on an existing bridge; many cost and engineering constraints.
		Independence Boulevard Corridor	✓		
		Kerr Avenue Corridor	✗		Already included as part of existing STIP projects to improve capacity only. Would not provide improved north-south connectivity. Very high residential and business relocations.
		College Road Corridor	✗		Already included as part of existing STIP projects to improve capacity only. Capacity along the corridor is already very poor. Would not provide improved north-south connectivity.
Phase II					
Screening Conceptual Study Alternatives 2011	Alternative Alignments (Alternatives 1-8): Covil Avenue Corridors (Alts 1, 2, 3, and 5); Mercer Avenue Corridors (Alts 4 and 8); New Location Corridors (Alts 6, 7). *One option from each of the three corridors was chosen to move forward as DSA.	Alternative 1	✗		Alternative 2 carried forward because of better alignment, reduced relocations, more compact footprint
		Alternative 2	✓		
		Alternative 3	✗		Alternative 2 carried forward because of better alignment, reduced relocations, more compact footprint
		Alternative 4	✗		Alternative 8 carried forward because of improved access and reduced relocations
		Alternative 5	✗		Alternative 2 carried forward because of better alignment, reduced relocations, more compact footprint
		Alternative 6	✗		Alternative 7 carried forward due to a straighter alignment and fewer relocations
		Alternative 7	✓		
		Alternative 8	✓		
	Market Street Intersection Options	Tight Urban Diamond Interchange (TUDI)	✓		
		Diverging Diamond Interchange (DDI)	✗		Tight footprint would cause queuing issues, long travel time, high relocations
	Market Street Intersection Options	Quadrant Interchange	✓		
		Quadrant Interchange	✗		Required signal location would delay traffic on roadway, traffic operation delay, increased travel times
	Martin Luther King Jr. Parkway Intersection Options (4 Interchange Options)	Option A	✗		Large ramp radius
		Option B	✓		
		Option C	✗		Low design speed
		Option D	✗		Low design speed

Phase III

					Justification for Elimination
Evaluation Detailed Study of Alternatives 2012	Alternatives 2, 7, and 8 with Market Street Intersection Options (Tight Urban Diamond Interchange (TUDI), Quadrant AC, and Quadrant BC)	Alternative 2 with TUDI	✓		
		Alternative 2 with AC	✗		Quadrants AC and BC at the Market Street interchange provide minimal traffic improvement. Eliminated due to lack of traffic improvement and number o f relocations.
		Alternative 2 with BC	✗		Quadrants AC and BC at the Market Street interchange provide minimal traffic improvement. Eliminated due to lack of traffic improvement and number of relocations.
		Alternative 7 with TUDI	✓		
		Alternative 7 with AC	✗		Quadrants AC and BC at the Market Street interchange provide minimal traffic improvement. Eliminated due to lack of traffic improvement and number of relocations.
		Alternative 7 with BC	✗		Quadrants AC and BC at the Market Street interchange provide minimal traffic improvement. Eliminated due to lack of traffic improvement and number of relocations.
		Alternative 8 with TUDI	✗		Alternative 8 would require the acquisition of the newly developed City of Wilmington Police Firing Range Facility
		Alternative 8 with AC	✗		Quadrants AC and BC at the Market Street interchange provide minimal traffic improvement. Eliminated due to lack of traffic improvement and number of relocations.
		Alternative 8 with BC	✗		Quadrants AC and BC at the Market Street interchange provide minimal traffic improvement. Eliminated due to lack of traffic improvement and number of relocations.
	Martin Luther King Jr. Parkway Interchange Option B		✓		
Further Evaluation Detailed Study of Alternatives (DSAs) 2018	Alternative 2 and 7		✗		Number of relocations
	Market Street Interchange with TUDI Option		✓		
Additional Design Revisions on Remaining DSAs 2018	Darlington Avenue Grade Separation		✓		
	Bridging Market Street to Hurst Street		✓		
	Narrower Typical Section		✓		
	Market Street Interchange with Single Point Urban Interchange (SPUI) Option		✓		
Current DSAs 2018	Alternative 7 with TUDI Interchange at Market Street		✓		
	Alternative 7 with SPUI Interchange at Market Street		✓		

Icon Key

- ✓ Carried forward to next step
- ✗ Not carried forward to next step
- Low impact on local community
- Moderate impact on local community
- High impact on local community
- Impact on local community varies

2.1 Phase I: Qualitative Screening of Alternative Concepts

The Qualitative Screening of Alternative Concepts included the evaluation of the range of alternative concepts presented in FHWA's Technical Advisory T6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (FHWA 1987). The qualitative first screening was used to determine which alternative concepts have the potential to meet the purpose of the proposed project. Alternative concepts that did not have the potential to meet the project purpose were eliminated from further consideration.

The screening criteria used for the evaluation were based on the following performance measures included in the purpose and need statement for the proposed project:

- Is the alternative concept able to improve regional mobility and system traffic capacity?
- Is the alternative concept able to provide direct and continuous north-south connectivity?
- Does the alternative concept provide transportation system linkage consistent with local and state transportation plans?

2.1.1 No-Build (No Action) Alternative

The No-Build Alternative normally includes short-term, minor restoration types of activities (safety and maintenance improvements, etc.) that maintain continuing operation of the existing roadway. The No-Build Alternative assumes the current transportation system evolves as planned for in the 2045 MTP and STIP without implementation of the proposed project. Except for routine maintenance, no changes would take place along the proposed corridor within the study area. The No-Build Alternative also serves as the baseline comparative alternative for the design year (2040).

2.1.2 Transportation System Management Alternative

The TSM Alternative includes low-cost, minor transportation improvements that maximize the efficiency of the existing system. There are two main types of TSM improvements: operational and physical. Operational TSM improvements include traffic law enforcement, access control, signal coordination, turn prohibitions, speed restrictions, and signal phasing or timing changes. Physical TSM improvements include turn lanes, intersection realignment, improved warning and information signs, new signals or stop signs, and signalization.

Many TSM improvements are incorporated into the transportation system over time as population and congestion levels increase. There are several locations where additional TSM measures could be implemented to improve localized problem areas; however, it is not likely that implementation of TSM measures would alleviate congestion in the area given that the volumes exceed the capacity of the existing transportation network.

2.1.3 Mass Transit or Multi-Modal Alternative(s)

The Mass Transit or Multi-Modal Alternative includes reasonable and feasible transit options (bus systems, rail, etc.). A major advantage of mass transit is that it can provide high-capacity, energy-efficient movement in densely traveled corridors. It also serves high-density areas by offering an option

for automobile owners who do not wish to drive, as well as service to those without access to an automobile.

Public transportation is provided through Wave Transit (previously known as Wilmington Transit Authority). In addition to fixed-route bus service, Wave Transit operates dial-a-ride paratransit services, Wave Pool (commuter van and carpool program), shuttle services on and around the UNCW campus, trolley service around downtown Wilmington, and bus and charter bus services. The 36,000-square foot Wave Transit Operations Center opened in June 2015. The Wilmington Multimodal Transportation Center/Downtown Transfer Station (Padgett Station) opened in January 2020. Padgett Station serves Wave, Greyhound, the downtown trolley, and taxis. The 2018-2022 Wave Transit 5-Year Short Range Transit Plan notes the inclusion of on-demand bus/transit services as something being considered for certain service areas. The areas being considered at this time do not fall within or near the study area (Wave Transit 2018).

2.1.4 Transportation Demand Management Alternative

The TDM Alternative includes measures to improve the efficiency of the existing transportation system by changing traveler behavior, but typically do not involve major capital improvements. The TDM Alternative does include demand management strategies currently implemented in New Hanover County, such as staggered work hours, flex-time (employee focused), and ridesharing.

Ridesharing, such as carpools and vanpools, is generally viewed as more convenient than bus transit with regard to access, door-to-door travel times, and comfort. However, the ability of these voluntary programs to reduce traffic volumes on particular roadways is minimal.

In December 2001, the City of Wilmington entered into a cooperative agreement with NCDOT to establish the Cape Fear Breeze Program, with a goal to develop and promote transportation alternatives for the community's residents and visitors.

In November 2004, the Cape Fear Breeze Program installed a statewide internet-based ride matching software program called Share-the-Ride NC. Share-the-Ride NC was completed by NCDOT and other municipal partners. The software facilitates the matching of potential ridesharing partners throughout the region. Match lists enable registrants to identify carpooling partners, form or join vanpools, connect with bicycling partners, and locate suitable transit lines and park-and-ride facilities (Share-The-Ride NC 2022).

2.1.5 Build Alternatives

The build alternatives include both improvement of existing roadways and alternatives on new location. This initial screening considers the overall concept of constructing a roadway and does not differentiate between alternative corridor locations.

2.1.6 Results of Qualitative First Screening

Each of the alternative concepts listed previously was evaluated for its ability to meet the screening criteria defined in Section 1.5. Table 2-1 presents the results of the qualitative first screening. It lists

each alternative concept and whether each alternative concept meets or does not meet the screening criteria. If the alternative concept meets or could be designed to meet a purpose and need element, there is a ✓ next to the text. If it would not meet the purpose and need, then there is a ✗ next to the text.

Table 2-1: Qualitative Screening – Ability of Concepts to Meet Purpose and Need

Alternative Concept	Improve Regional Mobility and System Traffic Capacity	Provide North-South Connectivity	Provide System Linkage Consistent with Local and State Transportation Plans
No-Build	✗	✗	✗
Transportation Demand Management	✓	✗	✗
Transportation System Management	✓	✗	✗
Mass Transit/Multi-Modal	✓	✗	✗
Build	✓	✓	✓

2.1.6.1 Retain the No-Build (No Action) Alternative

The No-Build Alternative does not meet any of the screening criteria; however, in accordance with NEPA (40 CFR 1502.14(c)) and FHWA guidance (FHWA 1987), the No-Build Alternative will be given full consideration in the DEIS to provide a baseline for comparison with the DSAs.

2.1.6.2 Eliminate the TSM Alternative

In general, TSM improvements present low-cost measures that are effective in solving localized or site-specific capacity, safety, and operational problems in urban areas. Alone, they do not meet the proposed project's regional purpose of providing improved connectivity and system linkage throughout the urban core of Wilmington. Although signal coordination and intersection improvements within the transportation network are likely to modestly improve traffic flow, this alternative does not provide the desired north-south connectivity or the desired system linkage included in the local and state transportation plans and has been eliminated from further consideration.

2.1.6.3 Eliminate the Mass Transit or Multi-Modal Alternative

Improved transit service could provide increased mobility and capacity within the study area by providing an alternative mode choice for commuters and other intra-county travelers. However, this alternative (new rapid transit, on-demand, or expanded bus service) would not divert enough vehicular traffic to improve traffic flow to a substantial degree, nor would it provide the desired north-south connectivity or the desired system linkage included in local and state transportation plans. Elimination of this alternative does not preclude consideration of design parameters that support mass transit or multi-modal efficiency, such as bus turnouts, multi-use paths, etc.

2.1.6.4 Eliminate the TDM Alternative

TDM measures provide increased transportation choices in the area, but only for a small percentage of travelers that take advantage of them. For example, according to the US Census, only 2.1 percent of people in the Wilmington area carpool with three or more persons per vehicle and only 11.9 percent use other modes of transportation (US Census Bureau 2020). TDM measures potentially improve traffic flow slightly, but do not provide the desired north-south connectivity or the desired system linkage included in the local and state transportation plans. It has been eliminated from further consideration.

2.1.6.5 Retain the Build Alternatives

This alternative concept meets the purpose of and need for the proposed project and was therefore carried forward to the quantitative Conceptual Design Alternative Evaluation.

Table 2-2 lists the alternative concepts that were carried forward to the Conceptual Design Alternative Evaluation, as well as those eliminated from further consideration based on the evaluations described in the previous sections.

Table 2-2: Results of Qualitative Screening of Alternative Concepts

Alternative Concepts Retained for Conceptual Design Alternative Evaluation	Alternative Concepts Eliminated from Further Consideration
No-Build	Transportation Demand Management
Build	Transportation System Management
	Mass Transit/Multi-Modal

2.2 Phase II: Conceptual Design Alternative Evaluation

Based on the results of Qualitative Screening of Alternative Concepts, both the no-build and build alternative concepts were carried forward to the Conceptual Design Alternative Evaluation. The No-Build Alternative will be given full consideration in the DEIS to provide a baseline for comparison with the build alternative concepts.

The Conceptual Design Alternative Evaluation included the development of conceptual designs for each of the alternative concepts advanced from the Qualitative Screening of Alternative Concepts. Conceptual design is a low-level design that is used to fully evaluate a large set of alternatives at a moderate level of detail. The level of design allows for the quantitative evaluation of direct impacts, based primarily on Geographic Information System (GIS) data, and the qualitative evaluation of the effects of the alternative on the natural, human, and cultural environments.

This phase includes the initial corridor selection process within which the build alternatives would be designed, the project logical termini and independent utility, the determination of the design features for the build alternatives, and the evaluation of the conceptual designs developed for the build alternatives.

2.2.1 Initial Corridor Selection

As discussed in Section 1.5, a viable alternative must provide a continuous north-south connection between the east-west major arterials of Shipyard Boulevard, Oleander Boulevard, Market Street, and Martin Luther King Jr. Parkway. The five north-south corridors listed below and shown on Figure 2-3 were identified and analyzed on their ability to provide a continuous north-south connection. Although 3rd Street is a north-south corridor, expansion of this route is not a feasible alternative due to potential impacts to the Wilmington Historic District and CBD. For screening of potential corridors, unless otherwise noted, a 150-foot corridor width was used to accommodate 2035 projected traffic volumes. **2035 was the design year at the time the initial corridor studies took place.**

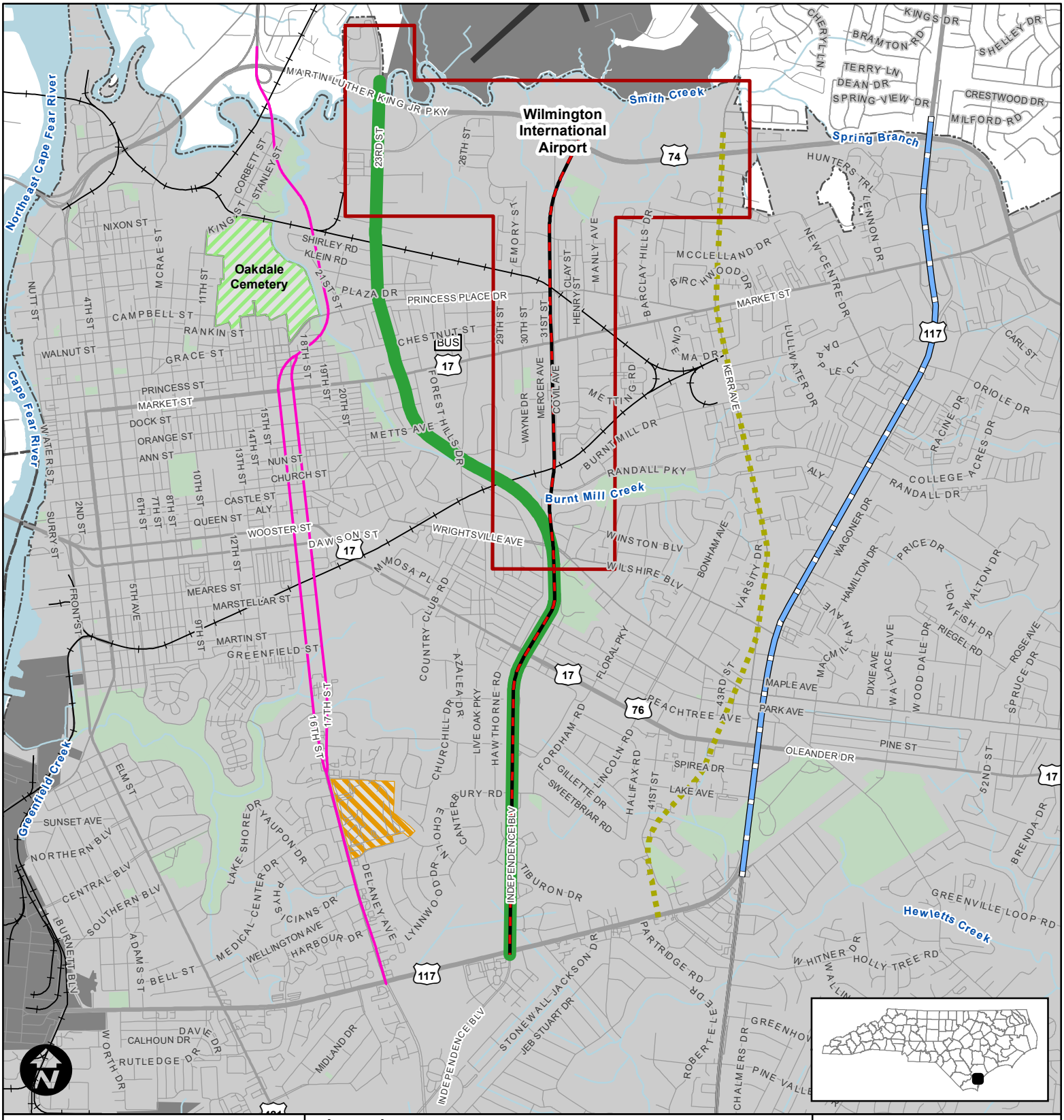
- 16th/17th Street Corridor
- 23rd Street Corridor
- Independence Boulevard Corridor
- Kerr Avenue Corridor
- College Road Corridor

2.2.1.1 16th/17th Street Corridor

The 16th/17th Street Corridor southern terminus is located at the existing 17th Street intersection with Shipyard Boulevard. From here, the corridor travels north along existing 17th Street past New Hanover Regional Medical Center. North of the medical center, the corridor diverges into two 75-foot wide corridors and follows the existing one-way pair of 16th Street (for southbound traffic) and 17th Street (for northbound traffic) through downtown Wilmington. North of their existing intersections with Market Street, the 16th/17th Street one-way pair corridors converge back into one 150-foot wide corridor. North of Market Street, the corridor continues on new location, skirts to the east around Oakdale Cemetery, crosses Burnt Mill Creek twice and Smith Creek once before tying into the existing Martin Luther King Jr. Parkway/NC 133 interchange at the corridor's northern terminus. The existing interchange would need to be expanded to accommodate this corridor. This corridor crosses over the CSX railroad three times.

2.2.1.2 23rd Street Corridor

The 23rd Street corridor starts at the existing intersection of Shipyard Boulevard and Independence Boulevard and utilizes existing Independence Boulevard up to Wrightsville Avenue. The corridor veers off to the west and north on new location after the Wrightsville Avenue intersection and ties into existing 23rd Street at its intersection with Market Street. The corridor continues north along existing 23rd Street and ends at the existing Martin Luther King Jr. Parkway interchange. It is anticipated that no major interchange modifications would be required at the existing interchange to accommodate this corridor. The corridor crosses over the CSX railroad twice.


Wilmington International Airport
Oakdale Cemetery
Smith Creek
Spring Branch
Burnt Mill Creek
Greenfield Creek
Hewletts Creek
Northeast Cape Fear River
Cape Fear River
MARTIN LUTHER KING JR PKY
MARKET ST
PRINCESS PLACE DR
CHESTNUT ST
METTS AVE
WOOSTER ST
DAWSON ST
WRIGHTSVILLE AVE
RANDALL PKY
WINSTON BLV
WILSHIRE BLV
MARSTELLAR ST
GREENFIELD ST
MARTIN ST
MEARES ST
CASTLE ST
QUEEN ST
CHURCH ST
NUN ST
ANN ST
ORANGE ST
DOCK ST
PRINCESS ST
WALNUT ST
GRACE ST
RANKIN ST
CAMPBELL ST
NIXON ST
SHIRLEY RD
KLEIN RD
PLAZA DR
BURNT MILL DR
METTING RD
MCCLELLAND DR
BIRCHWOOD DR
NEW CENTRE DR
HUNTERS TRL
LENNON DR
KERR AVE
FLORAL PKY
PEACHTREE AVE
MAPLE AVE
PARK AVE
PINE ST
OLEANDER DR
SPIREA DR
LAKE AVE
INDEPENDENCE BLV
TIBURON DR
PARTRIDGE RD
STONEWALL JACKSON DR
JEB STUART DR
HOLLY TREE RD
GREENVILLE LOOP RD
W HITNER DR
COUNTRY CLUB RD
HAWTHORNE RD
LIVE OAK PKY
AZALEA RD
CHURCHILL DR
FORDHAM RD
GILLETTE DR
SWEETBRIAR RD
LINCOLN RD
HALIFAX RD
41ST ST
43RD ST
52ND ST
16TH ST
17TH ST
21ST ST
23RD ST
26TH ST
29TH ST
30TH ST
31ST ST
EMORY ST
CLAY ST
HENRY ST
MANLY AVE
BARCLAY HILLS DR
MERCER AVE
COVIL AVE
WAYNE DR
FOREST HILLS DR
CAPE FEAR MEMORIAL BRIDGE
CAPE FEAR MEMORIAL BRIDGE
LUTTERLOH BLVD
LUTTERLOH BLVD
CAROLINA BEACH RD
CAROLINA BEACH RD
MARKET ST
WILMINGTON
WILMINGTON
74
76
17
117
BUS
17
17
17
117
117
421
421
Legend
Railroad
16th / 17th Street Corridor
23rd Street Corridor
Independence Boulevard Corridor
Kerr Avenue Corridor
College Road Corridor
Stream
Study Area
Park
Municipal Boundary
County Boundary
New Hanover Regional Medical Center
Oakdale Cemetery
Independence Boulevard Extension Project
STIP U-4434
New Hanover County
Figure 2-3
Alternative Corridors
Date: December 2024
0 0.2 0.4 0.8
Miles
1 inch = 3,500 feet

2.2.1.3 Independence Boulevard Corridor

The Independence Boulevard corridor starts at the existing intersection of Shipyard Boulevard and Independence Boulevard and uses existing Independence Boulevard and Covil Avenue up to Market Street. North of the Market Street intersection, the corridor follows along Montgomery Avenue extends on new location over vacant land before tying into Martin Luther King Jr. Parkway. An interchange would be constructed at Martin Luther King Jr. Parkway. This corridor crosses over the CSX railroad twice.

2.2.1.4 Kerr Avenue Corridor

The Kerr Avenue corridor begins at a proposed intersection with Shipyard Boulevard just west of 41st Street and traverses north on new location through several neighborhoods, crosses over Oleander Drive, and ties into existing Kerr Avenue north of Wrightsville Avenue. The corridor then follows existing Kerr Avenue north to Martin Luther King Jr. Parkway. An interchange would replace the existing Kerr Avenue/Martin Luther King Jr. Parkway intersection (already designated as a separate project, STIP U-3338C). This corridor does not cross over the CSX railroad.

2.2.1.5 College Road Corridor

The College Road corridor starts at the Shipyard Boulevard/College Road intersection and travels north along existing College Road all the way to the existing intersection at Martin Luther King Jr. Parkway. An interchange would replace the existing College Road/Martin Luther King Jr. Parkway intersection. This corridor does not cross over the CSX railroad.

2.2.2 Screening of Alternative Corridors

An alternative constraints map was developed using data layers obtained from a variety of GIS databases, resource agency files, aerial photography, and knowledge obtained from field visits. Constraints identified within the study area included, but are not limited to, the following: wetlands, streams, floodplains, riparian buffers, conservation land, existing and proposed residential developments and neighborhoods, schools, parks, churches, cemeteries, and major utilities. Table 2-3 provides an impact analysis to the human, natural, and cultural environment resulting from each of the alternative corridors.

Table 2-3: Alternative Corridors Impact Analysis

Impact Type	16th/17th Street Corridor	23rd Street Corridor	Independence Boulevard Corridor	Kerr Avenue Corridor	College Road Corridor
Length (miles)	5.0	4.9	4.2	4.2	4.1
Widening (miles)	3.1	3.5	3.4	2.6	4.1
New location (miles)	1.9	1.4	0.8	1.6	0.0
Railroad crossings (number)	3	2	2	0	0
Human Environment					
Relocations					
Residences (number)	73	75	43	157	0
Businesses (number)	28	1	7	68	23
Schools (number)	0	1	0	0	0
Parks (number)	0	1	1	0	1
Churches (number)	2	1	1	0	0
Cemeteries (number)	0	0	0	0	0
Hazardous materials sites	1	1	0	3	3
Natural Environment					
Known federal listed species occurrences (number)	0	0	0	0	0
100-year floodplain impacts (number)	16.1	8.2	0.2	0.3	2.6
National Wetlands Inventory wetland impacts (acres)	7.3	9.9	9.6	0.1	0.2
Stream impacts (number/linear feet)	5/635	4/1,450	4/705	2/620	2/385
Potential riparian buffer impacts (yes/no)	no	no	no	no	no
Nature preserves (number)	0	0	0	0	0
Significant Natural Heritage areas (number/acres)	0	0	0	0	0
Water supply critical areas (yes/no)	no	no	no	no	no

2.2.3 Results of Quantitative Second Screening

Based upon the quantitative screening, the 16th/17th Street Corridor was not recommended for further consideration due to high residential and business impacts, high impacts to the natural system

associated with Burnt Mill Creek and Smith Creek, and complications associated with connecting to the existing Martin Luther King Jr. Parkway interchange with NC 133.

The College Road Corridor and Kerr Avenue Corridor were not recommended for further consideration as these corridors are already included as a part of existing NCDOT STIP projects being developed to improve traffic capacity only. STIP project U-3338 is the widening of Kerr Avenue from Randall Parkway to Martin Luther King Jr. Parkway, and STIP project FS-0203C is the widening of College Road from New Centre Drive to Gordon Road. The College Road Corridor and Kerr Avenue Corridor would not meet the purpose of and need for the proposed project as they are not intended to satisfy the demand for improved north-south roadway connectivity. The improved Kerr Avenue, along with the remaining north-south roadways in the project vicinity, offer short, discontinuous segments that force commuters to redirect from one north-south route onto east-west roadway segments that connect to the next north-south route.

As a result, two corridors were identified as potential build alternatives that would meet the purpose of and need for the proposed project, the 23rd Street Corridor and the Independence Boulevard Corridor.

2.2.4 Refined Screening of Alternative Corridors

Both the 23rd Street Corridor and the Independence Boulevard Corridor would use existing Independence Boulevard, which is a four-lane roadway divided by a median from Shipyard Boulevard to Randall Parkway. As such, this existing roadway would be retained and employed to the greatest extent possible, which would reduce the amount of roadway improvements required and ultimately allow for avoidance and minimization of impacts to the surrounding human, natural, and cultural environment. Additional minimization efforts that were incorporated into designs to represent more refined corridors are discussed in further detail in the following sections.

2.2.4.1 23rd Street Corridor

The 23rd Street Corridor would begin along existing Independence Boulevard, slightly south of Wrightsville Avenue, where Independence Boulevard would turn to the west and create the new roadway alignment. Randall Parkway would be extended westward to intersect the 23rd Street Corridor alignment with an at-grade intersection. The 23rd Street Corridor included a standard 150-foot right-of-way width except at grade separations and interchanges. At the time of the screening, the Cape Fear Commutes 2035 Transportation Plan included an interchange between the proposed roadway connection and Market Street (WMPO 2011). Therefore, the corridor would be widened out to 500 feet at Market Street with a taper that begins 1,000 feet prior to the crossing. The corridor would also include two crossings of the CSX railroad that serves the Port of Wilmington and would require grade separation. To accommodate the grade separation, the corridor would be widened to 350 feet with a taper beginning 1,200 feet in advance of the crossing. The existing interchange at 23rd Street would remain unchanged for the corridor.

2.2.4.2 Independence Boulevard Corridor

The Independence Boulevard Corridor was modeled after the corridor presented within the Cape Fear Commutes 2035 Transportation Plan (WMPO 2011). The corridor begins slightly south of the Randall Parkway intersection, which would remain an at-grade intersection and would continue to the north along the west side of Covil Avenue. The Independence Boulevard Corridor would include a standard 150-foot right-of-way width except at grade separations and interchanges. The Cape Fear Commutes 2035 Transportation Plan included an interchange between the proposed roadway connection and Market Street. Therefore, the corridor was widened out to 500 feet at Market Street with a taper that would begin 1,000 feet prior to the crossing. The corridor would also include two crossings of the CSX railroad that serves the Port of Wilmington and would require grade separation. To accommodate the grade separation, the corridor would be widened to 350 feet with a taper beginning 1,200 feet in advance of the crossing. The Independence Boulevard Corridor would include a new interchange with Martin Luther King Jr. Parkway.

2.2.5 Results of Refined Screening of Alternative Corridors

Table 2-4 provides an impact analysis to the human, natural, and cultural environment of the refined alternative corridors. Impacts were calculated using GIS data.

Table 2-4: Refined Alternative Corridors Impact Analysis

Feature	23rd Street Corridor	Independence Boulevard Corridor
Length (miles)	3.1	1.9
Road crossings (number)	18	5
Railroad crossings (number)	2	2
Human Environment		
Relocations		
Residences (number)	143	62
Businesses (number)	11	24
Schools (number)	0	0
Parks (number)	0	0
Churches (number)	1	1
Cemeteries (number)	1	0
Hazardous materials sites	1	0
Natural Environment		
Known federal listed species occurrences (number)	0	0
100-year floodplain impacts (acres)	9.5	0.7
Wetland impacts (acres)	2.4	16.7

Feature	23rd Street Corridor	Independence Boulevard Corridor
Stream impacts (number/linear feet)	3/1,225	2/320
Nature preserves (number)	0	0
Significant Natural Heritage areas (number/acres)	0	0
Water supply critical areas (yes/no)	No	No
Cultural Resources		
Recorded historic sites (number)	0	0
Potential Section 4(f) impacts (yes/no)	No	No

2.2.5.1 23rd Street Corridor

The 23rd Street Corridor has several positive attributes; namely that it already has an existing interchange with Martin Luther King Jr. Parkway and would provide the most direct access to ILM. However, the corridor does have numerous negatives from an engineering and operations standpoint. From an engineering standpoint, the corridor would be difficult because it would run parallel to Burnt Mill Creek for a substantial portion of the proposed project and would include a severely skewed railroad crossing, potentially increasing the need for bridges and raising the construction cost. In addition, the ability to maintain partial or full control of access along the corridor would be extremely difficult as numerous cross streets and direct driveway connections would need to be eliminated, many of which would require relocations as adequate alternate access is not available or would not be feasible. From an operation standpoint, the corridor would result in a much longer, more circuitous route, adding approximately 1.5 miles to the length of a trip traveling along the corridor. This would nearly double the length of the proposed project. In addition, it is not likely that the existing interchange at Martin Luther King Jr. Parkway could provide for adequate traffic operations and would require modifications and potentially the addition of lanes along 23rd Street. The inclusion of additional lanes would be extremely difficult as a majority of 23rd Street within the interchange is located on a bridge that does not have adequate horizontal clearance to provide for additional through-lanes due to the Martin Luther King Jr. Parkway bridge piers. Reconstruction of both 23rd Street and Martin Luther King Jr. Parkway to expand the interchange would not be a reasonable solution due to the cost and impact of closing Martin Luther King Jr. Parkway to re-build the bridges.

2.2.5.2 Independence Boulevard Corridor

The Independence Boulevard Corridor would provide the shortest and most direct route. The corridor also has adequate undeveloped land at Martin Luther King Jr. Parkway to construct a full movement, free-flow interchange to accommodate the projected traffic volumes without passing through a traffic signal. The corridor would also provide for near perpendicular crossings at both railroad crossings. One of the main benefits of the corridor is that it allows for partial or full control of access as relatively few cross streets would intersect the corridor and three of the five would either be grade separated or have an interchange with only one crossing requiring the cross street to be closed. The corridor would also include an impact to wetlands, although coordination with representatives from the US Army Corps of

Engineers (USACE) at that time indicated that many of the wetlands near Martin Luther King Jr. Parkway had been ditched and drained and were no longer high-quality systems.

Based on the results of the Conceptual Design Alternative Evaluation screening presented in Table 2-4 and the additional qualitative considerations, it was determined that the Independence Boulevard Corridor minimizes impacts to the greatest extent possible. The Independence Boulevard Corridor would provide a shorter, more direct route with substantially lower relocations than the 23rd Street Corridor. Therefore, the 23rd Street Corridor was eliminated from further consideration as a build alternative, and the Independence Boulevard Corridor was carried forward for additional evaluation.

2.3 Development of Build Alternatives

Build alternatives were developed within the Independence Boulevard Corridor using the parameters outlined in the following sections. The Independence Boulevard Corridor was first screened for logical termini and independent utility as described in Section 2.3.1.

2.3.1 Logical Termini / Independent Utility

The FHWA regulations at 23 CFR 771.111(f) state that a project must connect logical termini and be of sufficient length to address environmental matters on a broad scope; not restrict consideration of alternatives for other reasonably foreseeable transportation improvements; and have independent utility or independent significance.

The build alternatives for the proposed project begin at Randall Parkway, where Independence Boulevard terminates. The proposed project would extend existing Independence Boulevard to the north, along or parallel to the existing Covil Avenue and Montgomery Avenue corridors. North of Princess Place Drive, the proposed project would create a new roadway connection to Martin Luther King Jr. Parkway through the addition of an interchange. The total length of the project would be approximately 1.7 miles.

The proposed project's termini, as described, end at logical nodes. The proposed project would not force substantive transportation improvements beyond the termini or along the connecting roads. Thus, the proposed project would have independent utility and its construction would be a useful and reasonable expenditure of funds, even if no other transportation improvements are made in the area. The proposed project would be of sufficient length to allow for evaluation of alternatives and environmental issues on a broad basis and would neither restrict consideration of reasonable and practicable alternatives nor prohibit implementation of other reasonably foreseeable transportation improvement projects.

2.3.2 Build Alternative Design Features

Before the development of build alternatives, NCDOT must establish design features. The first step in the design process is to determine the role that the roadway would serve with respect to the needs established for the proposed project. The role of the roadway is typically described as the functional classification of the roadway. Once the role is determined, the design features are established to meet the needs of the road.

The development of design features, presented in the following sections, includes the functional classification of the roadway, the design LOS, intersection treatments, typical section(s), and the level of access control for the build alternatives. Based on these features, design criteria (presented in Section 2.3.3) for the proposed project were established.

2.3.2.1 Functional Classification

The functional classification of a roadway is the grouping of highways by the character of service they provide and was developed for transportation planning purposes by the American Association of State Highway and Transportation Officials (AASHTO) Functional Classification system (AASHTO 2004).

FHWA Functional Classification Procedures

The Federal-Aid Highway Act of 1973 requires the use of functional highway classification to update and modify the Federal-Aid highway systems by July 1, 1976. This legislative requirement is still effective today. The NCDOT Transportation Planning Branch is responsible for processing updates to the Federal Functional Classification System in North Carolina. While the US Department of Transportation has no direct role in the designation of these areas, they are used in the planning and administration of the surface transportation program. FHWA has developed procedures for classifying roadways, and the procedures for functional classification in urbanized areas should be developed within the framework of the continuing, comprehensive, and cooperative planning process carried out pursuant to Section 134 of Title 23, U.S. Code.

Classification of Independence Boulevard on Local and State Transportation Plans

The 1997 Greater Wilmington Urban Area Transportation Plan noted the functional classification for the proposed project as an urban minor arterial (NCDOT 1997b). In October 2008, WMPO voted to amend the Functional Classification Map for the portion of Independence Boulevard from Shipyard Boulevard to Martin Luther King Jr. Parkway (including the proposed project) to the Urban Principal Arterial classification. The proposed project is classified as an urban principal arterial under the FHWA functional classification system.

An urban principal arterial is defined as a system that serves the major centers of activity of urbanized areas, the highest traffic volume corridors, and the longest trip desires. Arterials carry a high proportion of the total urban area travel even though they constitute a relatively small percentage of the total roadway network.

2.3.2.2 Selection of Design Level of Service

As noted in Section 1.4.2, the LOS of a facility ranges from LOS A to LOS F. LOS A represents the best operating conditions along a roadway or at an intersection, while LOS F represents the worst conditions. The selection of the appropriate LOS for the design of a facility is important so that the facility would meet its intended purpose. AASHTO provides principles for acceptable degrees of congestion and the determination of the appropriate LOS (AASHTO 2004).

The policy does provide for some flexibility in the selection of the appropriate LOS, as follows:

"As may be fitting to the conditions, highway agencies should strive to provide the highest level of service practical. For example, in heavily developed sections of metropolitan areas, conditions may make the use of LOS D appropriate for freeways and arterials; however, this level should be used sparingly and at least LOS C should be sought."

The area and terrain type for the proposed project are considered urban and occur within a heavily developed section of a metropolitan area.

Based on the available data relating to the selection of an LOS for the design of the proposed project, the minimum acceptable LOS for the design year at that time (2035) was determined to be LOS D due to the proposed project's location within a metropolitan area; however, LOS C is sought as the priority. The LOS D threshold applies to all roadway elements and signalized intersections included in the construction of the proposed project. The LOS D threshold does not apply to minor unsignalized intersections and locations beyond the limits of construction.

2.3.2.3 Intersection Treatments

Based on the urban principal arterial functional classification the next step in developing the design features is to determine how the proposed project would interact with the existing transportation network. An urban principal arterial calls for a high level of mobility and the ability to accommodate major traffic movements. The urban principal arterial designation includes three subsets that are stratified as follows: (1) interstate, (2) other freeways, and (3) other principal arterials (with partial or no control of access). As a principal arterial, it is strongly recommended that the roadway minimize interruptions to the flow of traffic, such as at-grade full movement intersections with other roadways, or at-grade crossings of obstructions such as railroad lines.

There are intersecting transportation uses along the Independence Boulevard Corridor that required evaluation to determine how the proposed project would interact with the existing feature. Specifically, concerns emerged that the proposed project might have to pass over these uses, possibly resulting in several grade separations, or bridges. Each of these features presents a project constraint and is discussed in the following sections.

Randall Parkway/Mercer Avenue Intersection

The southern terminus of the proposed project is the existing intersection of Independence Boulevard and Randall Parkway/Mercer Avenue. The existing signalized at-grade intersection is the northern extent of existing Independence Boulevard that was constructed in the early 2000s as a four-lane boulevard with a 16-foot median under NCDOT STIP Project U-3116. The existing northern approach to the intersection is currently Covil Avenue. The primary constraint related to the intersection improvement is the location of the CSX railroad crossing approximately 600 feet to the north. While an improved at-grade intersection would operate at an acceptable LOS, due to the grade separation of the proposed project over the railroad (see next section) the intersection was reviewed to determine whether the construction of an overpass or interchange was viable. Based on a review of the constraints in the area, it was determined that a standard grade separation (with Independence Boulevard being constructed over the existing Randall Parkway/Mercer Avenue roadway) would not be viable as it would sever the

important connection to Randall Parkway, a minor arterial and important east-west route. The construction of an interchange, while feasible, was not recommended due to the magnitude of the construction that would be required and the likelihood that it would extend the proposed project farther south on existing Independence Boulevard, thereby requiring a substantial portion of the existing roadway to be reconstructed. Therefore, the recommended treatment for this location would be to reconstruct the existing intersection in a manner that would provide an adequate LOS for traffic operations.

CSX Railroad

The build alternatives for the proposed project would cross existing CSX railroad rail lines that provide access to the Port of Wilmington twice. The lines are part of a network of rail lines in the Wilmington area. The CSX railroad ACB-line and the CSX track to State Port line are the two tracks that would be crossed. Both are single track and a total of 5.5 miles long. The proposed project would cross the CSX track to State Port at Covil Avenue, approximately 600 feet north of the Randall Parkway/Mercer Avenue intersection, and the ACB line just north of Princess Place Drive. The NCDOT Board of Transportation has set forth guidelines for the treatment of highway-railroad intersections on new construction projects. The Rail Grade Separation Guidelines are based on use of an exposure index, which is the product of the number of trains per day and the projected average daily highway traffic at the end of the design period (NCDOT 1994). Separations are justified in urban areas when the exposure index is 30,000 or more. Unless information to the contrary is available, such as a pending abandonment of the railroad, the number of trains at the end of the design period should be assumed to be the same as at the time of the evaluation.

The two rail lines currently carry two to four trains per day at 10 mph (Harris 2017). The projected average daily traffic for the project ranges from 47,500 vehicles per day at the northern crossing to 52,000 vehicles per day at the southern crossing. Therefore, the exposure index for the southern crossing (assuming only two trains per day) would be 95,000 (or 3.17 times the threshold for urban areas), with the northern crossing being 104,000 (or 3.47 times the threshold). Based on this evaluation, it was determined that both rail crossings would be grade-separated, with a minimum clearance of 23 feet over the railroad line.

Local Streets

Depending on the location of the build alternatives, the proposed project would intersect or cross numerous roadways that fall into the functional classification of local streets including Darlington Avenue, Broad Street, and Wakefield Road. Because the functional classification for Independence Boulevard is an urban primary arterial whose primary purpose is to provide travel service to major traffic movements, connections to local streets would only be made if they would not have a negative effect on the roadway's ability to provide a high level of mobility. Therefore, any local street connection would include right-in/right-out operations and would be evaluated on a case-by-case basis to determine whether the connection is acceptable from a traffic operation and design standpoint.

Market Street

The proposed project would cross Market Street, which is designated as an urban primary arterial with the sub-classification of other principal arterial. The recommended treatment for the intersection of two principal arterials would be an interchange; however, due to the developed nature of the area, a range of low impact options was also evaluated to develop a design that was context sensitive.

The first intersection treatment evaluated was a standard at-grade intersection. The intersection was analyzed based on the methodologies presented in the HCM for the 2035 traffic volumes assuming a four-lane, six-lane, and eight-lane roadway for the proposed project and dual exclusive left turn and single exclusive right turn lanes on all four approaches. The results of the analysis showed that none of the standard at-grade intersection options would operate at an acceptable LOS, with all but the eight-lane roadway operating at LOS F during both the a.m. and p.m. peak periods (NCDOT 2011c). The p.m. peak period for the eight-lane roadway option resulted in LOS E, which would not meet the design LOS threshold of LOS D or better.

The second intersection treatment evaluated was an at-grade intersection with quadrant roadways connecting Market Street and the proposed project. For this analysis, eight configurations were evaluated that included two quadrant connections, one on the east side of Independence Boulevard and one on the west side of Independence Boulevard. The results of the analysis show that all eight of the configurations would include intersections that operate at LOS F in the a.m. peak hour, p.m. peak hour, or both. Therefore, none of the at-grade intersections with quadrant connections would meet the design LOS threshold of LOS D or better.

The concept of providing a one-way pair was also investigated briefly with northbound traffic being routed along Covil Avenue and southbound traffic being routed along Mercer Avenue. However, this concept would be difficult as Mercer Avenue does not continue north of Market Street, and the grade separation over the railroads may result in a similar number of relocations. Therefore, the one-way pair concept was eliminated from further consideration.

Based on the conclusions that at-grade intersection options would not result in acceptable traffic operations for the design year traffic volumes, it was determined that only grade-separated options would be considered at the Market Street crossing.

Princess Place Drive

The build alternatives for the proposed project would cross Princess Place Drive between 50 and 400 feet south of the CSX railroad ACB Line northern crossing, depending on the location of the build alternative alignments. Due to the proximity to the grade-separated railroad crossing (with the proposed project crossing over the railroad), it would not be possible to connect to Princess Place Drive or provide any access to the roadway. Due to this constraint, the proposed project would be grade-separated over Princess Place Drive for any of the build alternative alignments.

Hurst Street

The build alternatives for the proposed project would cross Hurst Street (functionally classified as a local street) approximately 1,200 to 1,300 feet north of the CSX railroad ACB Line northern crossing, depending on the location of the build alternative alignments. The crossing was evaluated to determine whether it would be possible to provide a connection from the proposed project to Hurst Street in a manner that would not have a substantial negative effect on the traffic operations along the corridor. Due to the roadway being a local street, a full movement signalized intersection would not be viable as it would likely result in the substantial degradation of the traffic operations. A right-in/right-out configuration was also evaluated, and while determined to be feasible from a traffic operations standpoint, it was not viable from a design standpoint. Once determined that a connection to Hurst Street was not viable, the next decision was to determine whether the roadway would be maintained with the proposed project being bridged over Hurst Street, or if Hurst Street would be severed with a cul-de-sac at each side of the proposed project. It was determined that, due to the need for east-west neighborhood connectivity in the northern portion of the study area, the construction of a grade separation would be the most reasonable approach.

Martin Luther King Jr. Parkway

The northern terminus of the proposed project would be at Martin Luther King Jr. Parkway, a roadway classified as an urban principal arterial. Due to the portion of Martin Luther King Jr. Parkway west of the proposed project being an expressway and the plans to upgrade the portion to the east to an expressway, including the construction of an interchange at Kerr Avenue (STIP U-3338C), a signalized intersection would not be consistent with the rest of the roadway. Therefore, it was determined that the only reasonable alternative for this intersection would be the construction of an interchange.

2.3.2.4 Elevated Highway

The results of the evaluation of the intersection treatments show that the proposed project would cross over both CSX railroad lines, Market Street, Princess Place Drive, Hurst Street, and Martin Luther King Jr. Parkway. Due to the number of grade-separated crossings in such a short distance, it was determined that the majority of the proposed project should be an elevated highway.

2.3.2.5 Typical Section

Based on the functional classification of the proposed project, the intersection treatments, and the design LOS for traffic operations, a typical section was developed for the build alternatives. The typical section for a roadway is developed to allow the safe and efficient operation for all users of the transportation facility.

Based on the determination of the intersection treatments in Section 2.3.2.3, the build alternatives north of the Randall Parkway/Mercer Avenue intersection would result in a roadway that does not include any at-grade impediments to the flow of traffic, such as traffic signals or gated railroad crossings. This type of facility is known as an uninterrupted flow roadway. The southern portion of the proposed project, south of the southern CSX railroad crossing (including the intersection with Randall Parkway/Mercer Avenue) is known as an interrupted flow roadway due to the signalized intersection.

The evaluation of uninterrupted flow facilities is relatively straightforward as the relationship between the variables is predictable and general HCM methodologies can be used to determine flow rates for each LOS. The evaluation of interrupted flow facilities is more difficult to evaluate in generalized terms, as the LOS provided does not remain stable with the passage of time and tends to deteriorate in an unpredictable manner. Therefore, the typical section for the proposed project north of the Randall Parkway/Mercer Avenue intersection can be determined based on general parameters; however, the portion of the proposed project near the Randall Parkway/Mercer Avenue intersection needs to be evaluated based on a detailed analysis of the intersection configuration.

The first step in the development of a typical section for the uninterrupted flow portions of the build alternatives is to determine the number of lanes required for the proposed project. In order to meet the AASHTO objective for design, the number of lanes on the roadway must allow for an acceptable LOS.

The minimum LOS for the proposed project was determined to be LOS D. The determination of the number of lanes for the proposed project is based on the traffic volume that can be accommodated on the facility such that it meets LOS D or better. The traffic volume used in the analysis of traffic operations is the peak hour traffic volume for the roadway. The peak hour volume is adjusted to a flow rate based on elements such as terrain, truck percentages, driver familiarity, and roadway characteristics. The flow rate is then used to calculate the density and LOS for the roadway.

To determine the number of lanes required, the peak hour volumes for the roadway are compared to the maximum volumes that can be accommodated for each lane configuration and LOS. The maximum peak hour volumes for each LOS and lane configuration are presented in Table 2-5.

Table 2-5: Maximum Peak Hour Volumes to Achieve LOS

Typical Section	LOS A	LOS B	LOS C	LOS D	LOS E
Two-lane	530	870	1,250	1,570	1,780
Four-lane	1,080	1,780	2,560	3,280	3,650
Six-lane	1,640	2,690	3,860	4,970	5,520

Source: Conceptual Design Traffic Analysis Report (NCDOT 2011a)
Analysis Values:
Peak Hour Factor = 0.90
Terrain = Level
Truck Percentage = 5 percent Base Free Flow Speed = 60 mph
Lane Width = 12 feet
Shoulder Lateral Clearance = 6 feet
Access Points = 10 per mile

The next step in determining the number of travel lanes is to compare the projected peak hour volumes for the build alternatives to the maximum peak hour volume to achieve LOS D or better. The maximum peak hour volume for the build alternatives ranges from 2,110 vehicles per hour on the southern portion of the proposed project to 2,290 vehicles per hour on the northern portion of the proposed project. Therefore, to attain LOS D or better for the build alternatives, a four-lane typical section would be required for the portion of the proposed project north of the Randall Parkway/Mercer Avenue intersection.

The NCDOT Roadway Design Manual includes criteria for selecting the appropriate median width for a four-lane divided roadway (NCDOT 2018b). The minimum median width for a new location, non-freeway divided facility is 46 feet, measured between the inside edges of the travel lanes (NCDOT 2018b).

Based on the determination made above, the recommended typical section for the build alternatives was determined to be a four-lane typical section with 12-foot travel lanes and a 46-foot median. The outside of the median would be bordered with 4-foot paved shoulders and the outside of the roadway would be bordered with 10-foot paved shoulders.

2.3.2.6 Access Control

There are currently four different levels of access control incorporated on NCDOT roadways; full control, limited control, partial control, and no control. Full control of access requires all crossings to be grade separated, only allowing access via ramps at interchanges. Full control of access is most common on freeways and interstate routes. Limited control of access and partial control of access both allow at-grade access to the roadway, with limited control of access only allowing connections to public streets, while partial control allows one driveway connection per parcel. Roadways with no control of access have no physical restrictions; however, private driveway connections are defined as one connection per parcel.

The NCDOT Typical Highway Cross Sections notes that four-lane divided facilities with 46-foot medians typically include either full or limited control of access (NCDOT 2010). Based on the urban principal arterial functional classification of the proposed project, high traffic volume projections, and that the proposed project would be elevated for most of its length, it was determined that limited control of access would be the most appropriate level of access control.

2.3.2.7 Multi-Modal Implementation

The build alternatives for the proposed project would include the implementation of multi-modal transportation, such as bicycle, pedestrian, and transit amenities, in accordance with NCDOT and FHWA regulations. The detailed evaluation of existing local plans and the determination of which elements would be included in the design of the build alternatives is included in the Multi-modal Transportation Evaluation (NCDOT 2011b).

2.3.3 Design Criteria

Roadway design criteria used to develop the build alternatives for the proposed project are presented in Table 2-6. The criteria were developed based on the following design standards and took into account the proposed project's functional classification and design speed:

- AASHTO – A Policy on Geometric Design of Highways and Streets, 2004 Edition
- NCDOT – Roadway Design Manual 2002, as amended

Table 2-6: Roadway Design Criteria

Design Element	Roadway	Design Criteria
Functional Classification	Independence Boulevard Randall Parkway Market Street Princess Place Hurst Avenue Martin Luther King Jr. Parkway	Principal Urban Arterial Urban Minor Arterial Principal Urban Arterial Urban Collector Local Street Principal Urban Arterial
Design Speed	Independence Boulevard Ramps/Flyovers Loops Randall Parkway Market Street Martin Luther King Jr. Parkway Minor Cross Streets	60 mph 50 mph 30 mph 40 mph 40 mph 60 mph In accordance with functional classification
Right-of-Way Width	All Construction	Variable to maintain construction and maintenance
Lane Width	Independence Boulevard Ramp – single lane Loop – single lane Cross Street	12 ft 16 ft 20 ft 12 ft (desirable)
Shoulder Width	Independence Boulevard Ramp Loop	12 ft outside (10 paved)/6 ft inside (4 paved) 14 ft outside (10 paved)/12 ft inside (4 paved) 12 ft outside (4 paved)
Median Width	Independence Boulevard Randall Parkway Market Street Martin Luther King Jr. Parkway	46 ft 23 ft (proposed) – Widening by City 23 ft 30 ft (existing)
Vertical Grades	—	In accordance with AASHTO design standards based on level terrain in urban area
Superelevation Rate[a]	Roadways Bridges	e_{max} = 8 percent e_{max} = 6 percent
Vertical Clearance	—	Railroad – 23 ft Local Roads – 15 ft

[a] Superelevation rate (emax) is the maximum slope from one side of a highway to the other on a curve.

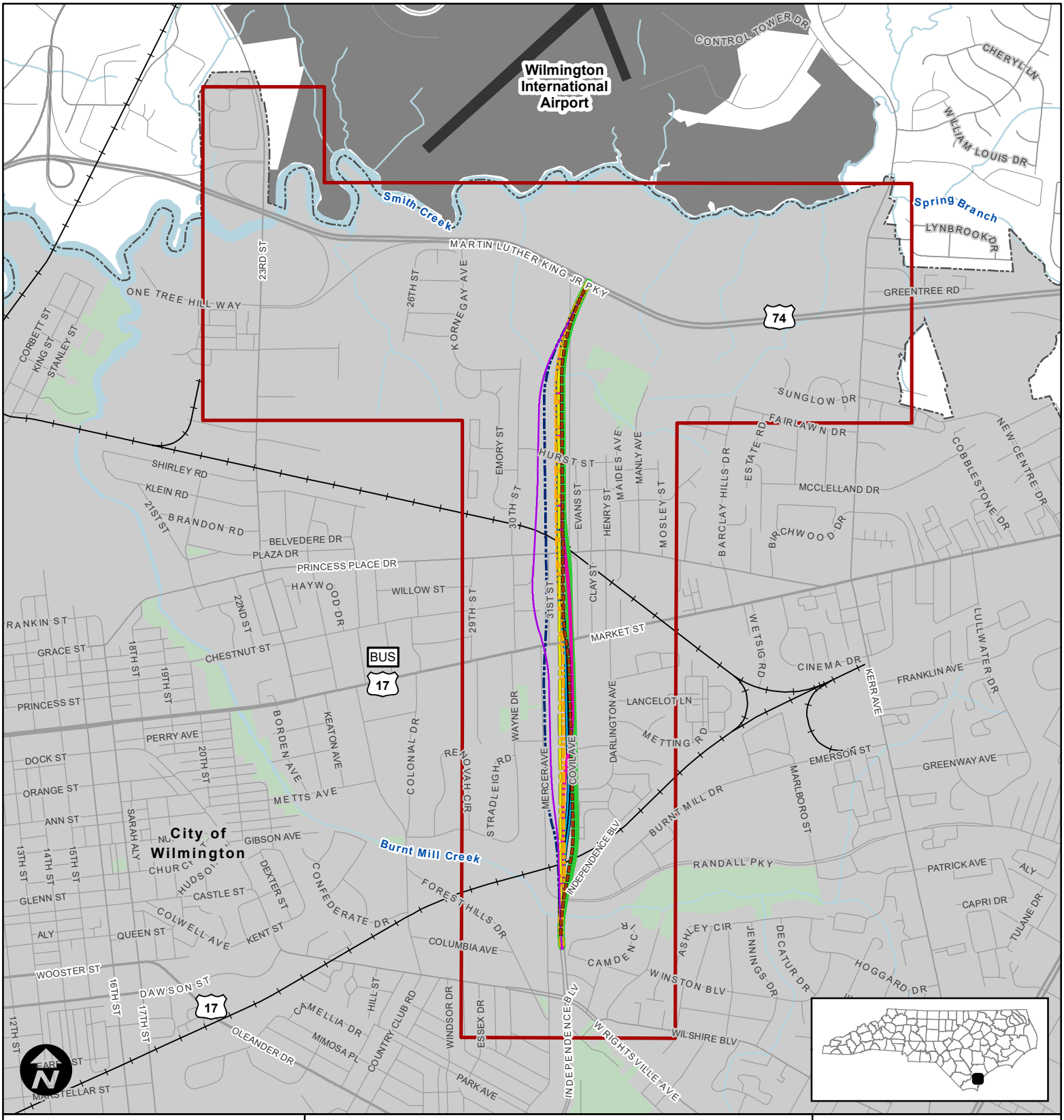
2.4 Conceptual Alternative Alignments

The evaluation of conceptual build alternatives was developed based on two general parameters; the location or alignment of the roadway and the intersection options at the Market Street crossing. The conceptual build alternatives included in this section are a combination of each alignment with each of the intersection options. In addition, a separate evaluation of the interchange at Martin Luther King Jr. Parkway was completed to determine the preferred configuration for the northern terminus of the proposed project.

The alignments for each of the build alternatives were developed to evaluate a full range of options that would minimize the overall impact to the study area. In general, the alignments fall into three categories based on the roadways that they parallel. Alternatives 1, 2, 3, and 5 follow a similar alignment along existing Covil and Montgomery Avenues and are referred to as the eastern, or Covil Avenue, corridors. Alternatives 4 and 8 follow a similar alignment along Mercer Avenue and North 31st Street and are referred to as the western, or Mercer Avenue, corridors. Between the eastern and western corridors lie Alternatives 6 and 7, which run parallel to the existing north-south roadways and form a new roadway that would maintain portions of the existing roadways. The Alternative 6 and 7 alignments are referred to as the central, or new location, corridors. The conceptual alternative alignments (without the Market Street intersection options shown) are included on Figure 2-4.

2.4.1 Alternative 1

The alignment for Alternative 1 would utilize the existing centerline of Covil and Montgomery Avenues and reconstruct the existing roadway symmetrically on each side. The alignment would begin approximately 600 feet south of the existing Randall Parkway/Mercer Avenue intersection and would reconstruct the intersection at the current location. The alignment would then cross over the CSX railroad, follow existing Covil Avenue and cross over Market Street along existing Montgomery Avenue. The alignment would cross over Princess Place Drive and the northern crossing of the CSX railroad, running parallel along the back side of the properties on the west side of Evans Street. The alignment would continue over Hurst Street and turn slightly to the northeast before ending at an interchange with Martin Luther King Jr. Parkway.



Legend

- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 4
- Alternative 5
- Alternative 6
- Alternative 7
- Alternative 8
- Railroad
- Stream
- Study Area
- Park
- Municipal Boundary
- County Boundary

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 2-4
Conceptual Alternative Alignments

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

2.4.2 Alternative 2

The alignment for Alternative 2 would be similar to Alternative 1 but would run parallel to the existing centerline of Covil and Montgomery Avenues on the west side and would reconstruct the existing roadway asymmetrically on the west side of the existing roadway. The alignment would begin approximately 600 feet south of the existing Randall Parkway/Mercer Avenue intersection and would reconstruct the intersection slightly west of the current location. The alignment would then cross over the CSX railroad, run parallel to existing Covil Avenue on the west side and cross over Market Street again paralleling the west side of existing Montgomery Avenue. The alignment would cross over Princess Place Drive and the northern crossing of the CSX railroad, running parallel along the back side of the properties on the west side of Evans Street, approximately 50 feet west of the alignment for Alternative 1. The alignment would continue over Hurst Street and turn slightly to the northeast before ending at an interchange with Martin Luther King Jr. Parkway.

2.4.3 Alternative 3

The alignment for Alternative 3 would be similar to Alternatives 1 and 2 but would run parallel to the existing centerline of Covil and Montgomery Avenues on the east side and would reconstruct the existing roadway asymmetrically on the east side of the existing roadway. The alignment would begin approximately 600 feet south of the existing Randall Parkway/Mercer Avenue intersection and would reconstruct the intersection at the current location. The alignment would then cross over the CSX railroad, run parallel to existing Covil Avenue along the east side and cross over Market Street again paralleling the east side of existing Montgomery Avenue. The alignment would cross over Princess Place Drive and the northern crossing of the CSX railroad, running parallel along the back side of the properties on the west side of Evans Street, approximately 30 feet east of the alignment for Alternative 1. The alignment would continue over Hurst Street and turn slightly to the northeast before ending at an interchange with Martin Luther King Jr. Parkway.

2.4.4 Alternative 4

The alignment for Alternative 4 would be different than the alignments for Alternatives 1, 2, and 3 with the alignment being located farther west, paralleling Mercer Avenue and North 31st Street. The alignment would begin approximately 600 feet south of the existing Randall Parkway/Mercer Avenue intersection and would reconstruct the intersection slightly west of the current location. The alignment would then cross over the CSX railroad, follow existing Mercer Avenue on the east side slightly east of the existing centerline, cross over Market Street, and run parallel to North 31st Street along the west side. The alignment would cross over Princess Place Drive and the northern crossing of the CSX railroad, running parallel to Evans Street and North 30th Street, midway between them. The alignment would continue over Hurst Street and turn to the northeast before ending at an interchange with Martin Luther King Jr. Parkway.

2.4.5 Alternative 5

The alignment for Alternative 5 would be similar to the alignments for Alternatives 1, 2, and 3 as it would run along the existing Covil Avenue alignment. The alignment would begin approximately 600 feet south of the existing Randall Parkway/Mercer Avenue intersection and would reconstruct the intersection slightly west of the current location. The alignment would then cross over the CSX railroad, follow the west side of existing Covil Avenue before transitioning to the east side near the Broad Street intersection. It would then cross over Market Street and run parallel to Montgomery Avenue along the west side. The alignment would cross over Princess Place Drive and the northern crossing of the CSX railroad, running parallel along the back side of the properties on the west side of Evans Street. The alignment would continue over Hurst Street and turn slightly to the northeast before ending at an interchange with Martin Luther King Jr. Parkway.

2.4.6 Alternative 6

The alignment for Alternative 6 would be different than the previous five alternatives with the alignment running parallel to Covil and Mercer Avenues, midway between each roadway. The alignment would begin approximately 600 feet south of the existing Randall Parkway/Mercer Avenue intersection and would reconstruct the intersection slightly west of the current location. The alignment would then cross over the CSX railroad, run parallel to the west side of existing Covil Avenue, cross over Market Street, and run parallel to Montgomery Avenue along the west side. The alignment would then cross over Princess Place Drive and the northern crossing of the CSX railroad, running parallel along the back side of the properties on the west side of Evans Street. The alignment would continue over Hurst Street and turn slightly to the northeast before ending at an interchange with Martin Luther King Jr. Parkway.

2.4.7 Alternative 7

The alignment for Alternative 7 would be very similar to the alignment for Alternative 6 with the maximum distance between the alignments being approximately 35 feet. The Alternative 7 alignment would be slightly west of the Alternative 6 alignment south of Market Street and slightly east of Alternative 6 north of Market Street.

2.4.8 Alternative 8

The alignment for Alternative 8 would be similar to the alignment for Alternative 4 and would parallel the Mercer Avenue and North 31st Street roadways. The alignment would begin approximately 600 feet south of the existing Randall Parkway/Mercer Avenue intersection and would reconstruct the intersection slightly west of the current location. The alignment would then cross over the CSX railroad, paralleling existing Mercer Avenue approximately 100 feet east of the existing centerline, cross over Market Street, and run parallel along the back side of the properties on the west side of North 31st Street. The alignment would then cross over Princess Place Drive and the northern crossing of the CSX railroad, running along the back side of the Wilmington Housing Authority housing along North 30th Street. The alignment would continue over Hurst Street and turn to the northeast before ending at an interchange with Martin Luther King Jr. Parkway.

2.4.9 Conceptual Alternative Market Street Intersection Options

Conceptual alternatives for the Market Street intersection were developed for each of the conceptual alternative alignments. In general, three concepts were included, a TUDI, a Diverging Diamond Interchange (DDI), and a series of quadrant interchanges. The conceptual interchange alternative options are described in the following sections.

2.4.9.1 Tight Urban Diamond Interchange

Conventional diamond interchanges are the most common type of interchange in the United States. The TUDI is a variation of the conventional diamond interchange with more closely spaced ramp terminals than the conventional diamond interchange (Figure 2-5). Typically, a TUDI would have ramp terminals that are spaced 200 to 400 feet apart and are utilized in urban and suburban areas to minimize footprint. The short spacing between ramp terminals results in special operational needs. The traffic signals controlling the two ramp intersections on a TUDI must be coordinated to move traffic efficiently through the intersections and limit vehicle queuing between the ramps. A visualization of a typical TUDI is shown on Figure 2-5 where the proposed project would be the arterial roadway and Market Street would be the cross street.



Figure 2-5: Tight Urban Diamond Interchange

The TUDI alternatives would include the proposed project being grade separated over Market Street with ramps connecting to Market Street. The ramp terminals at Market Street would be approximately 400 feet apart and would include signalized intersections. To preserve the traffic operations of the interchange, a median island along Market Street would be included in the design. In addition, a

minimum of 300 feet of controlled access along Market Street outside the ramp terminals would be included in the design.

The conceptual design for each of the eight alignments, including the TUDI, are included in Appendix A.

2.4.9.2 Diverging Diamond Interchange (DDI)

The concept of the DDI is a recently developed variation of the traditional diamond interchange. The DDI concept deliberately routes the through-lanes along the intersecting street to cross to the opposite side of the roadway between the interchange ramp terminals (underneath the proposed overpass) (Figure 2-6). This concept allows left turns to be made without conflicting with the opposing through direction of travel. The through lanes are crossed for only a short section between diamond ramp intersections, then crossing back to be on the normal (right) side of the roadway outside the ramp terminals. A visualization of a typical DDI is shown on Figure 2-6 where the proposed project would be the arterial roadway and Market Street would be the cross street, as labeled.

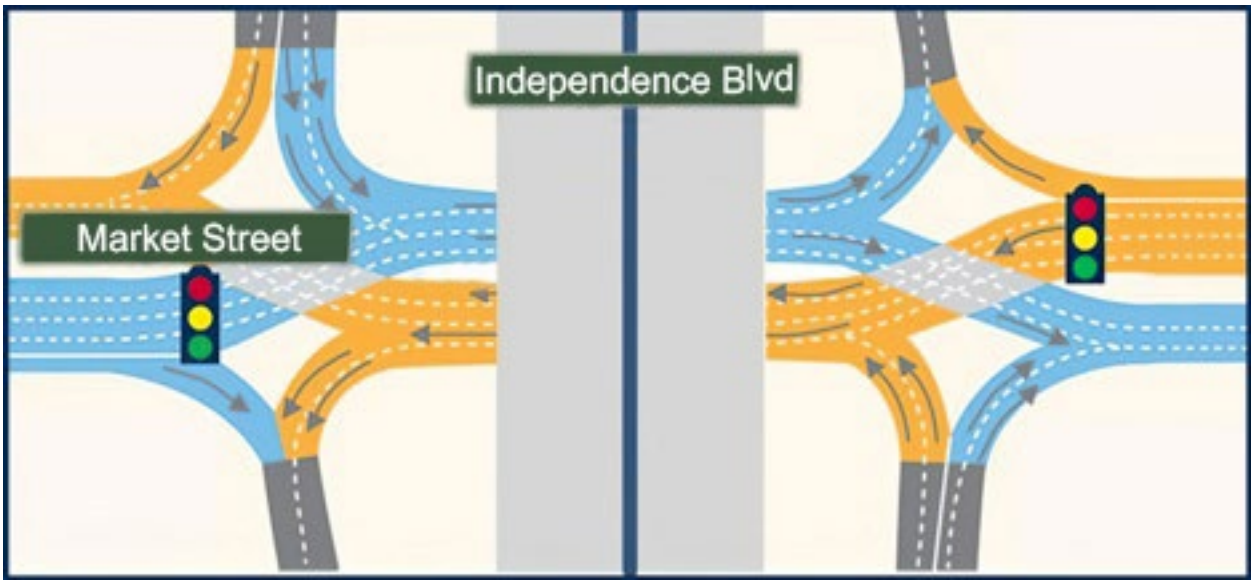


Figure 2-6: Diverging Diamond Interchange Configuration

The DDI alternatives would grade separate the proposed project over Market Street, with ramps connecting to Market Street in each of the four quadrants. The ramp terminals at Market Street would be approximately 400 feet apart and would include the crossover intersections and traffic signals. To preserve the traffic operations of the interchange, a median island along Market Street would be included in the design. In addition, a minimum of 300 feet of controlled access along Market Street outside the ramp terminals would be included in the design.

The conceptual design for each of the eight alignments, including the DDI, are included in Appendix A.

2.4.9.3 Quadrant Interchange

The quadrant interchange concept provides additional arc roadways between the arterial and the cross street that allow turning traffic to “cut the corner” between the roadways (Figure 2-7). The main

intersection of the roadways includes a grade separation. The quadrant interchange includes arc roadway connections in at least two of the quadrants, allowing for the main arterial roadway to operate without signalized intersections. The main arterial roadway can be configured to allow left turn movements from the main arterial roadway to the connector roadway via unsignalized directional crossovers commonly referred to as "left-overs."

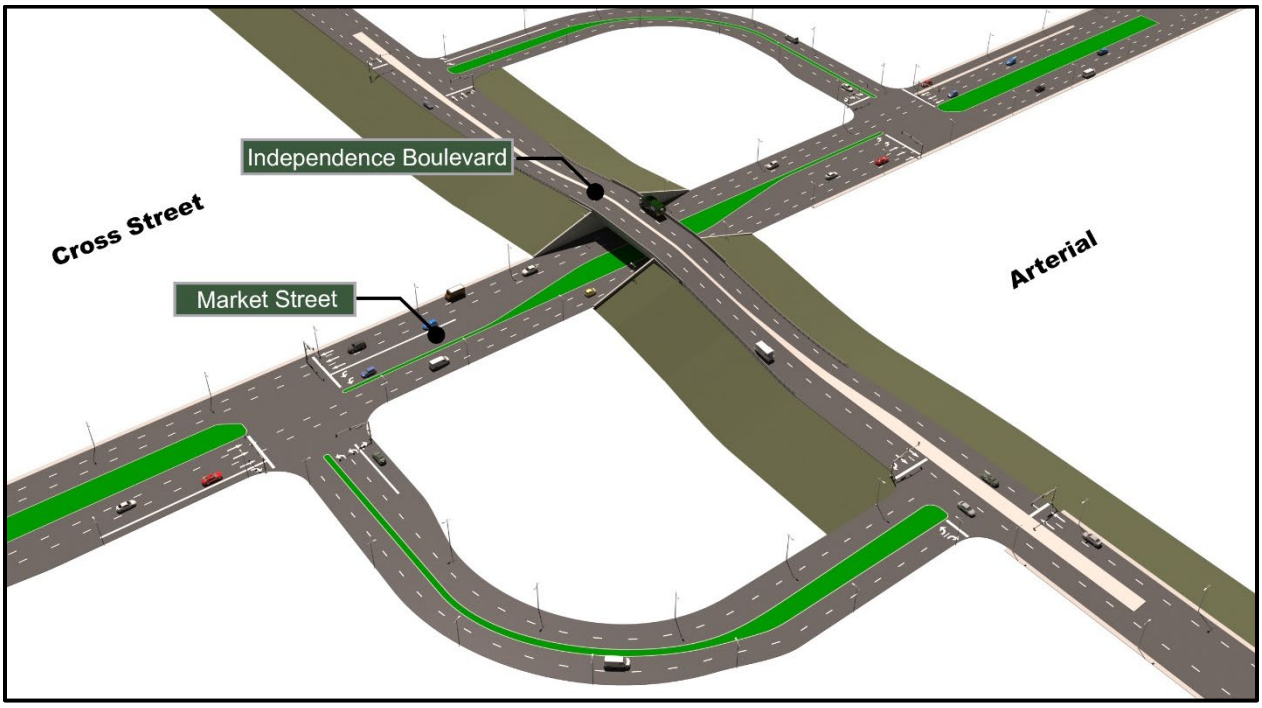


Figure 2-7: Quadrant Interchange

The quadrant interchange creates two additional intersections, approximately 250 to 500 feet from the grade-separated crossing to accommodate turning traffic. The street connections at the main arterial are typically designed with adequate acceleration and deceleration lengths to safely transition cars to and from high speeds along the main arterial. The length of the quadrant arc roadways is typically based on the greater of the distance required to connect the grade-separated roadways or to accommodate the traffic queued at the signalized intersection on the minor street. A visualization of a typical quadrant interchange is shown on Figure 2-8 where the proposed project would be the arterial roadway and Market Street would be the cross street.

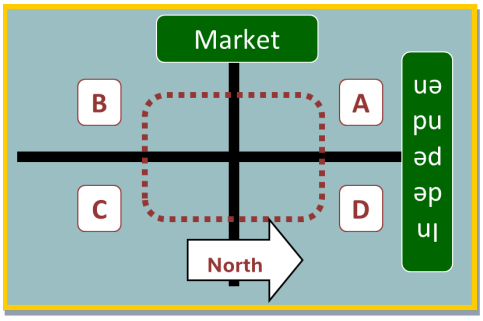


Figure 2-8. Typical Quadrant Interchange

The quadrant interchange alternatives would grade separate the proposed project over Market Street with roadways connecting to Market Street in two of the four quadrants. The new intersections at Market Street would be approximately 500 to 1,000 feet apart and would include traffic signals. To preserve the traffic operations of the interchange, a median island along Market Street would be included in the design.

Because the quadrant interchange design includes roadway connection ramps in two of the four quadrants, several combinations are possible that make up different alternative configurations. To distinguish each of the combinations, each of the quadrants was labeled alphabetically as shown in the graphic at right, with the northwest quadrant being "A" and continuing counterclockwise. In order to not have signals along the proposed project, one roadway connection must be on the east side of the proposed project and one roadway connection must be on the west side, resulting in the elimination of the AB and CD combinations. Therefore, four combinations are possible (AC, AD, BC and BD), with each combination being considered with and without directional left turns (left-overs) from the proposed project to the quadrant roadway.

The following eight options were developed for the quadrant interchange:

- Quadrant AC
- Quadrant AC with left-overs from the proposed project to the arc roadways
- Quadrant AD
- Quadrant AD with left-overs from proposed project to the arc roadways
- Quadrant BC
- Quadrant BC with left-overs from proposed project to the arc roadways
- Quadrant BD
- Quadrant BD with left-overs from proposed project to the arc roadways

The conceptual designs for each of the eight alignments including the quadrant interchanges are included in Appendix A.

2.4.10 Conceptual Martin Luther King Jr. Parkway Interchange Options

Conceptual alternatives for the interchange with Martin Luther King Jr. Parkway were developed to determine the optimal interchange alignment. Based on the three-leg configuration and projected turning volumes, the most viable interchange configuration would be a trumpet configuration. A trumpet interchange includes one loop and three ramps that connect the intersecting roadways. Four interchange options were developed that would include slightly different design speeds and ramp curvatures. A brief description of each of the alternative concepts is included in the following sections and the designs are included in Appendix A.

2.4.10.1 Option A

The conceptual interchange design for Option A would include a design speed of 30 miles per hour for the loop and 50 mph for the ramps. In addition, the design would include a slightly larger radius at the ramp connections to Martin Luther King Jr. Parkway to allow for an improved transition between the expressway and the ramps. The slightly larger radius is based on a recommendation in the NCDOT

Roadway Design Manual that states that the radius of curvature near the gore (the location where the ramp connects to the main roadway) not be less than 955 feet (NCDOT 2018b).

2.4.10.2 Option B

The conceptual interchange design for Option B is very similar to Option A and would also include a design speed of 30 mph for loops and 50 mph for ramps. However, Option B would not include the slightly larger radius connections as recommended in the NCDOT Roadway Design Manual, allowing for a minimum radius of 775 feet to be used.

2.4.10.3 Option C

The conceptual interchange design for Option C would have the same configuration as Options A and B but would include a lower design speed for the flyover ramp from westbound Martin Luther King Jr. Parkway to the southbound lanes of the proposed project. The design for Option C would include a 30 mph design speed for the loop and a 50 mile per hour design speed for all the ramps with the exception of the flyover ramp, which would have design speed of 40 miles per hour.

2.4.10.4 Option D

The conceptual interchange design for Option D would have the same configuration as the other three options but would have lower design speeds for the ramps. Option D would include a 30 mile per hour design speed for the loop and a 40 mile per hour design speed for the ramps and flyover.

2.5 Evaluation of Conceptual Alternative Alignments

The evaluation of the conceptual alternative alignments was based primarily on the alternatives' ability to provide adequate traffic operations and minimize negative effects on the human, natural, and cultural environments. The following sections include a summary of the detailed evaluation conducted for each alternative.

2.5.1 Traffic Operations Analysis Summary

The traffic operations for each of the conceptual alternative alignments were evaluated in the Conceptual Design Traffic Analysis Report (NCDOT 2011a). The traffic operations analysis was broken into two levels of analysis. The first level was a conventional capacity analysis that would determine the LOS for each of the Market Street intersection options. However, due to the differences in the operational characteristics of the configurations, a second level was developed that included a simulation of the entire network in the vicinity of Market Street, which would allow the options to be compared in a consistent manner.

2.5.1.1 LOS Analysis Results

The LOS analysis showed that 8 of the 10 interchange options would operate at LOS D or better in the 2035 design year. A summary of the overall LOS results is included in Table 2-7.

Table 2-7: Conceptual Design LOS Summary

Alternative	Intersection	Overall Intersection LOS a.m. (p.m.)	Average Delay (seconds) a.m. (p.m.)
Quadrant AC	Independence Boulevard Northbound Ramp at Market Street	C (D)	31 (36)
	Independence Boulevard Southbound Ramp at Market Street	C (C)	34 (27)
Quadrant AC with left-overs	Independence Boulevard Northbound Ramp at Market Street	C (C)	23 (24)
	Independence Boulevard Southbound Ramp at Market Street	D (C)	36 (25)
Quadrant AD	Independence Boulevard Northbound Ramp at Market Street	D (C)	39 (33)
	Independence Boulevard Southbound Ramp at Market Street	C (C)	33 (27)
Quadrant AD with left-overs	Independence Boulevard Northbound Ramp at Market Street	D (C)	36 (33)
	Independence Boulevard Southbound Ramp at Market Street	C (B)	26 (19)
Quadrant BC	Independence Boulevard Northbound Ramp at Market Street	C (C)	20 (23)
	Independence Boulevard Southbound Ramp at Market Street	D (D)	35 (39)
Quadrant BC with left-overs	Independence Boulevard Northbound Ramp at Market Street	B (B)	16 (17)
	Independence Boulevard Southbound Ramp at Market Street	E (E)	56 (75)
Quadrant BD	Independence Boulevard Northbound Ramp at Market Street	C (C)	30 (30)
	Independence Boulevard Southbound Ramp at Market Street	C (D)	31 (35)
Quadrant BD with left-overs	Independence Boulevard Northbound Ramp at Market Street	C (C)	30 (30)
	Independence Boulevard Southbound Ramp at Market Street	D (E)	48 (70)
TUDI	Independence Boulevard Northbound Ramp at Market Street	C (C)	20 (21)
	Independence Boulevard Southbound Ramp at Market Street	C (C)	27 (34)
DDI	Independence Boulevard Northbound Ramp at Market Street	N/A[a]	N/A[a]

Alternative	Intersection	Overall Intersection LOS a.m. (p.m.)	Average Delay (seconds) a.m. (p.m.)
	Independence Boulevard Southbound Ramp at Market Street	N/A[a]	N/A[a]

Source: Conceptual Design Traffic Analysis Report (NCDOT 2011a).
[a] Denotes configuration that cannot be analyzed with standard LOS procedures

2.5.1.2 Simulation Analysis Results

The 10 Market Street interchange alternatives were also run as simulations using SimTraffic software for the 2035 design year. The options were developed to include identical geographic extents and simulated for both the a.m. and p.m. peak hours. Each analysis was run five times with the results averaged to determine the average travel time for each option. The results of the analysis are given in hours and are a summation of the total travel time for every vehicle within the proposed network over a 1-hour period. Approximately 7,400 to 7,850 vehicles were accounted for in each network run, with the overall average travel time per vehicle varying between 2 minutes, 15 seconds to 8 minutes, 40 seconds depending on the alternative, peak hour, left-over configuration, and simulation seed number. A summary of the traffic simulation results is included in Table 2-8.

Table 2-8: Traffic Simulation Results

Alternative	a.m. Peak Total Travel Time (hours)	p.m. Peak Total Travel Time (hours)	a.m. Peak Travel Time per Vehicle (m:ss)	p.m. Peak Travel Time per Vehicle (m:ss)
Quadrant AC	563	375	4:21	3:07
Quadrant AC with left-overs	482	313	3:44	2:26
Quadrant AD	1,088	635	8:36	4:59
Quadrant AD with left-overs	850	759	6:39	5:58
Quadrant BC	287	420	2:15	3:15
Quadrant BC with left-overs	806	792	6:16	6:08
Quadrant BD	437	453	3:26	3:34
Quadrant BD with left-overs	1,003	1,031	7:51	8:06
TUDI	379	417	3:02	3:18
DDI	371	560	2:57	4:25

Source: Conceptual Design Traffic Analysis Report (NCDOT 2011a)

2.5.2 Summary of Conceptual Alternative Alignment Impacts

The conceptual alternative alignments were evaluated to determine how the proposed project would affect the human, natural, and cultural environment within the study area. The evaluation included both a quantitative and qualitative evaluation of the impacts.

2.5.2.1 Quantitative Evaluation of Alternatives

The following items were included in the quantitative evaluation:

- Relocations (business, residential, multi-family residential, churches, and accessory structures)
- Length
- Railroad crossings
- Potential hazardous materials sites
- Federally listed species
- Floodplain
- Wetlands
- Streams
- Nature preserves
- Significant Natural Heritage Areas
- Water supply critical areas
- Parks
- Schools
- Cemeteries
- Recorded historic sites
- High quality water resources

A summary of the impacts for each conceptual alternative alignment and Market Street intersection alternative is included in Table 2-9.

2.5.2.2 Qualitative Evaluation of Alternatives

In addition to the quantitative evaluation, each of the conceptual alternative alignments was evaluated for qualitative aspects that could be used in comparing the alternatives. Qualitative elements included the following:

- Effect of changes in access/closing of roadways or intersections
- Amount of property that would lose access to a public roadway
- Effect on the future development of the Wilmington Housing Authority property
- Changes to traffic patterns and need for detour routing due to changes in access
- Pattern of relocations to residential areas including minimizing the number of blocks affected

Both quantitative and qualitative effects were considered when determining which alternatives should be selected as DSAs.

Table 2-9: Conceptual Alternative Alignment Impact Summary

Impact	Business Relocations	Single Family Residential Relocations	Multi-Family Residential Relocations	Church Relocations	Total Relocations	Total After Potential Avoidance	Accessory Structure	Length (miles)	Railroad Crossings (number)	Potential Hazardous Materials Sites (number)	Known Federally Listed Species (number within 1,000 feet)	100-year Floodplain (acres)	Wetlands (acres)	Stream Impacts (number / linear feet)	Nature Preserves (number)	Significant Natural Heritage Areas (acres)	Water Supply Critical Areas (acres)	Parks (number / acres)	Schools (number)	Cemeteries (number)	Recorded Historic Sites (number / acres)	High Quality Resources (number crossings / acres)
Alternative 1																						
DDI	40	83	8	1	**132**	**120**	43	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	31	83	8	1	**123**	**113**	44	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	29	71	8	1	**109**	**101**	43	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	29	87	8	1	**125**	**117**	45	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	29	73	8	1	**111**	**102**	44	1.96	2	3	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	29	89	8	1	**127**	**118**	46	1.96	2	3	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Alternative 2																						
DDI	39	85	6	1	**131**	**121**	47	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	31	84	6	1	**122**	**114**	43	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	27	67	6	1	**101**	**101**	45	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	27	85	6	1	**119**	**119**	42	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	28	69	6	1	**104**	**103**	46	1.95	2	3	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	28	87	6	1	**122**	**121**	43	1.95	2	3	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Alternative 3																						
DDI	35	88	8	0	**131**	**121**	39	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	29	84	8	0	**121**	**116**	36	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	28	77	8	0	**113**	**108**	33	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	28	93	8	0	**129**	**124**	34	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	26	78	8	0	**112**	**106**	32	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	26	94	8	0	**128**	**122**	33	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Alternative 4																						
DDI	26	110	0	1	**137**	**134**	60	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.1	0	0	0 / 0	0 / 0
TUDI	24	110	0	1	**135**	**133**	57	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.1	0	0	0 / 0	0 / 0
Quadrant AC	25	101	0	1	**127**	**126**	44	1.97	2	6	0	2.81	1.2	2 / 620	0	0	0	1 / 0.1	0	0	0 / 0	0 / 0
Quadrant AD	23	111	0	1	**135**	**134**	51	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.1	0	0	0 / 0	0 / 0

Impact	Business Relocations	Single Family Residential Relocations	Multi-Family Residential Relocations	Church Relocations	Total Relocations	Total After Potential Avoidance	Accessory Structure	Length (miles)	Railroad Crossings (number)	Potential Hazardous Materials Sites (number)	Known Federally Listed Species (number within 1,000 feet)	100-year Floodplain (acres)	Wetlands (acres)	Stream Impacts (number / linear feet)	Nature Preserves (number)	Significant Natural Heritage Areas (acres)	Water Supply Critical Areas (acres)	Parks (number / acres)	Schools (number)	Cemeteries (number)	Recorded Historic Sites (number / acres)	High Quality Resources (number crossings / acres)
Quadrant BC	24	98	0	1	**123**	**122**	47	1.97	2	4	0	2.81	1.2	2 / 620	0	0	0	1 / 0.1	0	0	0 / 0	0 / 0
Quadrant BD	22	108	0	1	**131**	**130**	54	1.97	2	3	0	2.81	1.2	2 / 620	0	0	0	1 / 0.1	0	0	0 / 0	0 / 0
Alternative 5																						
DDI	32	89	6	1	**128**	**120**	47	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	28	88	6	1	**123**	**118**	37	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	27	72	6	1	**106**	**101**	37	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	27	87	6	1	**121**	**116**	38	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	25	72	6	1	**104**	**99**	35	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	25	87	6	1	**119**	**114**	36	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Alternative 6																						
DDI	38	92	6	1	**137**	**132**	49	1.95	2	5	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	33	88	6	1	**128**	**125**	49	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	28	68	6	1	**103**	**102**	46	1.95	2	5	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	29	83	6	1	**119**	**118**	46	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	28	74	6	1	**109**	**108**	47	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	29	89	6	1	**125**	**124**	47	1.95	2	3	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Alternative 7																						
DDI	34	85	6	1	**126**	**116**	51	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	30	80	6	1	**117**	**110**	51	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	25	63	6	1	**95**	**90**	46	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	25	78	6	1	**110**	**105**	47	1.94	2	4	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	25	68	6	1	**100**	**95**	47	1.94	2	4	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	25	83	6	1	**115**	**110**	48	1.94	2	3	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Alternative 8																						
DDI	26	92	4	2	**124**	**112**	43	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	1 / 0.04	0	0	0 / 0	0 / 0
TUDI	26	89	4	2	**121**	**111**	39	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	1 / 0.03	0	0	0 / 0	0 / 0
Quadrant AC	21	77	4	2	**105**	**98**	39	1.97	2	6	0	3.76	1.45	2 / 640	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Impact	Business Relocations	Single Family Residential Relocations	Multi-Family Residential Relocations	Church Relocations	Total Relocations	Total After Potential Avoidance	Accessory Structure	Length (miles)	Railroad Crossings (number)	Potential Hazardous Materials Sites (number)	Known Federally Listed Species (number within 1,000 feet)	100-year Floodplain (acres)	Wetlands (acres)	Stream Impacts (number / linear feet)	Nature Preserves (number)	Significant Natural Heritage Areas (acres)	Water Supply Critical Areas (acres)	Parks (number / acres)	Schools (number)	Cemeteries (number)	Recorded Historic Sites (number / acres)	High Quality Resources (number crossings / acres)
Quadrant AD	18	88	4	2	**112**	**107**	49	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	19	68	4	2	**93**	**89**	42	1.97	2	4	0	3.76	1.45	2 / 640	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	16	79	4	2	**101**	**98**	52	1.97	2	3	0	3.76	1.45	2 / 640	0	0	0	0 / 0	0	0	0 / 0	0 / 0

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2.5.3 Selection of Initial Detailed Study Alternatives

Initial DSAs were identified during a project meeting on December 12, 2011. Representatives from the following agencies were in attendance:

- WMPO
- FHWA
- NCDOT Division 3
- NCDOT Project Development and Environmental Analysis
- NCDOT Roadway Design
- NCDOT Mobility and Safety

The goal of the meeting was to evaluate the conceptual alternative alignments based on the data presented in the previous sections to determine which conceptual alternative alignments would be carried forward to preliminary design and included in the DEIS as DSAs.

2.5.3.1 Conceptual Alternative Alignments

Evaluation of the conceptual alternative alignments began by comparing the alignments that had similar attributes, including:

- Covil Avenue Corridors (Alternatives 1, 2, 3, and 5) – those that follow or closely parallel the existing Covil Avenue and Montgomery Avenue alignment, and would essentially replace the existing roadway with the proposed project
- Mercer Avenue Corridors (Alternatives 4 and 8) – those that follow or closely parallel the existing Mercer Avenue Corridor
- New Location Corridors (Alternative 6 and 7) – those that would be located between Covil Avenue and Mercer Avenue and would maintain substantial portions of the existing roadways

Each of the alternatives within the three corridors are very similar, and it was determined that the selection of the best option within each of the corridors would allow for a full range of options to be advanced as DSAs. The preliminary design for each of the DSAs would be accomplished in a manner that would minimize the impacts to the greatest extent possible and would utilize a best fit alignment within each of the three corridors.

Covil Avenue Corridors (Alternatives 1, 2, 3, and 5)

Based on the evaluation of quantitative and qualitative impacts it was determined that Alternative 2 was preferred over the remaining three alternatives due to the following reasons:

- Would be a better alignment for accommodating the traffic control of the Randall Parkway intersection improvement
- Would have less impact to the east side of Covil Avenue
- Would reduce multi-family residential relocations over the other alternatives
- Would abut the east side of the Wilmington Housing Authority parcel instead of splitting the parcel into two pieces, which would likely leave the parcel undevelopable

- Would have a more compact footprint between Market Street and Princess Place Drive and would affect fewer blocks of houses, leaving more complete blocks parallel to the corridor
- Would not cause any relocations north of Princess Place Drive
- Would not conflict with the powerline north of Princess Place Drive
- Would have comparable relocations to other alternatives
- Would have a short bridge over Princess Place Drive and CSX Railroad line

Mercer Avenue Corridors (Alternative 4 and 8)

Based on the evaluation of quantitative and qualitative impacts it was determined that Alternative 8 was preferred over Alternative 4 due to the following reasons:

- Would maintain more of the Mercer Avenue roadway and provide access to Randall Parkway
- Would abut the western edge of the Wilmington Housing Authority property instead of splitting the parcel into two pieces, which would likely leave the parcel undevelopable
- Would have a substantially lower number of relocations compared with Alternative 4
- Would be among those alternatives with the lowest overall relocations

New Location Corridors (Alternatives 6 and 7)

Based on the evaluation of quantitative and qualitative impacts it was determined that Alternative 7 was preferred over Alternative 6 due to the following reasons:

- Alignment would be slightly better/straighter
- Would result in fewer relocations
- Would allow for more of Covil Avenue to remain open due to the alignment being slightly to the west
- Potential for a shorter bridge over Princess Place Drive and CSX Railroad line
- Would have the lowest overall relocations of any alternative

Conceptual Alternative Market Street Intersection Options

The conceptual design alternatives at Market Street were evaluated to determine which of the concepts would provide the best traffic operations while minimizing the effects to the natural, human, and cultural environments.

TUDI

The TUDI was evaluated and the following items were identified:

- Would work well from a traffic operations standpoint
- Easily understood by public
- Would have fewer relocations than the DDI interchange, but would generally have higher relocations than the quadrant interchange options

It was determined that the TUDI should be carried forward to preliminary design as a DSA.

DDI

The DDI was evaluated and the following items were identified:

- Would work from a capacity standpoint, but there were concerns with the tight footprint and the potential for cars queuing within the interchange
- Would have a longer average travel time (34% longer than TUDI for p.m. peak, similar for a.m. peak)
- Would consistently cause higher relocations compared to the TUDI or quadrant interchange options
- Conceptually would require control of access farther along Market Street

It was determined that the DDI should not be carried forward as a DSA due to better available options.

Quadrant Interchange

The evaluation of the quadrant interchange determined that the traffic operation results for all the quadrant configurations with directional left turns (left-overs) on the proposed project would be relatively poor and would include queuing along the proposed project. It was determined that the directional left turn (left-over) options along the proposed project should not be carried forward and should be eliminated due to the negative effects on traffic operations.

Next, the quadrant options were evaluated one at a time to determine which of the four configurations would provide the greatest benefits with the fewest impacts. As discussed previously, in order to not have signals along the proposed project, one roadway connection must be on the east side of the roadway and one roadway connection must be on the west side, resulting in the elimination of the AB and CD combinations.

Quadrant D (with AD and BD combinations)

The Quadrant D (northeast quadrant) design was evaluated, and the following items were identified:

- Would not operate as well as the other quadrant designs from a traffic operations standpoint
- Would have a very heavy left turn movement from eastbound Market Street to northbound on the proposed project that would potentially require triple left turn lanes in the future
- Would have substantially higher relocations than other quadrant options
- Would not be consistent with the Market Street Corridor Study (City of Wilmington 2010)
- Would include a connection opposite the Darlington Avenue intersection that would create an 8-phase signal with very high volumes
- Quadrant AD travel times would be double the other options and would have some spillback along Market Street

Based on the negative effects it was determined that any configuration that included a quadrant connection in Quadrant B should be eliminated. Therefore, the Quadrant AD and BD combinations were eliminated.

Quadrant B (with BC combination) (BD combination eliminated above)

The Quadrant B (southwest quadrant) design was evaluated. Quadrant B would only include the Quadrant BC combination as the Quadrant BD option was eliminated above. The evaluation of the Quadrant B design identified the following items:

- Covil Avenue and New Location Corridor alignments would require the realignment of Darlington Avenue (in Quadrant C)
- Mercer Avenue Corridor alignments would require the closure of Wayne Street, resulting in a very long detour route
- A connection at the existing Mercer Avenue intersection would allow for a three-leg intersection at Market Street, which would improve the traffic operations substantially
- Would be consistent with Market Street Corridor Study

Based on the items identified it was determined that the Quadrant BC combination was a good alternative and recommended that it be carried forward to the preliminary design stage as a DSA.

Quadrant A (with AC combination, AD combination eliminated above)

The Quadrant A (northwest quadrant) design was evaluated. Quadrant A would only include the Quadrant AC combination as the Quadrant AD option was eliminated above. The evaluation of the Quadrant A design identified the following items:

- Maintaining access to 30th Street would be more difficult with this configuration, especially for the New Location and Mercer Avenue Corridor alignments.
- For Mercer Avenue Corridor alignments, 30th Street would need to be realigned to connect to 29th Street.

Based on the items identified it was determined that the Quadrant AC combination was a good alternative and recommended that it be carried forward to the preliminary design stage as a DSA.

2.5.3.2 Conceptual Martin Luther King Jr. Parkway Interchange Options

The project team discussed the interchange options at Martin Luther King Jr. Parkway, and NCDOT policy dictates that the driver expectation is for a high-speed connection, consistent with a 50-mph design. Based on this policy, the project team agreed that Option B with the 50-mph flyover design should be included in the preliminary design stage of the proposed project for all the alternatives. Minimization to a lesser design speed or bridging could be considered at a later date if environmental constraints are substantial.

2.5.4 Summary of Initial Detailed Study Alternatives

Based on the decisions included in the previous section, the following nine alternatives (three alignments with three Market Street interchange options for each alignment) were selected as DSAs for the proposed project and were carried forward to the preliminary design phase:

- Alternative 2 with TUDI at Market Street
- Alternative 2 with Quadrant AC at Market Street

- Alternative 2 with Quadrant BC at Market Street
- Alternative 7 with TUDI at Market Street
- Alternative 7 with Quadrant AC at Market Street
- Alternative 7 with Quadrant BC at Market Street
- Alternative 8 with TUDI at Market Street
- Alternative 8 with Quadrant AC at Market Street
- Alternative 8 with Quadrant BC at Market Street

Each alternative was designed to include the Option B interchange at Martin Luther King Jr. Parkway. Designs for each of the alternatives are included in Appendix B.

2.5.5 Additional Build Alternatives Considered

In efforts to minimize impacts to the adjacent community, two additional alternatives were considered, including a raised rail option (at the request of the Wilmington City Council) and a depressed facility option (identified by NCDOT and project engineers).

2.5.5.1 Raised Rail Option

The raised rail option would raise the existing CSX railroad to be bridged over the proposed project, allowing more portions of the proposed project to be constructed near the existing ground level. However, an interchange would still be required at Market Street due to traffic operations. The interchange would bridge the proposed project over Market Street. Raising the railroad and then extending Independence Boulevard would cause significantly more impacts to the railroad and community than would occur with any other alternative. Closing two railroad crossings at Forest Hills Drive and Princess Place Drive, and possibly closing four additional crossings at Mercer Avenue, Henry Street, Clay Street, and North 30th Street, would be disruptive to local traffic and reduce connectivity in residential areas to motorists as well as pedestrians and bicyclists. Elevating 2.8 miles of new railroad track would not only increase relocation impacts and construction cost but would also increase long-term operational and maintenance costs to CSX due to the significant increase in grade.

2.5.5.2 Depressed Facility Option

The depressed facility option would construct the proposed project underground, with the existing roadways being bridged over the proposed project. The depressed facility would include a "tight" cross section with a median barrier and retaining walls on the outside where needed to minimize right-of-way impacts and to minimize the depth and extent to which the proposed project would be below the groundwater table. Structures over the proposed project would include a center pier, which coincides with the median barrier and full height abutment walls on the outside, minimizing span lengths and structural depths of the bridges, to allow for a higher facility profile and less intrusion into the groundwater table. This alternative would include an at-grade intersection with Randall Parkway/Mercer Avenue, include a grade separation under the CSX railroad (which would need to be slightly raised), include a new grade separation south of Darlington Avenue over the proposed project, include an interchange at Market Street, and include grade separations under Princess Place Drive and the northern crossing of the CSX railroad. North of this point, the design would match all other

alternatives, which include a grade separation over Hurst Street and an interchange with Martin Luther King Jr. Parkway. The construction and maintenance of a depressed facility includes design, constructability, geotechnical, drainage, and maintenance complexities.

2.5.5.3 Summary of Additional Build Alternatives Considered

It was determined that these options are not feasible due to significantly higher costs as shown in Table 2-10. Additional information for the raised rail and depressed facility options can be found in Appendix C.

2.6 Phase III: Detailed Study Alternatives Evaluation

Based on the results of the Qualitative Screening of Alternative Concepts, both the No-Build and Build alternative concepts were carried forward to the Conceptual Design Alternative Evaluation. The No-Build Alternative will be given full consideration in this DEIS to provide a baseline for comparison with the build alternatives. The results of the Conceptual Design Alternative Evaluation identified nine alternatives (three alignments with three Market Street interchange options for each alignment), as well as a specified interchange configuration at Martin Luther King Jr. Parkway to be further developed as DSAs within the next phase. **During Phase III, the design year was updated to 2040 to better align with the projected timing of the proposed project.**

Table 2-10: Initial DSA Impacts and Cost Estimates

Impact Type	Alternative 2 TUDI	Alternative 2 AC	Alternative 2 BC	Alternative 7 TUDI	Alternative 7 AC	Alternative 7 BC	Alternative 8 TUDI	Alternative 8 AC	Alternative 8 BC	Depressed Facility (Jet Grouting Option)	Depressed Facility (Open Excavation Option)	Raised Railroad
Relocations												
Residential												
Owner	65	46	50	69	55	**59**	66	68	63	57	57	102[a]
Tenant	108	110	98	63	60	**49**	60	60	62	39	39	175[a]
Subtotal	**173**	**156**	**148**	**132**	**115**	**108**	**126**	**128**	**125**	**96**	**96**	**277**[a]
Business												
Owner	28	29	28	26	24	**24**	18	22	24	24	24	34[a]
Tenant	15	18	12	17	19	**16**	21	19	18	16	16	[a]
Non-Profit	1	2	1	3	4	**3**	5	5	5	3	3	[a]
Subtotal	**44**	**49**	**41**	**46**	**47**	**43**	**44**	**46**	**47**	**43**	**43**	**34**[a]
TOTAL RELOCATIONS	**217**	**205**	**189**	**178**	**162**	**151**	**170**	**174**	**172**	**139**	**139**	**311**[a]
Right-of-Way	$81,175,000	$82,825,000	$81,100,000	$74,325,000	$78,825,000	$71,725,000	$76,025,000	$79,825,000	$79,975,000	$75,425,000	$75,425,000	$148,610,000[a]
Utilities	$617,000	$362,000	$415,000	$633,000	$452,000	$452,000	$429,000	$452,000	$452,000	$452,000	$452,000	*[a]
Construction	$75,700,000	$74,500,000	$73,700,000	$76,600,000	$73,500,000	$72,800,000	$82,500,000	$80,800,000	$79,600,000	$172,400,000[b]	$138,900,000[b]	$121,700,000[c]
TOTAL COST	**$157,492,000**	**$157,687,000**	**$155,215,000**	**$151,558,000**	**$152,777,000**	**$144,977,000**	**$158,954,000**	**$161,077,000**	**$160,027,000**	**$248,277,000**	**$214,777,000**	**$270,310,000**

[a]Detailed relocation report was not prepared. Aerial photography used to identify business and residential relocations including 29 apartment buildings. Relocation and right-of-way estimated using GIS analysis of parcel data containing appraised building and land values.
[b]Construction costs include well points, sheet pile with tie-backs, construction dewatering, concrete retaining walls, etc. Also includes estimated pump operation and maintenance costs.
[c]Construction cost estimates based on functional design with cost per mile unit rates.

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2.6.1 Traffic Operations Analysis

The traffic forecast used for the traffic operations analyses of the no-build and build alternatives was obtained from the Traffic Forecast Technical Memorandum (NCDOT 2012b). The Traffic Operation Analysis Report (NCDOT 2013) summarizes the capacity analysis findings for the proposed project. The report includes an evaluation of the 2012 and 2040 No-Build Conditions and the 2040 Build Conditions for the nine alternatives. Table 2-11 provides a summary of the findings of the capacity analysis for the 2040 build alternatives.

Table 2-11: 2040 Build Alternatives Traffic Capacity Summary

Alternative	Number of Elements[a]	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
2012 Base Year Conditions	34	1	9	3	5	4	12
2040 No Build Conditions	28	0	1	2	2	5	18
2040 Build Segments Common to All Alternatives	5	0	0	2	3	0	0
2040 Build – Adjacent Segments	17	0	1	4	2	1	9
2040 Alternative 2 Quadrant AC	14	0	8	5	0	0	1
2040 Alternative 2 Quadrant BC	14	0	8	5	0	0	1
2040 Alternative 2 TUDI	11	0	2	7	0	0	2
2040 Alternative 7 Quadrant AC	14	0	8	5	0	0	1
2040 Alternative 7 Quadrant BC	14	0	8	5	0	0	1
2040 Alternative 7 TUDI	11	0	3	6	0	0	2
2040 Alternative 8 Quadrant AC	11	0	4	7	0	0	0
2040 Alternative 8 Quadrant BC	11	0	6	5	0	0	0
2040 Alternative 8 TUDI	13	0	5	7	0	0	1

[a] Elements include basic freeway segments, ramp junctions, weaving segments, multilane segments, signalized intersections, and unsignalized intersections as reported in Tables 15a-15e of the Traffic Operation Analysis Report (NCDOT 2013).

2.6.2 Alternatives Eliminated from Further Consideration

2.6.2.1 Quadrants AC and BC at Market Street Interchange Configuration

The results of the analyses show that alternatives with Quadrants AC and BC at the Market Street interchange configuration provide minimal traffic improvement compared to the other Market Street interchange configurations. Due to the lack of traffic improvement and the number of relocations

associated with these configurations, they were eliminated from further study. These configurations include the following:

- Alternative 2 with Quadrant AC at Market Street
- Alternative 2 with Quadrant BC at Market Street
- Alternative 7 with Quadrant AC at Market Street
- Alternative 7 with Quadrant BC at Market Street
- Alternative 8 with Quadrant AC at Market Street
- Alternative 8 with Quadrant BC at Market Street

2.6.2.2 Alternative 8

Through coordination between NCDOT and the City of Wilmington in the spring of 2017, it was determined Alternative 8 would require the acquisition of the newly developed City of Wilmington Police Firing Range Facility. The facility, located east of 30th Street and south of Hurst Street, was completed in 2019. Therefore, Alternative 8 was eliminated from further study.

2.7 Design Revisions on Remaining Detailed Study Alternatives

With the elimination of Alternative 8 and the quadrant interchanges, the remaining alternatives included Alternative 2 with a TUDI at Market Street and Alternative 7 with a TUDI at Market Street. The alignments for each remained consistent as those described in Section 2.4; however, several design changes were made to further avoid and minimize impacts, as well as to increase connectivity. These design revisions are described in the following sections.

A project flyover video is available on the project's website that details what the project would look like once constructed. The video can be viewed at https://www.ncdot.gov/projects/independence-boulevard/Pages/photos-videos.aspx.

2.7.1 Darlington Avenue Grade Separation

After additional coordination between NCDOT and the City of Wilmington in the fall of 2018, it was determined additional concepts should be prepared at Darlington Avenue and Hurst Street to investigate the feasibility of providing more access and mobility beneath the proposed project for the remaining DSAs. At that time, the preliminary designs for the nine DSAs included an elevated road on fill for the length of the roadway, which did not allow for connectivity beneath Independence Boulevard between North 30th Street and Maides Avenue.

The designs at the time included Darlington Avenue as a right-in/right-out access and Hurst Street as grade-separated with the proposed project. All other areas of design were consistent with the other alternative features, with access as provided below:

- Grade separations over CSX Rail (both crossings)
- At-grade intersection at Randall Parkway/Mercer Avenue and Independence Boulevard
- Grade separation and new interchange with Market Street
- Grade separation (no access) over Princess Place Drive

- New interchange with Martin Luther King Jr. Parkway

To provide more east-west connectivity in this area, a grade separation at both Darlington Avenue and Hurst Street was evaluated consistent with the proposed design criteria as described in Section 2.3.3. This option proposed a grade separation at Independence Boulevard and Darlington Avenue, which would allow through connectivity beneath Independence Boulevard to Mercer Avenue. This allows for an additional ingress/egress point for residents along Darlington Avenue and the portion of Covil Avenue that would remain open that are bound by the CSX railroad. Without connection to Mercer Avenue, the only egress point would be Market Street.

2.7.2 Bridging from Market Street to Hurst Street

As stated in Section 2.7.1, additional concepts were developed for the areas near Darlington Avenue and Hurst Street. Original designs did not provide for connectivity beneath the proposed project between North 30th Street and Maides Avenue. It was determined that due to the number of proposed bridges between the interchange at Market Street and Hurst Street that the entire length of the roadway from Market Street to just past Hurst Street would be elevated.

2.7.3 Narrowing of Typical Section and Right-of-Way

At this stage in project design, the roadway design criteria called for a median-divided freeway with a design speed of 55 mph. The median width, consistent with NCDOT standards for that type of facility, was proposed to be 46 feet wide.

Based on efforts to reduce impacts associated with the proposed project, NCDOT investigated the potential to reduce both the roadway design type (from freeway to boulevard) and the proposed speed limit. This reduction would make the proposed roadway more consistent with existing Independence Boulevard and US 74.

The design typical section was also modified to allow for a narrow raised median section that could transition onto the median barrier-separated single structure bridges proposed for the roadway over the railroad, Darlington Avenue, and the long bridge spanning Market Street, Princess Place Drive, the second railroad crossing, and Hurst Street.

2.7.4 Single Point Urban Interchange

In addition to the TUDI configuration, it was determined an SPUI should also be evaluated for the Market Street interchange to further reduce impacts to the surrounding communities. An SPUI is used to improve traffic capacity and operations while requiring less right-of-way than the diamond interchange (FHWA 2010). The configuration of a typical SPUI is shown on Figure 2-9. The turning movements of the major road ramps and all the movements of the minor road are executed in one central area that is either on the overpass or underpass. Since an SPUI has one signalized intersection, it allows for a simpler phasing sequence for signal control.



Figure 2-9: Typical SPUI Configuration

The SPUI alternatives would include the proposed project being grade separated over Market Street with ramps connecting to Market Street. The ramp terminals at Market Street would be approximately 110 feet apart and would include signalized intersections. To preserve the traffic operations of the interchange, a median island along Market Street would be included in the design. In addition, controlled access along Market Street outside the ramp terminals would be required. The additional controlled access would vary from 20 feet at the narrowest point to 80 feet at the widest.

2.7.5 Revised Design Criteria

Roadway design criteria for the remaining DSAs were updated in 2020 and are listed in Table 2-12. The criteria were developed based on the following design standards and considered the proposed project's functional classification and design speed:

- AASHTO – A Policy on Geometric Design of Highways and Streets, 2018 Edition
- NCDOT – Roadway Design Manual 2002, as amended

Table 2-12: Roadway Design Criteria

Design Element	Roadway	Design Criteria
Functional Classification	Independence Boulevard Randall Parkway Market Street Princess Place Hurst Avenue Martin Luther King Jr. Parkway	Urban Principal Arterial Urban Minor Arterial Urban Principal Arterial Major Collector Local Street Freeway
Design Speed	Independence Boulevard Ramps/Flyovers Loops Randall Parkway Market Street Martin Luther King Jr. Parkway Minor Cross Streets	55 mph 50 mph 30 mph 40 mph 45 mph 60 mph In accordance with functional classification
Right-of-Way Width	All Construction	Variable to maintain construction and maintenance
Lane Width	Independence Boulevard Ramp – single lane Loop – single lane Cross Street	12 ft 16 ft 20 ft 12 ft (desirable)
Shoulder Width	Independence Boulevard Ramp Loop	12 ft outside (10 paved)/6 ft inside (4 paved) 14 ft outside (10 paved)/12 ft inside (4 paved) 12 ft outside (4 paved)
Median Width	Independence Boulevard Randall Parkway Market Street Martin Luther King Jr. Parkway	23 ft varies 23 ft 30 ft (existing)
Vertical Grades	—	In accordance with AASHTO design standards based on level terrain in urban area
Superelevation Rate[a]	Roadways Bridges	e_{max} = 8 percent e_{max} = 6 percent
Vertical Clearance	—	Railroad – 23 ft Local Roads – 15 ft

[a] Superelevation rate (emax) is the maximum slope from one side of a highway to the other on a curve.

2.8 Traffic Operations Analysis

An updated traffic forecast used for the traffic operations analyses of the no-build and build conditions was obtained from the Traffic Forecast Technical Memorandum (NCDOT 2017b). The Traffic Capacity Analysis (NCDOT 2018a) summarizes the capacity analysis findings for the proposed project. The report includes an evaluation of the 2017 and 2040 no-build conditions and the 2040 build conditions for the four alternatives listed below.

Remaining DSAs:

- Alternative 2 with TUDI at Market Street
- Alternative 2 with SPUI at Market Street
- Alternative 7 with TUDI at Market Street
- Alternative 7 with SPUI at Market Street

A summary of the LOS results for the basic freeway segments, freeway merges and diverges, isolated ramp roadways, freeway weaving segments, and unsignalized and signalized intersections for all 2040 build alternatives are included in Table 2-13 through Table 2-21, and the LOS results are shown on Figure 2-10 through Figure 2-17.

2.8.1 Alternative 2 with TUDI at Market Street

All intersections analyzed within the study area would perform at LOS D or better, and/or with a v/c ratio of 0.85 or better, for both peak hours. Recommended storage lengths are additional storage that are required beyond the proposed design storage. In general, the provided storage lengths in the proposed design for the intersections within the study area would adequately handle queues.

2.8.2 Alternative 2 with SPUI at Market Street

All intersections analyzed within the study area would perform at LOS D or better, and/or with a v/c ratio of 0.85 or better, for both peak hours. Recommended storage lengths are additional storage that are required beyond the proposed design storage. In general, the provided storage lengths in the proposed design for the intersections within the study area would adequately handle queues.

2.8.3 Alternative 7 with TUDI at Market Street

All intersections analyzed within the study area would perform at LOS D or better, and/or with a v/c ratio of 0.85 or better, for both peak hours. Recommended storage lengths are additional storage that are required beyond the proposed design storage. In general, the provided storage lengths in the proposed design for the intersections within the study area would adequately handle queues.

2.8.4 Alternative 7 with SPUI at Market Street

All intersections analyzed within the study area would perform at LOS D or better, and/or with a v/c ratio of 0.85 or better, for both peak hours. Recommended storage lengths are additional storage that are required beyond the proposed design storage. In general, the provided storage lengths in the proposed design for the intersections within the study area would adequately handle queues.

Table 2-13: 2040 Common to Build Alternatives – Highway Capacity Software LOS

ID [a]	Segment	a.m. Peak Level of Service or v/c Ratio [b]	p.m. Peak Level of Service or v/c Ratio [b]
	Basic Freeway Segments		
101	Independence Boulevard Northbound - within US 17 Business Intersection	B	C
102	Independence Boulevard Southbound - within US 17 Business Intersection	C	B
103	Independence Boulevard Northbound - from US 17 Business to US 74	C	D
104	US 74 WB from Independence Boulevard to 23rd Street	C	B
105	US 74 EB within Independence Boulevard Intersection	A	B
106	US 74 WB within Independence Boulevard Intersection	B	A
	Ramps and Ramp Junctions		
201	Independence Boulevard Northbound - to US 17 Business (Isolated Diverge – v/c ratio reported)	0.43	0.50
202	Independence Boulevard Southbound - from US 17 Business (Isolated Diverge – v/c ratio reported)	0.46	0.41
203	Independence Boulevard Northbound - From US 17 Business	B	C
204	Independence Boulevard Northbound - to US 74 WB (Isolated Diverge – v/c ratio reported)	0.62	0.55
205	Independence Boulevard Southbound - from US 74 EB (Isolated Diverge – v/c ratio reported)	0.24	0.27
206	Independence Boulevard Northbound - to US 74 EB (Isolated Diverge – v/c ratio reported)	0.29	0.42
207	US 74 WB - from Independence Boulevard Northbound	B	B
	Weaving Segments		
301	Independence Boulevard Southbound from US 74 to US 17 Business	C	C
302	US 74 EB from North 23rd Street to Independence Boulevard	B	C
303	US 74 EB from Independence Boulevard to Kerr Avenue	B	C
304	US 74 WB from Kerr Avenue to Independence Boulevard	C	B
	Multilane Segments		
401	Independence Boulevard - South of US 17 Business Northbound	C	B
401	Independence Boulevard - South of US 17 Business Southbound	B	C

[a] Refer to Figure 2-10 and Figure 2-11.

[b] The volume-to-capacity (v/c) ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays for these specific movements.

Table 2-14: 2040 Common to Build Alternatives – At-grade Intersection LOS

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
23	Independence Boulevard and Mercer Avenue /Randall Parkway	D	D
	Eastbound Through/Left	F	F
	Eastbound Right	D	D
	Westbound Left	E	E
	Westbound Through/Left	E	F
	Westbound Right	D	E
	Northbound Left	F	E
	Northbound Through	C	C
	Northbound Right	A	A
	Southbound Left	E	F
	Southbound Through/Right	C	C

[a] Refer to Figure 2-12.

Table 2-15: 2040 Common to Build Alternatives – Cul-de-sac on Mercer Avenue Intersection LOS

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
23	Independence Boulevard and Mercer Avenue/Randall Parkway	C	C
	Westbound Left	F	F
	Westbound Right	D	E
	Northbound Through	C	C
	Northbound Right	A	A
	Southbound Left	F	F
	Southbound Through	B	A

[a] Refer to Figure 2-12.

Table 2-16: 2040 Common to Build Alternatives – Superstreet Intersection LOS

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
23	Independence Boulevard and Mercer Avenue /Randall Parkway	B	B
	Eastbound Right	B	C
	Westbound Right	C	D
	Northbound Left	D	C
	Northbound Through	B	A
	Northbound Right	A	A
	Southbound Left	C	D
	Southbound Through	A	A

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
	Southbound Right	A	A
231	Independence Boulevard U-Turn 800 feet North of Randall Parkway	B	A
	Northbound U-Turn	D	C
	Northbound Through	A	A
	Southbound Through	B	B
232	Independence Boulevard U-Turn 800 feet South of Randall Parkway	A	A
	Northbound Through	A	B
	Southbound U-Turn	D	D
	Southbound Through	A	A

[a] Refer to Figure 2-12.

Table 2-17: 2040 Build At-grade Alternative Intersection LOS

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
14	Independence Boulevard at US 17 Business (Market Street)	F	F
	Eastbound Left	F	F
	Eastbound Through	F	F
	Eastbound Right	E	D
	Westbound Left	F	F
	Westbound Through	F	E
	Westbound Right	D	D
	Northbound Left	F	F
	Northbound Through	D	F
	Northbound Right	B	C
	Southbound Left	F	F
	Southbound Through	F	F
	Southbound Right	C	C

[a] Refer to Figure 2-13.

Table 2-18: 2040 Alternative 2 SPUI Intersection LOS

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
11	Wayne Drive/30th Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	D
	Eastbound Through/Right	C	C
	Westbound Left	E [b]	E [b]

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
	Westbound Through	B	C
	Westbound Right	A	B
	Northbound Left	E [b]	E [b]
	Northbound Through/Right	D	D
	Southbound Left	E [b]	E [b]
	Southbound Through/Right	E [b]	E [b]
14	Independence Boulevard On-Ramps at Independence Boulevard Off-Ramps	D	C
	Eastbound Left	D	E [b]
	Eastbound Through	D	C
	Eastbound Right	A	B
	Westbound Left	E [b]	D
	Westbound Through	D	C
	Westbound Right	C	C
	Northbound Left	C	D
	Northbound Right	C	D
	Southbound Left	C	D
	Southbound Right	B	A
17	Darlington Avenue/Henry Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	D
	Eastbound Through	C	C
	Eastbound Right	A	A
	Westbound Left	E [b]	E [b]
	Westbound Through/Right	C	C
	Northbound Left	D	E [a]
	Northbound Through/Right	D	D
	Southbound Left	E [b]	E [b]
	Southbound Through/Right	E [b]	E [b]

[a] Refer to Figure 2-14.

[b] The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays for these specific movements.

Table 2-19: 2040 Alternative 2 TUDI Intersection LOS

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
11	Wayne Drive/30th Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	D
	Eastbound Through/Right	C	C
	Westbound Left	D	E [b]
	Westbound Through	A	B
	Westbound Right	A	B
	Northbound Left	E [b]	E [b]
	Northbound Through/Right	D	D
	Southbound Left	E [b]	E [b]
	Southbound Through/Right	E [b]	E [b]
17	Darlington Avenue/Henry Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	E [b]
	Eastbound Through	C	C
	Eastbound Right	A	A
	Westbound Left	E [b]	E [b]
	Westbound Through/Right	C	B
	Northbound Left	D	E [b]
	Northbound Through/Right	D	E [b]
	Southbound Left	E [b]	E [b]
	Southbound Through/Right	E [b]	E [b]
141	Southbound Independence Boulevard at US 17 (Market Street)	C	C
	Eastbound Through	B	B
	Eastbound Right	B	C
	Westbound Left	D	D
	Westbound Through	A	A
	Southbound Left	D	D
	Southbound Right	D	D
142	Northbound Independence Boulevard at US 17 Business (Market Street)	B	C
	Eastbound Left	E [b]	E [b]
	Eastbound Through	A	B
	Westbound Through	A	B
	Westbound Right	B	B
	Northbound Left	D	D
	Northbound Right	D	D

[a] Refer to Figure 2-15.

[b] The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays for these specific movements.

Table 2-20: 2040 Alternative 7 SPUI Intersection LOS

ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
11	Wayne Drive/30th Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	D
	Eastbound Through/Right	C	C
	Westbound Left	E [b]	E [b]
	Westbound Through	B	C
	Westbound Right	A	B
	Northbound Left/	E [b]	E [b]
	Northbound Through/Right	D	D
	Southbound Left	E [b]	E [b]
	Southbound Through/Right	E [b]	E [b]
14	Independence Boulevard On-Ramps at Independence Boulevard Off-Ramps	D	D
	Eastbound Left	D	C
	Eastbound Through	D	C
	Eastbound Right	A	A
	Westbound Left	E [b]	D
	Westbound Through	D	D
	Westbound Right	C	D
	Northbound Left	C	D
	Northbound Right	C	D
	Southbound Left	C	D
	Southbound Right	B	A
17	Darlington Avenue/Henry Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	E [b]
	Eastbound Through	C	C
	Eastbound Right	A	A
	Westbound Left	E	E [b]
	Westbound Through/Right	C	B
	Northbound Left	D	E[1]
	Northbound Through/Right	D	D
	Southbound Left	E [b]	E [b]
	Southbound Through/Right	E [b]	E [b]

[a] Refer to Figure 2-16.

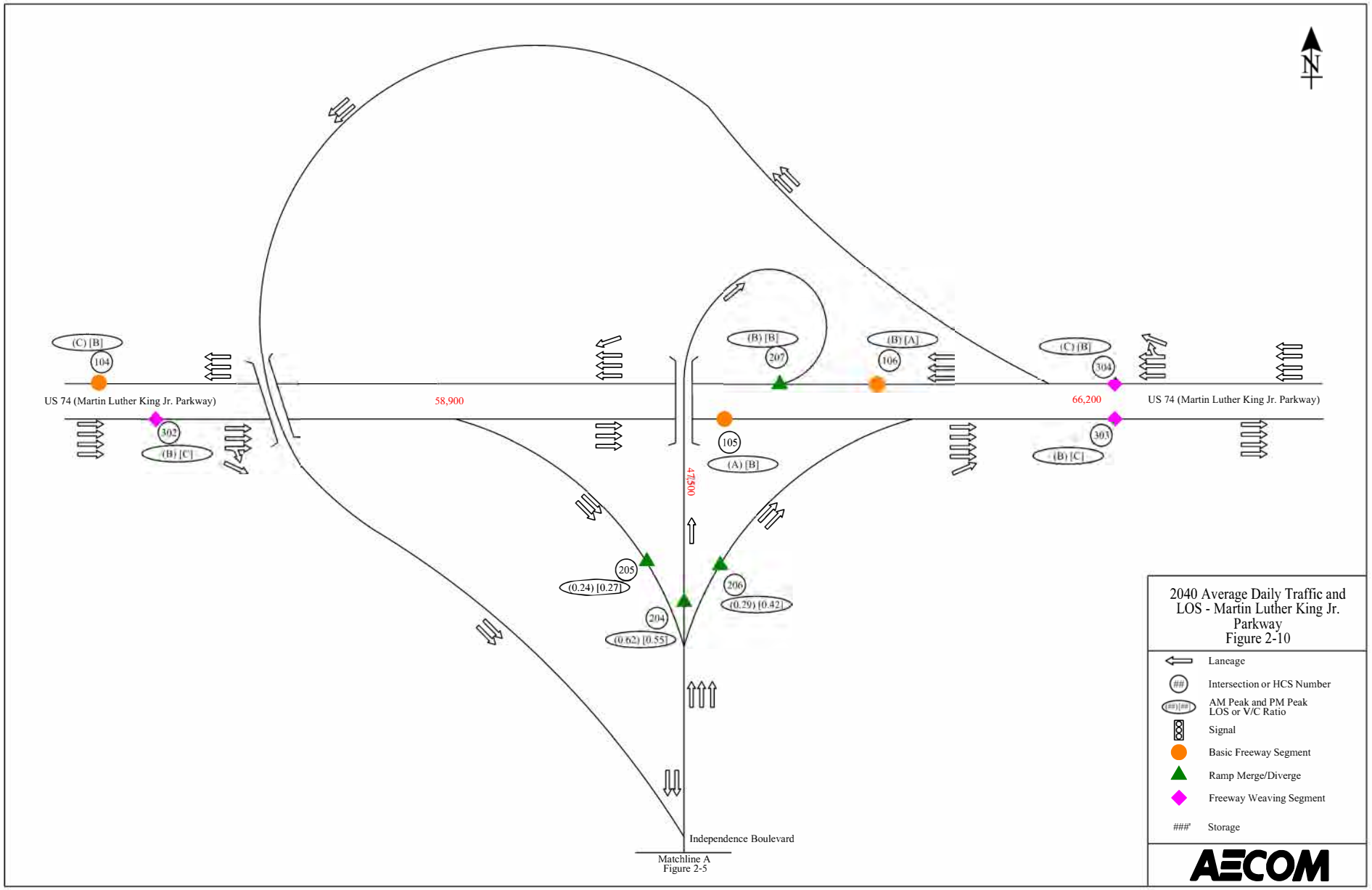
[b] The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays for these specific movements.

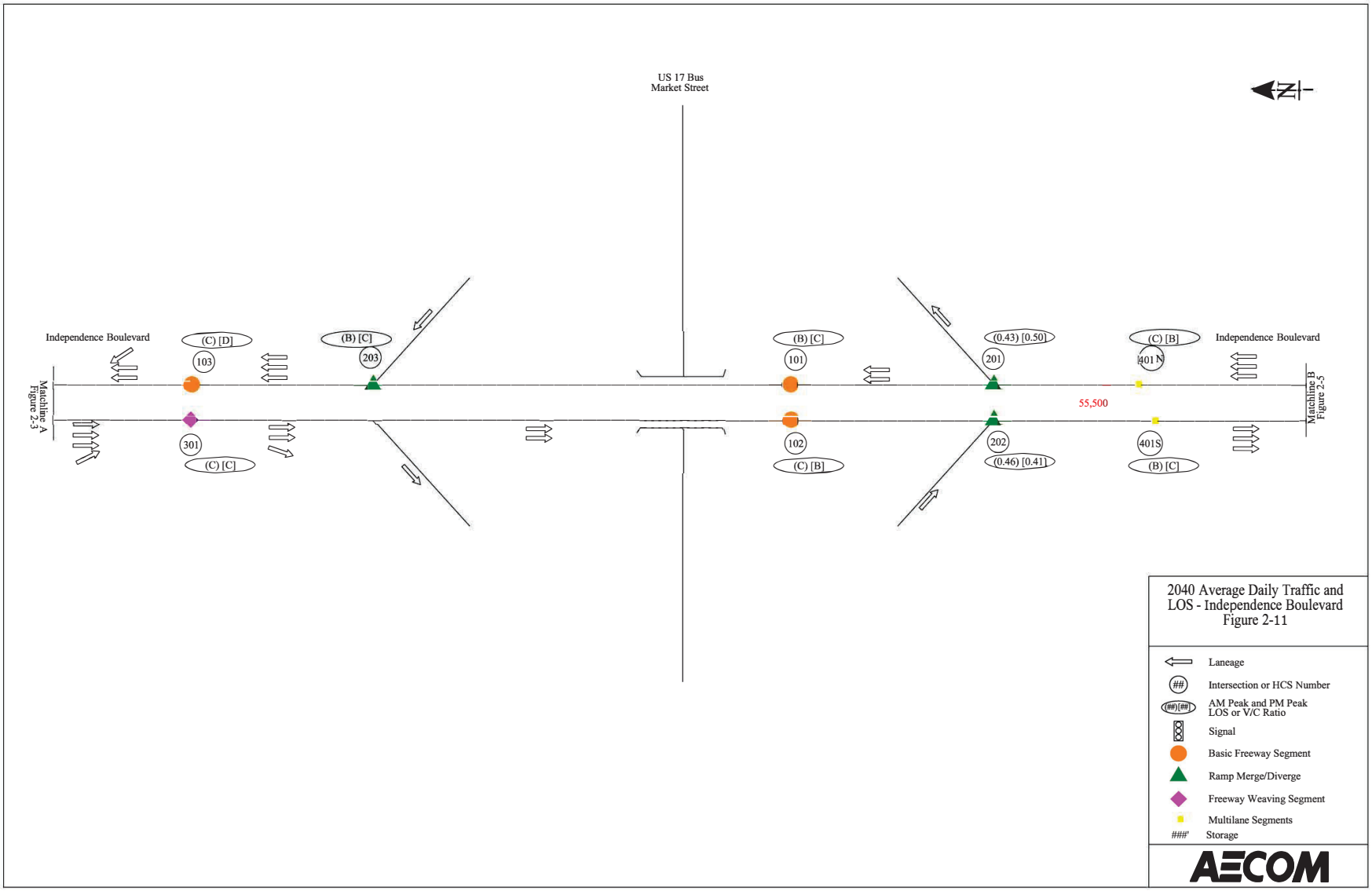
Table 2-21: 2040 Alternative 7 TUDI Intersection LOS

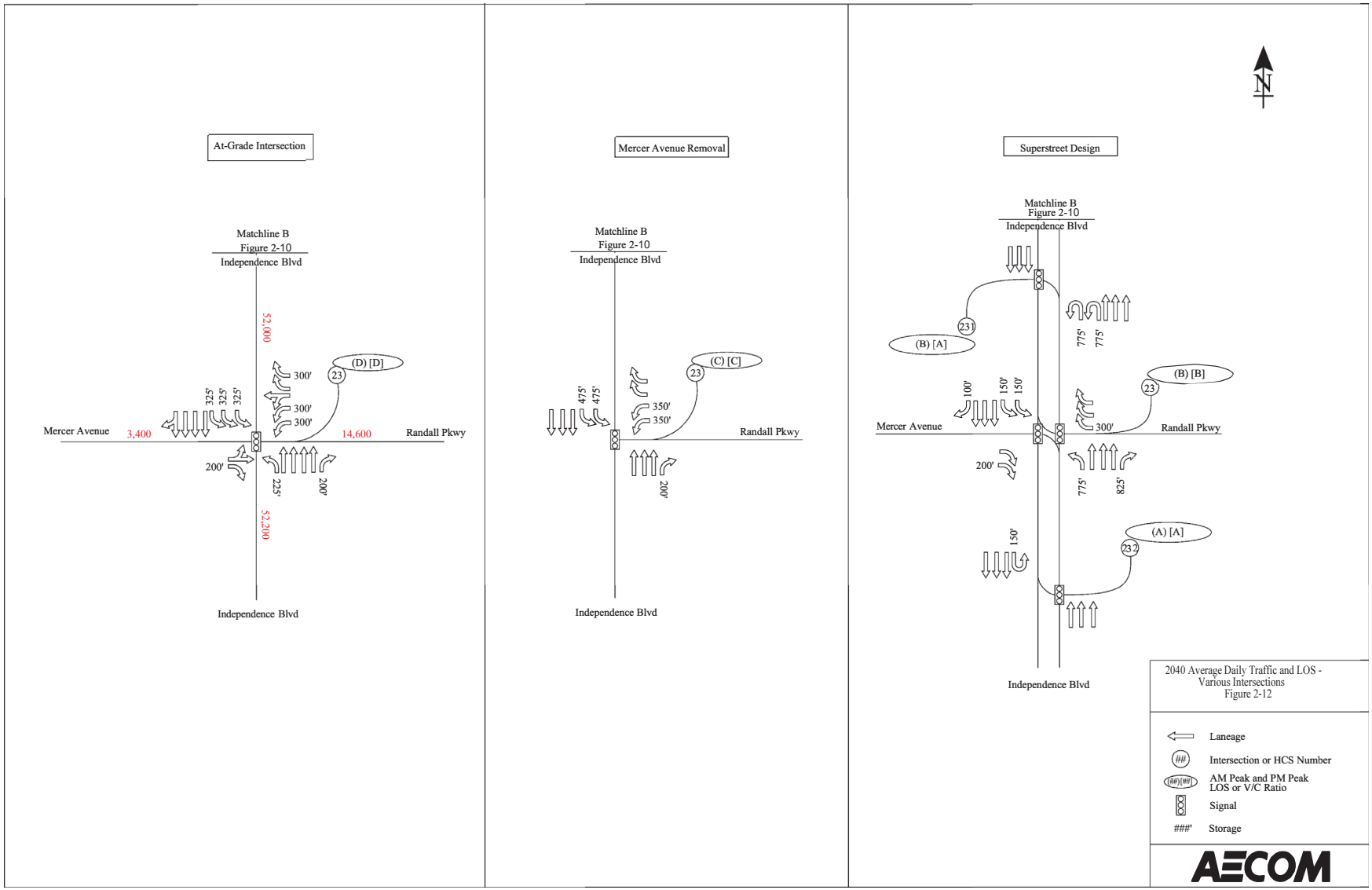
ID [a]	Intersection	a.m. Peak LOS	p.m. Peak LOS
11	Wayne Drive/30th Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	D
	Eastbound Through/Right	C	C
	Westbound Left	D	E [b]
	Westbound Through	A	B
	Westbound Right	A	B
	Northbound Left	E [b]	E [b]
	Northbound Through/Right	D	D
	Southbound Left	E	E [b]
	Southbound Through/Right	E [b]	E [b]
17	Darlington Avenue/Henry Street at US 17 Business (Market Street)	C	C
	Eastbound Left	E [b]	E [b]
	Eastbound Through	C	C
	Eastbound Right	A	A
	Westbound Left	E [b]	E [b]
	Westbound Through/Right	C	B
	Northbound Left	D	E [b]
	Northbound Through/Right	D	D
	Southbound Left	E [b]	E [b]
	Southbound Through/Right	E [b]	E [b]
141	Southbound Independence Boulevard at US 17 (Market Street)	C	C
	Eastbound Through	B	B
	Eastbound Right	B	C
	Westbound Left	D	D
	Westbound Through	A	A
	Southbound Left	D	D
	Southbound Right	D	D
142	Northbound Independence Boulevard at US 17 (Market Street)	B	C
	Eastbound Left	E [b]	E [b]
	Eastbound Through	A	A
	Westbound Through	A	B
	Westbound Right	B	B
	Northbound Left	D	D
	Northbound Right	D	D

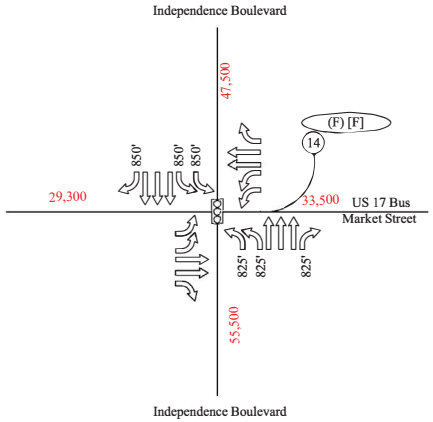
[a] Refer to Figure 2-17.

[b] The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays for these specific movements.


N
(C) [B]
104
US 74 (Martin Luther King Jr. Parkway)
302
(B) [C]
58,900
(B) [B]
207
(B) [A]
106
105
(A) [B]
47,500
205
(0.24) [0.27]
206
(0.29) [0.42]
204
(0.62) [0.55]
(C) [B]
304
66,200
303
(B) [C]
US 74 (Martin Luther King Jr. Parkway)
Independence Boulevard
Matchline A
Figure 2-5
2040 Average Daily Traffic and LOS - Martin Luther King Jr. Parkway
Figure 2-10
Laneage
Intersection or HCS Number
AM Peak and PM Peak LOS or V/C Ratio
Signal
Basic Freeway Segment
Ramp Merge/Diverge
Freeway Weaving Segment
Storage
AECOM


US 17 Bus
Market Street
N
Independence Boulevard
(C) [D]
103
(B) [C]
203
(B) [C]
101
(0.43) [0.50]
201
(C) [B]
401N
Independence Boulevard
Matchline A
Figure 2-5
55,500
Matchline B
Figure 2-5
301
(C) [C]
102
(C) [B]
202
(0.46) [0.41]
401S
(B) [C]
2040 Average Daily Traffic and
LOS - Independence Boulevard
Figure 2-11
Laneage
Intersection or HCS Number
AM Peak and PM Peak
LOS or V/C Ratio
Signal
Basic Freeway Segment
Ramp Merge/Diverge
Freeway Weaving Segment
Multilane Segments
Storage
AECOM


At-Grade Intersection
Matchline B
Figure 2-10
Independence Blvd
52,000
(D) [D]
23
300'
300'
300'
325'
325'
325'
Mercer Avenue
3,400
14,600
Randall Pkwy
200'
225'
200'
52,200
Independence Blvd
Mercer Avenue Removal
Matchline B
Figure 2-10
Independence Blvd
(C) [C]
23
475'
475'
350'
350'
Randall Pkwy
200'
Independence Blvd
Superstreet Design
Matchline B
Figure 2-10
Independence Blvd
23
(B) [A]
775'
775'
(B) [B]
23
100'
150'
150'
Mercer Avenue
300'
Randall Pkwy
200'
775'
825'
150'
(A) [A]
23
Independence Blvd
N
2040 Average Daily Traffic and LOS -
Various Intersections
Figure 2-12
Laneage
(##) Intersection or HCS Number
(##)(##) AM Peak and PM Peak LOS or V/C Ratio
Signal
###' Storage
AECOM



2040 Average Daily
Traffic and LOS - Independence Boulevard
and Market Street Intersection
Figure 2-13

Laneage

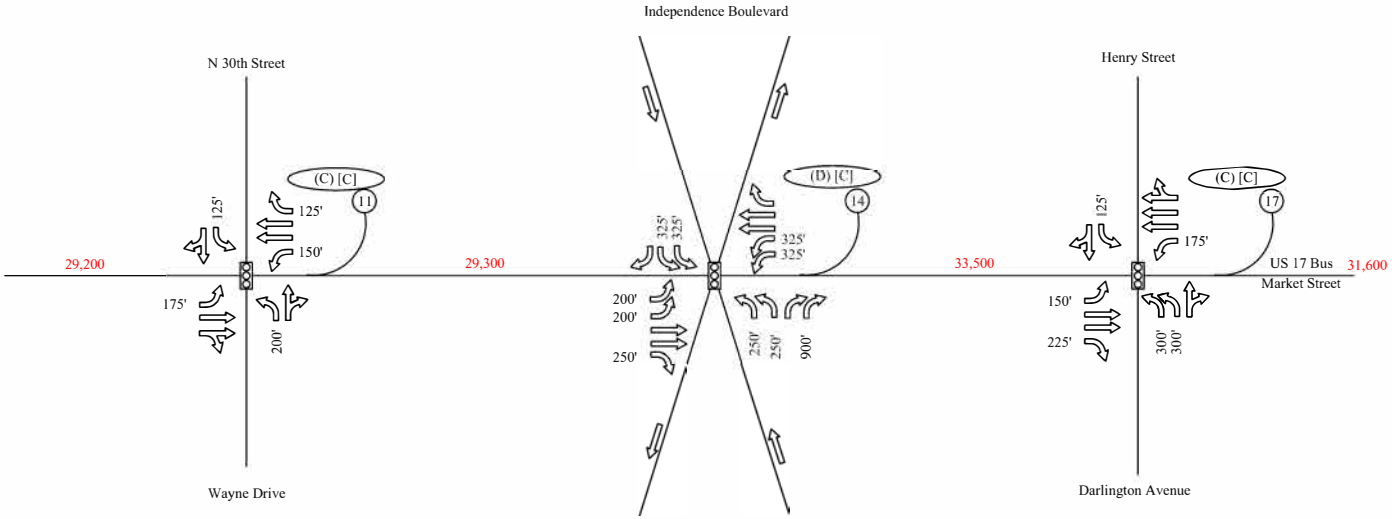
(##) Intersection or HCS Number

(##)[##] AM Peak and PM Peak LOS or V/C Ratio

Signal

###' Storage

AECOM



2040 Alternative 2 SPUI
Average Daily Traffic and
LOS
Figure 2-14

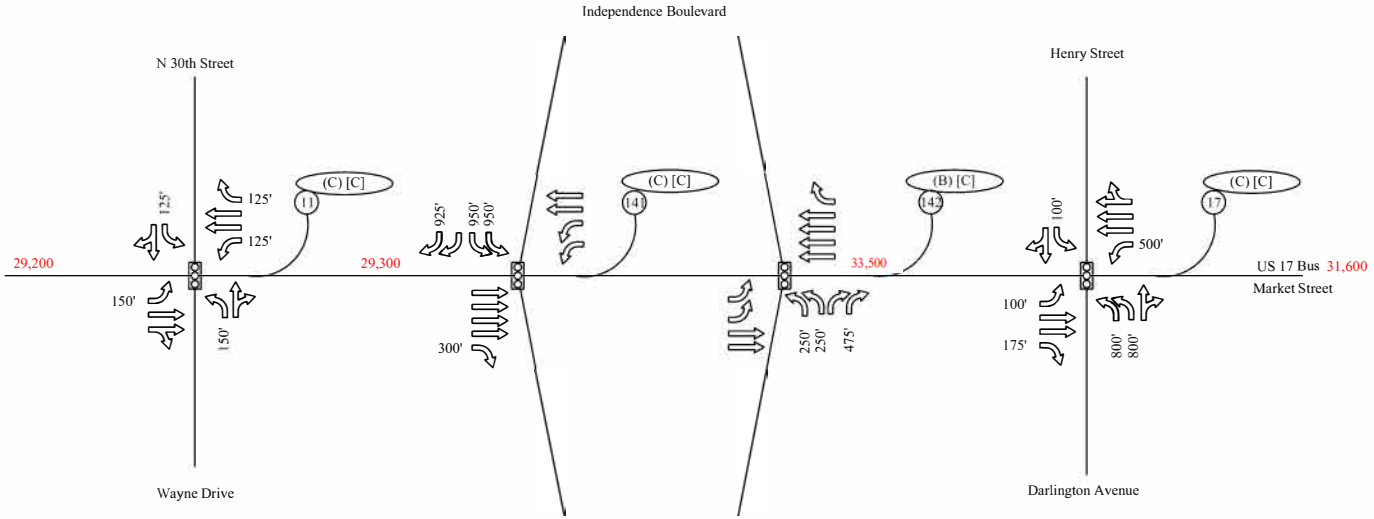
Intersection or HCS Number

(##)(##) AM Peak and PM Peak LOS or V/C Ratio

Signal

###' Storage

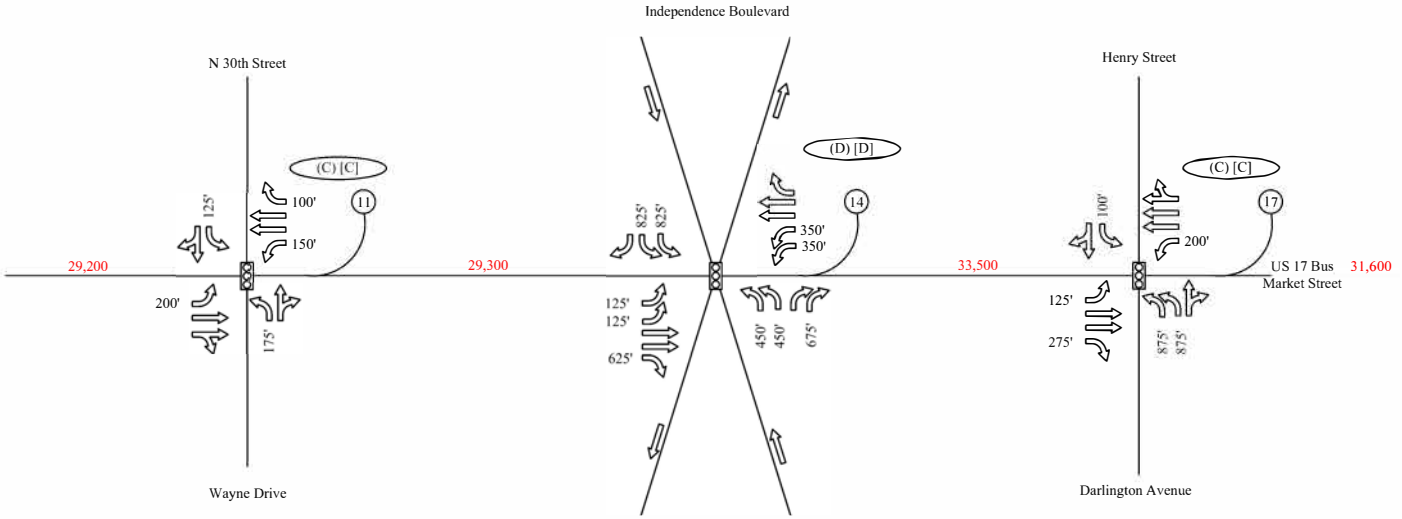
AECOM



2040 Alternative 2 TUDI
Average Daily Traffic
and LOS
Figure 2-15

##	Intersection or HCS Number
(##)[##]	AM Peak and PM Peak LOS or V/C Ratio
	Signal
###'	Storage

AECOM



2040 Alternative 7 SPUI
Average Daily Traffic
and LOS
Figure 2-16

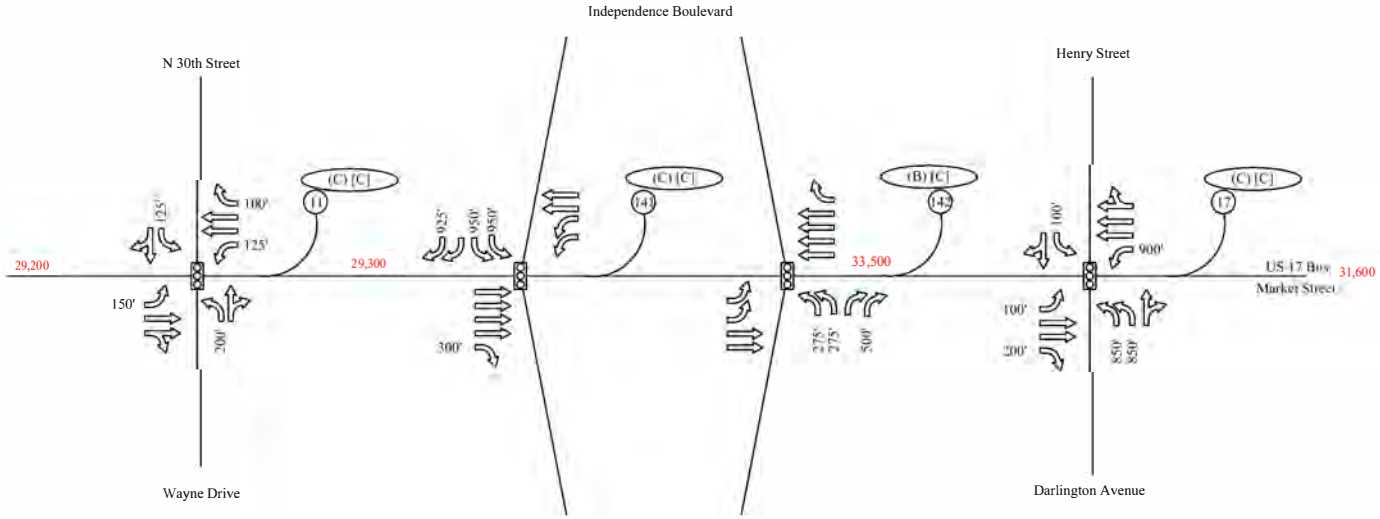
(##) Intersection or HCS Number

(##)/(##) AM Peak and PM Peak LOS or V/C Ratio

Signal

###' Storage

AECOM



2040 Alternative 7 TUDI
Average Daily Traffic
and LOS
Figure 2-17

##	Intersection or HCS Number
(##)[##]	AM Peak and PM Peak LOS or V/C Ratio
	Signal
###'	Storage

AECOM

2.9 Current Detailed Study Alternatives

In 2018, NCDOT developed preliminary impact calculations for Alternatives 2 and 7 and the TUDI and SPUI Options. These are shown in Table 2-22. The interchange at Martin Luther King Jr. Parkway was excluded from analysis as the impacts at this location would be the same across all alternatives.

Based upon these impacts, NCDOT eliminated Alternative 2 from further consideration.

The current DSAs being evaluated within this DEIS are Alternative 7 with a SPUI at Market Street (SPUI Option) and Alternative 7 with a TUDI at Market Street (TUDI Option).

Table 2-22: Preliminary Impact Calculations for Alternatives 2 and 7

Feature	Alternative 2 TUDI	Alternative 2 SPUI	Alternative 7 TUDI	Alternative 7 SPUI
Length (miles)	1.7	1.7	1.7	1.7
Delineated wetland impacts (acres)	1.32	1.32	1.24	1.24
Delineated stream impacts (linear feet)	392.24	392.24	370.01	370.01
Delineated pond impacts (acres)	0	0	0	0
Relocations				
Residential	90	77	74	66
Business	35	32	34	30
Non-profit	1	1	1	1
Federal/State Threatened Endangered Species Habitat Present	Yes	Yes	Yes	Yes
Natural Heritage Program SNHA, Managed Areas and Wetland Mitigations Sites (acres)	0	0	0	0
Prime Farmlands/Farmlands of Statewide Importance (acres)	0	0	0	0
Forest (acres)	75.06	74.77	74.90	74.29
100-year Floodplain and Floodway Impacts (acres)	2.07	2.07	1.70	1.70
Historic Properties (number)	0	0	0	0
Recorded Archaeological Sites (number)	0	0	0	0
Wildlife Refuge/Gamelands (acres)	0	0	0	0
Recreational Areas/Parks (number)	1	1	1	1

Feature	Alternative 2 TUDI	Alternative 2 SPUI	Alternative 7 TUDI	Alternative 7 SPUI
High Quality Waters (Outstanding Water Resource, Water Supply Protected or Critical Areas) (acres)	0	0	0	0
Public Water Supply Wells (100-foot Buffer) (number)	0	0	0	0
Cemeteries (number)	0	0	0	0
Churches (number)	2	2	2	2
Potential Underground Storage Tank/ Hazmat Sites (number)	2	2	2	2
Total Cost	**$257,331,600.00**	**$247,147,300.00**	**$193,361,100.00**	**$192,236,800.00**

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3 Environmental Resources and Impacts

This chapter describes the existing human, physical, cultural, and natural environments of the study area that could be affected by the proposed project. The inventory and evaluation of the existing environment presented in this chapter provides the necessary baseline from which to assess and document the potential impacts of the DSAs. The potential environmental consequences of the proposed project are discussed at the end of each subsection.

3.1 Human Environment

On January 20, 2025, President Trump signed Executive Order (EO) 14148 – *Initial Rescissions of Harmful Executive Orders and Actions* and EO 14154 – *Unleashing American Energy*. The EOs revoked EO 13990 – *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* (January 20, 2021) and EO 14008 – *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021). Subsequently on January 29, 2025, Secretary Duffy signed a Memorandum for Secretarial Offices and Heads of Operating Administrations – *Implementation of Executive Orders Addressing Energy, Climate Change, Diversity, and Gender*. On February 25, 2025, the Council on Environmental Quality (CEQ) published an Interim Final Rule removing the CEQ's NEPA implementing regulations, effective April 11, 2025 (90 Fed. Reg. 10610). As a result of these actions, FHWA will not include greenhouse gas emissions and climate change analyses in the federal environmental review process. Any purported greenhouse gas emissions and climate change impacts will not be considered in the federal decision. Accordingly, no greenhouse gas emissions or climate change analyses are included in this DEIS.

The January 20, 2025 EOs also revoked EO 14096 – *Revitalizing Our Nation's Commitment to Environmental Justice for All* (April 21, 2023). Subsequently on January 21, 2025, President Trump signed EO 14173 – *Ending Illegal Discrimination and Restoring Merit-Based Opportunity*. This EO revoked EO 12898 – *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994). On February 25, 2025, the CEQ published an Interim Final Rule removing the CEQ's NEPA implementing regulations, effective April 11, 2025 (90 Fed. Reg. 10610). As a result of these actions, all federal environmental justice requirements are revoked and no longer apply to the federal environmental review process. FHWA, Federal Transit Administration, and Federal Railroad Administration's Joint NEPA regulations (23 Code of Federal Regulations [CFR] part 771) and the agencies Interim Final Guidance on *Section 139 Environmental Review Process: Efficient Environmental Reviews for Project Decision-making and One Federal Decision* (December 17, 2024) do not require an environmental justice analysis. Accordingly, no analysis of environmental justice is included in this DEIS. Any purported environmental justice impacts will not be considered in the federal decision. Social,

economic, and community impacts will continue to be disclosed where applicable in accordance with 23 CFR 771.

Characteristics of the human environment within the study area were examined and reported in the U-4434 Community Impact Assessment (NCDOT 2019f), the U-4434 Community Impact Assessment Update Memo (NCDOT 2022a), and the U-4434 Land Use Scenario Assessment (LUSA) (NCDOT 2019g). Impacts to resources are calculated based using right-of-way impacts (project footprint) or slope stake limits plus a 25-foot buffer.

FHWA and NCDOT recognize that cumulative effects were defined in the CEQ regulations. However, the CEQ regulations are being rescinded. Thus, these reports should be viewed in the context of the definition of effects provided in the February 19, 2025 *Memorandum for Heads of Federal Departments and Agencies* with the subject: *Implementation of the National Environmental Policy Act.* The subject memorandum defines effects as reasonably and foreseeable effects of the proposed action consistent with Section 102 of NEPA, which does not employ the term "cumulative effects, " NEPA instead requires consideration of "reasonably foreseeable" effects, regardless of whether or not those effects might be characterized as "cumulative." Title VI of the Civil Rights Act of 1964 states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." As part of this project, a demographic assessment has been performed to identify populations that are protected under Title VI.

The evaluation of impacts within this section adhere to DOT Order 2100.7 (DOT 2025).

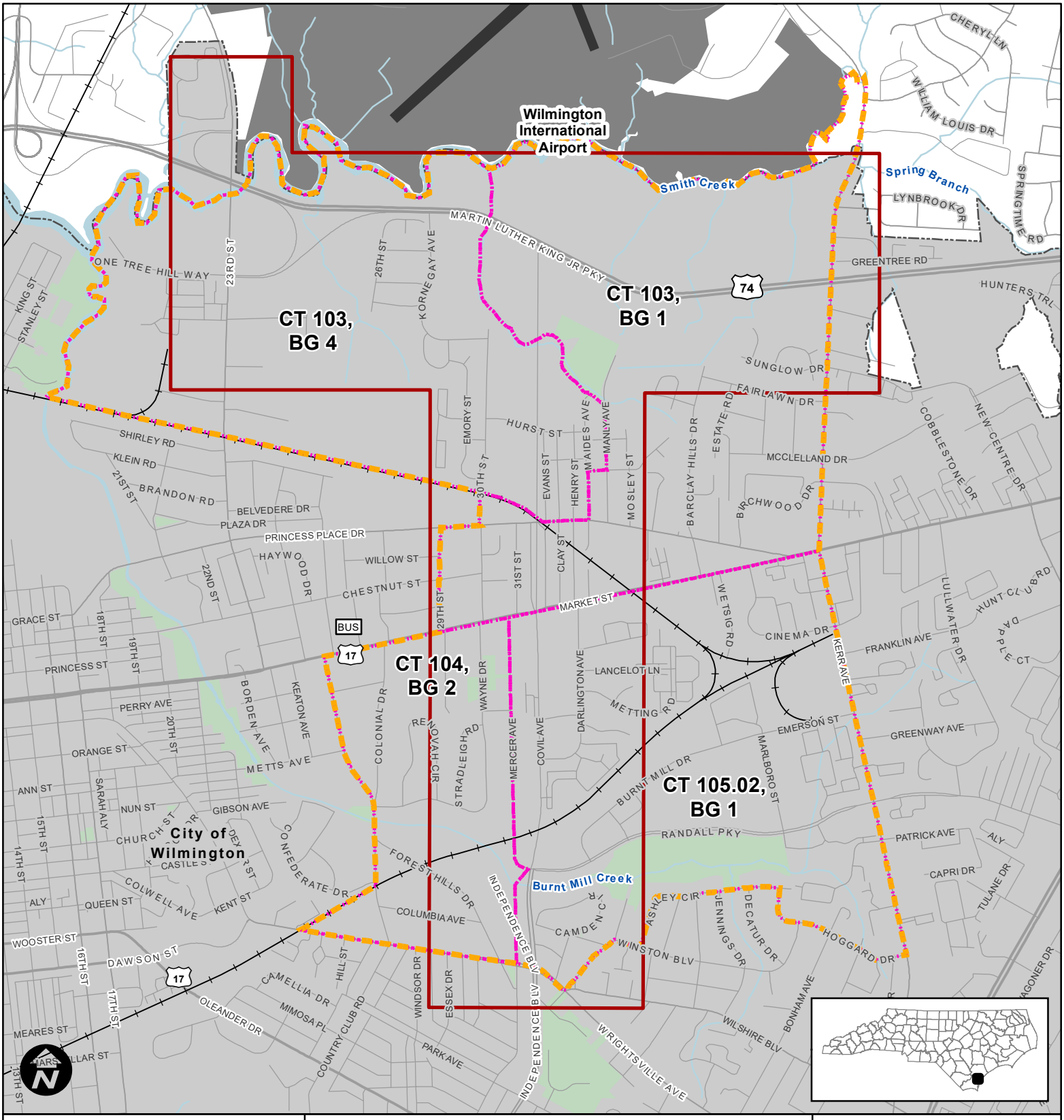
3.1.1 Population Characteristics

Community-based demographic data were gathered from the 2020 US Census (US Census Bureau 2022) and the 2015-2019 ACS 5-year estimates (US Census Bureau 2020). The demographic study area is based on the 2011 Community Characteristics Report - Environmental Justice Addendum (NCDOT 2014a) and includes all Census Block Groups within the study area (Figure 3-1). Note that the 2011 Community Characteristics Report – Environmental Justice Addendum was prepared and finalized under a prior regulatory regime and does not reflect recent changes in regulatory or Executive Order requirements. Block groups that were partially located within the study area were only included if they contained residential land uses within the portion that fell inside the study area and/or if it was determined that the population would likely be subjected to direct impacts.

3.1.1.1 Population Growth

The City of Wilmington is the most populated municipality in New Hanover County and North Carolina's largest coastal city. Within the demographic study area, ACS data show a notable population increase of 48.6 percent between 2005 and 2019, an annualized increase of 4.0 percent during that time. By comparison, New Hanover County and the City of Wilmington both grew by an annualized rate of 1.9 percent during the same time period. Two Block Groups, Census Tract 103, Block Group 4 and Census Tract 105.02, Block Group 1, grew especially fast with annualized growth rates of 5.1 and 6.1 percent, respectively, between 2009 and 2019. Both of these Block Groups are located east of the project.

Census Tract 103, Block Group 4 contains several moderately priced single-family neighborhoods that may be absorbing some of Wilmington's population growth, including families moving to the City. Census Tract 105.02, Block Group 1 contains many new apartment complexes that have been completed over the past 15 years that likely account for its growth.



Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Railroad
- Stream
- Study Area
- Demographic Study Area
- Census Tract (CT), Block Group (BG)
- Park
- Municipal Boundary
- County Boundary

Figure 3-1
Demographic Study Area

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

3.1.1.2 Race/Ethnic Composition

The race/ethnic composition of the demographic study area and New Hanover County are compared in Table 3-1.

Table 3-1: Population by Race/Ethnicity

Race	Population in Demographic Study Area	Percentage in Demographic Study Area	Population in New Hanover County	Percentage in New Hanover County
White	5,508	51.7%	184,851	81.1%
Black or African American	4,828	45.3%	31,337	13.7%
American Indian and Alaska Native Alone	0	0.0%	577	0.3%
Asian	46	0.4%	3,012	1.3%
Native Hawaiian/Pacific Islander	15	0.1%	199	0.1%
Other Race	25	0.2%	2,870	1.3%
Two or More Races	226	2.3%	5,092	2.2%
Total	10,648	100%	227,938	100%
Total Hispanic	364	3.4%	12,657	5.6%

Source: US Census Bureau, American Community Survey 5-year Estimates (2015-2019), Table B03002, "Hispanic or Latino Origin by Race."

3.1.1.3 Limited English Proficiency

For many individuals living in the United States, English is not their primary language. Individuals with a limited ability to read, write, speak, or understand English are considered to be limited English proficient (LEP).

Census data do not indicate LEP populations meeting the United States Department of Justice LEP Safe Harbor threshold, but do indicate an Asian/Pacific language-speaking population exceeding 50 persons within the demographic study area that may require language assistance. This population is in the southeastern portion of the study area. Field visits were unable to determine the exact location of this population. The Safe Harbor threshold for LEP is 5 percent or 1,000 people, whichever is less, of the population that is eligible to receive written translation services for the project.

3.1.2 Economic Characteristics

3.1.2.1 Business and Employment

According to the Cape Fear Moving Forward 2045 MTP (WMPO 2020), the number of jobs in the Wilmington Urban Area is expected to increase 51 percent between 2020 and 2045, an average annualized growth rate of 4.7 percent. According to the North Carolina Department of Commerce, the top five non-governmental employers are the New Hanover Regional Medical Center/Cape Fear Hospital, Thermo Fisher Scientific, Wal-Mart Stores, Mastec, and Celico Partnership (NC Department of Commerce 2022).

The unemployment rate of the Wilmington Metropolitan Statistical Area was 3.1 percent in March 2022 and 4.1 percent in March 2021, according to the US Bureau of Labor Statistics (2022). New Hanover County's unemployment rate matched the Metropolitan Statistical Area in March 2022 at 3.1 percent and was higher in March 2021 at 5.4 percent. ACS data measure employment based upon whether a person is 16 years and older and had not worked in the past 12 months. Based on this, in 2019 the unemployment rate for the demographic study area was 6.5 percent, while percentages for New Hanover County for the same period were 5.0 percent. This shows that the demographic study area has a higher unemployment rate than New Hanover County.

The Burnt Mill Business Park is located in the southern portion of the study area at the intersection of Covil Avenue and Randall Parkway. The business park currently holds 16 office buildings with an additional 15,500 square foot office building planned (Nunn 2021). Market Street is a major retail and business corridor. Within the study area, Market Street has hotels, restaurants, home improvement businesses, and car dealerships. Several businesses along Princess Place Drive are also within the project footprint. These businesses include a daycare, a sound studio, and an auto repair garage.

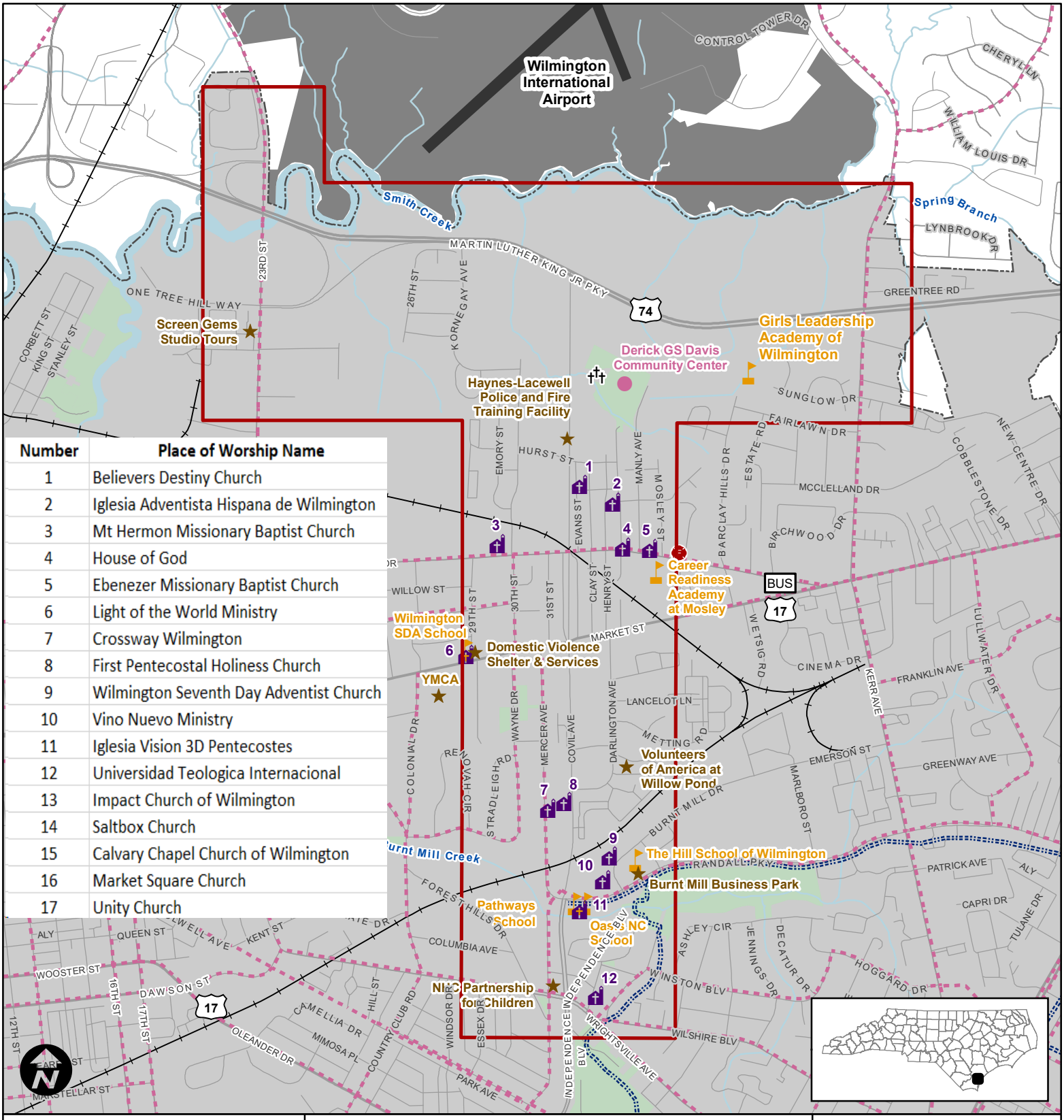
3.1.3 Community Facilities and Services

Community facilities and services within the study area are shown on Figure 3-2.

3.1.3.1 Affected Environment

Community Centers

As shown on Figure 3-2, only one community center is located within the study area. The Derick G.S. Davis Community Center is located in Maides Park at 1101 Manly Avenue. The community center has two multi-purpose rooms, an arts and crafts room, a full service kitchen, and a computer room. Maides Park is also where the only cemetery within the study area is located. The Maides Park Cemetery contains the graves of James and Matilda Maides (after whom the park is named), as well as an undetermined number of other graves. The Haynes-Lacewell Police and Fire Training Facility was constructed in 2019 on Hurst Street, just to the west of the proposed project footprint.



Number	Place of Worship Name
1	Believers Destiny Church
2	Iglesia Adventista Hispana de Wilmington
3	Mt Hermon Missionary Baptist Church
4	House of God
5	Ebenezer Missionary Baptist Church
6	Light of the World Ministry
7	Crossway Wilmington
8	First Pentecostal Holiness Church
9	Wilmington Seventh Day Adventist Church
10	Vino Nuevo Ministry
11	Iglesia Vision 3D Pentecostes
12	Universidad Teologica Internacional
13	Impact Church of Wilmington
14	Saltbox Church
15	Calvary Chapel Church of Wilmington
16	Market Square Church
17	Unity Church

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Cemetery
- Place of Worship
- School
- Fire Station
- Community Center
- Other Notable Feature
- Bike Route
- Cross-City Trail
- Railroad
- Stream
- Study Area
- Park
- Municipal Boundary
- County Boundary

Figure 3-2
Community Facilities

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

Parks and Recreational Facilities

There are no state or national parks or forests within the study area. There are six local parks within the study area (Figure 3-2). Maides Park, located north of Princess Place Drive along Manly Avenue, is a neighborhood park owned and operated by the City of Wilmington. The park went through extensive renovations and had a grand re-opening in May 2009. Park amenities include picnic shelters, grills, basketball courts and athletic fields with lights, walking trails, and a community center that includes a full-service kitchen, multi-purpose rooms, space for arts and crafts, and a computer lab. Other notable features within Maides Park include the Maides Park Cemetery and a stream.

In addition to Maides Park, the City of Wilmington operates Beaumont Park, located between Wayne Drive and Mercer Avenue just south of Market Street. Beaumont Park is a neighborhood park, approximately 3 acres in size and contains a playground, picnic areas, and basketball courts.

McCrary Park is located at the intersection of Randall Parkway and Marlboro Street, northeast of Colonial Village. Park amenities include shelters, picnic tables, a canoe/kayak launch, and fishing. A segment of the Cross-City Trail is located north of the park along Randall Parkway.

Mother's Park, a neighborhood park, is in the Colonial Park neighborhood. It includes playground equipment, tables, and benches.

Triangle Park and Empie Park are in the southern portion of the study area. Triangle Park is a triangular 0.5-acre parcel bounded by Wrightsville Avenue to the north and Forest Hills Drive to the south and east. There are no facilities within the park. The Cross-City Trail traverses the park. Empie Park is owned and operated by the City of Wilmington. It includes playgrounds, tennis courts, open space, picnic shelters, a concession stand, basketball courts, athletic fields, lighted facilities, and a dog park.

These parks are publicly owned resources, owned by the City of Wilmington, and are potential Section 4(f) resources (discussed further in Chapter 4). Maides Park would be accessible by the proposed project via the multi-use path. None of the other parks have access to, or from, the proposed project.

Cemeteries and Churches

Several churches are located within the study area, including two within the proposed project footprint. One of the churches would be relocated with either alternative option, the Iglesia Vision 3D Trinidad Divina Pentecostes and their theological education center, Universidad Teologica Internacional. The Iglesia Vision 3D Trinidad Divina Pentecostes and Universidad Teologica Internacional consist of two buildings on a single parcel that are owned and operated by the Iglesia Vision 3D Trinidad Divina Pentecostes parish. The second church, Vino Nuevo Ministry, would be relocated with the TUDI Option only. The Iglesia Vision 3D Trinidad Divina Pentecostes is located at 359 Mercer Avenue and operates the Universidad Teologica Internacional located at 340 Covil Avenue . The two buildings share a parcel and a driveway that extends from Mercer Avenue to Covil Avenue. The second church within the proposed project footprint is Vino Nuevo Ministry located at 3021 Market Street. The relocation report is located in Appendix D.

A memo detailing outreach efforts to the two churches is located in Appendix E.

Other churches within the study area include the following:

- Mount Hermon Missionary Baptist Church (504 Evans Street)
- House of God Church (443 Maides Avenue)
- Ebenezer Missionary Baptist Church (2929 Princess Place Drive)
- Light of the World Ministry (3601 Princess Place Drive)
- Crossway Wilmington (3701 Princess Place Drive)
- Wilmington Seventh Day Adventist Church (2833 Market Street)
- Saltbox Church (3233 Burnt Mill Drive #1)
- Unity Church (717 Orchard Avenue)
- Market Square Church (3110 Randall Parkway)
- Impact Church of Wilmington (3131 Randall Parkway)
- Calvary Chapel of Wilmington (3201 Randall Parkway)
- First Pentecostal Holiness Church (2901 Chestnut St)
- Iglesia Adventista Hispana de Wilmington (1134 North Kerr Avenue)
- Believers Destiny Church (1217 North Kerr Avenue)
- Vino Nuevo Ministry (3021 Market Street)

A small family cemetery (Maides Park Cemetery) is located in Maides Park; however, it is outside of the proposed project footprint.

Schools

There are several schools within the study area; two are located within the proposed project footprint. Oasis NC (3114 Randall Parkway) is a 501(c)3 non-profit organization providing academic and social instructional services that benefit individuals with autism, attention deficit/hyperactivity disorder, anxiety, and other learning differences. Pathways Middle and High School (3110 Randall Parkway) is a private Christian school associated with the Market Square Church.

The schools present within the study area are shown on Figure 3-2 and include:

- Wilmington Adventist School (2833 Market Street) is a private Christian school that serves kindergarten through 8th grade.
- Career Readiness Academy (CRA) at Mosley (3702 Princess Place Drive) – The CRA at Mosley is part of the New Hanover County School System, and has grades 9 through 12. The school's curriculum is designed to increase student achievement and graduation rates, provide relevant job skills and credentials to students, and increase sustainable partnerships with the local business community.
- The Hill School of Wilmington (3333 Jaeckle Drive, Suite 140) – The Hill School is located in the Burnt Mill Office Park in the southern portion of the study area and has grades 1 through 8. The Hill School offers half-day academic programs for students with learning disabilities and attention deficit/hyperactivity disorder.
- The Girls Leadership Academy of Wilmington campus (4100 Sunglow Drive) is an all-girls public charter school currently serving grades 6 through 9. The school focuses on rigorous

college preparatory education and the personal life skills necessary for a successful college experience leading to graduation.

Local school transportaton officials noted there are three schools within 0.4 mile of the project and indicated 169 buses traverse the study area on a daily basis. Students attending nearby schools travel to school by bus or car.

Police, Fire, and Emergency Services

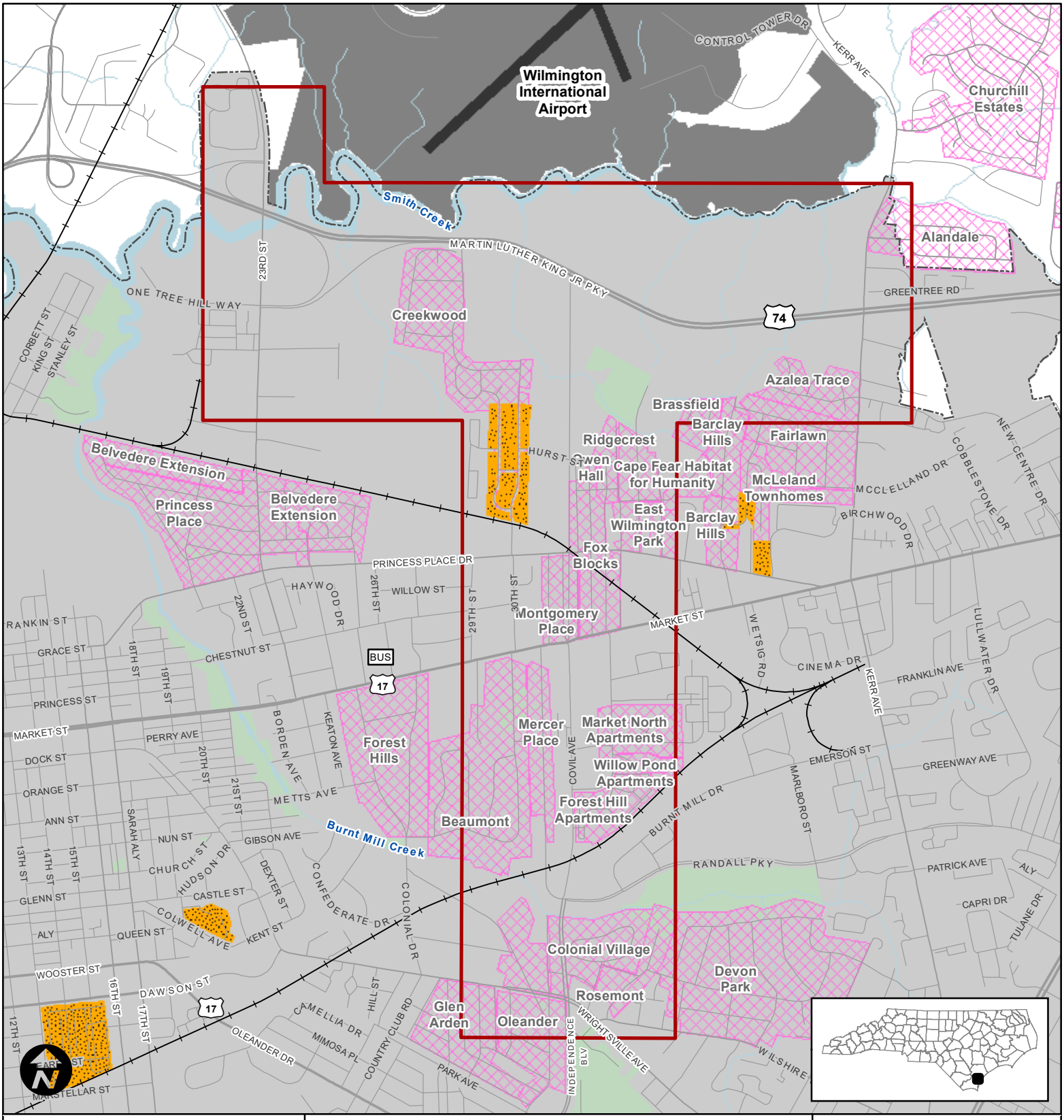
Police service in the study area is provided by the Wilmington Police Department and the New Hanover County Sheriff's Department. The Wilmington Police Department's headquarter is at 615 Bess Street, west of the study area in downtown Wilmington. The New Hanover County Sheriff's office is downtown at 316 Princess Street.

Fire services are provided by the Wilmington Fire Department, and within the study area, they are specifically provided by Fire Station 3 located at 114 Cinema Drive.

Overall emergency medical services (EMS) services are provided by New Hanover County EMS Emergency Management and 911 Communications, which is located at 230 Government Center Drive. The EMS Manager noted that the Market Street corridor is a major artery for EMS response vehicles.

Neighborhoods and Community Cohesion

There are several well-established neighborhoods throughout the study area. The neighborhoods span various socioeconomic strata and include developments along Princess Place Drive as well as the neighborhoods of East Wilmington, Creekwood, and Forest Hills (Figure 3-3). There are a number of indicators of community cohesion in the study area. During site visits in 2019, 2021, 2022, and 2023, visible community interactions and pedestrian activity were observed, particularly in the neighborhoods to the north of Market Street along Montgomery Avenue. City of Wilmington city planners indicated neighborhoods within the study area have a high occupancy rate partially due to a mix of price points, varied densities, and proximity to goods and services. In addition, while many of the businesses on Market Street draw customers from outside the study area, some businesses, such as the CVS, likely serve the local neighborhoods. The presence of community cohesion can also be derived from the number of churches in the study area, particularly the number of churches in the vicinity of the proposed project on Princess Place Drive. It's reasonable to assume that these churches draw many of their parishoners from neighborhoods surrounding the proposed project.



Legend

- Railroad
- Stream
- Study Area
- Neighborhoods
- Wilmington Housing Authority Property
- Park
- Municipal Boundary
- County Boundary
- Municipal Boundary

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 3-3
Neighborhoods and Housing

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

3.1.3.2 Impacts

Community Centers

The proposed project would have no impact to community centers. The Derick G.S. Davis Community Center within Maides Park is outside of the proposed project footprint and would not be directly impacted by the proposed project, nor are any of the facilities expected to have their access altered.

Parks and Recreational Facilities

The proposed project is not anticipated to impact the use of any of the parks in the study area. The proposed greenway along the east side of the roadway connects the Cross-City Trail at Randall Parkway to Maides Park. In order to make the connection, minor impacts are anticipated; however, the impacts anticipated include minor ground disturbance and would not impact the use of the park. Additional details regarding the Section 4(f) eligibility are discussed in Chapter 4.

Cemeteries and Churches

Two churches within the proposed project footprint could be impacted as a result of the proposed project. One of the churches would be relocated with either alternative option, the Iglesia Vision 3D Trinidad Divina Pentecostes and their theological education center, Universidad Teologica Internacional. The Iglesia Vision 3D Trinidad Divina Pentecostes and Universidad Teologica Internacional consist of two buildings on a single parcel that are owned and operated by the Iglesia Vision 3D Trinidad Divina Pentecostes parish. The second church, Vino Nuevo Ministry, would be relocated with the TUDI Option only. The Iglesia Vision Trinidad Divina Pentecostes and Vino Nuevo Ministry are churches that serve the local community. For Iglesia Vision Trinidad Divina Pentecostes and Vino Nuevo Ministry, if the congregants live near the church and walk or bicycle to church then the church not being relocated near its current location would be an adverse affect on the local community. Both churches may have difficulty in finding nearby land to relocate as available land is scarce within the immediate area around the churches.

Direct impacts to the remaining churches within the study area are not anticipated.

Schools

The two schools located within the proposed project footprint would incur minor impacts to driveway access, but are not anticipated to be relocated. These two schools are located at the beginning of the project at the existing intersection of Independence Boulevard and Randall Parkway. Increases in noise are possible, but could be mitigated through the construction of noise walls. The other schools present in the study area would not be impacted by the proposed project.

Police, Fire, and Emergency Services

Construction of the Haynes-Lacewell Police and Fire Training Facility was completed in 2019 immediately adjacent to the proposed project footprint; however, it would not be directly impacted and would not have its access altered upon completion of the proposed project.

The proposed project would likely have an overall positive effect on police, fire, and other safety operations in the study area due to increased north-south mobility between Shipyard Boulevard and Martin Luther King Jr. Parkway. The Traffic Forecast Technical Memorandum found that the proposed project would provide relief to 23rd Street and Market Street, which are currently the chosen path for north-south traffic between Martin Luther King Jr. Parkway and Kerr Avenue (NCDOT 2017b).

The New Hanover County Emergency Management and 911 Communications Manager noted that the proposed project would have a high impact to response times if major intersections in the corridor are closed or narrowed to one lane during construction. The corridor is a response artery for EMS response vehicles. Coordination with the City of Wilmington police and fire departments would continue during construction to ensure minimal disruption of emergency services.

Neighborhoods and Community Cohesion

The construction of a thoroughfare on a new location through a residential area that is well-established is likely to impact community cohesion and stability. According to the relocation reports developed in March 2022 (Appendix D), the project would result in 59 residential relocations if the SPUI interchange is selected, and 71 residential relocations if the TUDI interchange is selected (NCDOT 2022b). Under both DSAs, many of the relocations would be in the section that would traverse from Randall Parkway to the CSX railroad that is just north of Princess Place Drive. While the property owners that would have direct impacts from partial or complete acquisitions are protected under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, there would be community cohesion impacts to the residents in the vicinity of the proposed project that remain.

Notably adverse community impacts are anticipated with the proposed project, and these effects appear to affect Title VI populations more than the general population.

Modifications have been incorporated into the project design to alleviate and/or minimize impacts to community cohesion. Preliminary designs for the DSAs did not allow for connectivity beneath Independence Boulevard between North 30th Street and Maides Avenue. To provide more east-west connectivity, a grade separation at both Darlington Avenue and Hurst Street was included in revised designs. The typical section of the roadway, design type, and proposed speed limit for the proposed project were also reduced to minimize impacts.

Several design variations were investigated in an effort to retain the proposed project as an at-grade facility (Section 2.5.5). A request to allow at-grade crossings for the proposed project was made to CSX Transportation during a meeting held on July 12, 2017. In a response dated July 25, 2017, CSX Transportation states, “From an operational and safety standpoint, any at-grade option for the Independence Boulevard extension project is unacceptable.” All agency correspondence and meeting minutes are located in Appendix F.

The proposed project would be elevated on a berm from approximately the intersection of Randall Parkway north to Market Street. While a new connection would be provided to cross via an extension of Darlington Avenue beneath the berm (Figure 3-4), this berm would change the physical makeup of the community and serve as a barrier, particularly if the proposed project includes noise walls along the

roadway. The inclusion of noise walls has not been determined yet and would not be determined until after a final design noise analysis is conducted. Community cohesion impacts are likely to be most acute to the residents who remain on the east side of Covil Avenue and the west side of Mercer Avenue to the south of Market Street, and to the residents whose property would not be purchased along 31st and Evans Streets north of Market Street. However, given that the surrounding area is flat, the introduction of an elevated roadway through established neighborhoods is likely to cause impacts to community cohesion. An elevated roadway providing no access while reducing connectivity would likely reduce housing values within its vicinity.



Figure 3-4: View from Darlington Avenue looking west towards Covil Avenue today (left), and with a rendering of the proposed project (right)

Table 3-2 provides a summary of impacts to community facilities and services.

Table 3-2: Community Facilities and Services Impacts

Community Facilities and Services	Alternative 7 with SPUI Option	Alternative 7 with TUDI Option	Type of Impact
Parks	1	1	Connection of multi-use path to Maides Park, no loss of park use
Places of Worship	1	2	Relocation
Cemeteries	0	0	N/A
Schools	2	2	Driveway access issues, schools to remain in place and in use
Daycares	1	1	Relocation
Libraries	0	0	N/A
Community Centers	0	0	N/A
Greenways	1	1	Extension of Cross-City trail
Fire Stations	0	0	N/A
Hospitals	0	0	N/A

Note: Impacts calculated preliminary design slope stake limits plus a 25-foot buffer.

3.1.3.3 Conclusion and Proposed Community Cohesion Mitigation Measures

Finding comparable housing that is nearby would be challenging in Wilmington, where rents are rising and there is a shortage of housing. Many residents may be forced to move away from the area to find comparable housing. Since 2019, rents and housing prices have been rising at an even faster pace, while incomes have not kept pace with the housing market or current inflation. These current factors are likely to magnify the shortage of housing for the foreseeable future, thus making it even more difficult for relocated residents to relocate into comparable housing within the community.

NCDOT's standard right-of-way process would be used to assist residents and businesses relocated by the proposed project. This would include a real estate appraisal and an offer at current market value of the property at its highest and best use when appraised. NCDOT must:

- Treat all owners and tenants equally
- Fully explain the owner's rights
- Pay just compensation in exchange for property rights
- Furnish relocation advisory assistance

If a residence or business is to be acquired as part of the proposed project, additional assistance in the form of advice and compensation is available. NCDOT would provide assistance on locations of comparable housing and/or commercial establishments, moving procedures, and moving aid. Moving expenses may be paid as part of the process. Additional monetary compensation is available to help homeowners cope with mortgage increases, increased value of comparable homes, and other such expenses. NCDOT cannot require a resident to move unless at least one comparable dwelling is made available to the resident and the resident has been given at least a 90-day notice in writing. A program is also available to assist business owners.

Any tenant who is relocated because of a state transportation project will be offered relocation assistance services to help them find a suitable replacement property, with tenant's eligibility and amount of payment being governed on length of time of occupancy and availability and price of replacement housing in the area. A negotiating/relocation agent will contact any relocatee to explain relocation services and payments, and it is important for all relocatees to know that they are not eligible for relocation assistance benefits until a written offer is made to purchase the real estate presently occupied by an owner or tenant, or until a letter of eligibility is received. Relocatees should not move until they have received written authorization to do so as moving prior to receipt of a written authorization to move could make a potential relocatee ineligible for services. People seeking relocation assistance will be required to certify that they are lawfully present in the United States, and no relocatee will be asked to vacate the property until at least 90 days after they have been given notice of the date by which they should vacate the property. Relocatees are eligible for certain options to cover moving expenses, assistance finding comparable decent, safe, and sanitary housing, as well as possible rent supplements, depending on the amount of rent they currently pay and the rental market in the area. Per federal regulation, as 90-day tenant relocatee (a tenant who has occupied the rental for at least 90 days) may use the full amount of rent supplement offered through the relocation program towards the down payment and incidental expenses for the purchase of a replacement dwelling. Incidental expenses

include the reasonable costs normally paid by the buyer in a housing transaction. These expenses may include a home inspection, title search, recording fees, and other closing costs. Costs may not include prepaid expenses such as real estate taxes and property insurance. Benefits depend on the length of time a tenant has occupied the present rental and are generally unique to each relocatee's situation.

The standard right-of-way process represents the minimum that is provided to relocatees. However, NCDOT is committed to ensuring that adequate compensation and aid are made available for the community and would be working closely with residents and businesses to develop mitigation measures.

NCDOT is committed to the exploration of enhanced relocation efforts. These will be further evaluated as the project progresses. NCDOT will actively explore partnerships to develop affordable housing options within Wilmington for those displaced and who express a desire to remain in the community. Further, NCDOT is committed to exploring enhanced relocation options and efforts and aims to incorporate context-sensitive design and solutions derived from ongoing community engagement efforts into the project design. More specific context-sensitive design and solutions, as identified through future outreach efforts, will be included as greensheet commitments in the Final Environmental Impact Statement (FEIS) and/or the Record of Decision (ROD) for the proposed project. During the development of mitigation measures for the proposed project, NCDOT will also address, after considering input from those effected, the impact the proposed project may have on housing values for those remaining in the community. Additionally, NCDOT will collaborate with local agencies and the City of Wilmington to establish a community working group. This group will play a pivotal role in the development of mitigation measures, including the creation of a neighborhood plan. The working group will consist of members of the community affected by the project in the study area, the City of Wilmington, NCDOT Division 3, NCDOT PicsVIS, the consultant, and FHWA. Recommendations for mitigation measures will be considered during the development of the neighborhood plan. Once the plan is approved by the City of Wilmington, mitigation measures will be implemented by either the City of Wilmington or NCDOT. The neighborhood plan will be completed prior to the finalization of the FEIS.

Noise impacts to the remaining community have been assessed as part of the proposed project and are further discussed in Section 3.3.1.

The proposed project will allow for continued access to jobs and community services. The proposed project would not disrupt bus or transit services and would accommodate pedestrian movements along and across the project as noted through the connection of roadways beneath Independence Boulevard and the addition of sidewalks and a multi-use path.

NCDOT will adhere to its Disadvantaged Business Enterprise (DBE) Program for the construction of the proposed project. The DBE program ensures that disadvantaged businesses have the opportunity to do business with NCDOT. A disadvantaged business is a business that is owned, operated, and controlled by women or minorities and falls below a designated income and net worth threshold. Additionally, the proposed project will also offer the following NCDOT Office of Civil Rights' programs:

- Business Opportunity and Workforce Development – provides supportive services to DBE firms through training, education, one-on-one technical assistance, and other services.
- Minority & Women Business Enterprise Programs – ensures firms that meet eligibility requirements are afforded the maximum opportunity to participate in the performance of contracts financed with state funds.
- On-The-Job Training Program – assists disadvantaged workers in entering the highway construction industry.
- Education Initiatives – programs that are provided in both rural and urban communities that provide learning opportunities in the field of engineering. They provide mentorship throughout elementary, middle, and high school as well as multi-disciplinary internship and training opportunities for college and post graduate students.

Potential mitigation measures, responsible parties, and timing are listed in Table 3-3. Safe Transportation for Every Pedestrian (STEP) measures (https://highways.dot.gov/safety/pedestrian-bicyclist/step) are being assessed for potential inclusion as part of the proposed project as possible mitigation measures. Visuals of potential mitigation measures will be provided at public hearings and small group meetings where public input can be obtained. Preliminary conversations will be scheduled with the City of Wilmington to discuss their commitment to a community plan. Executive leadership at NCDOT has committed to providing resources and funding within their purview. Opportunities for DBE and the On-The-Job Training Program will be included in newsletters and at the public hearing.

NCDOT will continue to acquire input from the public regarding potential mitigaton measures that will be incorporated into the FEIS, ROD, final design outreach workshops, and public meetings conducted throughout the project development process.

A project flyover video is available on the project's website that details what the project would look like once constructed. The video can be viewed at https://www.ncdot.gov/projects/independence-boulevard/Pages/photos-videos.aspx.

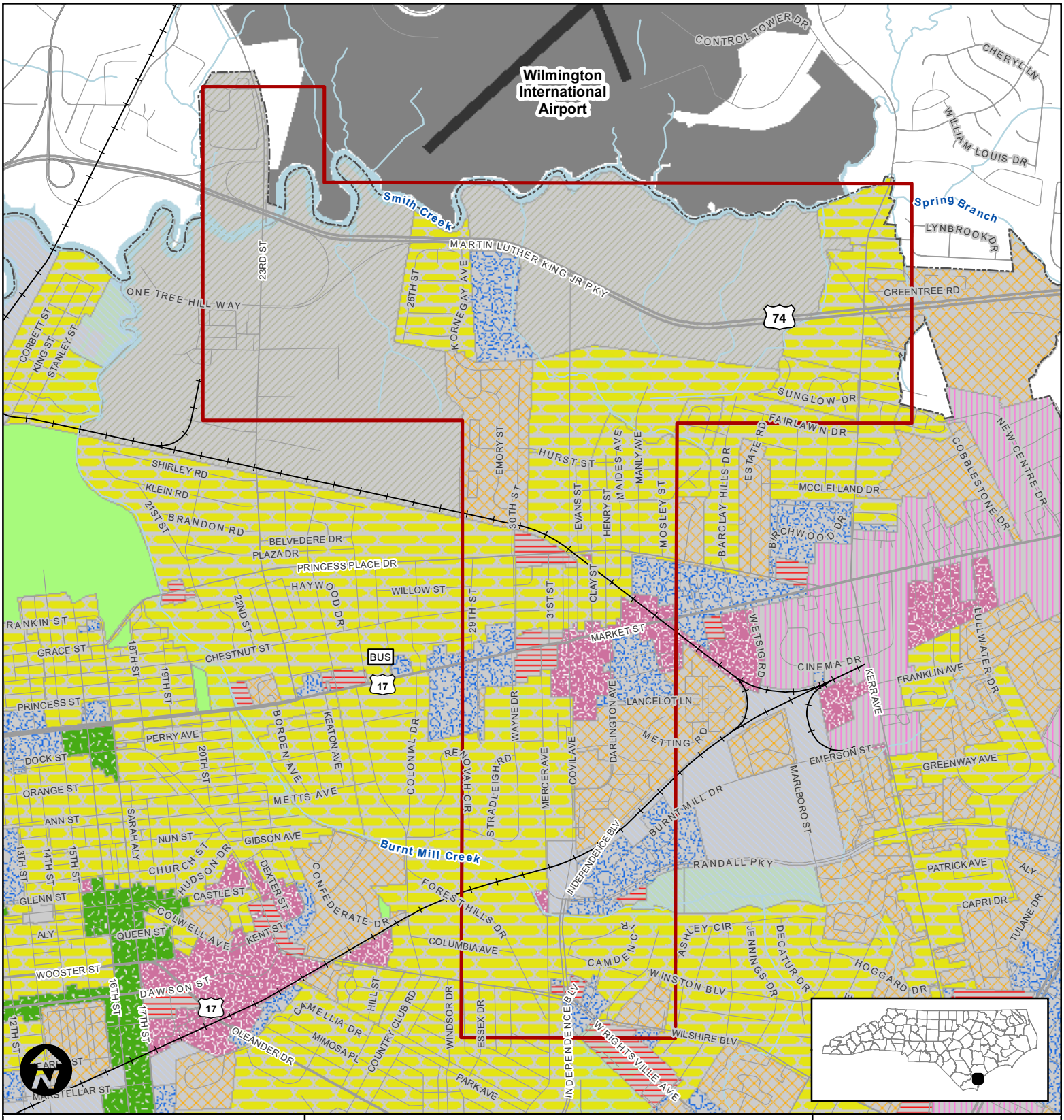
Table 3-3: Potential Impacts and Associated Mitigation Measures

Impact Identified	Potential Mitigation Measure and Comments	Responsible Party / Anticipated Method of Implementation	Tentative Timelines
Safety			
Citizens fear cul-de-sacs and overpasses will increase criminal activity and homeless populations. There is concern that the cul-de-sacs would result in increased crime since there would be no through traffic and law enforcement do not typically patrol dead end streets. There were requests for lighting and fencing to deter homeless from camping out beneath the bridges and accessing private property adjacent to the bridges. There was a preference noted for an alternative that had less openings beneath the bridge (bridge from Market to Hurst Street); citizens fear that crime would increase with the overpasses being so close to homes. Also are concerns from property owners adjacent to the multi-use path. They would like to see some fencing or other amenity to keep people away from their property.	▪ Connect cul-de-sac streets ▪ Incorporation of lighting ▪ Add emergency phones ▪ Implement tall, controlled access measures along end bents of bridges	NCDOT/Design Team: ▪ Small group workshops ▪ Public outreach NCDOT will continue conversations with the community regarding the potential mitigation measures that have been identified. Examples and visualizations will be developed to further community understanding of how each measure may mitigate the impacts to their community. Mitigation measures will be selected during the FEIS and ROD phases of the project and incorporated into final design, as warranted.	Design Phase
Connectivity			
Citizens are concerned that accessibility will be an issue for school buses and emergency service vehicles due to reduced connectivity and ease of access. Citizens feel the road bisects the community and want to ensure that it will remain walkable. They prefer the TUDI Option due to pedestrian accommodations at the intersection with Market Street.	▪ Connect cul-de-sac streets ▪ Add extra sidewalk connections ▪ Consider other enhanced community connectivity options (additional sidewalks on existing streets, additional crosswalks, mid-block crosswalks) ▪ Implement community access and safety improvements (lighting and emergency phones)	NCDOT/Design Team: ▪ Small group workshops ▪ Public outreach NCDOT will continue conversations with the community regarding the potential mitigation measures that have been identified. Examples and visualizations will be developed to further community understanding of how each measure may mitigate the impacts to their community. Mitigation measures will be selected during the FEIS and ROD phases of the project and incorporated into final design, as warranted.	Design Phase
Bridging from Market Street to Hurst Street			
Citizens are opposed to the long bridge from Market Street to Hurst Street. Are concerned that the large overpass area will be a safety issue and will be visually unappealing. Concerns were also raised about the noise of vehicles on the bridge. If the road were at-grade, noise walls could be used to block some of the roadway noise.	▪ Implement tall, controlled access measures along end bents ▪ Use Mechanically Stabilized Earth (MSE) retaining wall ▪ Add a park area or other amenities	NCDOT/Design Team: ▪ Small group workshops ▪ Public outreach NCDOT will continue conversations with the community regarding the potential mitigation measures that have been identified. Examples and visualizations will be developed to further community understanding of how each measure may mitigate the impacts to their community. Mitigation measures will be selected during the FEIS and ROD phases of the project and incorporated into final design, as warranted.	Design Phase

Impact Identified	Potential Mitigation Measure and Comments	Responsible Party / Anticipated Method of Implementation	Tentative Timelines
Relocation and Property Values			
Citizens are very concerned with finding comparable housing in Wilmington. The neighborhood is one of the only affordable areas remaining in the city. Moving out of the city to find affordable housing would be an undue burden and decrease their quality of life. Those not being displaced are concerned their property values will drop significantly.	NCDOT will continue coordination and outreach with impacted residences to identify appropriate mitigation for property impacts and relocations. Early coordination among the City of Wilmington, Wilmington Housing Authority, Wave Transit, and NCDOT relocation assistance staff will occur to identify affordable housing near transit services and pedestrian infrastructure and may be beneficial in minimizing impacts to relocated, low-income residents. NCDOT is committed to exploring enhanced relocation options and efforts.	NCDOT: ▪ Uniform Act provisions and requirements ▪ Housing of Last Resort detailed provisions may be found at 49 CFR 24.404 NCDOT will continue conversations with the community, the City of Wilmington, Wilmington Housing Authority, Wave Transit, and NCDOT relocation assistance staff regarding the potential mitigation measures for relocations and loss of property value. This will begin following the public hearing and continue through the FEIS, ROD, and right of way phases of the project and beyond as necessary.	ROW Acquisition Phase
Community Cohesion			
Citizens are concerned about neighborhood continuity/community cohesion because the neighborhood is well established and many that live there grew up there. If the neighborhood is destroyed, their history is lost.	Development of Working Groups and Community Plan to Discuss Potential: ▪ Lighting and other amenities along sidewalks and multi-use paths ▪ Community improvement options ▪ Community history documentation ▪ Landscaping improvements ▪ Fencing	NCDOT/Design Team: ▪ Small group workshops ▪ Public outreach NCDOT will continue conversations with the community, the City of Wilmington, Wilmington Housing Authority, Wave Transit, and NCDOT relocation assistance staff regarding the potential mitigation measures for relocations and loss of property value. This will begin following the public hearing and continue through the FEIS, ROD, and right of way phases of the project and beyond as necessary.	Design Phase
Other Potential Topics for Discussion			
Construction Noise and Access	▪ Construction Noise and Monitoring Plan ▪ Construction Access Plan ▪ Maintenance of Traffic Plan ▪ Construction Time Restrictions ▪ Construction Outreach and Coordination Plan	NCDOT/Design Team NCDOT will continue conversations with the community regarding noise concerns. Limits on time of construction will be put in place to minimize noise disruption to the extent practicable. Noise abatement measures will be implemented wherever reasonable.	Preconstruction Phase

3.2 Land Use and Transportation Planning

Land use and transportation planning for the study area were studied in the Community Impact Assessment (CIA), CIA Update Memo, and LUSA. Much of the information presented in this section comes from the findings of these assessments (NCDOT 2019f, 2019g, 2022a). The Future Land Use Study Area (FLUSA) is the area surrounding the proposed project that could be indirectly affected by increased development pressure, as shown on Figure 3-5.



Legend

- Railroad
- Stream
- Study Area

Zoning

- Community Business
- Regional Business
- Commercial Services
- Industrial & Light Industrial
- Airport Industrial
- Office & Institutional
- Cemetery
- Urban Mixed Use
- Multi-Family Residential
- Residential R-3 through R-20

Land Use Shown Within Municipal Boundary Only

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 3-5
Future Land Use Study Area

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

3.2.1 Existing Land Use

Land use within the study area is primarily dense commercial and residential development with some undeveloped lands immediately south of Martin Luther King Jr. Parkway. Commercial development is found at Randall Parkway and along Market Street. Residential development, both single-family and multi-family dwellings, is located throughout the study area.

3.2.2 Zoning Characteristics

The predominant zoning in Wilmington is residential, commercial services, and industrial. According to the City of Wilmington Zoning Map, the vacant land surrounding Martin Luther King Jr. Parkway is zoned as light industry (City of Wilmington 2022). The area within the immediate vicinity of Market Street is zoned commercial services and community business. Within the study area, between Randall Parkway and Market Street, zoning also includes single-family residential, multi-family residential, office and institutional, and light industry (Figure 3-5).

3.2.3 Local Plans and Goals

The entirety of the study area is located within the jurisdiction area for the City of Wilmington.

3.2.3.1 Create Wilmington Comprehensive Plan

The City of Wilmington adopted the Create Wilmington Comprehensive Plan (City of Wilmington 2016) in early 2016. The plan is a series of five documents that include growth factors report, foundations report, policies, and growth strategies maps and report. The plan focuses on growing Wilmington inward and upward by concentrating on infill and redevelopment, job growth, housing options, integrating land uses to reduce traffic congestion, and improve housing, working, and shopping opportunities.

The Covil Avenue and Market Street intersection area was identified as an Urban Mixed-Use Center and encourages moderate to high-density development patterns. Concentrated investment and revitalization are proposed to accommodate walkability, improve vitality, and create a sense of place. The plan further identifies the area around Market Street and Covil Avenue as an area for suburban commercial retrofit, which would seek to encourage infill development in surface parking lots, improve pedestrian movement, and use access management techniques to reduce the number of driveways along corridors.

The Create Wilmington Comprehensive Plan also identifies several roads in the project vicinity as corridors and complete streets. Independence Boulevard and Market Street were designated as major corridors and regional parkways, which would prioritize motor vehicle mobility with some walkable qualities such as buffered sidewalks and crosswalks. Mercer Avenue, 30th Street, Princess Place Drive, and a small southern portion of Darlington Avenue (from Frog Pond Place south to Covil Avenue) were designated as community connectors. Community connectors are used to protect existing residential character and to create transitions from regional-scale roadways (such as major corridors) to neighborhood areas. Finally, Darlington Avenue, from Market Street to Frog Pond Place, is designated as a Main Street, which prioritizes pedestrians and encourages a mixture of land uses.

The Create Wilmington Comprehensive Plan also identifies an opportunity for developing a transit/greenway loop around the city by relocating the freight rail corridor across the Cape Fear River and away from the city. The rail corridor currently passes through the study area twice, just to the north of Randall Parkway and just to the north of Princess Place Drive. In its place, the plan recommends replacing the rail with a trolley line that would loop around the city and would include an adjacent greenway.

3.2.3.2 State Transportation Improvement Program Plans

The Strategic Transportation Investments (STI) law, passed in 2013, allows NCDOT to use its funding more efficiently and encourages thinking from a statewide and regional perspective while working to meet local needs. STI established the Strategic Mobility Formula, which uses data-driven scoring and local input to develop NCDOT's STIP and prioritize projects. The proposed project is included as project number U-4434 in NCDOT's 2024-2033 STIP. STIP projects within 1 mile of the study area are listed in Table 3-4. The general locations of the STIP projects are shown on Figure 3-6.

3.2.3.3 Cape Fear Moving Forward 2045 Metropolitan Transportation Plan

The proposed project is included in the WMPO Cape Fear Moving Forward 2045 MTP (WMPO 2020). The plan calls for a safe, realistic, efficient, and reliable multimodal transportation network that embraces innovation and is environmentally and socially responsible. The plan recommends WMPO complete access management plans for the major corridors within Wilmington. The proposed project is listed in the fiscally constrained roadway project list. The proposed project is ranked #8 of 79.

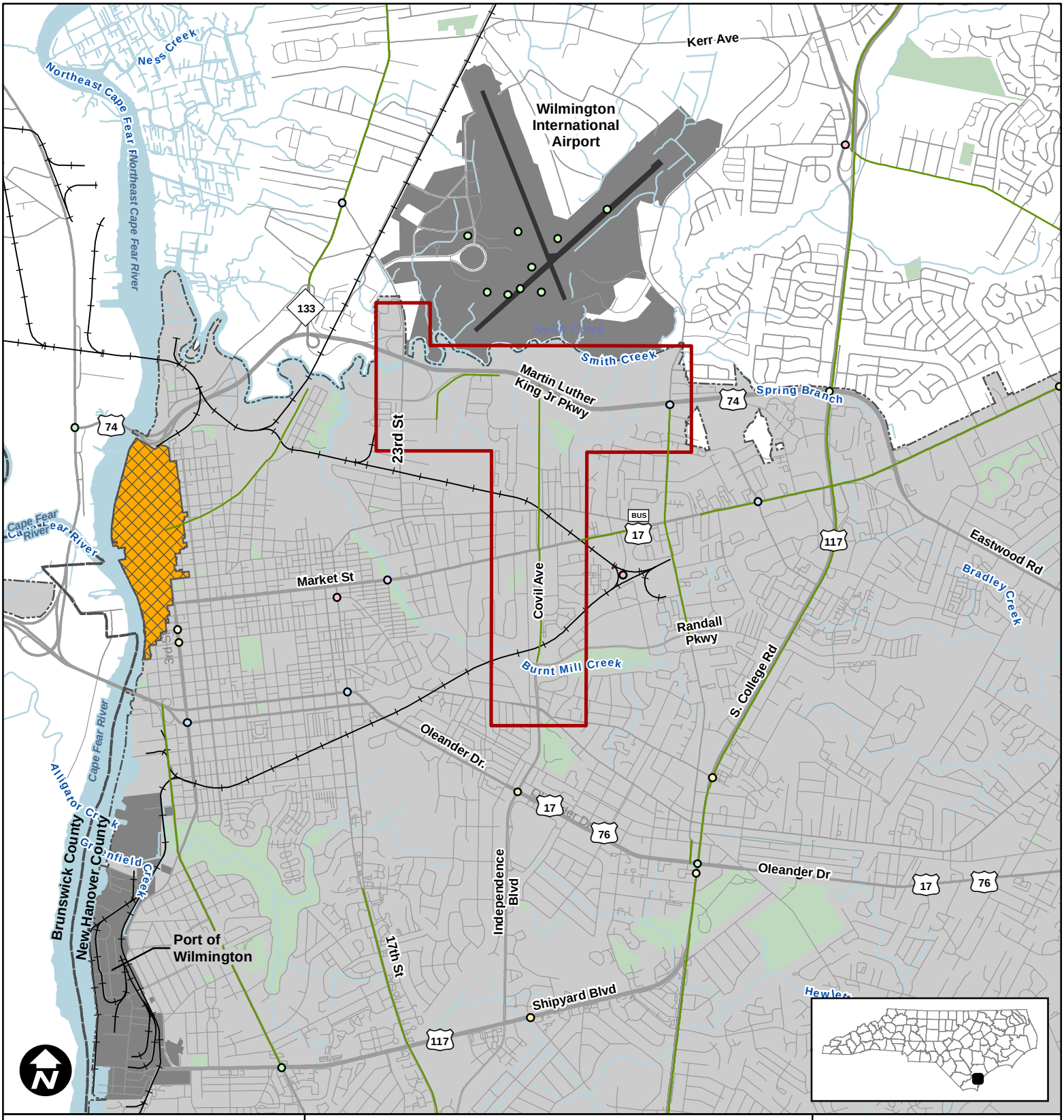
3.2.3.4 Comprehensive Greenway Plan: Wilmington/ New Hanover (2013)

The goal of this plan is to create a framework in which the local governments and its partners can build a network of greenways in Wilmington and New Hanover County. One of the proposed trails is the Independence Boulevard Trail, which is a 1.1-mile trail that connects McCrary Park to Maides Park. Another proposed trail, 17th/ Independence Boulevard Trail, is 4 miles and would connect Greenfield Lake and New Hanover Regional Medical Center to River Road (WMPO 2013).

Table 3-4: Other STIP Projects in the Vicinity of the Study Area

STIP No.	Description	Schedule (Fiscal Year)
U-3338B	Kerr Avenue (SR 1175) widening from Randall Parkway to MLK Jr. Parkway.	Completed in 2019
U-3338C	Kerr Avenue (SR 1175) Interchange at Martin Luther King Jr. Parkway (US 74).	Right-of-way: In progress Construction: 2028
U-4902B	CSX Railroad to Cinema Drive; Jacksonville Street to north of US 117/NC 132 (College Road).	Not funded
BL-0045	Wilmington Rail Trail. Construct multi-use path from 3rd Street in downtown Wilmington to the Love Grove Bridge multi-use path facility.	Not scheduled
P-5740	CSX SE Line Wilmington Beltline Speed Improvement Project	Construction: Underway
P-5740A	Tie and rail rehabilitation, curve realignment, and upgrade rail bridges	Construction: Underway
P-5740B	Improvements to highway grade crossings, close and improve various existing at-grade crossings.	Right-of-way: In progress Construction: 2025
P-5740C	Installation of railroad grade crossing signals and gates at various at-grade crossings.	Construction: Underway
U-5926	23rd Street (SR 1302) to 26th Street; construct route on new location. This is an economic development project for Salvation Army/AAI. Construction is being accomplished Under U-4434.	Right-of-way and Utilities: Underway
U-5863	Castle Hayne Road (NC 133) widening to multi-lanes from Wilmington Bypass (I-140/US 17) to Division Drive (SR 1310).	Not funded
U-5954	Castle Hayne Road (NC 133) at North 23rd Street. Construct a roundabout.	Right-of-way: 2025 Construction: 2027
U-5702A	College Road access management and travel time improvements from New Centre Drive to Shipyard Boulevard (US 117)	Funded for preliminary engineering only
U-5792	Martin Luther King Jr. Parkway (US 74) from US 17 Business (Market Street) to SR 2048 (Gordon Road). Upgrade roadway.	Right-of-way: 2025 Construction: 2028
U-5881	College Road (NC 132) from South of SR 1272 (New Centre Drive) to US 17 Business (Market Street). Upgrade roadway	Funded for preliminary engineering only
EB-6028	Construct signalized pedestrian crossing at US 17 Business (Market Street) and 21st Street	Construction: Underway

Notes: P – Passenger Rail; TD – Public Transportation; U – Urban Projects



Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Railroad
- Stream
- Study Area
- Central Business District
- Park
- Municipal Boundary
- County Boundary

STIP Projects

- Regional Highway
- Signalized Pedestrian Crossing (EB-6028)
- Rail (P-5740)
- Highway

Figure 3-6
STIP Projects

Date: December 2024

0 0.25 0.5 1
Miles

1 inch = 4,500 feet

3.2.3.5 Market Street Corridor Study (2010)

The City of Wilmington, New Hanover County, WMPO, and NCDOT collaboratively developed the Market Street Corridor Study for the portion of Market Street between Colonial Drive and Porters Neck Road that was completed in 2010 (City of Wilmington 2010). The integrated study evaluated both land use and transportation for the corridor and outlined a vision for the Market Street Corridor that bisects the study area. One of the main goals of the plan is to strengthen the economic and fiscal impact of commercial development along the Market Street corridor.

The corridor study recommends a grade-separated interchange with connections between Market Street and Independence Boulevard using collector-distributor roads on the existing Wayne Drive and Darlington Avenue alignments. The report states that the entry points onto Independence Boulevard are proposed to operate with right-in/right-out operations, with the provision of adequate acceleration and deceleration lanes onto the freeway. The area along Market Street, adjacent to the project, from a land use perspective is identified as a location that may include significant redevelopment. The Market Street corridor is identified as having a substantial opportunity to inject mixed-use office and commercial buildings.

3.2.3.6 US 17 Corridor Study (2007/2016)

WMPO completed a study in 2007 to evaluate the Market Street corridor based on changes in travel patterns due to the completion of Martin Luther King Jr. Parkway and a portion of I-140 (WMPO 2007). The study's preferred alternative recommended reducing Market Street from four lanes of traffic down to one lane in either direction with a landscaped median, bicycle lanes, and limited on-street parking. In addition, the study recommended reducing the number of intersections with full access down to only the major intersections and to maintain 16th and 17th Streets as a one-way pair. The study noted that the Independence Boulevard Extension project would need to be completed before work can begin on the proposed improvements along Market Street. Improvements in this area are needed in order to remove left turning traffic out of the through lane and to provide a divided median to enhance safety.

The study was updated in 2016 to evaluate and in some cases re-evaluate affected intersections to guide the decision-making process towards action (WMPO 2016b). Based on the results of the analysis, the recommendation of a road reconfiguration was removed due to negative impacts to Market Street. The study noted that additional – as in the original report – connectivity and capacity, similar to what would be provided by the proposed project, is needed in the region to redistribute trips from Market Street before the road reconfiguration would be viable for the proposed limits from 3rd Street to Covil Avenue.

3.2.3.7 Walk Wilmington: Wilmington Pedestrian Plan Update

The City of Wilmington and the WMPO, in collaboration with NCDOT, developed the Walk Wilmington: Wilmington Pedestrian Plan Update (City of Wilmington 2023) to update their 2009 pedestrian plan, Walk Wilmington: A Comprehensive Pedestrian Plan. The updated plan builds on the successes of the previous plan and provides guidance for the area's prioritization of safe, healthy, and equitable pedestrian infrastructure projects, policies, and programs. The study area falls within the plan's Priority

Focus Area F: Market Street. Within the focus area, sidewalks and sidepaths are recommended along Independence Boulevard, Covil Avenue, Montgomery Avenue, Evans Street, and Clay Street. Additionally, pedestrian crossings improvements are recommended at the intersections of Independence Boulevard and Randall Parkway, Covil Avenue and Darlington Avenue, Covil Avenue and Broad Street, Covil Avenue and Market Street, and Montgomery Avenue and Princess Place Drive.

3.2.3.8 Wilmington – New Hanover County Joint Coastal Area Management Plan

The Wilmington – New Hanover County Joint Coastal Area Management Plan (City of Wilmington 2006) was developed to provide protection of coastal areas of environmental concern for the county. As part of the plan, a land use classification system was developed to chart a course of growth, development, and conservation. The land classification map shows the study area for the proposed project crossing mostly urban land uses, with conservation areas along Burnt Mill Creek and Smith Creek and its tributaries. As indicated in this plan update, substantial annexations during the 1990s led to high population growth rates for the City of Wilmington and misleadingly decreased growth rates for New Hanover County. Local planning staff estimated future population growth based on slow, medium, and rapid growth rates, which was used to evaluate the city's development capacity. They estimated that the City of Wilmington would grow anywhere from 0.5 percent to 1.5 percent annually between 2000 and 2020. The 1.5 percent rapid growth rate would lead to a population of 120,727 in 2020. The population of New Hanover County (excluding the City of Wilmington) would grow anywhere from 1.0 percent to 2.25 percent annually in the same time period, with a population of up to 110,917 in 2020.

3.2.4 Available Land

Available land for development was determined to include undeveloped parcels of land (those without building structures) and underutilized parcels. The available land analysis excludes protected lands such as city-owned parks (e.g., Maides Park), transportation right-of-way, rivers, streams, and floodways. Within the FLUSA, 160 acres were excluded from the available land analysis.

There are approximately 529 acres of undeveloped and underutilized land within the FLUSA. Underutilized lands were identified by selecting parcels in which the total value of improvements (i.e., buildings/structures) is less than the value of the parcel (i.e., land) without improvements. Table 3-5 provides a summary of the available land within the FLUSA.

Table 3-5: Summary of Available Land

Area	Acres	Percentage of FLUSA
FLUSA	1,408	100%
Developed land	946	67%
Land available for development: Undeveloped (vacant) and underutilized	529	38%

3.2.5 Development Pressure

The FLUSA is centrally located east of the CBD, west of UNCW, and south of ILM. The proximity of the land within the FLUSA to such points of interest has influenced development patterns. Access to I-40 and the northern section of the Wilmington Bypass (I-140) are present north of the FLUSA. A notable amount of undeveloped and underutilized land is present within and around the FLUSA, particularly at the northern end of the FLUSA.

Notable development has occurred in the Burnt Mill Business Park. Two multi-tenant commercial buildings were completed in 2022 as was an additional commercial building along Jaeckle Drive. The Wilmington Corps of the Salvation Army's "Center of Hope" at 1220 North 30th Street began construction in early 2024.

Over the last 10 years, several new housing developments have been constructed within the FLUSA in the general vicinity of Princess Place Drive. One of the driving forces has been the Wilmington Housing Authority who has been shifting residents from its older, concentrated housing projects to scattered site developments. The Annexe at the Reserve, a luxury apartment complex completed in 2017, is located near the now vacant Market North Apartments (low-income housing). The Cypress Cove Apartments, constructed in 2019, is a low-income housing development just west of Creekwood North. In addition, three large apartment complexes were constructed along Randall Parkway, primarily to provide off-campus housing for UNCW students. The City of Wilmington identified the Grey Commons Apartments at 15 South 29th Street as a planned development within the FLUSA.

3.2.6 Impacts

The City of Wilmington has been aware of the proposed project and has included it in major planning documents that have been developed by the city. The proposed project would likely have positive impacts in terms of encouraging mixed-use type development at the intersection of Covil Avenue and Market Street because access to the intersection would be improved. The proposed project is also consistent with the Create Wilmington Comprehensive Plan in that it would provide additional bicycle and pedestrian connection through the area. This is especially the case with the inclusion of the adjacent mixed-use path, which would run along the proposed project. The mixed-use path also supports the recommendation in the Wilmington-New Hanover County Comprehensive Greenway Plan to construct a greenway connection between McCrary Park and Maides Park (City of Wilmington 2013). It would also address the recommendation for crossing facilities at the current intersection of Covil Avenue and Market Street made in Walk Wilmington: Wilmington Pedestrian Plan Update (City of Wilmington 2023).

3.3 Physical Environment

This section considers the impacts of the DSAs on a variety of other physical characteristics of the study area.

3.3.1 Noise

In accordance with 23 CFR Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise and the 2016 NCDOT Traffic Noise Policy (NCDOT 2016b), each Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed state or federal highway projects for construction of a highway or interchange on new location, improvements of an existing highway that substantially change the horizontal or vertical alignment or add new through lanes, or projects that involve new construction or substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots, or toll plazas.

Traffic noise impacts are determined through implementing the current Traffic Noise Model (TNM) approved by FHWA and following procedures detailed in 23 CFR 772, the 2016 NCDOT Traffic Noise Policy (NCDOT 2016b), and the 2016 NCDOT Traffic Noise Manual (NCDOT 2016a). When traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures must be considered for reducing or eliminating these impacts. Construction noise impacts may occur if noise-sensitive receptors are in close proximity to project construction activities. Reasonable efforts should be made to minimize exposure of noise sensitive areas to construction noise impacts.

3.3.1.1 Affected Environment

A Traffic Noise Report was prepared for the proposed project (NCDOT 2019e). The analysis contained within the report used computer models created with the FHWA Traffic Noise Model (FHWA TNM v.2.5) to predict future noise levels and define impacted receptors along the proposed project. Noise Study Areas (NSAs) were developed to group noise-sensitive land uses (receptors) that are geographically near one another and influenced by similar noise sources. The 15 NSAs identified are shown on Figure 3-7.

3.3.1.2 Impacts

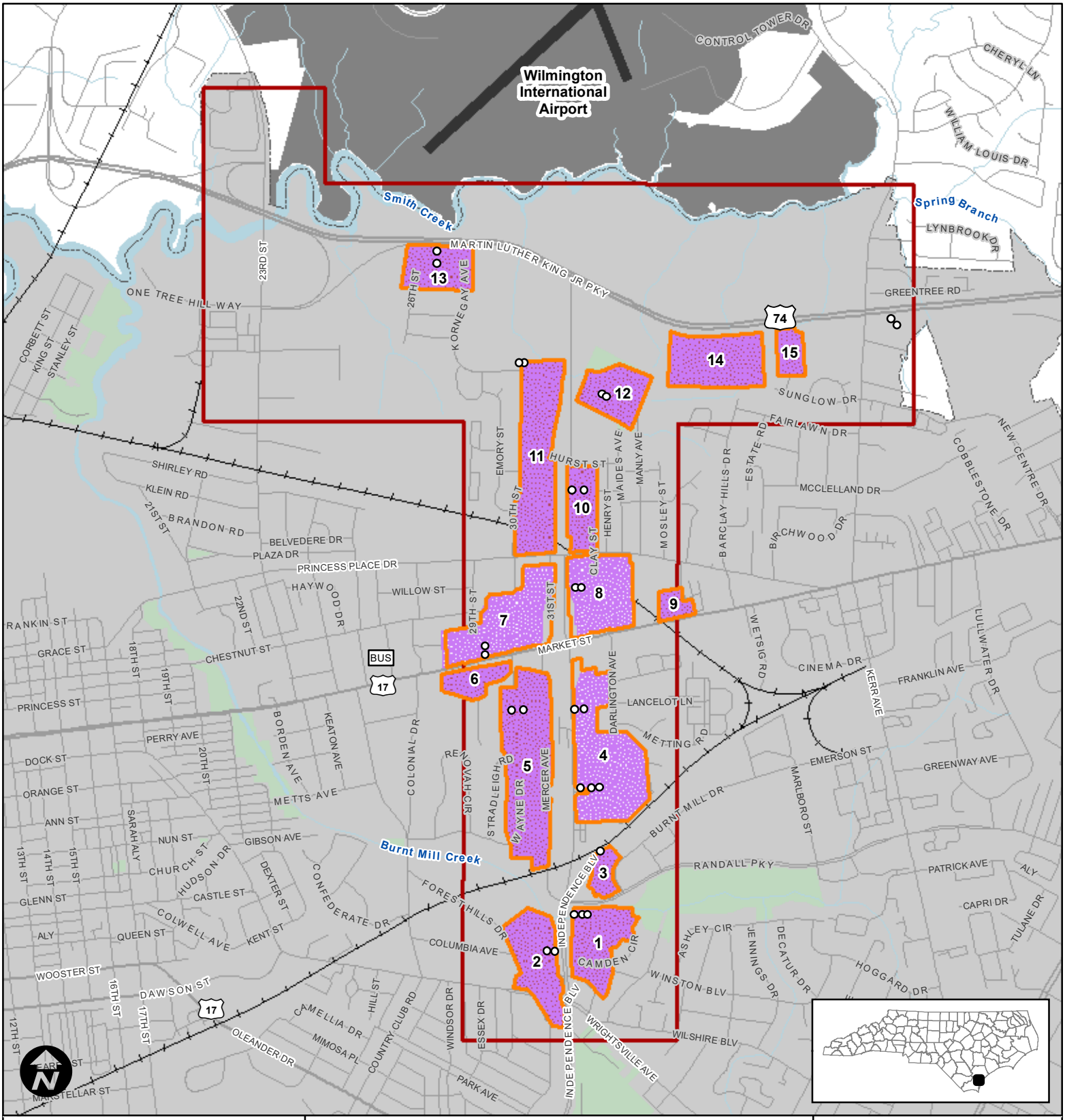
Traffic Noise Impacts and Noise Contours

The maximum number of receptors in each project alternative predicted to become impacted by future traffic noise is shown in Table 3-6. The table includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria (NAC) or by a substantial increase in exterior noise levels as defined in the NCDOT Traffic Noise Policy (NCDOT 2016b).

Table 3-6: Predicted Traffic Noise Impacts by Alternative

Alternative	Residential (NAC B)	Places of Worship/Schools, Parks, etc. (NAC C and D)	Businesses (NAC E)	Total
Alternative 7 with SPUI Option	179	2	1	182
Alternative 7 with TUDI Option	192	2	1	195

Note: Predicted Traffic Noise Impacts are per TNM 2.5 and in accordance with 23 CFR Part 772.



Legend

- Railroad
- Stream
- Study Area
- Park
- Municipal Boundary
- County Boundary
- Municipal Boundary
- Noise Monitoring Locations

Noise Study Area

- SPUI and TUDI Alternatives
- SPUI Alternative
- TUDI Alternative

Figure 3-7
Noise Study Areas and Monitoring Locations

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Traffic Noise Abatement Measures

Measures for reducing or eliminating traffic noise impacts were considered for impacted receptors in each alternative. The primary noise abatement measures evaluated for highway projects include highway alignment changes, traffic system management measures, establishment of buffer zones, noise barriers, and noise insulation (NAC D only). For each of these measures, benefits versus allowable abatement quantity (reasonableness), engineering feasibility and effectiveness, and other factors were included in the noise abatement considerations.

Substantially changing the highway alignment to minimize noise impacts is not considered to be a viable option for the proposed project due to engineering and/or environmental factors. Traffic system management measures are not considered viable for noise abatement due to the negative impact they would have on the capacity and LOS of the proposed roadway. Costs to acquire buffer zones for impacted receptors would exceed the NCDOT base dollar value of $22,500 per benefited receptor plus an incremental increase as defined in the NCDOT Traffic Noise Manual (NCDOT 2016a), causing this abatement measure to be unreasonable.

Noise Barriers

Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb, and reflect highway traffic noise. For this project, earthen berms are not a viable abatement measure because the additional right-of-way, materials, and construction costs are estimated to exceed the NCDOT maximum allowable base quantity of 4,200 cubic yards per benefited receptor plus an incremental increase as defined in the NCDOT Traffic Noise Policy (NCDOT 2016b).

A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by FHWA. Table 3-7 and Table 3-8 summarize the results of the evaluation for Alternative 7 with the SPUI Option and TUDI Option, respectively. Table 3-9 and Table 3-10 summarize the number of total receptors, impacted receptors, and benefited receptors within each NSA. A benefited receptor is a property that receives a minimum 5 A-weighted decibel (dB(A)) reduction in future noise levels. Additional information is included in the Traffic Noise Report that was prepared for the proposed project (NCDOT 2019e).

The project will continue to comply with the latest NCDOT Traffic Noise Policy and communication with the community regarding noise impacts, and possible noise abatement will occur at the start of the noise study process and continue throughout the development of the project. NCDOT will communicate with the public to present information on the nature of highway traffic noise and discuss the effects of noise abatement and how public preferences for noise abatement is solicited via a balloting process. Property owners and tenants who are being balloted for a recommended noise barrier will be provided a visual of the potential barrier location prior to their casting a ballot.

Table 3-7: Preliminary Noise Barrier Evaluation Results for Alternative 7 with SPUI Option

NSA	Noise Barrier Name and Location	Approximate Length / Height[a] (feet)	Approximate Area (square feet)	Number of Benefited Receptors[b]	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely" for Construction)[c]
NSA 1	Barrier 1 Along Independence Boulevard Northbound between Wrightsville Avenue and Randall Parkway	750 / 10	7,500	6	1,250 / 2,000	Yes[c]
NSA 2	Barrier 2 Along Independence Boulevard Southbound between Mercer Avenue and Wrightsville Avenue	850 / 10	8,500	10	850 / 2,000	Yes[c]
NSA 4	Barrier 4 Along proposed Independence Boulevard Northbound between Randall Parkway and Market Street	2,000 / 14	28,000	98	286 / 1,500	Yes[c]
NSA 5	Barrier 5 Along proposed Independence Boulevard Southbound between Market Street and Mercer Avenue	3,150 / 22	70,514	47	1,500 / 2,500	Yes[c]
NSA 810	Barrier 810 Along proposed Independence Boulevard Northbound between Market Street and Hurst Street	2,600 / 18	46,800	56	836 / 2,000	Yes[c]
NSA 11	Barrier 11 Along proposed Independence Boulevard Southbound between Martin Luther King Jr. Parkway and Market Street	1,806 / 12	21,672	41	529 / 2,500	Yes[c]

NSA	Noise Barrier Name and Location	Approximate Length / Height[a] (feet)	Approximate Area (square feet)	Number of Benefited Receptors[b]	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely" for Construction)[c]
NSA 15	Barrier 15 Along the proposed ramp from eastbound Martin Luther King Jr. Parkway to Kerr Avenue	1,493 / 16	23,694	13	1,823 / 1,500	No[d]
			Total	**271**		

[a] Average wall height. Actual wall height at any given location may be higher or lower.

[b] A benefited receptor is a property that receives a minimum 5 dB(A) reduction in future noise levels.

[c] The likelihood for barrier construction is preliminary and subject to change, pending completion of final design and the public involvement process.

[d] Barrier is not reasonable due to the quantity per benefited receptor exceeding the allowable quantity per benefited receptor OR barrier is not reasonable due to an inability to achieve at least 7 dBA noise reduction for at least one benefited receptor.

Table 3-8: Preliminary Noise Barrier Evaluation Results for Alternative 7 with TUDI Option

NSA	Noise Barrier Name and Location	Approximate Length / Height[a] (feet)	Approximate Area (square feet)	Number of Benefited Receptors[b]	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely" for Construction)[c]
NSA 1	Barrier 1 Along Independence Boulevard Northbound between Wrightsville Avenue and Randall Parkway	750 / 10	7,500	6	1,250 / 2,000	Yes[c]
NSA 2	Barrier 2 Along Independence Boulevard Southbound between Mercer Avenue and Wrightsville Avenue	850 / 10	8,500	10	850 / 2,000	Yes[c]
NSA 4	Barrier 4 Along proposed Independence Boulevard Northbound between Randall Parkway and Market Street	2,400 / 14	33,600	103	326 / 1,500	Yes[c]
NSA 5	Barrier 5 Along proposed Independence Boulevard Southbound between Market Street and Mercer Avenue	3,150 / 20	63,189	52	1,215 / 2,500	Yes[c]
NSA 7	Barrier 7 Along proposed Independence Boulevard Southbound between Princess Place Drive and Market Street	2,211 / 17	36,940	22	1,679 / 2,500	Yes[c]
NSA 810	Barrier 810 Along proposed Independence Boulevard Northbound between Market Street and Hurst Street	2,550 / 16	40,800	55	742 / 2,500	Yes[c]

NSA	Noise Barrier Name and Location	Approximate Length / Height[a] (feet)	Approximate Area (square feet)	Number of Benefited Receptors[b]	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely" for Construction)[c]
NSA 11	Barrier 11 Along proposed Independence Boulevard Southbound between Martin Luther King Jr. Parkway and Market Street	1,806 / 12	21,672	41	529 / 2,500	Yes[c]
NSA 15	Barrier 15 Along the proposed ramp from eastbound Martin Luther King Jr. Parkway to Kerr Avenue	1,493 / 16	23,694	13	1,823 / 1,500	No[d]
			Total	**302**		

[a] Average wall height. Actual wall height at any given location may be higher or lower.

[b] A benefited receptor is a property that receives a minimum 5 dB(A) reduction in future noise levels.

[c] The likelihood for barrier construction is preliminary and subject to change, pending completion of final design and the public involvement process.

[d] Barrier is not reasonable due to the quantity per benefited receptor exceeding the allowable quantity per benefited receptor OR barrier is not reasonable due to an inability to achieve at least 7 dBA noise reduction for at least one benefited receptor.

Table 3-9: Impacted Receptor Summary for Alternative 7 with SPUI Option

NSA	Noise Barrier Name and Location	Number of Receptors	Number of Impacted and Benefited Receptors	Number of Benefited Receptors
NSA 1	Barrier 1 Along Independence Boulevard Northbound between Wrightsville Avenue and Randall Parkway	54	3	6
NSA 2	Barrier 2 Along Independence Boulevard Southbound between Mercer Avenue and Wrightsville Avenue	15	8	10
NSA 4	Barrier 4 Along proposed Independence Boulevard Northbound between Randall Parkway and Market Street	198	21	98
NSA 5	Barrier 5 Along proposed Independence Boulevard Southbound between Market Street and Mercer Avenue	118	39	47
NSA 810	Barrier 810 Along proposed Independence Boulevard Northbound between Market Street and Hurst Street	108	38	56
NSA 11	Barrier 11 Along proposed Independence Boulevard Southbound between Martin Luther King Jr. Parkway and Market Street	74	31	41
NSA 15	Barrier 15 Along the proposed ramp from eastbound Martin Luther King Jr. Parkway to Kerr Avenue	31	4	13

Table 3-10: Impacted Receptor Summary for Alternative 7 with TUDI Option

NSA	Noise Barrier Name and Location	Number of Receptors	Number of Impacted and Benefited Receptors	Number of Benefited Receptors
NSA 1	Barrier 1 Along Independence Boulevard Northbound between Wrightsville Avenue and Randall Parkway	54	3	6
NSA 2	Barrier 2 Along Independence Boulevard Southbound between Mercer Avenue and Wrightsville Avenue	15	8	10
NSA 4	Barrier 4 Along proposed Independence Boulevard Northbound between Randall Parkway and Market Street	194	26	103
NSA 5	Barrier 5 Along proposed Independence Boulevard Southbound between Market Street and Mercer Avenue	118	42	52
NSA 7	Barrier 7 Along proposed Independence Boulevard Southbound between Princess Place Drive and Market Street	41	7	22
NSA 810	Barrier 810 Along proposed Independence Boulevard Northbound between Market Street and Hurst Street	103	40	55
NSA 11	Barrier 11 Along proposed Independence Boulevard Southbound between Martin Luther King Jr. Parkway and Market Street	74	31	41
NSA 15	Barrier 15 Along the proposed ramp from eastbound Martin Luther King Jr. Parkway to Kerr Avenue	31	4	13

3.3.2 Air Quality

The Federal Clean Air Act Amendments of 1970 established the National Ambient Air Quality Standards (NAAQS). These were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The NAAQS lists the "criteria pollutants," which include sulfur dioxide (SO_2), particulate matter 10 micrometers in aerodynamic diameter and smaller (PM_{10}), particulate matter 2.5 micrometers in aerodynamic diameter and smaller ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb). Table 3-11 lists these pollutants and the standards.

Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit the criteria pollutants CO, NOx, PM, SO_2, and Pb. Additionally, motor vehicles emit CO_2(e), hydrocarbons (HC), and toxic air pollutants generally referred to as Mobile Source Air Toxics (MSAT). $O_3$is a secondary pollutant, formed in the atmosphere from directly related pollutants such as HC and oxides of nitrogen (NO_x). Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants such as ozone are often found at varying distances downwind of the precursor sources and as such are regional problems.

A project-level air quality analysis was prepared for this project (NCDOT 2020a).

Table 3-11: National Ambient Air Quality Standards

Pollutant	Primary/Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	Primary and Secondary	Rolling 3 month average	0.15 µg/m^3 [a]	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1 hour	100 ppb	mean98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Primary and Secondary	1 year	53 ppb [b]	Annual mean
Ozone (O_3)	Primary and Secondary	8 hours	0.070 ppm [c]	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
$PM_{2.5}$	Primary	1 year	9.0 µg/m^3	Annual mean, averaged over 3 years
	Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
	Primary and Secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
PM_{10}	Primary and Secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	Primary	1 hour	75 ppb [d]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	1 year	10 ppb	Annual mean, averaged over 3 years

Source: EPA 2024 (https://www.epa.gov/criteria-air-pollutants/naaqs-table)

[a] In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.

[b] The level of the annual NO_2 standard is 0.053 parts per million (ppm). It is shown here in parts per billion (ppb) for the purposes of clearer comparison to the 1-hour standard level.

[c] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

[d] The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

3.3.2.1 Affected Environment

Mobile Source Air Toxics

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that the US Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (*Federal Register*, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (EPA 2020a). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 2011 National Air Toxics Assessment (EPA 2020c). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority MSAT, the list is subject to change and may be adjusted in consideration of future EPA rules.

According to EPA, the latest model of the Motor Vehicle Emission Simulator (MOVES3.0.1) is a major update to MOVES2014b (EPA 2020b). MOVES3.0.1 includes new emission rates, updated fuel standards, and changes for functional improvement and vehicle population/activity since the release of MOVES2014b.

MOVES2014b incorporated and/or updated the effects of three new federal emissions standard rules. These new standards improved MSAT emissions and included Tier 3 emissions and fuel standards starting in 2017 (79 *Federal Register* 60344), heavy-duty greenhouse gas regulations that phase in during model years 2014-2018 (79 *Federal Register* 60344), and the second phase of light-duty greenhouse gas regulations that phase in during model years 2017-2025 (79 FR 60344). MOVES3.0.1 has kept these changes in addition to the new changes previously listed. Due to decreased emissions of newer vehicles, MOVES3.0.1 indicates a large reduction in future emissions, even with an increase in VMT.

Diesel PM is a dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES3.0.1 will notice differences in emissions compared with MOVES2014b due to various updates previously noted.

MSAT quantitative analyses are intended to capture the net change in emissions within an affected environment, defined as the transportation network affected by the project. The affected environment for MSATs may be different than the affected environment defined in the NEPA document for other environmental effects, such as noise or wetlands. Analyzing MSATs only within a geographically defined “study area” will not capture the emissions effects of changes in traffic on roadways outside of that area, which is particularly important where the project creates an alternative route or diverts traffic from one roadway class to another. At the other extreme, analyzing a metropolitan area’s entire roadway network will result in emissions estimates for many roadway links not affected by the project, diluting the results of the analysis.

Incomplete or Unavailable Information for Project-Specific MSAT Health Impact Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

EPA is responsible for protecting public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects." Each Integrated Risk Information System report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Several HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents (FHWA 2023). Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease (HEI 2007).

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by the HEI. As a result, there is no national consensus on air dose-response values assumed to protect public health and welfare for MSAT compounds, including

diesel PM. EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the US Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (US Court of Appeals 2008).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

3.3.2.2 Impacts

There may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. Because the estimated VMT under the two interchange options of Alternative 7 are nearly the same, varying by less than 1 percent, it is expected there would be no appreciable difference in overall MSAT emissions between the interchange options. The localized increases in MSAT emissions would likely be most pronounced between the Mercer Avenue/Randall Parkway intersection at the southern terminus of the proposed project and Martin Luther King Jr. Parkway at the northern terminus of the proposed project, and along the proposed ramps of Alternative 7 for both the TUDI and SPUI Options, along with a corresponding decrease in MSAT emissions along parallel routes such as Mercer Avenue, Covil Avenue, Darlington Avenue, and Kerr Avenue. However, even if these increases do occur, they too would be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under Build Alternative 7 in the 2040 Design Year, it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No-Build Alternative, due to EPA's MSAT reduction programs.

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increases localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions would decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

The proposed project, located in New Hanover County, complies with the NAAQS. The proposed project is located within an area that is in conformance with the NAAQS; therefore, 40 CFR Parts 51 and 93 addressing conformity compliance are not applicable. The project is not anticipated to create any adverse effects on the air quality of this attainment area.

3.3.3 Farmlands

Criteria for identifying and considering the effects of federal programs on the conversion of farmland to nonagricultural uses are established in the Farmland Protection Policy Act of 1981 (FPPA) (7 CFR 658; 7 United States Code [U.S.C.] 4201-4209). North Carolina Executive Order Number 96, Conservation of Prime Agricultural and Forest Lands of 1993, requires all state agencies to consider the impact of land acquisition and construction projects on prime farmland soils, as defined by the Natural Resources Conservation Service.

For the purposes of the FPPA, farmland is divided into three categories: prime, unique, or local or statewide importance (Public Law 97-98, Subtitle 1, Section 1540). The three categories are defined as follows:

- **Prime farmland** is land that has "the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soils erosion" (Public Law 97-978, Subtitle 1, Section 1540). Land already in or committed to urban development or water storage is not included.
- **Unique farmland** is land other than prime farmland used for production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed (Public Law 97-98, Subtitle 1, Section 1540).
- **State and locally important farmland** is land of statewide or local importance for the production of food, fiber, forage, or oilseed crops as determined by the appropriate state agency.

3.3.3.1 Affected Environment

There are no farmland soils eligible for protection under the FPPA as the entire study area is within the urbanized area of the City of Wilmington. Lands identified as urbanized area on US Census Bureau mapping are not subject to the provisions of the FPPA.

3.3.3.2 Impacts

There would be no impacts to farmlands as a result of the proposed project.

3.3.4 Utilities

Utility services present within the study area include electric, water, wastewater, natural gas, telephone, and cable.

3.3.4.1 Affected Environment

Electric

Electric service to residents and businesses is provided by Duke Energy. Numerous aboveground transmission lines that provide local service are present along and across roadways throughout the study area. One large high-voltage transmission line crosses the proposed project just north and west of Maides Park, south of Martin Luther King Jr. Parkway.

Water and Wastewater

The Cape Fear Public Utility Authority provides water and wastewater or sewer services to the study area.

Natural Gas

Natural gas is distributed and serviced in some portions of the study area by Piedmont Natural Gas. At the southern end of the proposed project, natural gas is available up until the intersection of Independence Boulevard and Randall Parkway. Natural gas is not available along Covil or Mercer Avenues but is available on the northern side of Market Street and extends to the north until approximately Hurst Street.

Telephone and Cable

Telephone service is provided throughout the study area by AT&T as well as several other fiber optic, satellite, and cable providers, including Verizon, DIRECTTV, DISH, Spectrum, and Viasat.

3.3.4.2 Impacts

Both DSAs would impact both private and public utilities. Impacts would include the relocation, adjustment, or modification of gas, water, sewer, electric, telephone, and fiber optic cable lines. The relocation of power poles would also be required as a result of the proposed project.

3.3.5 Hazardous Materials

Hazardous material sites are regulated by the Resource Conservation Recovery Act of 1976 and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. Hazardous materials are generally defined as material or a combination of materials that present a potential hazard to human health or the environment.

3.3.5.1 Affected Environment

The NCDOT GeoEnvironmental Section of the Geotechnical Engineering Unit investigated the study area and prepared a GeoEnvironmental Phase I Report (NCDOT 2019c) for the proposed project. The purpose of the report was to document sites of concern within the study area that are or may be contaminated. Field reconnaissance was conducted on July 7, 2019. Thirty-one sites of concern were identified within the study area, most of which are located outside of the proposed project footprint of the DSAs (Figure 3-8).

The report identifies sites that may contain underground storage tanks (17 sites), automotive repair facilities (5 sites), dry cleaning facilities (0 sites), hazardous waste producing sites (2 sites), Superfund sites (2 sites), landfills (1 site), and other potentially contaminated sites (4 sites).

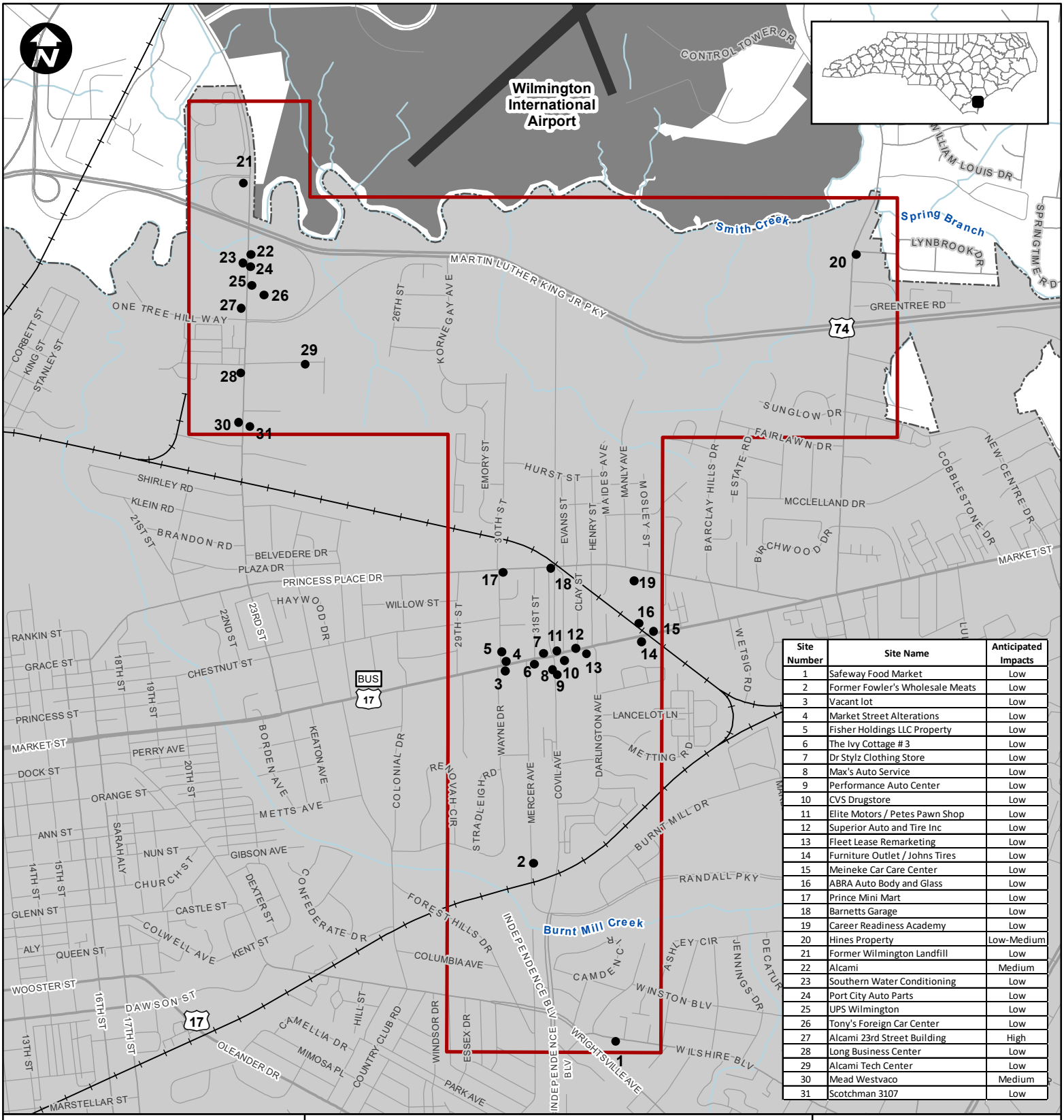
3.3.5.2 Impacts

Of the 31 sites identified in the GeoEnvironmental Phase I Report, 11 would be impacted by the proposed project (Figure 3-9 and Figure 3-10). Impacted sites are consistent between the two DSAs and include the following:

- Site 4. Market Street Alterations
- Site 5. Fisher Holdings LLC Property
- Site 6. The Ivy Cottage # 3
- Site 7. Dr Stylz Clothing Store
- Site 8. Max's Auto Service
- Site 9. Performance Auto Center
- Site 10. CVS Drugstore
- Site 11. Elite Motors / Petes Pawn Shop
- Site 12. Superior Auto and Tire Inc
- Site 13. Fleet Lease Remarketing
- Site 18. Barnetts Garage

The Superfund sites consist of a vacant residential lot (Site 20. Hines Property) and a business office complex (Site 27. Alcami 23rd Street Building). Both sites are beyond the proposed project footprint for the DSAs.

The landfill that was identified is a pre-regulatory (former) landfill owned by the City of Wilmington (Site 21. Former Wilmington Landfill). It is located at the corner of Martin Luther King Jr. Parkway and 23rd Street and would not be impacted by the proposed project.



Site Number	Site Name	Anticipated Impacts
1	Safeway Food Market	Low
2	Former Fowler's Wholesale Meats	Low
3	Vacant lot	Low
4	Market Street Alterations	Low
5	Fisher Holdings LLC Property	Low
6	The Ivy Cottage # 3	Low
7	Dr Stylz Clothing Store	Low
8	Max's Auto Service	Low
9	Performance Auto Center	Low
10	CVS Drugstore	Low
11	Elite Motors / Petes Pawn Shop	Low
12	Superior Auto and Tire Inc	Low
13	Fleet Lease Remarketing	Low
14	Furniture Outlet / Johns Tires	Low
15	Meineke Car Care Center	Low
16	ABRA Auto Body and Glass	Low
17	Prince Mini Mart	Low
18	Barnetts Garage	Low
19	Career Readiness Academy	Low
20	Hines Property	Low-Medium
21	Former Wilmington Landfill	Low
22	Alcami	Medium
23	Southern Water Conditioning	Low
24	Port City Auto Parts	Low
25	UPS Wilmington	Low
26	Tony's Foreign Car Center	Low
27	Alcami 23rd Street Building	High
28	Long Business Center	Low
29	Alcami Tech Center	Low
30	Mead Westvaco	Medium
31	Scotchman 3107	Low

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

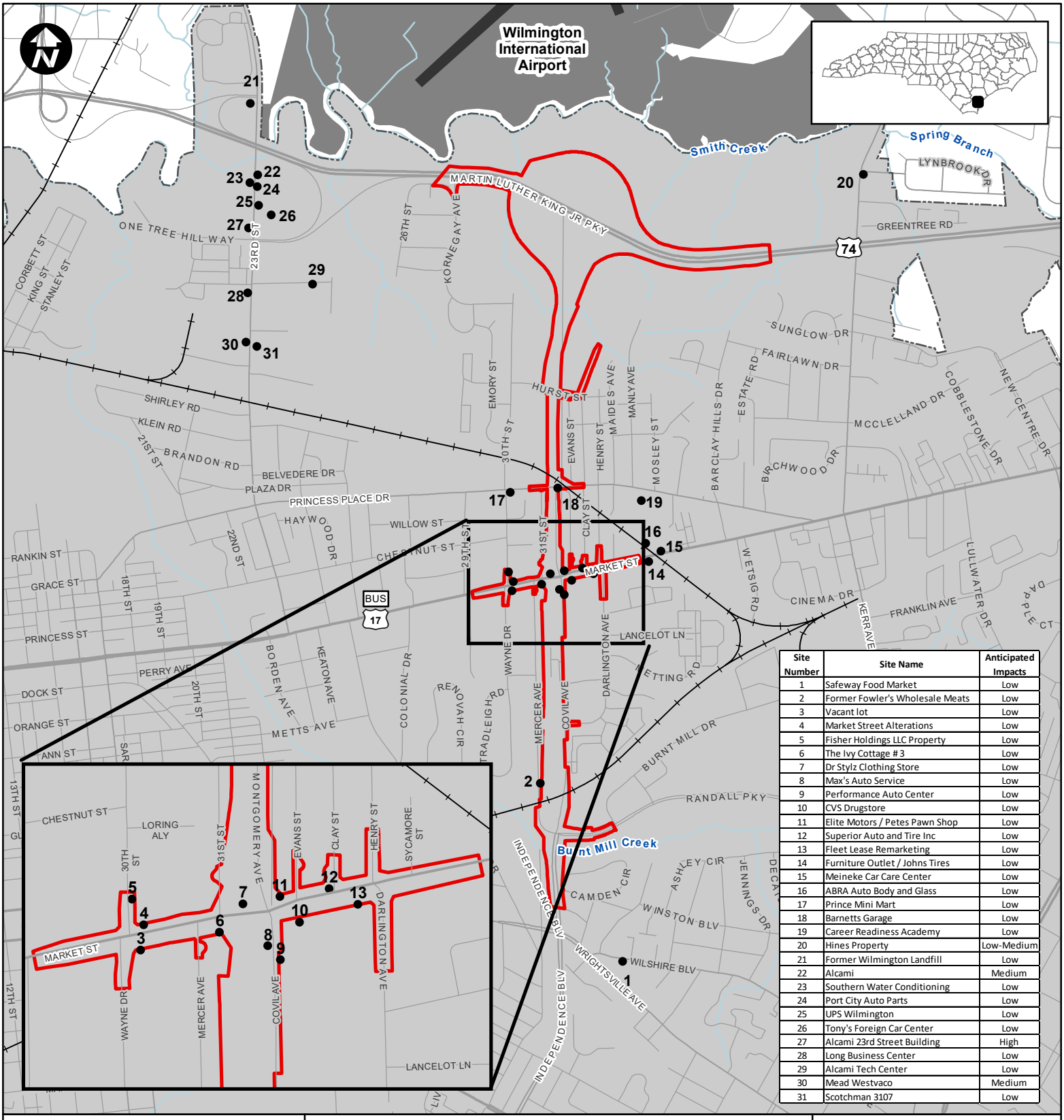
- Geoenvironmental Site of Concern
- Railroad
- Stream
- Study Area
- Municipal Boundary
- County Boundary
- Municipal Boundary

Figure 3-8
Geoenvironmental Sites of Concern

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet



Site Number	Site Name	Anticipated Impacts
1	Safeway Food Market	Low
2	Former Fowler's Wholesale Meats	Low
3	Vacant lot	Low
4	Market Street Alterations	Low
5	Fisher Holdings LLC Property	Low
6	The Ivy Cottage # 3	Low
7	Dr Stylz Clothing Store	Low
8	Max's Auto Service	Low
9	Performance Auto Center	Low
10	CVS Drugstore	Low
11	Elite Motors / Petes Pawn Shop	Low
12	Superior Auto and Tire Inc	Low
13	Fleet Lease Remarketing	Low
14	Furniture Outlet / Johns Tires	Low
15	Meineke Car Care Center	Low
16	ABRA Auto Body and Glass	Low
17	Prince Mini Mart	Low
18	Barnetts Garage	Low
19	Career Readiness Academy	Low
20	Hines Property	Low-Medium
21	Former Wilmington Landfill	Low
22	Alcami	Medium
23	Southern Water Conditioning	Low
24	Port City Auto Parts	Low
25	UPS Wilmington	Low
26	Tony's Foreign Car Center	Low
27	Alcami 23rd Street Building	High
28	Long Business Center	Low
29	Alcami Tech Center	Low
30	Mead Westvaco	Medium
31	Scotchman 3107	Low

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

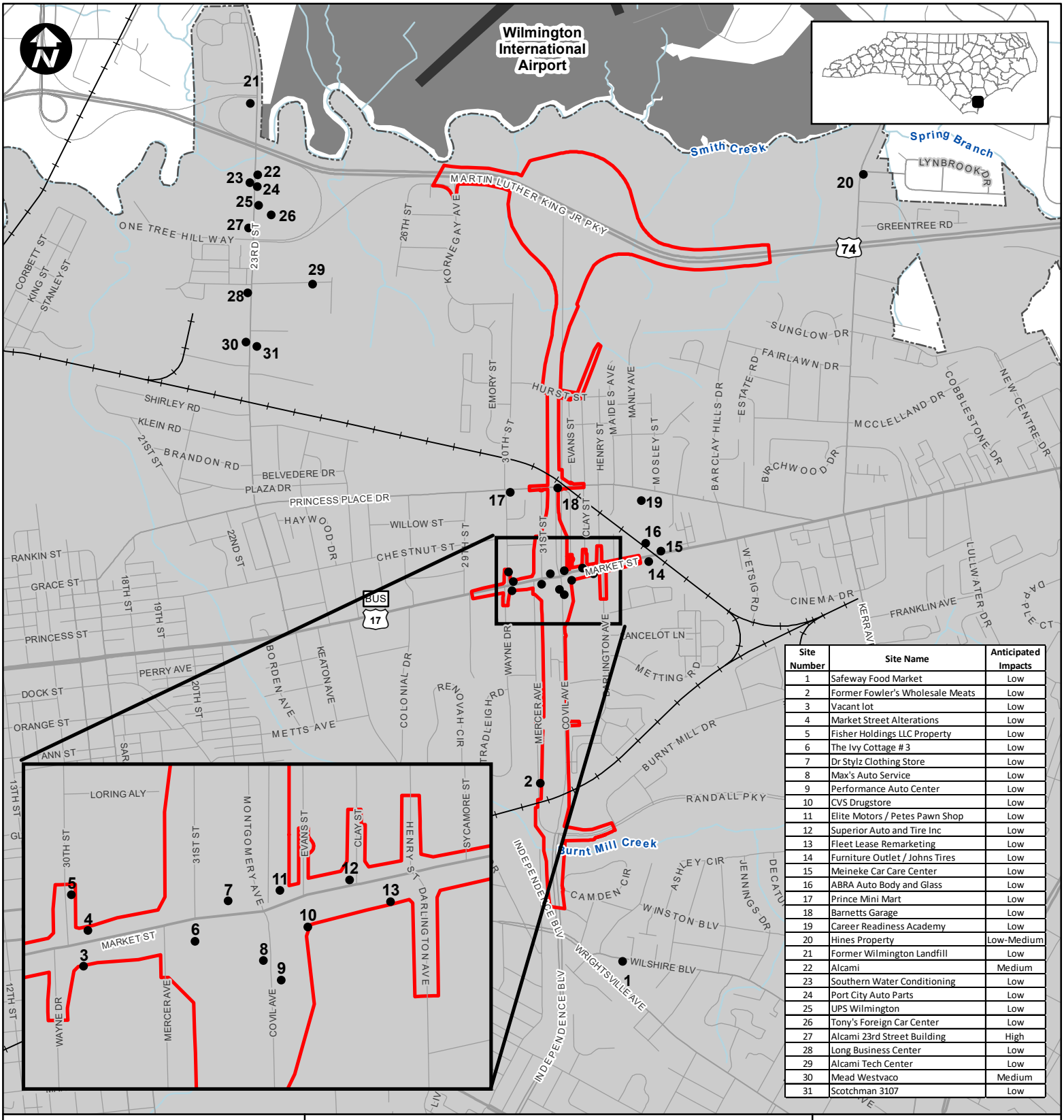
- Geoenvironmental Site of Concern
- Railroad
- Stream
- Municipal Boundary
- County Boundary
- Municipal Boundary
- SPUI Right-of-Way

Figure 3-9
Geoenvironmental Sites of Concern - Alt 7 SPUI Option

Date: January 2025

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet



Site Number	Site Name	Anticipated Impacts
1	Safeway Food Market	Low
2	Former Fowler's Wholesale Meats	Low
3	Vacant lot	Low
4	Market Street Alterations	Low
5	Fisher Holdings LLC Property	Low
6	The Ivy Cottage # 3	Low
7	Dr Stylz Clothing Store	Low
8	Max's Auto Service	Low
9	Performance Auto Center	Low
10	CVS Drugstore	Low
11	Elite Motors / Petes Pawn Shop	Low
12	Superior Auto and Tire Inc	Low
13	Fleet Lease Remarketing	Low
14	Furniture Outlet / Johns Tires	Low
15	Meineke Car Care Center	Low
16	ABRA Auto Body and Glass	Low
17	Prince Mini Mart	Low
18	Barnetts Garage	Low
19	Career Readiness Academy	Low
20	Hines Property	Low-Medium
21	Former Wilmington Landfill	Low
22	Alcami	Medium
23	Southern Water Conditioning	Low
24	Port City Auto Parts	Low
25	UPS Wilmington	Low
26	Tony's Foreign Car Center	Low
27	Alcami 23rd Street Building	High
28	Long Business Center	Low
29	Alcami Tech Center	Low
30	Mead Westvaco	Medium
31	Scotchman 3107	Low

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Geoenvironmental Site of Concern
- Railroad
- Municipal Boundary
- County Boundary
- Municipal Boundary
- SPUI Right-of-Way

Figure 3-10
Geoenvironmental Sites of Concern - Alt 7 TUDI Option

Date: January 2025

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

3.3.6 Mineral Resources

The proposed project is located within the Coastal Plain physiological province. This province is characterized by flat land to gently rolling hills and valleys. Elevations range from sea level near the coast to about 600 feet in the sandhills of the southern Inner Coastal Plain.

The study area is underlain by the Castle Hayne Formation, which is characterized by cobble to pebble sized clasts, usually rounded, coated with phosphate and glauconite in a limestone matrix. The New Hanover member for the formation is the oldest member. The formation is known for containing fossils dating back to the Paleogene period and preserves many of North Carolina's renowned Eocene fossils. The most common fossils are shark and ray teeth (United States Geological Survey [USGS] 2021).

Thorium, iron, chromium, sand, and crushed stone are mined in the Wilmington area.

3.3.6.1 Affected Environment

There are no active mining operations located within the study area (NCDEQ 2021, USGS 2021).

3.3.6.2 Impacts

There would be no impacts to mineral resources as a result of the proposed project.

3.3.7 Floodplains/Floodways

Floodplains and floodways are mapped by the Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program. Floodplains are low-lying areas adjacent to a water feature that experience frequent flooding. FEMA designates the severity of such flooding by assigning flood zones. A floodway is defined as the channel of a river or watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations (FEMA 2024).

3.3.7.1 Affected Environment

The study area is contained within the Cape Fear River Basin in eastern North Carolina. The entire basin covers approximately 9,000 square miles and flows through 29 counties. The study area lies within the Northeast Cape Fear sub-basin.

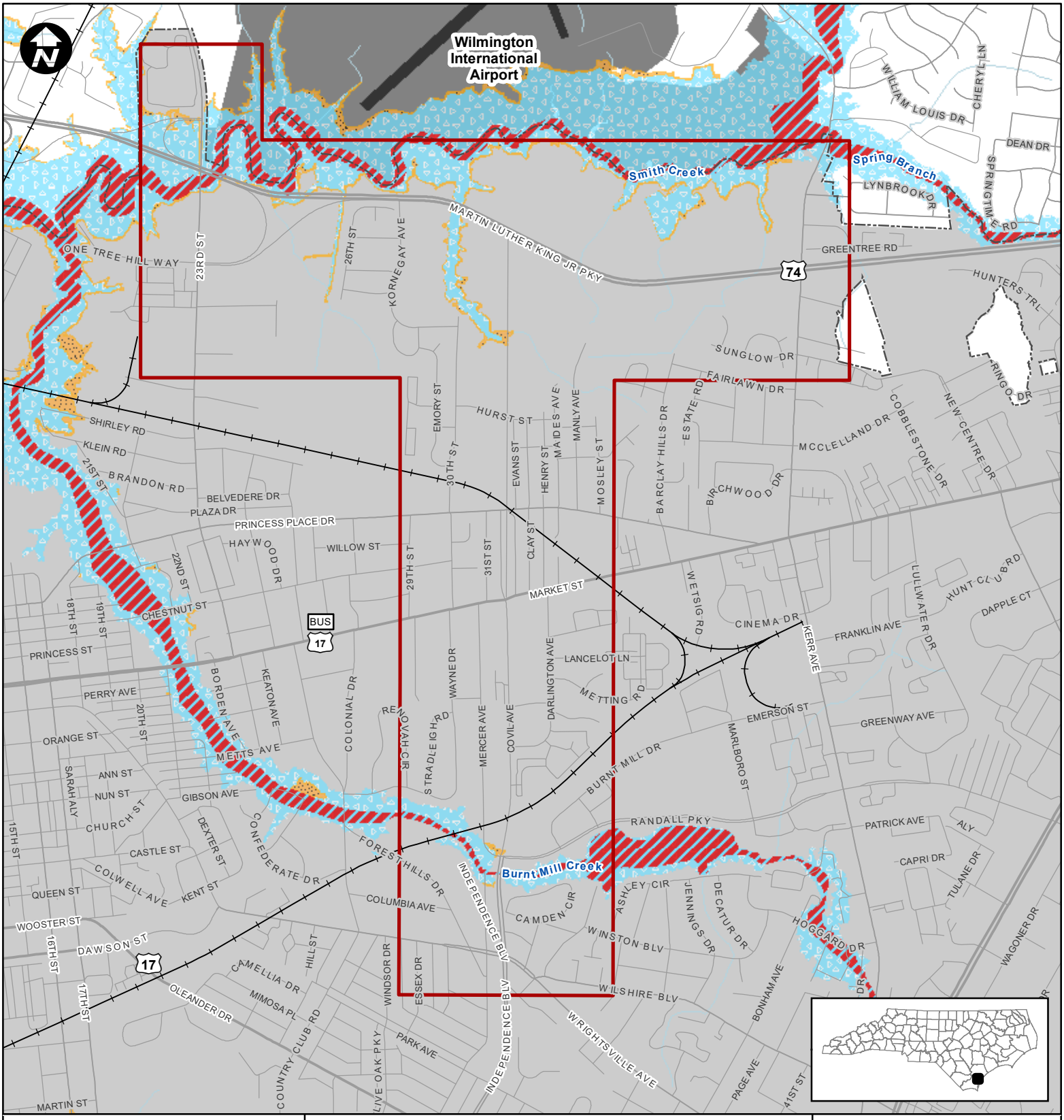
New Hanover County is a participant in the National Flood Insurance Program administered by FEMA. Flood Insurance Rate Maps indicate that 100-year and 500-year floodplains as well as FEMA regulated floodways are present within the study area (FEMA 2024).

The Hydraulic Aspects Report (NCDOT 2014b) identifies four major hydraulic crossings associated with the proposed project (Table 3-12). Crossings 1 and 3 are within the mapped flood boundaries of Smith Creek. Crossing 2 is within mapped floodway limits for Burnt Mill Creek.

Within the study area, Burnt Mill Creek and Smith Creek are located within FEMA regulatory floodways. Floodplains and floodways are shown on Figure 3-11.

Table 3-12: Major Hydraulic Crossing Summary

Crossing	Waterbody	FEMA Flood Study	Existing Structure	Recommended Structure
1	Tributary to Smith Creek	Backwater	None	1 at 9 feet by 8 feet RCBC with 1 foot buried
2	Burnt Mill Creek	Detailed study	2 at 12 feet x 10 feet RCBC	2 at 12 feet by 10 feet RCBC extension with 1 foot buried
3	Tributary to Smith Creek	Backwater	1 at 72 inches RCP 1 at 9 feet by 6 feet RCBC 3 at 72 inches RCP	1 at 72 inches RCP extension 1 at 9 feet by 6 feet RCBC extension 3 at 72 inches RCP extension



Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Railroad
- Stream
- Municipal Boundary
- County Boundary
- Municipal Boundary

Flood Hazard Zones

- Regulatory Floodway
- 100-year Floodplain
- 500-year Floodplain

Figure 3-11
Floodplains and Floodways

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

3.3.7.2 Impacts

Impacts to floodplains and floodways would occur with either DSA and are presented in Table 3-13 and shown on Figure 3-12 and Figure 3-13.

Table 3-13: Floodplain and Floodway Impacts

FEMA Designation	Alternative 7 with SPUI Option (acres)	Alternative 7 with TUDI Option (acres)
Floodplains – 100-year including Floodway	4.9	5.0
Floodplains – 500-year	1.3	1.3
Floodway	0.4	0.4

Note: Impacts are based on preliminary design slope stake limits plus a 25-foot buffer.

3.3.8 Protected Lands

Protected lands include wild and scenic rivers, state and national forests, gamelands, and other preservation areas.

3.3.8.1 Affected Environment

Wild and Scenic Rivers

No rivers or sections of river within or near the study area are designated as wild, scenic, or recreational under the National Wild and Scenic Rivers Act of 1968.

State/National Forests

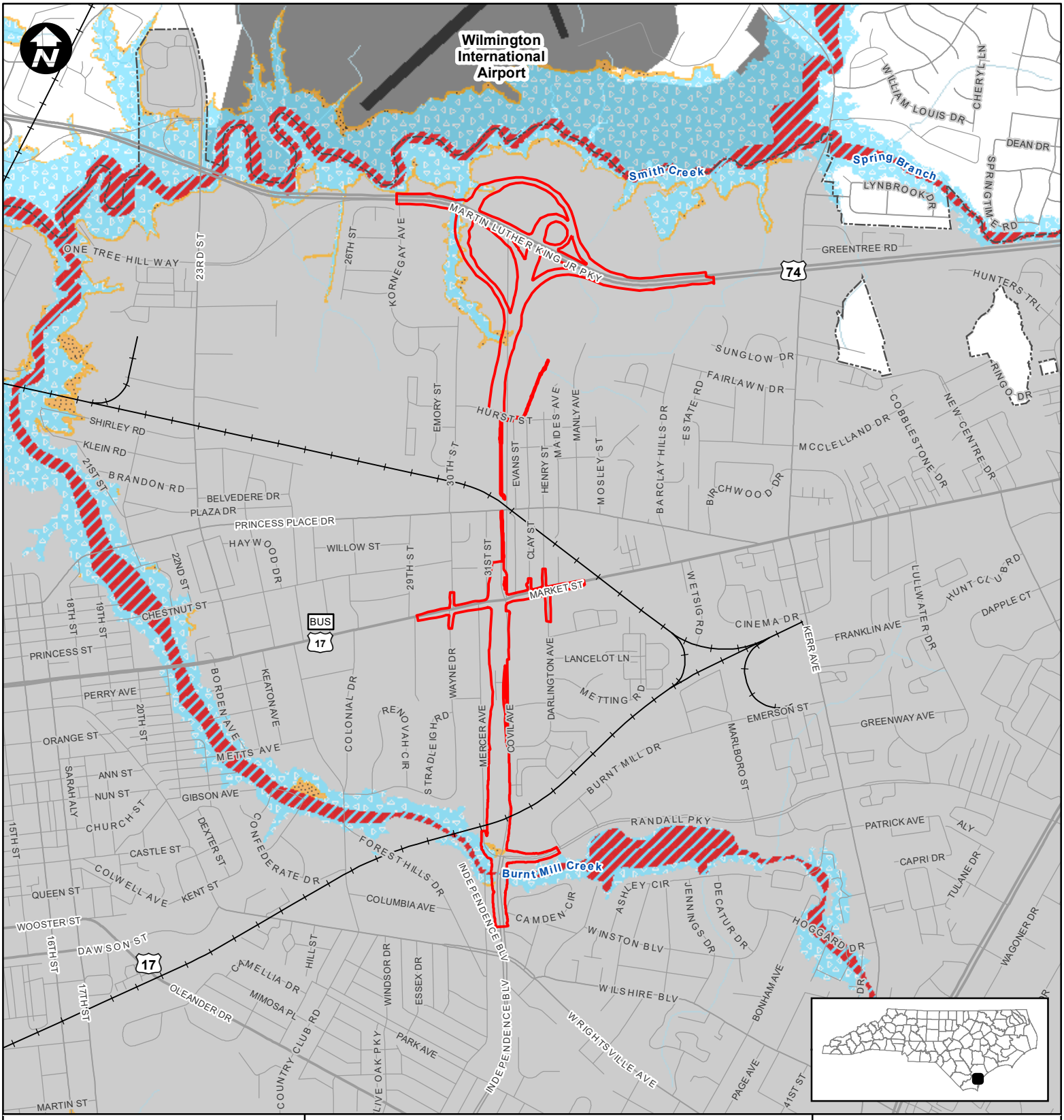
No state or national forests are located within the study area.

Gamelands and Preservation Areas

There are no gamelands, NCDOT mitigation sites, or natural areas located within the study area. There is one property, Maides Park, designated as New Hanover County Open Space located within the study area (North Carolina Natural Heritage Program [NCNHP] 2022).

3.3.8.2 Impacts

The proposed greenway along the east side of the proposed roadway connects the Cross-City Trail at Randall Parkway to Maides Park. In order to make the connection, minor impacts are anticipated within Maides Park; however, the impacts anticipated include minor ground disturbance and would not impact the use of the park.



Independence Boulevard Extension Project
STIP U-4434

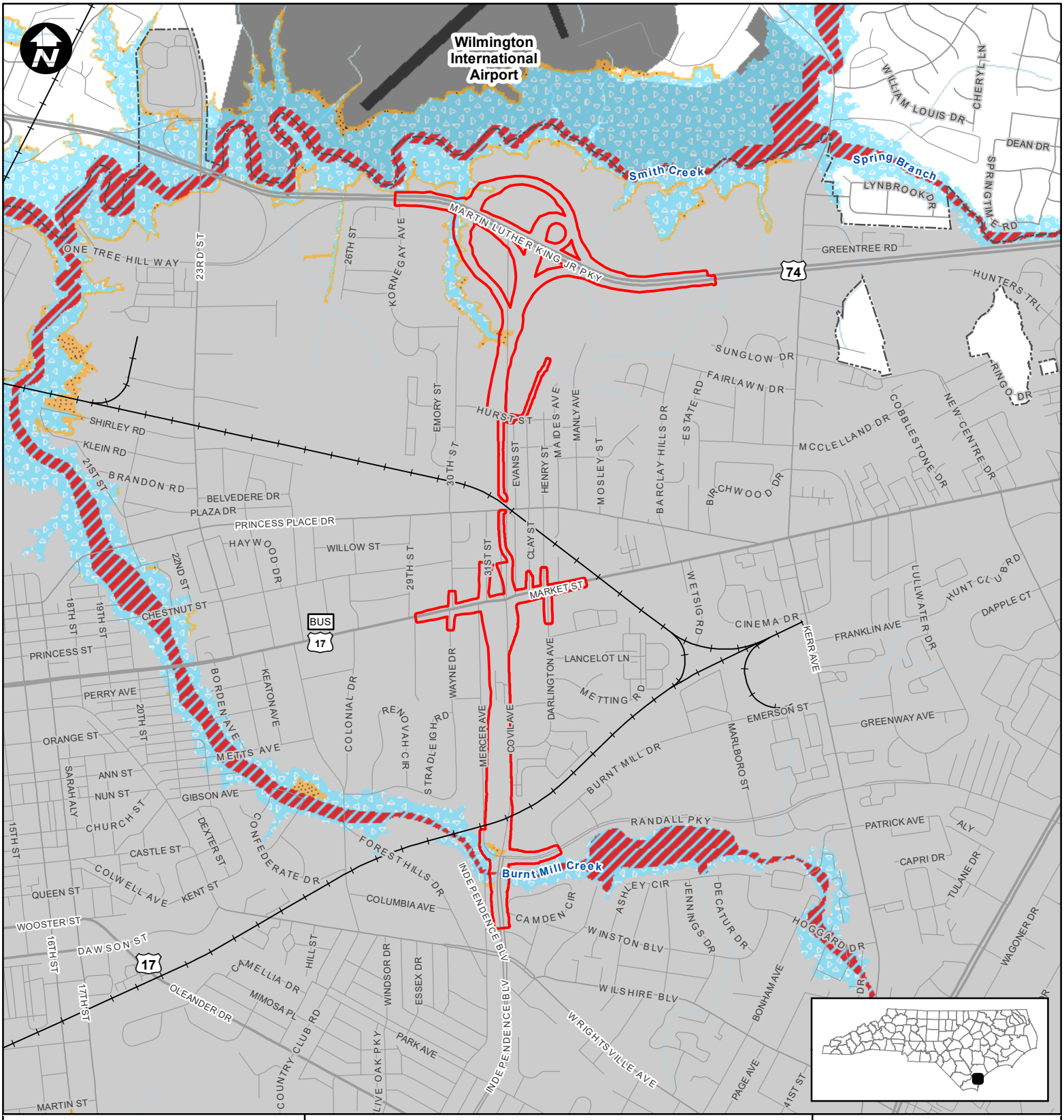
New Hanover County

Figure 3-12
Floodplains and Floodways - Alternative 7 with SPUI Option

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet



Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Railroad
- Stream
- TUDI Slope Stakes plus 25 feet
- Municipal Boundary
- County Boundary
- Municipal Boundary

Flood Hazard Zones

- Regulatory Floodway
- 100-year Floodplain
- 500-year Floodplain

Figure 3-13
Floodplains and Floodways - Alternative 7 with TUDI Option

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

3.3.9 Visual and Aesthetics

The FHWA *Guidelines for the Visual Impact Assessment of Highway Projects* (FHWA 2015) was referenced as guidance in conducting analyses related to visual and aesthetic conditions and impacts of the proposed project.

3.3.9.1 Affected Environment

The proposed project is located in the coastal plain regional landscape of North Carolina characterized by flat terrain with limited background views. Along Market Street, overhead powerlines are located on both sides of the street. Single powerline poles and wires are also located along many of the residential side streets within the study area. Land uses within the study area are primarily dense commercial and residential development with some undeveloped lands immediately south of Martin Luther King Jr. Parkway.

The FHWA guidelines recognize three types of visual perception that determine the visual quality. Visual quality is evaluated by identifying the vividness, intactness, and unity in the project. The three criteria for evaluating visual quality are defined below:

- Natural Harmony – when viewing the components of a scene's natural environment, viewers inherently evaluate the natural harmony of the existing scene, determining whether the composition is harmonious or inharmonious.
- Cultural Order – when viewing the components of the cultural environment, viewers evaluate the scene's cultural order, determining whether the composition is orderly or disorderly.
- Project coherence – when viewing the project environment, viewers evaluate the coherence of the project components, determining whether the project's composition is coherent or incoherent.

Overall, existing visual quality in the study area is low. Existing foreground views within much of the study area are dominated by varying heights of vegetation and utility infrastructure with transportation infrastructure located at-grade. Background views include varying heights, forms, lines, and colors, such as a mix of greens and tans from vegetation and grays from roadway features.

3.3.9.2 Impacts

Viewers are defined by their relationship to the project and their visual preferences. Neighbors (people with views to the road) and highway users (people with views from the road) would be affected by the proposed project. Highway users predominately include travelers on Market Street and other side streets. Neighbors include residential and pedestrian viewers. Viewer exposure and viewer sensitivity determine the overall viewer response to the proposed changes.

Viewer exposure for highway users would be moderate with regular exposure for a short period of time and moderate proximity to the view. Exposure for neighbors, specifically those bordering the project would be high as there are many viewers with consistent exposure for long periods of time, and some with an unobstructed line of sight. Viewer sensitivity for highway users and neighbors would be

moderate as their focus is on the roadway and existing views of the area are not important to the values and goals of the viewer.

The proposed project would result in a moderately high level of impact to viewers. While there are no distinctive visual resources within the study area, viewers would be introduced to additional transportation infrastructure that includes new heights, forms, colors, and elements not currently in the view of neighbors. Adverse effects would likely result from the location, proximity, and size of the proposed infrastructure relative to potential viewers. Mitigation measures with input from the public such as landscaping, street tree plantings, and context-sensitive design solutions could decrease the level of adverse effects on viewers.

3.4 Cultural Resources

The proposed project is subject to compliance with Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800; 54 U.S.C. 300101-307108), which requires federal agencies to take into account the effects of their undertaking on properties listed on or eligible for listing on the National Register of Historic Places (NRHP) (including archaeological sites) and afford the Advisory Council on Historic Preservation an opportunity to comment on the effects of the undertaking.

Section 110(f) of the NHPA requires that federal agencies considering undertakings that may directly and adversely affect National Historic Landmarks, "to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark, and shall afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking" [Section 110(a)(2)(B) and Section 110(f)].

A historic property, or historic resource, is defined in the NHPA as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to such a property or resource.

The methods used to identify historic architectural and archaeological resources in the study area and the results of those investigations are described in this section.

3.4.1 Historic Architectural Resources

Historic architectural resources are defined the same as historic properties above, and include sites, buildings, structures, and other modifications to the landscape.

1.1.1.2 Affected Environment

The North Carolina State Historic Preservation Office (NC HPO) reviewed the study area for historic architectural resources in 2012 and again in 2019. In a letter dated April 23, 2012, and email correspondence dated March 28, 2019, it was determined the project would not have an effect on any historic structures (Appendix G).

1.1.1.3 Impacts

There would be no impacts to historic architectural resources as a result of the proposed project.

3.4.2 Archaeological Resources

Archaeological sites are defined the same as historic properties and are further defined as a location that contains the physical evidence of past human behavior that allows for interpretation.

1.1.1.4 Affected Environment

An archaeological survey (Phase I and II studies) for the proposed project was completed in August 2019 (NCDOT 2019d). During the survey, two sites were recorded within the study area. Site 1 (31NH886) is a historic cemetery (Maides Cemetery). Site 2 (31NH887) is a prehistoric site on the south side of Martin Luther King Jr. Parkway that produced numerous ceramic sherds. The site was found to consist of artifacts from at least four different time periods.

31NH886, as a historic cemetery, does not meet special criteria consideration for being considered eligible for the NRHP. Site 1 is not recommended as eligible and is outside the Area of Potential Effect (APE) for the proposed project.

31NH887 is recommended as eligible for the NRHP under Criterion D based on the vertical and horizontal integrity of the prehistoric occupations represented. The site produced prehistoric lithic and ceramic artifacts. The spread of cultural materials manifests as three loci of artifact concentrations horizontally across the site. Initial analysis of pottery types indicates that the different loci represent use during different time periods suggesting horizontally discrete occupations within the site. Prehistoric cultural periods represented, and their associated locus include Late Archaic Hamp's Landing Phase (Locus 3), Early Woodland New River Phase (Locus 1), Middle Woodland Cape Fear River Phase (Loci 1 and 3), and Late Woodland Hanover Phase II (Locus 2).

In a letter dated March 31, 2020, the NC HPO concurred with the findings of the archaeological assessment (Appendix G).

1.1.1.5 Impacts

Site 31NH887 would be impacted by either DSA. The entirety of the site (1.53 acres) falls within the proposed project footprint.

The archaeological assessment recommends avoidance of 31NH887 if possible. If not possible, the assessment recommended that adverse effects to the site be mitigated as appropriate prior to any ground disturbing activities.

In a letter dated March 31, 2020, the NC HPO concurred with the findings of the archaeological assessment and recommended "mitigation in the form of additional data recovery be conducted. The mitigation is recommended because the site's proximity to Martin Luther King Jr Parkway and the future Independence Boulevard intersection make avoidance of this important archaeological site improbable. We further recommend that disturbance by the NCDOT Wildlfower Program, for which a portion of the site is currently being used, be discontinued until the archaeology is complete" (Appendix G).

3.5 Natural Environmental Characteristics

Aspects of the existing natural environment in the study area presented in this section were obtained from the Natural Resources Technical Report (NRTR) (NCDOT 2019b). The NRTR identified resources including soils and geology, biotic communities and wildlife, water resources, and jurisdictional issues such as wetlands and protected species within the NRTR study area boundary, different from the study area for the proposed project, as shown on Figure 3-14.

The study area is in the Coastal Plain physiographic province of North Carolina. Topography in the project vicinity is characterized as nearly level, with wide upland surfaces. Elevations in the study area range from sea level to 75 feet above mean sea level. Land use within the project vicinity includes a mixture of residential, commercial, industrial, and forested woodland areas.

3.5.1 Soils/Topography/Geology

3.5.1.1 Affected Environment

The New Hanover County Soil Survey identifies 16 soil unit types within the study area (United States Department of Agriculture [USDA] 2019).

3.5.1.2 Impacts

Soil properties along the DSAs could affect the final engineering design of the proposed project. The most common soil limitations within the study area include poor drainage, high water table, susceptibility to flooding, and loose, sandy soils.

3.5.2 Terrestrial Communities and Wildlife

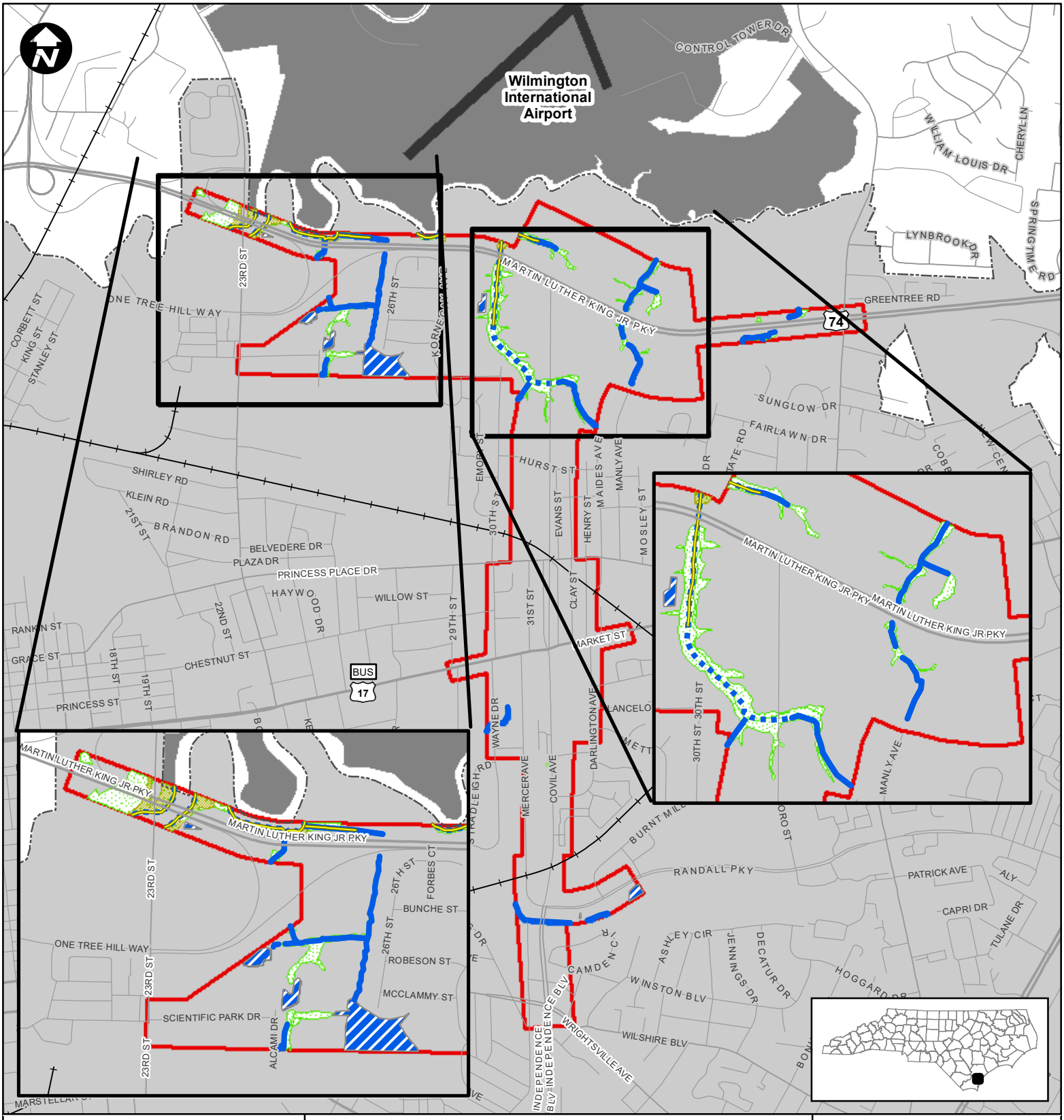
3.5.2.1 Affected Environment

Seven terrestrial communities were identified in the study area. Forest areas provide connectivity between populations, allowing for gene flow, as well as a means of safe travel from one foraging area to another. Terrestrial community data are presented in the context of total coverage of each type within the study area in Table 3-14.

1.1.1.6 Impacts

Terrestrial communities found along the DSAs serve as shelter, nesting, and foraging habitat for a number of wildlife species. Both DSAs would result in direct impact to both natural and altered terrestrial communities through clearing of vegetation, grading, and paving. Impacts to terrestrial communities and forest habitats are shown in Table 3-15.

Fragmentation and loss of forested habitat may impact wildlife in the area by reducing potential nesting and foraging areas, as well as displacing animal populations.



Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Approximated Stream
- Streams
- Railroad
- Surface Waters
- Wetlands
- CAMA Estuarine Waters
- CAMA Wetlands
- NRTR Study Area
- Municipal Boundary
- County Boundary
- Municipal Boundary

Figure 3-14
Jurisdictional Resources

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

Table 3-14: Coverage of Terrestrial Communities

Community	Dominant Species (scientific name)	Coverage (acres)
Maintained/disturbed	Chinese privet (*Ligustrum sinense*) Kudzu (*Pueraria montana*) Grasses (*Graminae* spp.)	374
Pine Flatwoods[a]	Loblolly pine (*Pinus taeda*) Sweetgum (*Liquidambar styraciflua*) Red maple (*Acer rubrum*)	185.8
Mesic Mixed Hardwood Forest (Coastal Plain Subtype) [a]	Loblolly pine (*Pinus taeda*) American sycamore (*Platanus occidentalis*) Live oak (*Quercus virginiana*)	22.1
Cypress Gum Swamp (Brownwater Subtype) [a]	Bald cypress (*Taxodium distichum*) Black gum (*Nyssa sylvatica*) Giant cane (*Arundinaria gigantea*)	11.5
Coastal Plain Bottomland Hardwood Forest (Brownwater Subtype) [a]	Sweetgum (*Liquidambar styraciflua*) Smooth alder (*Alnus serrulata*) Royal fern (*Osmunda regalis*)	9.2
Tidal Cypress Gum Swamp[a]	Bald cypress (*Taxodium distichum*) Titi (*Cyrilla racemiflora*) Swamp rose (*Rosa palustris*)	13.6
Pine Scrub Oak Sandhill[a]	Longleaf pine (*Pinus palustris*) Southern red oak (*Quercus falcata*) Wiregrass (*Aristida stricta*)	16.2
	Total	**632.4**

[a]Terrestrial communities considered to be forested lands.

Table 3-15: Terrestrial Community Impacts

Terrestrial Community	Alternative 7 with SPUI Option (acres)	Alternative 7 with TUDI Option (acres)
Maintained/disturbed	93.2	100.7
Pine Flatwoods[a]	68.3	68.7
Mesic Mixed Hardwood Forest (Coastal Plain Subtype) [a]	0.3	0.9
Cypress Gum Swamp (Brownwater Subtype) [a]	1.3	1.3
Coastal Plain Bottomland Hardwood Forest (Brownwater Subtype) [a]	1.4	1.4
Tidal Cypress Gum Swamp[a]	2.0	2.0
Pine Scrub Oak Sandhill [a]	3.9	3.9
Forest Impacts	77.2	78.2

Note: Impacts were calculated using the preliminary design right-of-way limits.

[a]Terrestrial communities considered to be forested lands and used to calculate forest impacts.

Temporary fluctuation in populations of animal species that use terrestrial areas is anticipated during construction. Slow-moving, burrowing, and subterranean organisms would be directly impacted by construction activities, while mobile organisms would be displaced to adjacent communities. Habitat reduction can occur when project construction affects undisturbed areas surrounding an existing man-dominated environment. When this occurs, competitive forces in the adapted communities would result in a redefinition of population equilibrium.

3.5.3 Water Resources

3.5.3.1 Affected Environment

Water resources in the study area are part of the Cape Fear River basin (USGS Hydrologic Unit 03030007).

The NRTR study area contains delineations from overlapping projects, including a jurisdictional determination for Bruce B. Cameron – Trustee/Cameron Management (SAW-2006-41650), Kerr Avenue Widening (STIP Project U-3338B&C), and the 23rd Street to 26th Street Connector Project (STIP Project U-5926). The approved Preliminary Jurisdictional Determination, associated mapping, and Stream Determination Letter are located in Appendix H.

Streams

Fourteen jurisdictional streams were identified within the study area. The physical and jurisdictional characteristics of these streams are provided in Table 3-16 and Table 3-17, and the location of these streams is reflected on Figure 3-14. No high-quality waters, outstanding resource waters, or water supply watersheds are within 1 mile downstream of the study area. Surface waters are protected based on their designated "best uses" as defined in the surface water classifications established in Title 15A of the North Carolina Administrative Code (NCAC), subchapter 02B. Waters within the NRTR study area are classified as C;Sw (Critical Area; Swamp Waters). Class C waters are protected for uses such as secondary recreation, fishing, wildlife, fish consumption, aquatic life, and agriculture. Secondary recreations include wading, boating, and other uses involving human body contact with water. Swamp waters recognize waters that have low velocities and other natural characteristics that are different from adjacent streams.

Table 3-16: Streams in the Study Area

Stream Name	ID [a]	Stream Index Number	Best Usage Classification	Bank Height (feet)	Bankful Width (feet)	Water Depth (inches)
Smith Creek [b]	Smith Creek	18-74-63	C;Sw	1	300	60
UT to Smith Creek	SA	18-74-63	C;Sw	1	2	6
UT to Smith Creek	SB	18-74-63	C;Sw	20-30	40-50	36
UT to Smith Creek	SD	18-74-63	C;Sw	1-2	3-4	6-8
UT to Smith Creek	SF	18-74-63	C;Sw	1-2	2-3	4

Stream Name	ID [a]	Stream Index Number	Best Usage Classification	Bank Height (feet)	Bankful Width (feet)	Water Depth (inches)
UT to Smith Creek	SG	18-74-63	C;Sw	2	7-8	3
UT to Smith Creek	SH	18-74-63	C;Sw	4-6	10-15	6-36
UT to Smith Creek	SJ	18-74-63	C;Sw	2	4	3
UT to Burnt Mill Creek	SK	18-74-63-2	C;Sw	2-3	4-5	2-36
UT to Burnt Mill Creek	SL	18-74-63-2	C;Sw	10-15	15-20	36-48
UT to Smith Creek	SM	18-74-63	C;Sw	1-2	1-2	3-6
UT to Smith Creek	SN	18-74-63	C;Sw	3	4-5	3-6
UT to Smith Creek	SO	18-74-63	C;Sw	1-2	4-5	6-12
UT to Smith Creek	SR	18-74-63	C;Sw	2	3	6-12

[a] Refer to Figure 3-14.

[b] Smith Creek was not field delineated. Estimated location is shown on Figure 3-14.

UT = Unnamed Tributary

Table 3-17: Characteristics of Jurisdictional Streams in the Study Area

ID [a]	Length (feet)	Classification	Compensatory Mitigation Required	River Basin Buffer
Smith Creek	1,877 [b]	Perennial	Yes	Not Subject
SA	338	Intermittent	Yes	Not Subject
SB (U-5926, 2011, and 2019)	2,199 [c]	Perennial	Yes	Not Subject
SD (U-5926 and 2011)	863 [d]	Intermittent/ Perennial	Yes	Not Subject
SF (U-5926)	186	Intermittent	Yes	Not Subject
SG	356	Perennial	Yes	Not Subject
SH	3,777 [e]	Perennial	Yes	Not Subject
SJ	1,831	Perennial	Yes	Not Subject
SK	590	Intermittent	Yes	Not Subject
SL	1,319	Perennial	Yes	Not Subject
SM	263	Intermittent	Yes	Not Subject
SN	510	Perennial	Yes	Not Subject
SO	349	Perennial	Yes	Not Subject
SR	601 [f]	Intermittent/ Perennial	Yes	Not Subject
Total	**15,059**			

[a] Refer to Figure 3-14.

[b] All of Smith Creek is estuarine waters (1,877 feet)

[c] 504 feet of Stream SB are estuarine waters

[d] 64 feet of Stream SD are tributary waters

[e] 1,279 feet of Stream SH are estuarine waters

[f] 304 feet of Stream SR are estuarine waters

Wetlands

Eighteen jurisdictional wetlands were identified within the study area (Table 3-18). The locations of these wetlands are shown on Figure 3-14. All wetlands in the study area are located within the Cape Fear River Basin, USGS Hydrologic Unit 03030007.

Wetlands labeled ”C-”are features and/or portions of features contained within the approved delineation for the Bruce B Cameron-Trustee/Cameron Management property (as shown on Figure 3-14). The approved Preliminary Jurisdictional Determination, associated mapping, and Stream Determination Letter are located in Appendix H.

Table 3-18: Characteristics of Jurisdictional Wetlands in the Study Area

ID [a]	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating [b]	Area (acres)
WA	Tidal Freshwater Marsh	Tidal	85	6.41 [c]
WC	Floodplain Pool	Riparian	19	0.19
WD	Non-Tidal Freshwater Marsh	Riparian	38	0.15
WE	Riverine Swamp Forest	Tidal/Riparian	77	8.34 [d]
C-WE	Riverine Swamp Forest	Riparian	77	3.47
WG	Riverine Swamp Forest	Riparian	26	1.02
WJ	Headwater Forest	Riparian	34	0.03
WK	Headwater Forest	Riparian	34	0.02
WL	Headwater Forest	Riparian	34	0.08
WN	Riverine Swamp Forest	Riparian	43	0.75
WO	Riverine Swamp Forest	Riparian	51	0.16
C-WO	Tidal Freshwater Marsh	Tidal	81	2.59
WS	Non-Riverine Swamp Forest	Non-Riparian	40	0.06
WT	Headwater Forest	Riparian	48	0.07
C-WT	Headwater Forest	Riparian	48	0.36
C-WU	Riverine Swamp Forest	Riparian	40	1.60
WV	Riverine	Riparian	N/A	2.30
WW	Non-Riverine Swamp Forest	Non-Riparian	N/A	0.09
			Total	**27.69**

[a] Refer to Figure 3-14.
[b] NCDWQ Wetland Ratings are no longer required per the new 2017 NRTR Guidance (NCDOT 2017a). These features were delineated prior to the implementation of NCSAM/NCWAM ratings.
[c] 2.52 acres of Wetland WA are coastal wetland.
[d] 0.31 acre of Wetland WE are coastal wetland.
NCWAM – NC Wetland Assessment Method

Ponds

Six ponds are located within the study area and are identified as jurisdictional surface waters SWB, SWF, SWH, SWM, SWQ, and SWR. They all maintain surface water connection to other jurisdictional features within the study area. SWB is connected via a drop inlet and culvert to WA. SWF is connected via a drop inlet and culvert to WI. SWH flows directly into SB. SWM is connected via a drop inlet and culvert to WE. SWQ is connected via a dam structure to SL, and SWR is connected via a drop inlet and culvert to SL. SWS was formerly delineated as SC but is now considered a surface water per a June 27, 2019, field meeting with USACE and the North Carolina Division of Water Resources. The 2012 Preliminary Jurisdictional Determination included all surface waters within the study area as jurisdictional features (Table 3-19).

Table 3-19: Surface Waters in the Study Area

Surface Water	Jurisdictional	Map ID of Connection	Area in Study Area (acres)
SWB	Yes	WA	0.6
SWF	Yes	WI	0.6
SWH	Yes	SB	5.0
SWM	Yes	WE	0.5
SWQ	Yes	SL	0.7
SWR	Yes	SL	<0.1
SWS (former Stream SC)	Yes	WC	<0.1
		Total	**7.5**

Rivers and Harbors Act Section 10 Navigable Waters

Smith Creek is considered a Navigable Water under Section 10 of the Rivers and Harbors Act of 1899; however, it lies beyond the project limits. A portion of Stream SH (unnamed tributary to Smith Creek) within the study area near Smith Creek is also tidally influenced and is considered a Section 10 water.

3.5.3.2 Impacts

Primary sources of water quality degradation in urban and developed areas are non-point sources of discharge, which include surface water runoff and runoff from construction activities. Short-term impacts to water quality from construction-related activities include sedimentation and turbidity in nearby water resources. Long-term impacts include substrate destabilization, bank erosion, increased turbidity, altered flow rates, and possible temperature fluctuations within the channel due to removal of streamside vegetation.

The removal of streamside vegetation and placement of fill material during construction contributes to erosion and possible sedimentation. Erosion and sedimentation may carry soils, toxic compounds, trash, and other materials into the aquatic communities at the construction site. As a result, sand bars may be formed both at the site and downstream. Increased light penetration from the removal of streamside vegetation may also increase water temperatures. Warmer water contains less oxygen, thus reducing

aquatic life that depends on high oxygen concentrations. Quick revegetation of these areas helps to reduce the impacts by supporting the underlying soils. In accordance with the North Carolina Sedimentation Pollution Control Act of 1973 (General Statutes Chapter 113A, Article 4), as amended, and 15A NCAC Chapter 4 (Sedimentation Control), an erosion and sedimentation control plan must be prepared for land-disturbing activities that cover one or more acres to protect runoff from a 10-year storm.

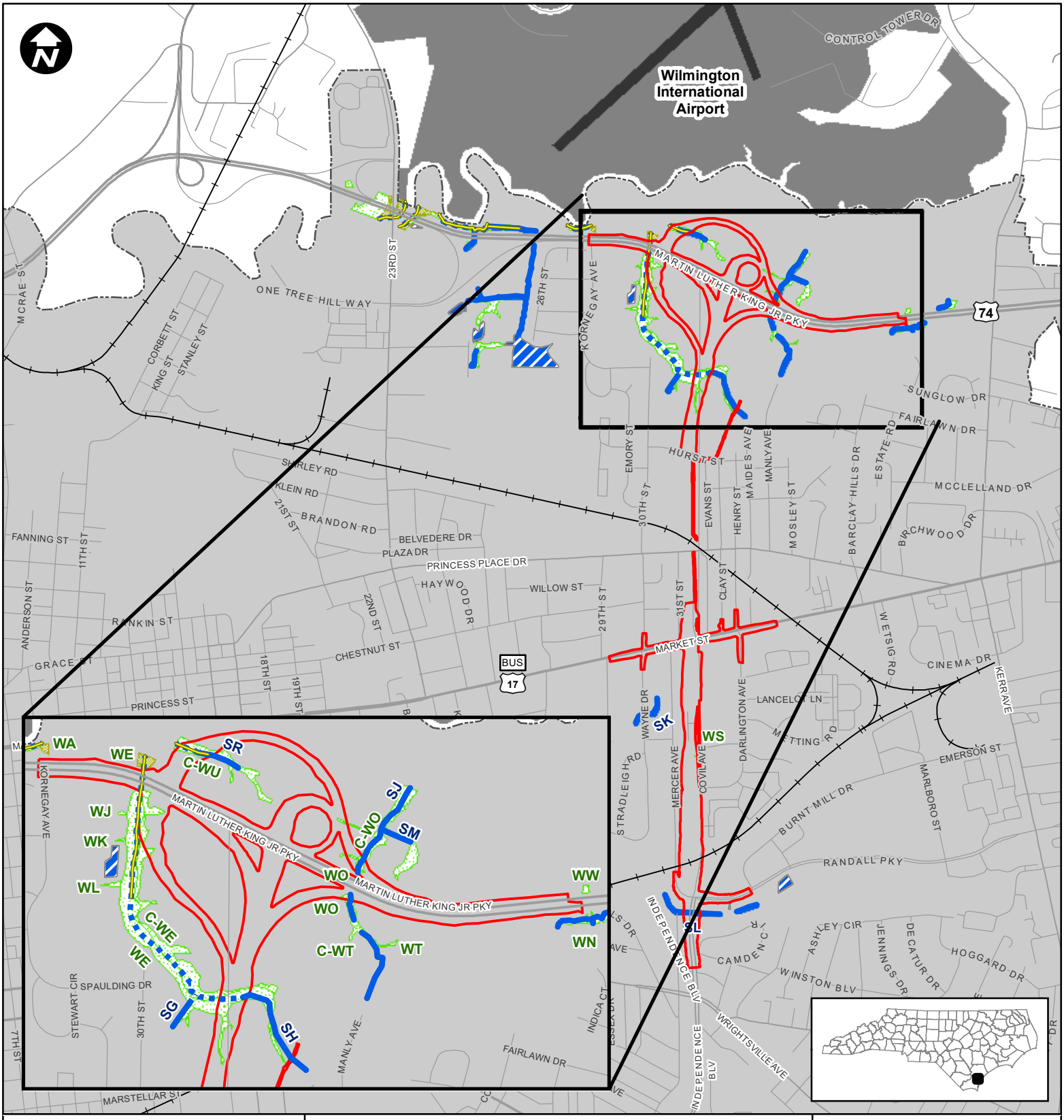
Streams

Approximate permanent impacts to jurisdictional streams for each DSA are summarized in Table 3-20 and shown on Figure 3-15 and Figure 3-16. The linear feet shown in Table 3-20 do not include areas where bridges would be placed over larger stream systems. The bridged areas have been removed from the analysis. The approximate impacts the DSAs would have on jurisdictional streams have been quantified to the nearest linear foot using the preliminary design construction slope stake limits plus 25 feet.

Table 3-20: Jurisdictional Stream Impacts

Stream ID	Stream Name	Best Usage Classification	Alternative 7 with SPUI Option (linear feet)	Alternative 7 with TUDI Option (linear feet)
SH	UT to Smith Mill Creek	C;Sw	972[a]	991[b]
SJ	UT to Smith Mill Creek	C;Sw	245	245
SL	Burnt Mill Creek	C;Sw	317	317
SR	UT to Smith Mill Creek	C;Sw	366[c]	366[d]
		Total	**1,900**	**1,919**

Note: Impacts were calculated using preliminary design construction slope stake limits plus 25 feet.
[a] 570 feet of Stream SH impacts (SPUI) would impact estuarine waters
[b] 570 feet of Stream SH impacts (TUDI) would impact estuarine waters
[c] 289 feet of Stream SR impacts (SPUI) would impact estuarine waters
[d] 289 feet of Stream SR impacts (TUDI) would impact estuarine waters



Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

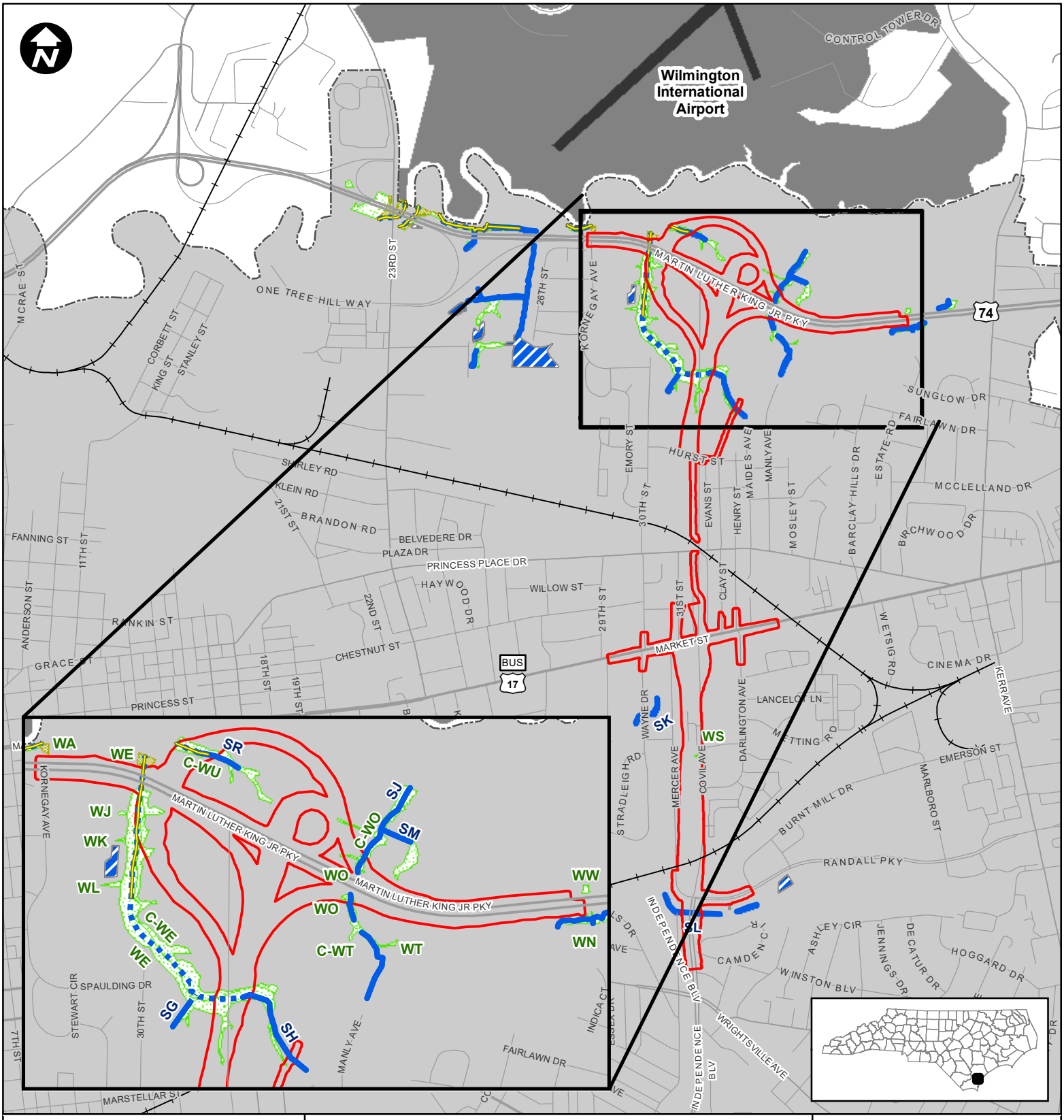
- Approximated Stream
- Streams
- Railroad
- Surface Waters
- Wetlands
- CAMA Estuarine Waters
- CAMA Wetlands
- SPUI Slope Stakes plus 25 feet
- Municipal Boundary
- County Boundary
- Municipal Boundary

Figure 3-15
Jurisdictional Resource Impacts - Alternative 7 with SPUI Option

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet



Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Legend

- Approximated Stream
- Streams
- Railroad
- Surface Waters
- Wetlands
- CAMA Estuarine Waters
- CAMA Wetlands
- TUDI Slope Stakes plus 25 feet
- Municipal Boundary
- County Boundary
- Municipal Boundary

Figure 3-16
Jurisdictional Resource Impacts - Alternative 7 with TUDI Option

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

Wetlands

Approximate permanent impacts to jurisdictional wetlands for the DSAs are summarized in Table 3-21 and shown on Figure 3-15 and Figure 3-16. The acreages shown do not include areas where bridges would be placed over large wetland systems. The bridged areas were removed from the analysis.

Table 3-21: Jurisdictional Wetland Impacts

Jurisdictional Wetland Type	Alternative 7 with SPUI Option (acres)	Alternative 7 with TUDI Option (acres)
Riparian Wetlands	3.7	3.8
Non-Riparian Wetlands	0.1	0.1
TOTAL[a]	**3.8**	**3.9**

Note: Impacts were calculated using preliminary design construction slope stake limits plus 25 feet.
[a] There would be no impacts to coastal wetlands associated with either DSA.

Ponds

There would be no impacts to ponds as a result of the proposed project.

Groundwater

Expected effects of the project on groundwater are similar for both DSAs. Any wells within the proposed project's right-of-way would be surveyed prior to project construction. NCDOT would purchase these wells and cap and abandon them in accordance with 15A NCAC 2C.0100, Well Construction Standards. Any subsurface contamination would be reported to the Wilmington Regional Office of the NCDEQ. During the final design phase of the project, NCDOT would also identify wells adjacent to the project right-of-way that could be impacted by roadway construction. Mitigation for these wells could be provided through land purchase, compensation for damages, or the provision of new wells.

A roadway alignment is in a cut section if the elevation of the roadway is below the original ground elevation. Well drawdown (reduced yield) may occur around areas of cut sections. Due to the already urban/disturbed land areas in the vicinity, the proposed project is not expected to substantially impact aquifer recharge volumes.

Pollutants associated with highway construction and use could potentially affect aquifer groundwater quality in localized areas. Possible pollutants include pesticides, herbicides, fertilizers, petrochemicals, oil, grease, heavy metals, and hazardous materials. Note that no sole or principal drinking water aquifers are present in the study area (EPA 2007).

Impacts to Cape Fear Public Utility Authority drinking water suppliers are not anticipated.

3.5.3.3 Jurisdictional Issues

Section 404 of the Clean Water Act (CWA) of 1977 requires regulation of discharges into "Waters of the United States." EPA is the principal administrative agency of the CWA; however, USACE is responsible for implementation, permitting, and enforcement of the CWA.

Surface waters (lakes, rivers, and streams) and wetlands are subject to jurisdictional consideration under Section 404 of the CWA. Section 401 of the CWA grants authority to individual states for regulation of discharges into "Waters of the United States." Jurisdictional waters are shown on Figure 3-14.

3.5.4 Protected Species

Federally listed endangered and threatened species are legally protected under the provisions of Section 7 of the Endangered Species Act of 1973, as amended. As a result, any action that is likely to adversely affect a federally protected species is subject to review by the US Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service.

3.5.4.1 Affected Environment

The study area was evaluated for the potential presence of federally protected threatened and endangered species using the USFWS IPaC (Information for Planning and Consultation) web tool on December 23, 2024 (USFWS 2024a). The official IPaC species list identified 14 federally protected species, under the Endangered Species Act of 1973 (ESA) for the study area, as shown in Table 3-22. No waterways within the study area are identified as habitat by the National Oceanic and Atmospheric Administration (NOAA) Southeast Region ESA Section 7 Mapper (NOAA 2024).

American alligator

USFWS Optimal Survey Window: year-round (only warm days in winter)

Biological Conclusion: Not Required

The American alligator remains on the protected species list due to its similarity in appearance to the endangered American crocodile (*Crocodylus acutus*). In North Carolina, alligators have been recorded in nearly every coastal county, and many inland counties to the fall line. The alligator is found in rivers, streams, canals, lakes, swamps, and coastal marshes. There are three streams documented within the study area (one intermittent; two perennial) that may provide marginal habitat for the American alligator; however, no individuals were observed during any of the site visits in 2019, 2021, or 2022. A review of the NCNHP records on December 18, 2024, indicated a known occurrence within 1.0 mile of the study area.

Cooley's meadowrue

USFWS Optimal Survey Window: mid-June – early July

Biological Conclusion: No Effect

Cooley's meadowrue, documented in the Pine Savanna natural community, occurs in circumneutral soils in sunny, moist to wet grass-sedge bogs, wet-pine savannas over calcareous clays, and savannah-like areas, often at the ecotones of intermittent drainages or non-riverine swamp forests. This rhizomatous perennial herb is also found along plowed firebreaks, roadside ditches and rights-of-way, forest clearings dominated by grass or sedge, and powerline or utility rights-of-way. The species requires some type of disturbance (e.g., mowing, clearing, periodic fire) to maintain its open habitat. The plant typically

occurs on slightly acidic (pH 5.8 to 6.6) soils that are loamy fine sand, sandy loam, or fine sandy loam; at least seasonally moist or saturated; and mapped as Foreston, Grifton, Muckalee, Torhunta, or Woodington series. Marginal habitat for Cooley's meadowrue is present in the study area in the form of maintained roadside rights-of-way, powerline and sewer easements, and ecotones of intermittent drainages. A review of NCNHP records on December 18, 2024, indicated no known occurrences in or within 1.0 mile of the study area. A pedestrian survey performed by AECOM biologists on June 10, 2021, determined there are no specimens of Cooley's meadowrue present within the study area. The study area will be re-surveyed prior to the publication of the FEIS.

Golden sedge

USFWS Optimal Survey Window: mid-April – mid June

Biological Conclusion: No Effect

Golden sedge, a very rare endemic of the Atlantic Coastal Plain, grows in sandy soils overlying calcareous deposits of coquina limestone, where the soil pH, typically between 5.5 and 7.2, is unusually high for this region. The perennial prefers the ecotone between the pine savanna and adjacent wet hardwood or hardwood/conifer forest. Most plants occur in the partially shaded savanna/swamp where occasional to frequent fires favor an herbaceous ground layer and suppress shrub dominance. Soils supporting the species are very wet to periodically shallowly inundated. Other occurrences may occur on disturbed areas such as roadside and drainage ditches or powerline rights-of-way, where mowing and/or very wet conditions suppress woody plants. Poorly viable occurrences may occur in significantly disturbed areas where ditching activities that lower the water table and/or some evidence of fire suppression threatens the species. Marginal habitat for golden sedge is present in the study area in the form of maintained roadside rights-of-way and portions of powerline and sewer easements where mowing and/or very wet conditions suppress woody plants. It is unlikely that the species is present within the study area due to the lack of regular-enough disturbance to suppress woody plant or shrub dominance. No wet pine savanna communities are present within the study area. A review of NCNHP records on December 18, 2024, indicated no known golden sedge occurrences within 1.0 mile of the study area. A pedestrian survey performed by AECOM biologists on June 10, 2021, determined there are no specimens of golden sedge present within the study area. The study area will be re-surveyed prior to the publication of the FEIS.

Green sea turtle

USFWS Optimal Survey Window: April – August

Biological Conclusion: No Effect

The green sea turtle is found in temperate and tropical oceans and seas as well as in shallow waters, including lagoons, reefs, mangrove swamps, and inlets. Suitable habitat for green sea turtle is not present in the study area as no marine areas are present in the study area; therefore, the proposed project would have no effect on this species. A review of NCNHP records on December 18, 2024, indicated no known green sea turtle occurrences within 1.0 mile of the study area.

Kemp's ridley sea turtle

USFWS Optimal Survey Window: April – August

Biological Conclusion: No Effect

Kemp's ridley sea turtles prefer neritic areas with sandy or muddy bottoms and prefer to nest on beach areas backed up by swamps or large bodies of open water with a well-defined dune area. Suitable habitat for Kemp's ridley sea turtle is not present in the study area as no marine or estuarine areas are present in the study area. Therefore, the proposed project would have no effect on this species. A review of NCNHP records on December 18, 2024, indicated no known Kemp's ridley sea turtle occurrences within 1.0 mile of the study area.

Leatherback sea turtle

USFWS Optimal Survey Window: April – August

Biological Conclusion: No Effect

Leatherback sea turtles are found throughout the world in tropical waters of the Atlantic, Pacific, and Indian Oceans. Suitable habitat for leatherback sea turtle is not present in the study area as no marine or open ocean areas are present in the study area. Therefore, the proposed project would have no effect on this species. A review of NCNHP records on December 18, 2024, indicated no known leatherback sea turtle occurrences within 1.0 mile of the study area.

Magnificent ramshorn

USFWS Optimal Survey Window: Unknown

Biological Conclusion: No Effect

The magnificent ramshorn is an air-breathing freshwater gastropod mollusk. It is an integral part of a complex food web that was historically only from freshwater ponds in coastal NC. The proposed project would not impact any designated critical habitat for the species and therefore would have no effect. A review of NCNHP records on December 18, 2024, indicated no known magnificent ramshorn occurrences within 1.0 mile of the study area.

Monarch butterfly

USFWS Optimal Survey Window: Unknown

Biological Conclusion: Undetermined

A proposal to list the monarch butterfly as threatened and designate critical habitat was published in the *Federal Register* on December 12, 2024. A 90-day comment period will occur from December 12, 2024, to March 12, 2025. Two public informational meetings and hearings will be held on January 14 and 15, 2025 (USFWS 2024b). Monarch butterflies are found across North America and are one of the few migratory insects. The eastern population of the species ranges as far north as southern Canada in the summer and travel up to 2,800 miles between summer breeding habitat and winter habitat in the mountains of central Mexico. Milkweeds (*Asclepias* sp.) are the only plants that monarch butterflies use

to lay their eggs and the only plant that young caterpillars use as a food source. Upon listing, USFWS is expected to provide habitat descriptions and an area of influence/distribution range for the species. When this information is provided, it will help to inform NCDOT's determinations on habitat that could be impacted by NCDOT actions. The biological conclusion for the species is undetermined at this time. A review of NCNHP records on December 18, 2024, indicated no known monarch butterfly occurrences within 1.0 mile of the study area.

Piping plover

USFWS Optimal Survey Window: year-round

Biological Conclusion: No Effect

The piping plover breeds along the entire eastern coast of the United States. North Carolina is uniquely positioned in the species' range, being the only state where the piping plover's breeding and wintering ranges overlap and the birds are present year-round. They nest most commonly where there is little or no vegetation, but some may nest in stands of beach grass. The nest is a shallow depression in the sand that is usually lined with shell fragments and light-colored pebbles. There is no suitable habitat present within the study area or within 1 mile of the study area for the piping plover. A review of NCNHP records on December 18, 2024, indicated no piping plover occurrences within 1.0 mile of the study area.

Red-cockaded woodpecker

USFWS Optimal Survey Window: year-round; November-early March (optimal)

Biological Conclusion: No Effect

The red-cockaded woodpecker (RCW) typically occupies open, mature stands of southern pines, particularly longleaf pine (*Pinus palustris*), for foraging and nesting/roosting habitat. RCW excavates cavities for nesting and roosting in living pine trees, aged 60 years or older, and that are contiguous with pine stands at least 30 years of age to provide foraging habitat. The foraging range of the RCW is normally no more than 0.5 mile. Marginal foraging habitat exists within the study area for the RCW; however, there is no connectivity to the stands of open-canopied longleaf pine present in the northern portion of the study area, to the north of Martin Luther King Jr. Parkway. It is unlikely that suitable nesting habitat is present within 0.5 mile of the study area. A review of NCNHP records on December 18, 2024, indicated no known RCW occurrences within 1.0 mile of the study area.

Rough-leaved loosestrife

USFWS Optimal Survey Window: mid-May – June

Biological Conclusion: No Effect

Rough-leaved loosestrife, endemic to the Coastal Plain and Sandhills of North and South Carolina, generally occurs in the ecotones or edges between longleaf pine uplands and pond pine pocosins in dense shrub and vine growth on moist to seasonally saturated sands and on shallow organic soils overlying sand (spodosolic soils). Occurrences are found in such disturbed habitats as roadside depressions, maintained powerline and utility line rights-of-way, firebreaks, and trails. The species

prefers full sunlight, is shade intolerant, and requires areas of disturbance (e.g., clearing, mowing, periodic burning) where the overstory is minimal. It can, however, persist vegetatively for many years in overgrown, fire-suppressed areas. The plant is known to occur on the Blaney, Gilead, Johnston, Kalmia, Leon, Mandarin, Murville, Torhunta, and Vaucluse soil series. Marginal habitat for rough-leaved loosestrife is present in the study area in the form of maintained roadside rights-of-way and portions of powerline and sewer easements. It is unlikely that the species is present within the study area due to the lack of regular-enough disturbance to suppress woody plant or shrub dominance and provide areas of full sun. No pond pine pocosins were observed within the study area during site visits in 2019, 2021, or 2022. A review of NCNHP records on December 18, 2024, indicated no known rough-leaved loosestrife occurrences within 1.0 mile of the study area. A pedestrian survey performed by AECOM biologists on June 10, 2021, determined there are no specimens of rough-leaved loosestrife present within the study area. The study area will be re-surveyed prior to the publication of the FEIS.

Rufa red knot

USFWS Optimal Survey Window: Year Round

Biological Conclusion: No Effect

Habitats used by red knots in migration and wintering areas are similar in character: coastal marine and estuarine habitats with large areas of exposed intertidal sediments. In North America, red knots are commonly found along sand, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow coastal impoundments and lagoons, and peat banks. Ephemeral features such as sand spits, islets, shoals, and sandbars often associated with inlets can be important habitat for roosting. The study area does not contain any tidal areas, inlet areas, or beaches; therefore, the proposed project would have no effect on this species. A review of NCNHP records on December 18, 2024, indicated no known occurrences within 1.0 mile of the study area.

Tricolored bat

USFWS Optimal Survey Window: June 1 – August 15

Biological Conclusion: May Affect, Likely to Adversely Affect

USFWS issued a programmatic conference opinion (PCO) in conjunction with FHWA, USACE, and NCDOT for the tricolored bat in eastern North Carolina. The PCO covers the entire NCDOT program in Divisions 1 to 8, including all NCDOT projects and activities. NCDOT, FHWA, and USACE have agreed to three conservation measures (listed in the PCO), which will avoid/minimize take to tricolored bats. These conservation measures apply to all counties in Divisions 1 to 8. The programmatic determination for tricolored bat for the NCDOT program is May Affect, Likely to Adversely Affect. Once the tricolored bat is officially listed, the PCO will become the programmatic biological opinion (PBO) by formal request from FHWA and USACE. The PBO will ensure compliance with Section 7 of the ESA for approximately 5 years (effective through December 31, 2028) for all NCDOT projects with a federal nexus in Divisions 1 to 8, which includes New Hanover County, where U-4434 is located.

West Indian manatee

USFWS Optimal Survey Window: year-round

Biological Conclusion: No Effect

Manatees are found in canals, sluggish rivers, estuarine habitats, salt water bays, and as far off-shore as 3.7 miles. They utilize freshwater and marine habitats at shallow depths of 5 to 20 feet. Suitable habitat for West Indian manatee is not present as no open freshwater or marine habitats are present in the study area. The study area does not contain any large rivers in close proximity (within 5 miles of) to the ocean. Therefore, the proposed project would have no effect on this species. A review of NCNHP records on December 18, 2024, indicated no known occurrences within 1.0 mile of the study area.

Northern long-eared bat

USFWS Optimal Survey Window: June 1 – August 15

Biological Conclusion: May Affect, Likely to Adversely Affect

USFWS issued a PBO in conjunction with FHWA, USACE, and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1 to 8, including all NCDOT projects and activities. Although the PBO covers Divisions 1 to 8, USFWS only considers NLEBs to be known or potentially found in 30 counties within Divisions 1 to 8. NCDOT, FHWA, and USACE have agreed to two conservation measures that would avoid/minimize mortality of NLEBs. These conservation measures only apply to the 30 current known/potential counties shown on Figure 2 of the PBO at this time (USFWS 2022). The programmatic determination for NLEB for the NCDOT program is “May Affect, Likely to Adversely Affect.” The PBO will ensure compliance with Section 7 of the ESA for 10 years (effective through December 31, 2030) for all NCDOT projects with a federal nexus in Divisions 1 to 8, which includes New Hanover County, where STIP U-4434 is located. A review of NCNHP records on December 18, 2024, indicated the NLEB occurring within 1.0 mile of the study area.

3.5.4.2 Summary of Impacts

Table 3-22 summarizes the federally protected species listed for New Hanover County and the biological conclusion for the proposed project’s likely effect on each species.

Table 3-22: ESA Federally Protected Species Listed for New Hanover County

Common Name	Scientific Name	Federal Status	Habitat Present	Biological Conclusion
American alligator	*Alligator mississippiensis*	T (S/A)	Yes	Not Required
Cooley's meadowrue	*Thalictrum cooleyi*	E	Yes	No Effect
Golden sedge	*Carex lutea*	E	Yes	No Effect
Green sea turtle	*Chelonia mydas*	T	No	No Effect
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	No	No Effect
Leatherback sea turtle	*Dermochelys coriacea*	E	No	No Effect
Magnificent ramshorn	*Planorbella magnifica*	E	No	No Effect
Monarch butterfly	*Danaus plexippus*	PT	Unknown	Undetermined
Piping plover	*Charadrius melodus*	T	No	No Effect
Red-cockaded woodpecker	*Picoides borealis = Dryobates borealis*	E	Yes	No Effect
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E	Yes	No Effect
Rufa red knot	*Calidris canutus rufa*	T	No	No Effect
Tricolored bat	*Perimyotis subflavus*	PE	Yes	MA-LAA
West Indian manatee	*Trichechus manatus*	E	No	No Effect

E - Endangered
T - Threatened
T(S/A) - Threatened due to similarity of appearance
MA-LAA - May Affect – Likely to Adversely Affect

3.5.5 Areas of Environmental Concern

The Coastal Area Management Act of 1972 (CAMA) requires permits for development in areas of environmental concern (AEC) within North Carolina's 20 coastal counties. An AEC is an area of natural importance. It may be easily destroyed by erosion or flooding; or it may have environmental, social, economic, or aesthetic values that make it valuable to the state.

3.5.5.1 Affected Environment

Smith Creek, its associated floodplain wetlands, and its tidal tributaries north of Martin Luther King Jr. Parkway are all identified within the study area as AECs, with the designation of Estuarine and Ocean System.

3.5.5.2 Impacts

Neither DSA for the proposed project would impact Smith Creek or any designated coastal wetlands. Both DSAs for the proposed project would impact 859 linear feet of tidal, estuarine waters.

3.5.6 Essential Fish Habitat

There is no Essential Fish Habitat located within the study area, and no impacts are anticipated as a result of the proposed project.

3.5.7 Bald Eagle and Golden Eagle Protection Act

The bald eagle is protected under the Bald and Golden Eagle Protection Act of 1940, which is enforced by USFWS. Habitat for the bald eagle primarily consists of mature forests in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within 1.0 mile of open water.

3.5.7.1 Affected Environment

A desktop GIS assessment of the study area, as well as the area within a 1.13 mile radius (1.0 mile plus 660 feet) of the study area, was performed on December 23, 2024, using 2024 color aerials. There are no mature forests adjacent to large bodies of open water within the study area. There is a large stormwater pond in the southeastern portion of the study area; however, it is surrounded by infrastructure and residential development. The main body of Smith Creek, outside of the study area, could present marginal habitat, with foraging habitat between Smith Creek and ILM.

3.5.7.2 Impacts

Foraging habitat is not present within the study area as it is dominated by young pocosin, plantation-type forests, and urban/residential areas. A review of NCNHP records on December 18, 2024, indicated no known occurrences of this species within 1.0 mile of the study area. Due to the lack of habitat, known occurrences, and minimal impact anticipated for this project, it has been determined that the proposed project would not affect this species.

3.5.8 Anadromous Fish Habitat

There are no trout waters or designated anadromous fish spawning habitat present within the study area, and no impacts are anticipated as a result of the proposed project.

3.6 Alternative Comparison Matrix

Estimated environmental impacts associated with the DSAs are provided in Table 3-23.

Table 3-23: Alternative Comparison Matrix

Resource	Alternative 7 with SPUI Option	Alternative 7 with TUDI Option
Project Features		
Length of Corridor (miles)	1.7	1.7
Number of Interchanges	2	2
Number of Railroad Crossings	2	2
Number of Major Power Easement Crossings	1	1
Level of Service at Market Street Interchange (a.m., p.m.)	D, D	C, C
Construction Cost	$130,500,000	$122,350,000
Right-of-way Cost	$70,350,000	$88,667,000
Utility Cost	$3,940,700	$3,632,000
Total Cost	**$204,790,700**	**$214,649,000**
Socioeconomic Features		
Parks (number)	1	1
Places of Worship (number)	2	2
Cemeteries (number)	0	0
Schools (number)	2	2
Daycares (number)	1	1
Libraries (number)	0	0
Community Centers (number)	0	0
Greenways (number)	1	1
Fire Stations (number)	0	0
Hospitals (number)	0	0
Relocations		
Business Relocations (number)	31	37
Residential Relocations (number)	59	71
Church / Non-Profit (number)	1	2
Total (number)	**91**	**110**
Physical Environment		
Potential Noise Receptor Impacts (number)	174	183
Farmland Soils (acres)	N/A	N/A
Hazardous Materials Sites (number)	11	11
Floodplains – 100-year including Floodway (acres)[a]	4.9	5.0
Floodplains – 500-year (acres)[a]	1.3	1.3
Floodway (acres)[a]	0.4	0.4
Preservation Areas[b] (number)	1	1

Resource	Alternative 7 with SPUI Option	Alternative 7 with TUDI Option
Cultural Resources and Section 4(f)/6(f)		
Archaeological Sites (number)	1	1
Historic Properties (number)	0	0
Section 4(f) Resources (number)	1	1
Section 6(f) Resources (number)	0	0
Natural Environment		
Forested Land (acres)[c,d,e]	77.3	78.3
Stream Crossings (number)	5	5
Streams (linear feet)[a,f]	1,900	1,919
Wetlands (acres)[a]	3.8	3.9
Ponds (number)	0	0
Federally Protected Species Habitat Present	Yes	Yes
Terrestrial Communities		
Coastal Plain Bottomland Hardwoods	1.4	1.4
Cypress Gum Swamp	1.3	1.3
Maintained Disturbed	93.2	100.7
Mesic Mixed Hardwood Forest	0.3	0.9
Pine Flatwoods	68.3	68.7
Pine Scrub Oak Sandhill	3.9	3.9
Tidal Cypress Gum Swamp	2.0	2.0
Total Terrestrial Communities (acres)	**170.4**	**178.9**

[a] Impacts calculated using preliminary design slope stake limits plus a 25-foot buffer.
[b] Maides Park – NCNHP Managed Area
[c] Includes Coastal Plain Bottomland Hardwoods, Cypress Gum Swamp, Mesic Mixed Hardwood Forest, Pine Flatwoods, Pine Scrub Oak Sandhill, and Tidal Cypress Gum Swamp.
[d] Impacts calculated using preliminary design right-of-way limits.
[e] 0.52 acre of the right-of-way limits were missing from the original terrestrial communities' survey (NCDOT 2012a). These 0.52 acre were added as impacts to Pine Flatwoods based on surrounding surveyed communities and review of aerial imagery.
[f] Impacts associated with both DSAs include 859 feet of estuarine waters.

3.7 Reasonably Foreseeable Effects

The reasonably foreseeable effects associated with the proposed project are identified and assessed in the LUSA and CIA (NCDOT 2019f, 2019g). The time horizon for reasonably foreseeable effects is 2040 and a summary of anticipated effects is provided in this section of the DEIS. Further information can be found in the aforementioned technical reports.

Reasonably foreseeable effects were assessed within the FLUSA by predicting changes in development types within defined probable development areas (PDA) as a result of the build and no-build scenarios. The development pressures and regulations, proposed future land use, infrastructure, and proximity to

proposed economic centers were considered to determine the degree of impact to notable features and waterways within each PDA with and without the proposed project.

As discussed in Section 1.2.4, the City of Wilmington has been aware of the proposed project and has included it in major planning documents that have been developed by the city. The proposed project would likely have positive impacts in terms of encouraging mixed-use type of development. The proposed project is not associated with an explicit economic development purpose nor is it intended to serve a specific development.

Based on the information gathered, most of the categories on the screening tool reflected moderate to high concern for effects potential. A summary of justification for each category rating follows.

Scope of Project - The proposed project would be a north-south thoroughfare that would connect with other existing thoroughfares. In addition, the proposed project would have full control of access, two lanes in each direction, and would be approximately 1.7 miles in length. This category was rated medium.

Travel Time Savings – Travel time savings is expected to be less than 5 minutes based on qualitative methods. The proposed project proposes a four-lane divided, full-controlled-access thoroughfare that would connect with existing thoroughfares. Time savings is anticipated due to existing congestion in the area. This category was rated medium.

Forecasted Population Growth - The ACS indicated the annualized growth rate between 2000 and 2010 for the FLUSA was 2.6 percent. This growth rate is anticipated to continue based on recent and planned housing developments within the FLUSA. For these reasons, a medium-high ranking was selected.

Forecasted Employment Growth – Employment projections for the region are expected to have an average annual growth rate of 2.5 percent through 2035. With the land use plan designating several large tracts of land for the purpose of office, commercial, and industrial development, the FLUSA is likely to see a large increase in employment opportunities through 2030. Therefore, this category received a rating of high (City of Wilmington 2004).

Available Land - There is approximately 529 acres of undeveloped and underutilized land within the FLUSA, 272 parcels with unique owners resulting in a parcel-to-owner ratio of 1.2. A weighting factor of 0.75 was assigned and resulted in a 30 percent weighted available land score. This score denotes a medium amount of available land.

Water and Sewer Availability – The entire FLUSA is served by all public utilities. Thus, this category was rated high.

Market for Development – The major planned development areas are the Burnt Mill Business Park and residential development near North 30th Street and Princess Place Drive. This category was rated high.

Public Policy – Existing city ordinances and plans encourage new development and redevelopment. In addition, the project is required to follow CAMA regulations. Thus, this category was rated medium.

Notable Environmental Features - Stream and wetland systems exist within the FLUSA that would be crossed by the project; a low rating was selected.

The overall result, considering the scope of the project, annual population growth in the FLUSA, and the amount of economic growth expected in the area, suggested assessment through a Land Use Scenario Assessment would be warranted.

The Land Use Scenario Assessment Matrix resulted in "Indirect Land Use Impacts Not Likely."

The City of Wilmington's Land Development Code, Create Wilmington Comprehensive Plan, and Market Street Corridor Plan include policies that intend to encourage high intensity development, redevelopment, and infill within the FLUSA. These policies have increased development pressure within the FLUSA under a no-build scenario.

Under a build scenario, the scope of development, development intensity, and future shift of regional population growth is not anticipated to change because the proposed project includes full control of access and would not result in new access to undeveloped parcels. If built, the proposed project is likely to increase the rate of commercial development in the PDA, creating a future shift in regional employment. The proposed project is within the municipal boundaries of the City of Wilmington, so the no-build and build scenarios were ranked similarly for development outside of regulated areas and planned area.

3.8 Irreversible and Irretrievable Commitment of Resources

An irreversible or irretrievable commitment of resources refers to losses or impacts that cannot be reversed or recovered (i.e., the losses are permanent). Examples include permanent conversion of wetlands and streams or loss of cultural resources, soils, wildlife, and socioeconomic conditions.

A commitment of resources is considered irreversible if impacts to a resource, either directly or indirectly, limit the future option for the resource. A commitment of irreversible impacts to resources typically applies primarily to the effects of use of nonrenewable resources, such as minerals and cultural resources. Irretrievable impacts or commitment of resources refer to loss of production or use of natural resources.

The consumption of resources is evaluated to ensure that it is justified as a result of the proposed project. The proposed project would require the irretrievable commitment of natural resources through direct consumption of construction materials such as wood, aggregate, and cement to construct roadways and bridges, and to fossil fuels such as gasoline and diesel to power construction equipment.

3.9 Relationship Between Long-Term and Short-Term Uses of the Environment and Anticipated Benefits

This section defines the balance, or trade-off, between short-term uses and long-term productivity needs in relation to the proposed project. The short-term effects on and uses of the environment in the vicinity of the DSAs are related to the long-term effects and maintenance and enhancement of long-term productivity. Short-term relates to the total duration of construction of the proposed project. Long-term refers to an indefinite period after construction of the proposed project and includes the long-term mitigation measures that may be implemented, as well as the ongoing operation and maintenance of the newly constructed roadway.

The most disruptive short-term impacts associated with the proposed project would occur during land acquisition and project construction, such as construction hauling, noise, lighting, and/or dust. However, these short-term uses of human, physical, economic, cultural, and natural resources would contribute to the long-term productivity of the study area.

The relocation report (Appendix D) noted that, based on the type of residential properties affected by the proposed project, finding low income rentals in the Wilmington and New Hanover County area may be difficult (NCDOT 2022b). Early coordination among the City of Wilmington, Wilmington Housing Authority, Wave Transit, and NCDOT relocation assistance staff to identify affordable housing near transit services and pedestrian infrastructure may be beneficial in minimizing impacts to relocated, low-income residents. The proposed project is consistent with the objectives of state and local transportation plans. It is anticipated that the proposed project would enhance long-term access and connectivity in New Hanover County and would support local, regional, and statewide commitments to transportation improvement and economic viability.

3.10 Mitigation Measures

Once a preferred alternative is selected, project-specific avoidance, minimization, and mitigation measures would be determined as necessary. General mitigation measures that would be employed include the following:

- Relocation benefits under the Uniform Relocation Act will be available to anyone relocated by the proposed project.
- Context sensitive designs will be used in areas along the preferred alternative where visual/aesthetic impacts or community cohesion impacts are likely.
- Appropriate mitigation measures for impacts to community cohesion will be implemented. NCDOT will work closely with impacted communities to identify measures that are desirable specific to relocatees and those impacted.
- Best management practices and sediment and erosion control plans will be implemented to minimize soil compaction and erosion outside of the construction area as required and to the maximum extent practicable.
- Prior to the start of project construction activities, an erosion and sedimentation control plan will be prepared in accordance with the NCDOT guidelines in *Best Management Practices for Protection of Surface Waters* (NCDOT 1997a) and *NCDOT Stormwater Best Management Practices Toolbox* (NCDOT 2014c).
- Best management practices will be used to minimize transport and distribution of non-native vegetation cuttings and seeds. Newly disturbed areas will be replanted with designed species as required and as soon as practicable.
- Jurisdictional streams in the study area will be designated as warm water streams for the purposes of stream mitigation. Mitigation requirements will be coordinated with NCDEQ and USACE. NCDOT will investigate potential on-site stream and wetland mitigation opportunities once the preferred alternative has been selected. On-site mitigation measures will be used as much as possible. Off-site mitigation measures needed to satisfy the federal

CWA requirements for this project will be provided by the NCDEQ Division of Mitigation Services in accordance with applicable In-Lieu Fee mitigation programs.

- Total avoidance of surface waters is not practicable. The DSAs were developed to minimize impacts to streams and wetlands. NCDOT will continue to attempt to avoid and minimize impacts to streams and wetlands to the greatest extent practicable in identifying the preferred alternative and during project final design.
- Avoidance, minimization, and mitigation measures will be taken in compliance with Section 106 for cultural resources within the corridor of the preferred alternative. It has been recommended that data recovery excavations (Phase III archaeological study) be performed at Site 31NH887 to mitigate the adverse effects the proposed project would cause at the site (NCDOT 2019d). Phase III studies typically take the form of large-scale excavations at a site to document cultural features and artifact patterns, coupled with analytical tasks to help further understand past lifeways. The work is guided by a data recovery plan that contains a research design specific to each site. The research design for 31NH887 will be developed by NCDOT in consultation with the NC HPO, and will detail a number of research questions the work may address, the level of effort required, field tasks, and analytical tasks (including any specialized analyses deemed appropriate), as well as appropriate reporting avenues (e.g., technical reports, public outreach). Once agreed upon, the data recovery excavations will be carried out prior to any ground disturbing activities for the construction of the proposed project.
- Once the preferred alternative is selected, a design noise report will determine more specific details regarding noise abatement measures.

3.11 Required Permits and Actions

Through agency coordination, the following permits and actions have been identified as necessary for the proposed project.

3.11.1 Required Permits

3.11.2 North Carolina Division of Water Resources

Section 401 Certification. Any activity that may result in discharge to jurisdictional waters and that requires a federal permit must obtain a certification that such discharge would comply with applicable state water quality standards.

Authority. North Carolina General Statute 143, Article 215, Part 1. Regulations promulgated in 15A NCAC-2H and 2B.

3.11.3 North Carolina Division of Coastal Management

CAMA Major Permit. A CAMA Major Permit from North Carolina Division of Coastal Management would be required for all impacts to designated AECs within the study area. CAMA AECs were identified in the study area in the form of estuarine and ocean system waters. It is anticipated that a CAMA Major Permit would be required under this project.

Authority. Coastal Area Management Act of 1974, Parts 1-6 (1973, c. 1284, s. 1;1975, c. 452, s. 5;1981, c. 932, s. 2.1.).

3.11.4 United States Army Corps of Engineers

Section 404 Permit. A Section 404 Permit from USACE is required for any activity in water or wetlands that would discharge dredged or fill materials into waters of the United States and adjacent wetlands. To obtain permit approval, impacts to wetlands must be mitigated through avoidance, minimization, and compensation measures in accordance with the "Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines" (EPA and Department of the Army 1990).

Authority. Federal Water Pollution Control Act Amendments of 1972 and Section 404 of the CWA of 1977. Regulations promulgated in 33 CFR 323.

4 Section 6(f) and Section 4(f)

In this chapter, resources subject to Section 6(f) and Section 4(f) are identified and shown on Figure 4-1, potential uses of those resources are discussed, avoidance alternatives and other measures to minimize harm to the resources are assessed, and coordination with the public official having jurisdiction over each resource is documented.

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 (16 U.S.C. 4601-4 et seq.) states that parks developed or improved using LWCF grant funds cannot be acquired unless no other reasonable and feasible alternative exists and requires coordination with the National Park Service.

Section 4(f) of the US Department of Transportation Act of 1966 provides protection for publicly owned parks, recreation areas, and wildlife and waterfowl refuges as well as significant historic sites. Historic sites protected by this regulation include sites that are eligible for listing or are listed on the NRHP.

There are no state or national parks or forests within the study area. There are six local parks within the study area: Maides Park, Beaumont Park, McCray Park, Mother's Park, Triangle Park, and Empie Park. Empie Park was developed using LWCF grant funds. All the parks are publicly owned resources owned by the City of Wilmington. Maides Park would be accessible by the proposed project via the multi-use path. None of the other parks are accessed by the proposed project.

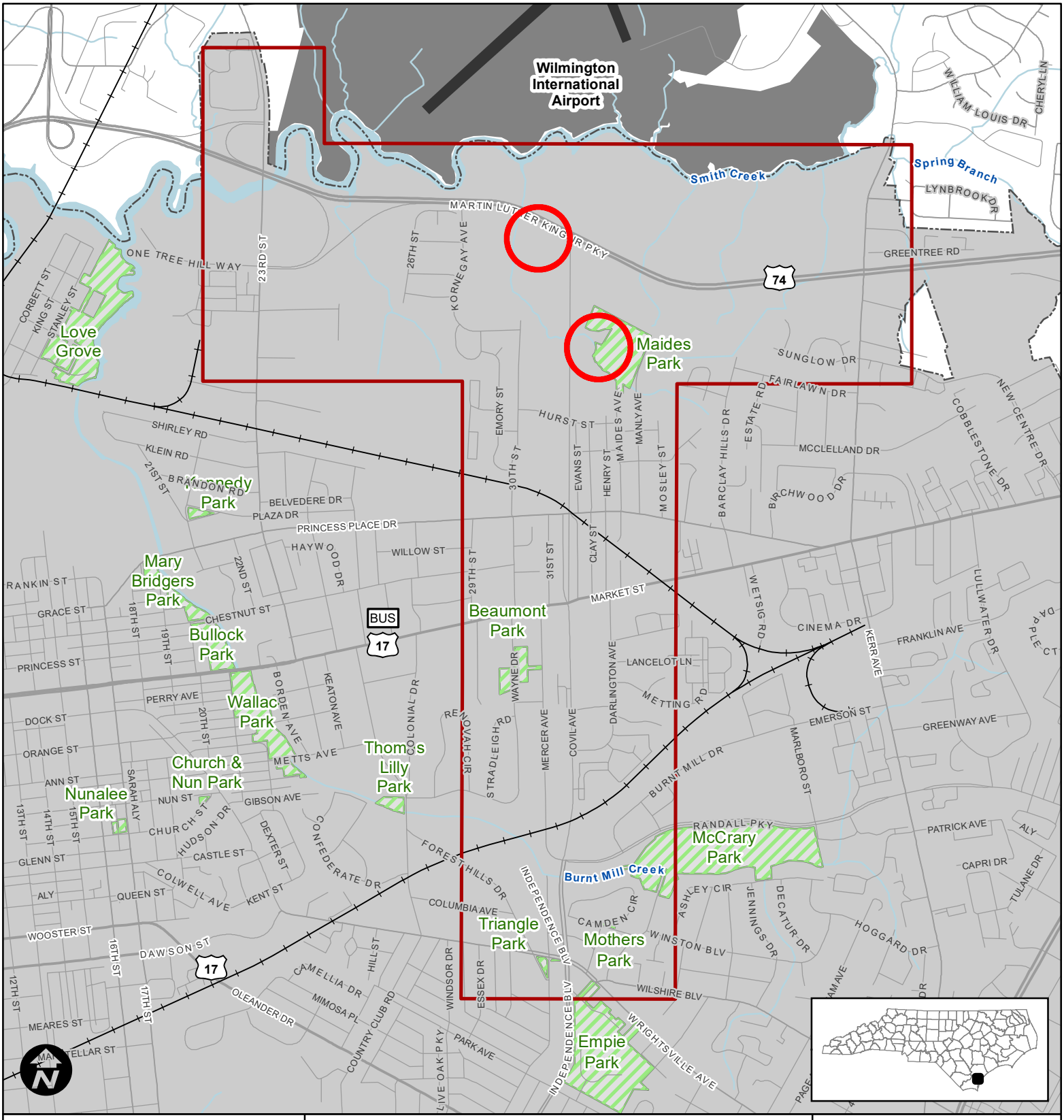
Archaeological surveys resulted in the discovery of two historic sites, one of which has been recommended as eligible for the NRHP (NCDOT 2019d).

4.1 Description of Section 6(f) Resources

Empie Park, at the southern end of the study area, is a Section 6(f) resource. The park received a grant from the LWCF in 1967 for the development of the park. The City of Wilmington purchased the land. The park is a 32-acre City of Wilmington Park that contains the Althea Gibson Tennis Complex, which has 18 lighted tennis courts and a clubhouse. The park also has playgrounds, ball fields, a dog park, basketball courts, and shuffleboard and bocce courts. The LWCF grant covers the entirety of the park.

4.2 Use of Section 6(f) Resources

There would be no impact to Empie Park because of the proposed project. While within the study area, the park is outside of any proposed right-of-way or construction areas.



Legend

- Railroad
- Stream
- Approximate Archaeological Site
- Study Area
- Park
- County Boundary

Independence Boulevard Extension Project
STIP U-4434

New Hanover County

Figure 4-1
Section 6(f) and Section 4(f) Resources

Date: December 2024

0 0.125 0.25 0.5
Miles

1 inch = 2,000 feet

4.3 Description of Section 4(f) Resources

4.3.1 Historic Sites

The NC HPO reviewed the study area for historic architectural resources in 2012 and again in 2019. In a letter dated April 23, 2012, and email correspondence dated March 28, 2019, it was determined the project would not have an effect on any historic structures (Appendix G).

4.3.2 Archaeological Resources

An archaeological survey (Phase I and II studies) for the proposed project was completed in August 2019 (NCDOT 2019d). During the survey, two sites were recorded. Site 1 (31NH886) is a historic cemetery (Maides Cemetery). Site 2 (31NH887) is a prehistoric site on the south side of Martin Luther King Jr. Parkway that produced numerous ceramic sherds. The site was found to consist of artifacts from at least four different time periods.

Site 31NH886, as a historic cemetery, does not meet special criteria consideration for being considered eligible for the NRHP. Site 1 is not recommended as eligible and is outside the APE for the proposed project.

Site 31NH887 is recommended as eligible for the NRHP under Criterion D based on the vertical and horizontal integrity of the prehistoric occupations represented. The archaeological assessment recommends avoidance of Site 31NH887 if possible. If not possible, it is recommended that adverse effects to the site be mitigated as appropriate prior to any ground disturbing activities.

In a letter dated March 31, 2020, the NC HPO concurred with the findings of the archaeological assessment. The letter confirms “testing revealed that site 31NH887 contains material evidence of 5000 years of short-term habitations. Despite the site’s proximity to the MLK Parkway, it still retails integrity indicating its likelihood to yield information important to prehistory. ” NC HPO recommends “mitigation in the form of additional data recovery be conducted. The mitigation is recommended because the site’s proximity to Martin Luther King Jr Parkway and the future Independence Boulevard intersection make avoidance of this important archaeological site improbable. We further recommend that disturbance by the NCDOT Wildlfower Program, for which a portion of the site is currently being used, be discontinued until the archaeology is complete” (Appendix G).

4.3.3 Public Parks and Recreation Areas

There are no state or national parks or forests within the study area. There are six local parks within the study area. Maides Park, located north of Princess Place Drive along Manly Avenue, is a neighborhood park owned and operated by the City of Wilmington. The park went through extensive renovations and had a grand re-opening in May 2009. Park amenities include picnic shelters, grills, basketball courts and athletic fields with lights, walking trails, and a community center that includes a full-service kitchen, multi-purpose rooms, space for arts and crafts, and a computer lab. Other notable features within Maides Park include a small cemetery and a stream.

In addition to Maides Park, the City of Wilmington operates Beaumont Park, located between Wayne Drive and Mercer Avenue just south of Market Street. Beaumont Park is a neighborhood park, approximately 3 acres in size and contains a playground, picnic areas, and basketball courts.

McCray Park is located at the intersection of Randall Parkway and Marlboro Street, northeast of Colonial Village. Park amenities include shelters, picnic tables, a canoe/kayak launch, and fishing. A segment of the Cross-City Trail is located north of the park along Randall Parkway.

Mother's Park, a neighborhood park, is in the Colonial Park neighborhood. It includes playground equipment, tables, and benches.

Triangle Park and Empie Park are in the southern portion of the study area. Triangle Park is a triangular 0.5-acre parcel bounded by Wrightsville Avenue to the north and Forest Hills Drive to the south and east. There are no facilities within the park. The Cross-City Trail traverses the park. Empie Park is owned and operated by the City of Wilmington. It includes playgrounds, tennis courts, open space, picnic shelters, a concession stand, basketball courts, athletic fields, lighted facilities, and a dog park.

All these parks are publicly owned resources owned by the City of Wilmington. Maides Park would be accessible by the proposed project via the multi-use path. None of the other parks are accessed by the proposed project.

4.4 Use of Section 4(f) Resources

Two types of Section 4(f) resources would be affected by this project: archaeological sites and public parks/recreation areas. Table 4-1 lists the resources located within the study area that are protected under Section 4(f).

Section 106 coordination has confirmed that Section 4(f) would not apply to Site 31NH887. In a letter dated March 31, 2020, NC HPO concurred with the findings that "mitigation in the form of additional data recovery be conducted. The mitigation is recommended because the site's proximity to Martin Luther King Jr Parkway and the future Independence Boulevard intersection make avoidance of this important archaeological site improbable. We further recommend that disturbance by the NCDOT Wildlfower Program, for which a portion of the site is currently being used, be discontinued until the archaeology is complete" (Appendix G). Section 4(f) does not apply to this resource as the site is important chiefly because of what can be learned by data recovery and has not been recommended for preservation in place (23 CFR 771.135(g)).

A *de minimis* finding is anticipated for Maides Park due to the minor impacts proposed to the property that would not affect its intended use.

Table 4-1: Section 4(f) Applicability Evaluation

Resource	Section 4(f) Applicable
Maides Park	Yes
Beaumont Park	Yes
McCray Park	Yes
Mothers Park	Yes
Triangle Park	Yes
Empie Park	Yes
Site 31NH886	No
Site 31NH887	No

4.4.1 Permanent Incorporation of Property

A summary of the property that would be incorporated by the project due to right-of-way and/or easement impacts is provided in Table 4-2.

The proposed greenway along the east side of the proposed roadway connects the Cross-City Trail at Randall Parkway to Maides Park. In order to make the connection, minor impacts are anticipated; however, the impacts anticipated include minor ground disturbance and would not impact the use of the park.

Table 4-2: Use of Section 4(f) Properties in Acres

Resource	Alternative 7 with SPUI Option[a]	Alternative 7 with TUDI Option[a]
Maides Park	*De Minimis* (0.004 acre)	*De Minimis* (0.005 acre)
Beaumont Park	No use	No use
McCray Park	No use	No use
Mothers Park	No use	No use
Triangle Park	No use	No use
Empie Park	No use	No use
Site 31NH887	Not Applicable	Not Applicable

[a] Amount within preliminary design right-of-way limits

4.4.2 Temporary Occupancy of Property

A temporary occupancy does not constitute a Section 4(f) use when all five conditions listed in 23 CFR Section 774.13(d) are satisfied. Those conditions are as follows:

> (1) Duration [of the occupancy] must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land; (2) Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal; (3) There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis; (4) The land being used must be fully

restored, i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project; and (5) There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.

Both DSAs may temporarily impact Maides Park during construction of the multi-use path. Once a preferred alternative is identified, coordination with the officials with jurisdiction over the property would take place prior to FHWA's official determination regarding temporary occupancy to ensure that there is documented agreement of the conditions. Any future coordination regarding temporary occupancy would be included in the FEIS.

4.4.3 Constructive Use of Property

Constructive use is determined by the criteria within 23 CFR 774.15. A constructive use of a Section 4(f) property is possible only in the absence of a permanent incorporation of land or a temporary occupancy of the type that constitutes a Section 4(f) use. Constructive use occurs when the proximity impacts of a project on an adjacent or near-by Section 4(f) property, after incorporation of impact mitigation, are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs when the protected activities, features, or attributes of the Section 4(f) property are substantially diminished. As a general matter, this means that the value of the resource, in terms of its Section 4(f) purpose and significance, would be meaningfully reduced or lost.

It is not anticipated that there would be a constructive use of any Section 4(f) resource(s) as a result of the proposed project.

4.5 Summary of Use and Minimization of Section 4(f) Properties

Both DSAs would result in the "use" of one Section 4(f) resource as defined by 23 CFR 774.17, Maides Park. A *de minimis* finding is anticipated for Maides Park due to the minor impacts proposed to the property that would not affect its intended use.

4.6 Coordination

Written correspondence would be exchanged and meetings would be held, if necessary, with officials with jurisdiction over the Section 4(f) resource identified.

5 Agency Coordination and Public Involvement

This chapter summarizes the coordination efforts with federal, state, and local agencies and the public throughout the environmental documentation process for the proposed project.

5.1 Agency Coordination

The proposed project was coordinated with the appropriate federal, state, and local agencies. Comments and concerns received throughout the project development process are incorporated into this document.

5.1.1 Issuance of Scoping Letter and Notice of Intent

At the start of the environmental studies for the proposed project, the proposed project was identified as TIP number U-4434. A scoping letter soliciting comments on the proposed project was sent on October 15, 2004, to the following local, state, and federal agencies:

- United States Fish and Wildlife Service
- United States Army Corps of Engineers
- North Carolina State Clearinghouse
- North Carolina Department of Cultural Resources – State Historic Preservation Office
- North Carolina Department of Environment and Natural Resources – Division of Forest Resources
- North Carolina Department of Environment and Natural Resources – Division of Water Quality
- North Carolina Department of Environment and Natural Resources – Division of Environmental Health
- North Carolina Department of Environment and Natural Resources – Natural Heritage Program
- North Carolina Department of Environment and Natural Resources – Division of Coastal Management
- North Carolina Wildlife Resources Commission
- Wilmington Urban Area Metropolitan Planning Organization
- City of Wilmington
- North Carolina Department of Transportation:
    - Auxiliary Services, Department of Public Instruction

- Hydraulics Unit
- Roadside Environmental Department
- Geotechnical Unit
- Location and Surveys Unit
- Right-of-Way Branch
- Traffic Engineering Branch
- Division of Bicycle & Pedestrian Transportation
- Congestion Management
- Director of Aeronautics
- Operations, Chief Engineer
- Rail Planner, Rail Program
- Division 3, Division Engineer

The scoping letter and agency comments received in response to the scoping letter are provided in Appendix F.

In addition to the scoping letter, a Notice of Intent (NOI) was published in the *Federal Register* on January 18, 2005. A copy of the NOI is provided in Appendix I.

5.1.2 Section 404/NEPA Merger Process

A Merger Screening Meeting for the proposed project was held on August 10, 2007. During the meeting, it was determined that the proposed project would not follow the Merger process unless unforeseen impacts were found as the project progressed. The following agencies participated in the screening meeting:

- United States Army Corp of Engineers
- Federal Highway Administration
- North Carolina Department of Environment and Natural Resources, Division of Water Quality
- North Carolina Department of Transportation, Project Development and Environmental Analysis Branch
- NCDOT Roadway Design Unit
- NCDOT Natural Environment Unit
- NCDOT Division 3
- URS Corporation (now AECOM)

The agency members felt that, while the project would likely require an individual permit and meets the threshold for inclusion in the Merger process, the range of alternatives is limited due to the existing terminus of Independence Boulevard, existing development, Maides Park, and the need for interchange spacing along Martin Luther King Jr. Parkway. It was determined by the attendees of the meeting that the impact to the human environment would likely be the major issue in that 80 to 100 relocations were being estimated at that time. With limited alternatives, the group felt that there would be little benefit to include the project in the Merger process. The meeting minutes from the Merger Screening Meeting are in Appendix F.

Review of the environmental documents will be the principal method for agency coordination. In general, agency comments will be accepted through written correspondence on agency letterhead or via email; however, telephone and in-person conversations of importance will be documented as well.

5.1.3 Local Official Meetings

At various times during the study, meetings have been held for the benefit of local elected bodies. These have coincided with regularly scheduled meetings, such as the WMPO Transportation Advisory Committee Board meetings and Wilmington City Council meetings. Summaries of these meetings are included in Table 5-1 and Appendix F.

1.1.2 Agency Coordination

Table 5-1 provides a timeline and summary of agency coordination meetings. Meeting summaries for these meetings are included in Appendix F.

5.2 Public Involvement

This section describes the methods that have been used for public outreach, including newsletters, postcards, and public meetings.

As a result of EO 14148, EO 14154, EO 14173, and the removal of the CEQ's regulations, all federal environmental justice requirements are revoked and no longer applicable to the federal environmental review process. Accordingly, this DEIS does not consider public comments regarding environmental justice.

Three public outreach events have been held for the proposed project. The first open-house style public meeting formerly/previously referred to as citizen informational workshops (CIW), was held on June 13, 2011, at the Rachel Freeman School of Engineering in Wilmington, North Carolina. Another open-house style public meeting was held on July 22, 2019, also at the Rachel Freeman School of Engineering. Renderings of the preliminary designs were presented at the July 2019 meeting to assist the public in visualizing the proposed changes and better understand the associated impacts from each alternative. The third event was also an open-house style public meeting, which took place at the Davis Center in Maides Park in Wilmington on February 26, 2022. This meeting, situated immediately north of the project area, followed a week of door-to-door outreach, and provided various visualizations and brochures to help residents learn how their properties would be affected by the project. Appendix E includes the public involvement activities to date.

5.2.1 Public Announcement Methods

The public was notified of upcoming public involvement opportunities through the use of the methods described in the following sections.

5.2.1.1 Postcards/Flyers/Doorhangers

Postcard No. 1 was mailed to approximately 2,685 recipients on July 10, 2019. The postcard announced the public meeting held on July 22, 2019, at the Rachel Freeman School. Additional information regarding the public meeting is discussed in Section 5.2.2.

Table 5-1: Agency Coordination

Date	Meeting Type	Attendees	Purpose
10/27/2003[a]	Wilmington Metropolitan Planning Organization (WMPO)	City of Wilmington/WMPO: Mark Tinkler, Johnathan David URS: David Griffin, Kate Wolfe	To discuss project scope and prior studies by WMPO and NCDOT Feasibility Study
1/9/2004	Wilmington Housing Authority (WHA)	NCDOT: Allen Pope, Joe Blair City of Wilmington: Mark Tinkler, Dewey Harris, Richard Kirk, Ben Quattlebaum, Emily Swanenger, Hugh Caldwell HEO, Inc.: John Hatton, Chuck Holden URS: David Griffin, Kate Wolfe	To attend Wilmington Housing Authority Meeting and discuss the initial studies for the Independence Boulevard Extension Project.
9/15/2005[a]	WMPO	WMPO: Mike Kozlosky URS: David Griffin, Kate Farrell	To discuss project and request input from the WMPO on the study area and purpose of and need for the project.
6/8/2007	NC State Ports Authority (NCSPA)	NCSPA: Stephanie Ayers, Bill Bennett, Layton Bedsole NCDOT: Wade Kirby URS: David Griffin, Peter Trencansky	To evaluate whether an intermodal link between the State Ports and the Wilmington Airport could be used as part of the Purpose and Need of the project.
8/10/2007	NCDOT and FWHA Coordination	FHWA: Ron Lucas DWQ: David Wainwright USACE: Jennifer Frye NCDOT: Brian Yamamoto, Wade Kirby, Greg Brew, John Merritt, Worth Calfee URS: Peter Trencansky, Jeff Weisner, Duane Verner	To discuss the applicability of the Merger 01 process to the Independence Boulevard Extension project.

Date	Meeting Type	Attendees	Purpose
11/26/2007	WHA	WHA: Richard James, Laura Hines HEO, Inc.: Glenn Floyd Tise-Kiester: Don Tise Cole, Jenest & Stone: Donna Ray Mitchell Daniels Development: Windell Daniels WMPO: Anthony Prinz NCDOT: Wade Kirby, Brian Yamamoto, Allen Pope, Joe Blair URS: Peter Trencansky, Chris Werner	To discuss the Wilmington Housing Authorities ongoing and future plans in the vicinity of the Independence Boulevard Extension.
4/16/2011[a]	NCDOT/WMPO Coordination	WMPO: Mike Kozlosky NCDOT: Ted Devens, Brian Yamamoto, Ron McCollum, Allen Pope URS: Peter Trencansky, Mike Lindgren	To discuss recommended Purpose and Need and to begin discussions on the preliminary evaluation of alternatives for the project.
5/10/2011	NCDOT Coordination	NCDOT: Ted Devens, Ron McCollum, BenJetta Johnson, Chandrakant Sura URS: Peter Trencansky, Mike Littlefield	To discuss moving forward with functional designs for the Independence Boulevard Extension Project.
7/14/2011	NCDOT Coordination	NCDOT: Ron McCullum URS: Peter Trencansky, Mike Littlefield	To discuss the functional design guidelines for the Independence Boulevard Extension Project.
8/10/2011	WHA	WHA: Michael Krausse, Adrian Early, Glenn Floyd NCDOT: Allen Pope, Ted Devens WMPO: Mike Kozlosky URS: Peter Trencansky	To continue coordination of the Independence Boulevard Extension through the Winfield Scott property, owned by the WHA.
8/25/2011	NCDOT Coordination	NCDOT: Brian Yamamoto, Ted Devens, Ron McCollum, Chandrakant Sura, Matt Carlisle URS: Peter Trencansky	To continue discussions on the conceptual design of the project and discuss potential intersection treatments and the typical section for the project.
10/3/2011	NCDOT Coordination	NCDOT: Ted Devens, Ron McCollum, BenJetta Johnson, Chandrakant Sura URS: Peter Trencansky	To continue the ongoing review of the conceptual design plans and associated traffic capacity analysis with the goal of making project team recommendations on which alternatives to carry forward to functional design.

Date	Meeting Type	Attendees	Purpose
10/26/2011	NCDOT Coordination	NCDOT: Ted Devens, Brian Yamamoto, Ron McCollum, Gary Lovering, BenJetta Johnson, Chandrakant Sura URS: Chris Werner, Peter Trencansky	To continue the ongoing review of the conceptual design plans and associated traffic capacity analysis with the goal of making project team recommendations on which alternatives to carry forward to next state in design phase.
12/12/2011	NCDOT/WMPO Coordination	NCDOT: Ted Devens, Brian Yamamoto, Gary Lovering, Anthony West, BenJetta Johnson, Chandrakant Sura, Allen Pope, Jackson Provost, Chad Kimes, Katie Hite FHWA: Ron Lucas WMPO: Mike Kozlosky URS: Mike Littlefield, Peter Trencansky	To present the preliminary recommendations made by the Raleigh-based project team to the WMPO and Division 3 staff to make a final decision on which alternatives to carry forward into Preliminary Design. Additionally, project design issues and next steps in the project were discussed.
12/13/2011	NCDOT Roadway Preliminary Design	NCDOT: Gary Lovering, Anthony West URS: Peter Trencansky, Mike Littlefield	To discuss the Preliminary Design Guidelines for the Independence Boulevard Extension Project and understand the expectations for the Preliminary Design phase of the project.
1/9/2012	NCDOT Coordination Meeting	NCDOT: Ted Devens, Gary Lovering, Anthony West, Bob Mosher NCDOT Rail: Nancy Horne, Andrew Thomas, Richard Mullinax URS: Peter Trencansky, Mike Littlefield	To discuss the incorporation and design of a multi-use path along the Independence Boulevard Extension project.
7/17/2012[a]	City of Wilmington and NCDOT Coordination Meeting	City of Wilmington: Don Bennett, Denys Vielkanowitz WMPO: Mike Kozlosky, Suraiya Rashid NCDOT: Ted Devens, Brian Yamamoto, Gary Lovering, BenJetta Johnson, Anthony Law, Jackson Provost, Patrick Riddle, Katie Hite URS: Peter Trencansky	To brief the Wilmington City staff in advance of the citizens informational workshop that is anticipated to be held in early October 2012.
8/15/2012	NCDOT Coordination Meeting	NCDOT: Ted Devens, Gary Lovering, Fred Barkley URS: Peter Trencansky, Ed Edens, Dena Snead	To review the preliminary design centerline alignments for the three mainline alternatives of the Independence Boulevard Extension project.

Date	Meeting Type	Attendees	Purpose
8/27/2012	Wilmington City Council and NCDOT Coordination	Wilmington Mayor: Bill Saffo, Earl Sheridan City Council: Margaret Haynes, Neil Anderson, Kevin O'Grady, Laura Padgett, Charlie Rivenbark WMPO: Mike Kozlosky NCDOT: Ted Devens, Brian Yamamoto, Gary Lovering, Karen Fussell, Jackson Provost URS: Peter Trencansky	To brief the Wilmington City Council Members in advance of the citizens informational workshop that is anticipated to be held in early October 2012.
1/17/2013	NCDOT and NCSPA Coordination Meeting	NCDOT Strategic Initiatives: Roberto Canales NCDOT: Ted Devens, Gary Lovering, Omar Azizi NCDOT Rail: Jim Harris, Nancy Horne NCSPA: Stephanie Ayers URS: Peter Trencansky	To continue coordination on the railroad aspects of the Independence Boulevard Extension project to determine the design criteria for the railroad crossings that will be included in the preliminary designs.
5/30/2013	NCDOT and WMPO Coordination Meeting	NCDOT: Karen Fussell, Katie Hite, Anthony Law, Jackson Provost, Patrick Riddle, Gary Lovering, Ted Devens, Brian Yamamoto WMPO: Mike Kozlosky URS: Ed Edens, Joanna Rocco	To review with the WMPO and NCDOT Division 3 staff the project status, studies recently completed/currently underway, and upcoming next steps.
9/24/2013	NCDOT Coordination	NCDOT: Dean Argenbright, Ted Devens, Christopher Lee, Gary Lovering, Jay Twisdale, Brian Yamamoto URS: Richard Bird, Jennifer Byle, Leo Davies, Ed Edens, Dennis Hoyle, Burt Matteson, Joanna Rocco, Christopher Werner, Paul Zhang	To discuss the depressed freeway design concept with NCDOT and determine what additional information is needed to better understand construction costs to compare with other project alternatives.
10/31/2013	NCDOT Coordination	NCDOT: Ted Devens, Brian Yamamoto, Gary Lovering, Christopher Lee URS: Ed Edens, Chris Werner	To provide NCDOT with an update on the Depressed Facility Functional Design preparations and to discuss upcoming next steps.

Date	Meeting Type	Attendees	Purpose
3/25/2014	WMPO and NCDOT Coordination Meeting	NCDOT: Ted Devens, Brian Yamamoto, Karen Fussell, Anthony Law, Jackson Provost, Patrick Riddle, Gary Lovering, Christopher Lee, Jamille Robbins, Jay Twisdale FHWA: Ron Lucas WMPO: Mike Kozlosky URS: Chris Werner, Joanna Rocco	To review with the WMPO and NCDOT Division 3 the project status, studies recently completed/currently underway, and upcoming next steps.
4/30/2014	Wilmington City Council and TAC Meeting	NCDOT: Ted Devens URS: Chris Werner, Joanna Rocco	To present the status of the project, respond to questions since last meeting, present visualizations, and present draft information for the proposed depressed facility.
8/4/2014[a]	Wilmington City Council Meeting	NCDOT: Ted Devens URS: Chris Werner, Joanna Rocco	To present a project status update.
6/9/2016	WMPO and NCDOT Coordination	NCDOT: John Conforti WMPO: Mike Kozlosky AECOM: Chris Werner, Joanna Rocco, Celia Foushee	To discuss the project status, schedule, and any new information regarding the project.
3/10/2017	WMPO, NCDOT Division, and NCDOT Coordination	WMPO: Mike Kozlosky NCDOT Division 3: Chad Kimes, Katie Hite, David Leonard, Alan Pytcher NCDOT: John Conforti AECOM: Chris Werner, Joanna Rocco, Celia Foushee	To discuss the project status, schedule, and any new information regarding the project.

Date	Meeting Type	Attendees	Purpose
5/23/2017	NCDOT Scoping Meeting	City of Wilmington: Don Bennett WMPO: Mike Kozlosky USACE: Brad Shaver NCDOT Division 3: Mason Herndon, Katie Hite, Chad Kimes, David Leonard, Carla Schoonmaker, G.M. Taylor, Max Radford, Eric Ray, Lonny Sleeper, Rick Neal, Jessi Leonard, Anthony Law, Kevin Bowen NCDOT Rail Division: James Harris, Meredith McLamb, Neil Perry, Richard Mullinax, Jahmal Pullen NCDOT: Jamille Robbins NCSPA: Stephanie Ayers HDR: Phillip Rogers, Josh Massrock AECOM: Chris Werner, Joanna Rocco, Celia Foushee, Morgan Foster	To present the project to the various subject matter experts on the project and determine a project schedule and tasks.
5/31/2017	FHWA and NCDOT Coordination Meeting	FHWA: Ron Lucas NCDOT: Mason Herndon, Katie Hite, Carla Schoonmaker AECOM: Joanna Rocco, Celia Foushee, Morgan Foster	To meet with FHWA and determine project steps moving forward.
7/12/2017	NCDOT Rail Coordination Meeting	NCDOT: Katie Hite, Michael Bass, David Leonard, Anthony Law, Brian Gackstetter, Kumar Trivedi, Carla Schoonmaker, Jahmal Pullen CSX: Tony Bellamy, Troy Creasy AECOM: Joanna Rocco, Celia Foushee	To discuss the railroad interaction on the proposed Independence Boulevard Extension project.
2/6/2018	NCDOT Coordination Meeting	NCDOT: Chad Kimes, Krista Kimmel, David Leonard, Mason Herndon AECOM: Andrew Bell, Ed Edens, Celia Foushee, Joanna Rocco	To discuss the project status and design changes to the Independence Boulevard Extension Project.

Date	Meeting Type	Attendees	Purpose
6/11/2018	NCDOT Coordination Meeting	WMPO: Mike Kozlosky NCDOT: Chad Kimes, Krista Kimmel, David Leonard, Mason Herndon, Katie Hite, Kevin Bowen AECOM: Ed Edens, Celia Foushee, Joanna Rocco	To discuss the preferred alignment for the Independence Boulevard Project and next steps for public involvement.
12/19/2018	NCDOT Rail Coordination Meeting	CSX: Troy Creasy NCDOT Rail: Brain Gackstetter, Jahmal Pullen NCDOT: Krista Kimmel, Katie Hite WMPO: Mike Kozlosky City of Wilmington: Chase Anderson AECOM: Ed Edens, Tom Hepler, Celia Miars, Joanna Rocco, Dan Scheel, Susan Westberry	To discuss the proposed designs for the Independence Boulevard Extension project at existing rail crossings.
7/31/2019	NCDOT and WMPO Board Meeting	WMPO Board Members NCDOT: Krista Kimmel, Chad Kimes AECOM: Joanna Rocco, Celia Miars, Susan Westberry	To discuss the project status and history and present the project alignment and interchange alternatives to the WMPO Board following the 7/22/2019 Public Meeting.
12/9/2021	FHWA and NCDOT Coordination Meeting	FHWA: Felix Davila, Clarence Coleman NCDOT: Krista Kimmel, Mason Herndon, Jamille Robbins, Simone Robinson AECOM: Susan Westberry, Celia Miars, Ashley Ervin	To discuss outreach activities proposed for communities being impacted by the project.
9/16/2022	NCDOT and WMPO	WMPO: Mike Kozlosky, Abby Lorenzo NCDOT: David Leonard, Katie Hite, Krista Kimmel, Jamille Robinson, Simone Robinson AECOM: Susan Westberry	To update the WMPO on the results of the additional outreach efforts completed in February 2022 and to discuss potential mitigation measures that were requested by residents during the meeting. To request feedback from the WMPO on potential mitigation to incorporate into the project.
10/27/2022	NCDOT and FHWA	FHWA: Felix Davila, Clarence Coleman, Seth Wilcher NCDOT: Krista Kimmel, Mason Herndon, Jamille Robbins, Kyle Champion, Victoria Blackwell AECOM: Susan Westberry, Ashley Ervin	To discuss the EJ Outreach Summary and Potential Mitigation Strategy Packet that was prepared following targeted EJ outreach in February 2022[b]. To move the project forward following the outreach and discuss path forward towards signing the DEIS.

Date	Meeting Type	Attendees	Purpose
1/12/2023	NCDOT and FHWA	FHWA: Felix Davila, Clarence Coleman, Seth Wilcher, Joseph Geigle NCDOT: Krista Kimmel, Mason Herndon AECOM: Susan Westberry, Joanna Rocco, Ed Edens	To discuss the rationale and decision-making process for the current alternatives proposed for the project within the DEIS. To clarify the reason behind the elevated boulevard design.

[a] Meeting minutes unavailable

[b] This packet was prepared and finalized under a prior regulatory regime and does not reflect recent changes in regulatory or Executive Order requirements

5.2.1.2 Newsletters

Newsletter No. 1 was mailed to approximately 1,290 recipients on May 26, 2011. The newsletter announced the first public meeting, formerly referred to as CIW No. 1 held on June 13, 2011. Newsletter No. 2 was mailed to 434 recipients on February 12, 2022. This newsletter provided the dates of the door-to-door outreach (February 22 to 24, 2022) and the open house meeting that took place on February 26, 2022. Newsletter No. 2 was mailed only to those residences with the potential to be impacted or relocated by the proposed project and not the larger study area mailing list used for Newsletter No. 1.

5.2.1.3 Public Meeting Notices

A meeting notice for the CIW No. 1 held on June 13, 2011, was forwarded to the following media sources:

- Star News
- The Challenger Greater Diversity News
- Que Pasa

A second meeting notice for an open-house style public meeting held on July 22, 2019, was forwarded to the following media sources:

- Radio: iheartmedia
- Newspapers:
    - Lumina News
    - State Port Pilot
    - Greater Wilmington Business Journal
    - Brunswick Beacon
    - Greater Diversity News
    - Island Gazette
    - Wilmington Journal
    - Star News

5.2.1.4 News Releases

There have been two news releases regarding the proposed project. The first was sent to approximately 120 entities on June 1, 2011, announcing CIW No. 1 and the second was sent to more than 300 entities on July 2, 2019, announcing the public meeting. Copies of the news releases and the list of recipients are included in Appendix E.

5.2.1.5 Flyers/Doorhangers

Flyers and doorhangers were distributed to residences and businesses within the study area on July 9, 2019. A figure showing the distribution area is included in Appendix E.

5.2.2 Public Outreach

The first public meeting, CIW No. 1, was held on June 13, 2011, at the Rachel Freeman School of Engineering in Wilmington, North Carolina. The workshop was held from 4:00 p.m. to 7:00 p.m. The intent of the workshop was to solicit public input prior to establishing the purpose of and need for the proposed project and developing project designs. The public was provided the opportunity to listen to a short presentation describing the proposed project, the draft Purpose and Need, and maps showing the study area. Approximately 70 residents attended the workshop. Meeting materials and a summary of comments received are included in Appendix E.

Another open house style public meeting was held on July 22, 2019, at the Rachel Freeman School of Engineering in Wilmington, North Carolina. The meeting was held from 5:00 p.m. to 7:00 p.m. The intent of the meeting was to update the public on the project status, inform them of the alternatives that would be under consideration in this DEIS, discuss the project with NCDOT representatives, and receive feedback on the proposed project and its alternatives. Approximately 157 residents attended the meeting. Meeting materials and a summary of comments received are included in Appendix E.

Door-to-door outreach was conducted for residences along streets within the study area from Evans Street and 31st Street between Market Street and Princess Place Drive and from Covil Avenue and Mercer Avenue between Market Street and Randall Parkway. A survey for residents was distributed within the newsletter mailed ahead of the outreach. The purpose of the door-to-door outreach was to collect surveys, help residents take the survey, and/or answer questions residents had about the project. The door-to-door outreach took place from February 22 to February 24, 2022. Approximately 222 residences were visited and conversations were had/feedback was received from approximately 100 of those residences. On February 26, an open house was held from 12:00 p.m. to 3:00 p.m. at the Davis Center in Maides Park in Wilmington, North Carolina. Thirty-four people attended the open house. At the open house, participants were provided visualizations of the project alternatives on both foam boards and as map files on a laptop. Various information was also distributed for participants including the mailed newsletter, relocation assistance brochures, and Title VI forms. Thirty-one formal comments were received during door-to-door surveys, nine were received through the PublicInput.com site, six were received at the open house, and seven via mail for a total of 53 comments.

5.2.3 Public Hearing

A public hearing for the proposed project will be held following approval of this DEIS. The alternatives under consideration will be presented to the public for their comments at the hearing. The preferred alternative for the project will be chosen following the hearing. Public comments will be taken into consideration at the determination of the preferred alternative.

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6 List of Preparers and DEIS Distribution

This chapter lists the study team members, their qualifications, and their roles. This chapter also documents the agencies that received a copy of the DEIS for review and comments.

6.1 List of Preparers

The DEIS was prepared by AECOM Technical Services of North Carolina, consulting engineers, in cooperation with NCDOT and FHWA. The key personnel involved in the preparation of this document are presented in Table 6-1.

Table 6-1: List of Preparers

Name	Position	Credentials
FHWA		
Felix Davila, PE	Preconstruction & Environment Engineer	BS in Civil Engineering with over 30 years of experience at FHWA including 30 years in NEPA studies.
Clarence Coleman, PE	Preconstruction & Environment Director at FHWA	BS in Civil Engineering responsible for federal aid projects in North Carolina. Over 30 years of experience.
Seth Wilcher	Preconstruction & Environment Specialist at FHWA	MA in Historic Preservation. More than 20 years of experience in NEPA, Environmental Protection, and Architectural Historian.
NCDOT		
Mason Herndon	NCDOT Division 3 – Project Development Environmental Engineer	BS in Natural Resources Management and Public Administration with more than 20 years of experience with environmental planning and NEPA/SEPA studies.
Chad Kimes, PE	NCDOT Division 3 – Division Engineer	BS in Civil Engineering with over 30 years of experience with NCDOT including planning, project development, and construction.
Krista Kimmel, PE	NCDOT Division 3 – Project Engineer	BS in Civil Engineering with 18 years of experience in transportation design and project development. BA in Mathematics.
Jamille Robbins	NCDOT Environmental Analysis Unit – Public Involvement, Community Studies, and Visualization Group Leader	BS in Mechanical Engineering with over 20 years of experience with NEPA/SEPA, public engagement, project management and project development.

Name	Position	Credentials
AECOM		
Susan Draper, AICP, PWS	Project Manager/Senior NEPA Planner	MS in Botany, BS in Wildlife Management and Ecology with over 20 years of experience in NEPA and environmental planning.
Ed Edens, PE	Senior Transportation Engineer	BS in Civil Engineering with over 20 years of experience in planning and roadway design.
Ashley Ervin	Transportation Planner	MS in City and Regional Planning with 9 years of experience specializing in public engagement.
Paul Gerlach, AICP	GIS Lead/NEPA Planner	Master of Environmental Management, BS in Biology with 8 years of experience in NEPA and environmental planning.
Chaithra Jagadish	Transportation Engineer	MS in Transportation Engineering, BE in Civil Engineering with 10 years of experience in Traffic Capacity and Safety.
Matt Jorgenson	Senior Archaeologist	MA in Anthropology, BA in Anthropology, and BA in History with over 25 years of Cultural Resources Management experience.
Christian Lanier	Transportation Planner	MA in Sustainability and Development, BS in Environmental Science, BA in Anthropology with 5 years of experience.
Todd McAuliffe, AICP	Planner/GIS	MA in Geography with over 15 years of experience in GIS analysis, transportation, and urban planning.
Art McMillan	Program Manager	BS in Civil Engineering with 38 years of experience in planning and roadway design.
Jessica Kim	Environmental Planner	BA in Environmental Policy and Planning with 11 years of experience in environmental documentation, permit applications, construction monitoring and closeout.
Celia Miars, AICP	Deputy Project Manager/ NEPA Planner	MA in Environmental Studies, BS in Design with 10 years of experience in NEPA and environmental planning.
Joanna Rocco, AICP	Project Manager/Senior NEPA Planner	MS in Environmental Studies, BS in Biology with 18 years of experience in NEPA and environmental planning.
Greg Smith, PE, CPM	Traffic Noise and Project Level Air Quality Group Leader	BA in Geology, BA in Business Management with over 30 years of experience in geotechnical and transportation engineering including 13 years in traffic noise and air quality.

Name	Position	Credentials
Robin Marshall	Senior Editor/Technical Writer	BA in English with more than 30 years of experience in editing, developing, and producing documentation materials.
Kory Wilmot, AICP	Urban Planner/document reviewer	Masters of Public Administration, BA in Urban and Regional Planning with over 18 years of experience in NEPA documentation.

6.2 DEIS Distribution

In order to facilitate review and comment, the following agencies, local officials, and public libraries were provided copies of this document.

6.2.1 Federal Agencies

- Federal Emergency Management Agency
- United States Army Corps of Engineers – Wilmington District
- United States Environmental Protection Agency (Region IV, Environmental Review Branch)
- United States Fish and Wildlife Service
- United States National Oceanic and Atmospheric Administration – Fisheries

6.2.2 State Agencies

- North Carolina Department of Administration – State Clearinghouse
- North Carolina Department of Cultural Resources
- North Carolina Department of Environmental Quality
- North Carolina Division of Coastal Management
- North Carolina Division of Water Resources
- North Carolina Historic Preservation Office
- North Carolina Wildlife Resources Commission

6.2.3 Local Governments and Agencies

- City of Wilmington Parks and Recreation Department
- New Hanover County
- Wilmington Urban Area Metropolitan Planning Organization

6.2.4 Public Libraries

State Library of North Carolina
109 East Jones Street
Raleigh, NC 27601

Wilmington Star-News Library
1003 South 17th Street
Wilmington, NC 28401

New Hanover County Public Library – Main Branch
201 Chestnut Street
Wilmington, NC 28401

William Madison Randall Library
5162 Randall Drive
Wilmington, NC 28403

6.2.5 Website

https://www.ncdot.gov/projects/independence-boulevard/

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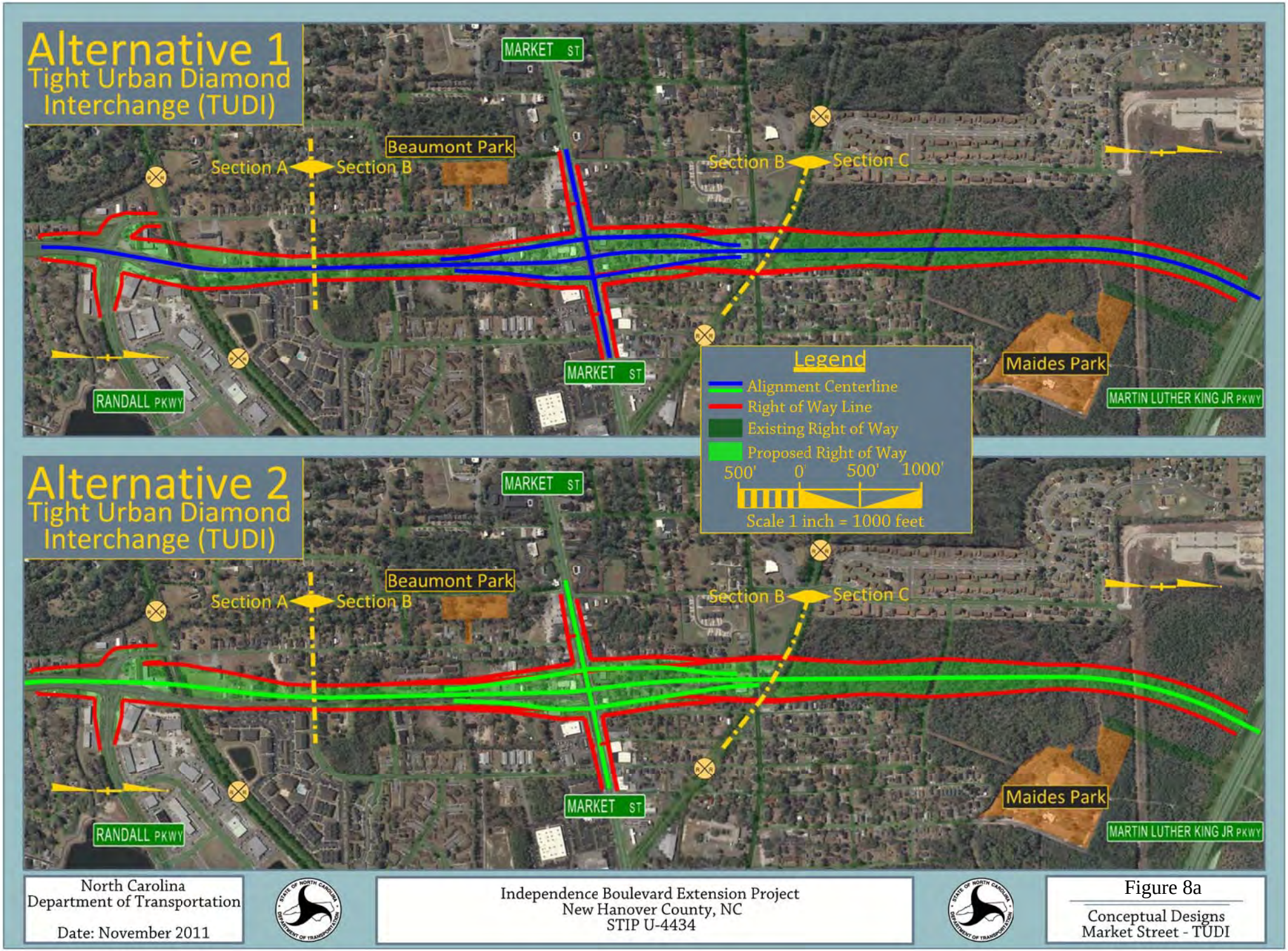
APPENDICES

APPENDIX A

CONCEPTUAL ALTERNATIVE ALIGNMENTS

Appendix A1

Alignments with TUDI Option



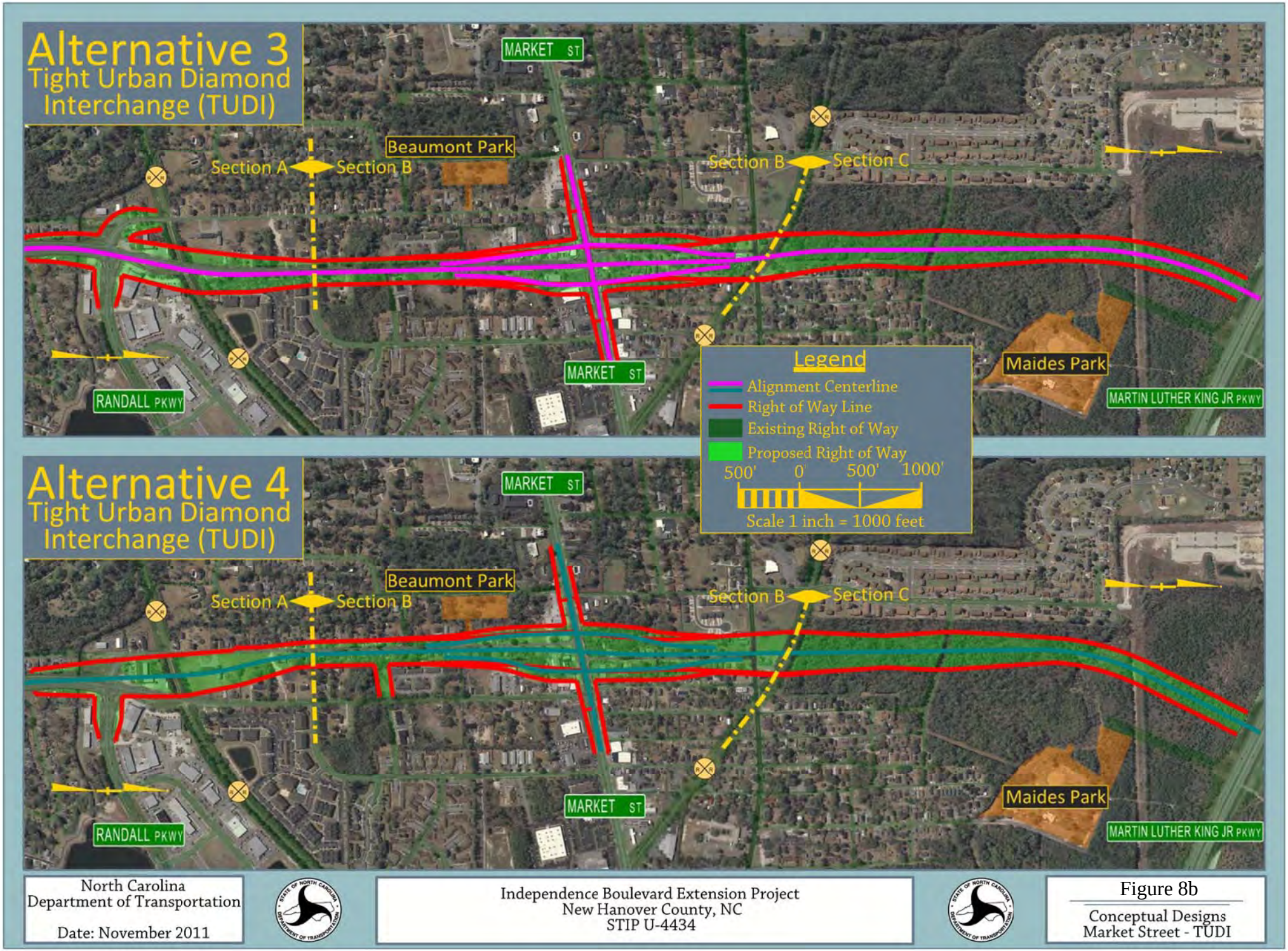
North Carolina Department of Transportation

Date: November 2011

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 8a

Conceptual Designs
Market Street - TUDI



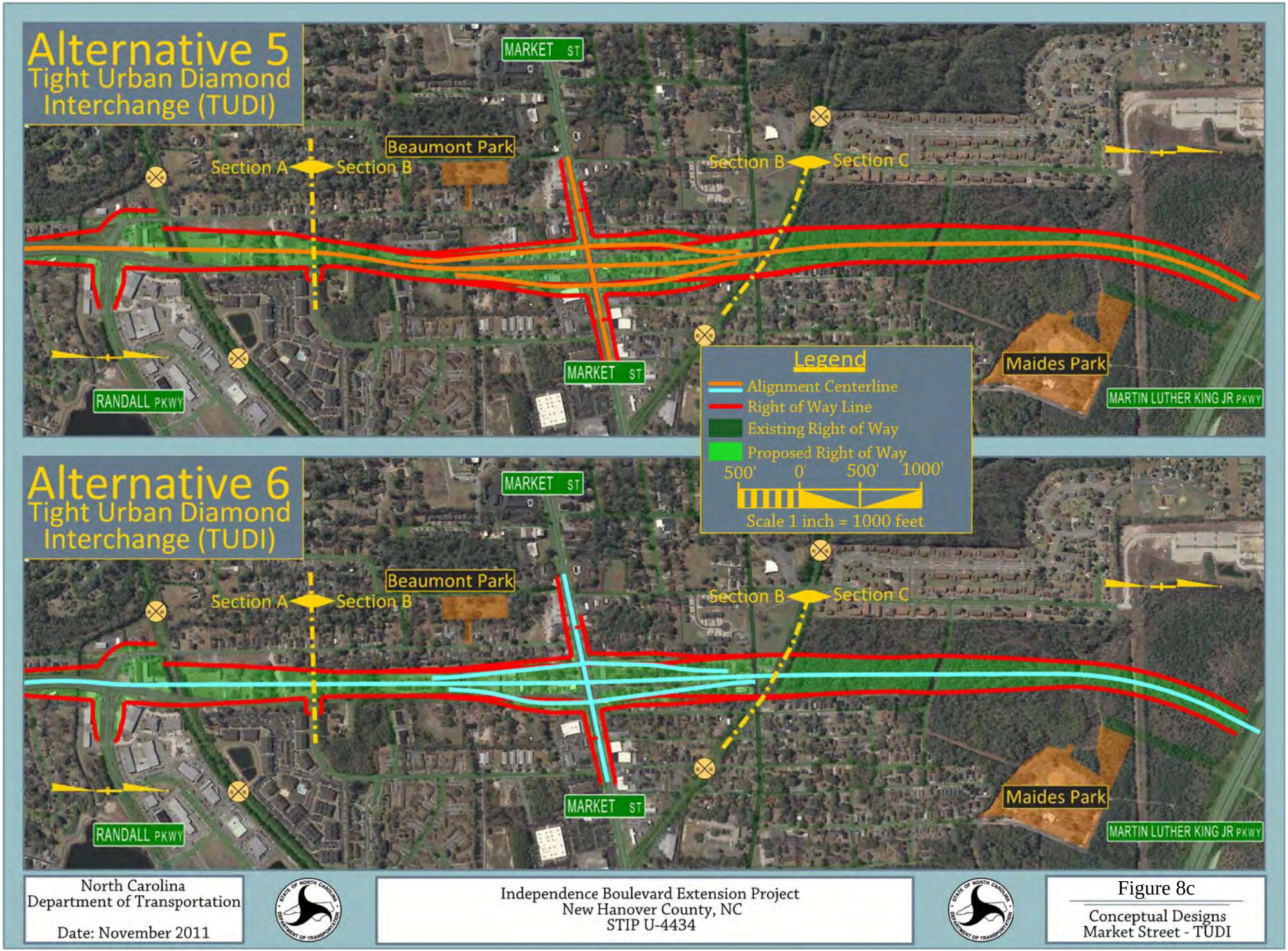
North Carolina Department of Transportation

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Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 8b

Conceptual Designs
Market Street - TUDI



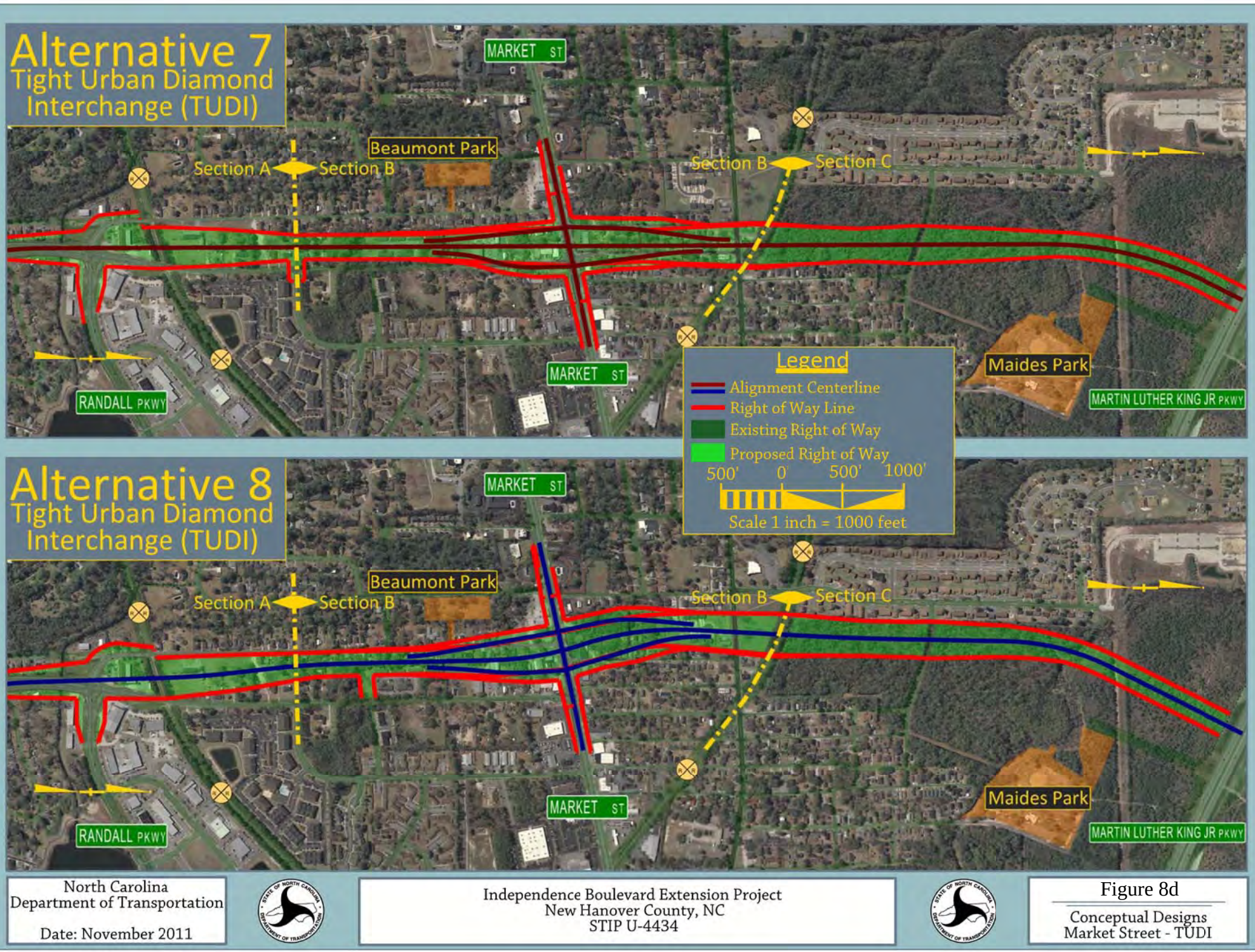
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New Hanover County, NC
STIP U-4434

Figure 8c

Conceptual Designs
Market Street - TUDI



North Carolina Department of Transportation

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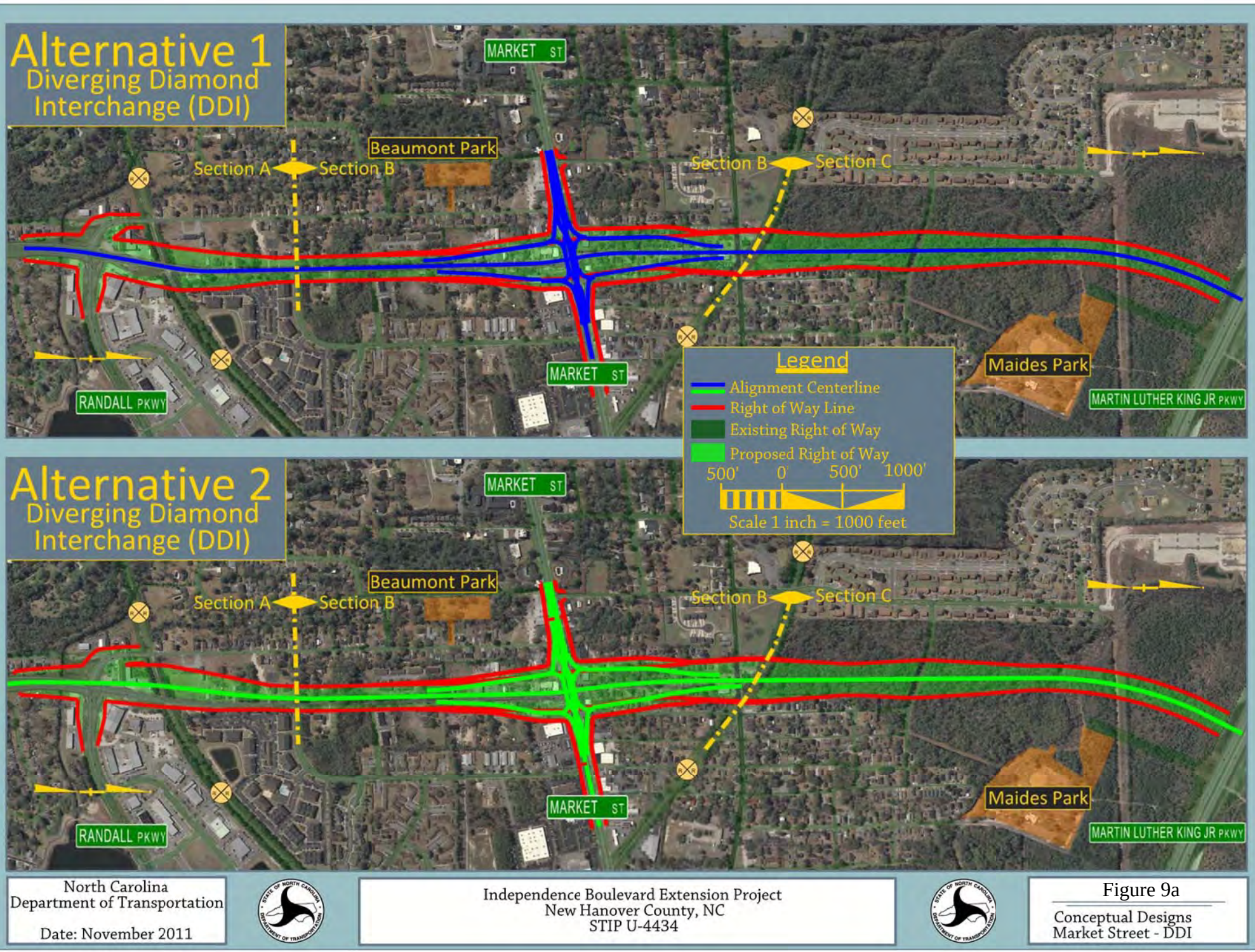
Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 8d

Conceptual Designs
Market Street - TUDI

Appendix A2

Alignments with DDI Option



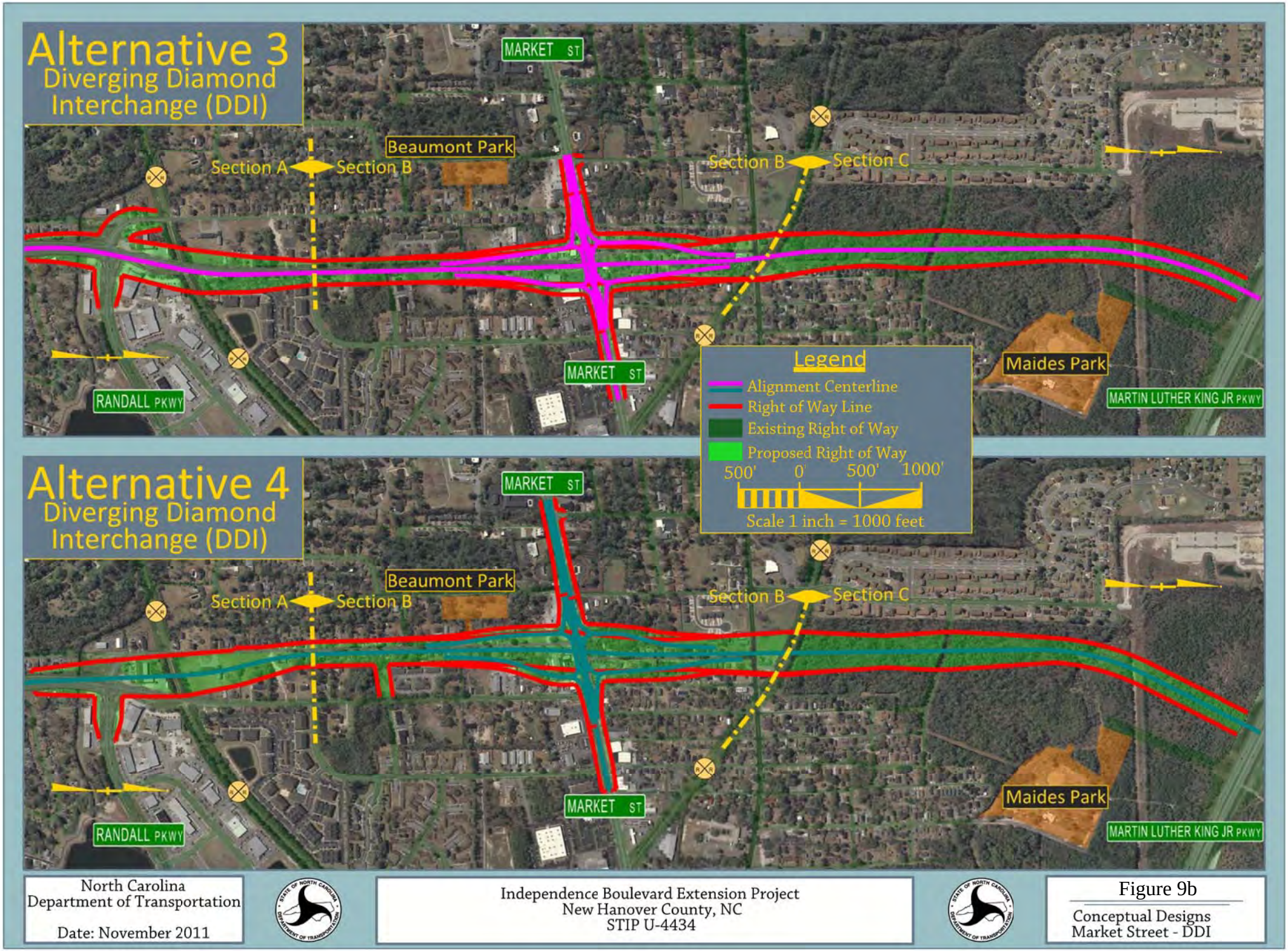
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Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 9a

Conceptual Designs
Market Street - DDI



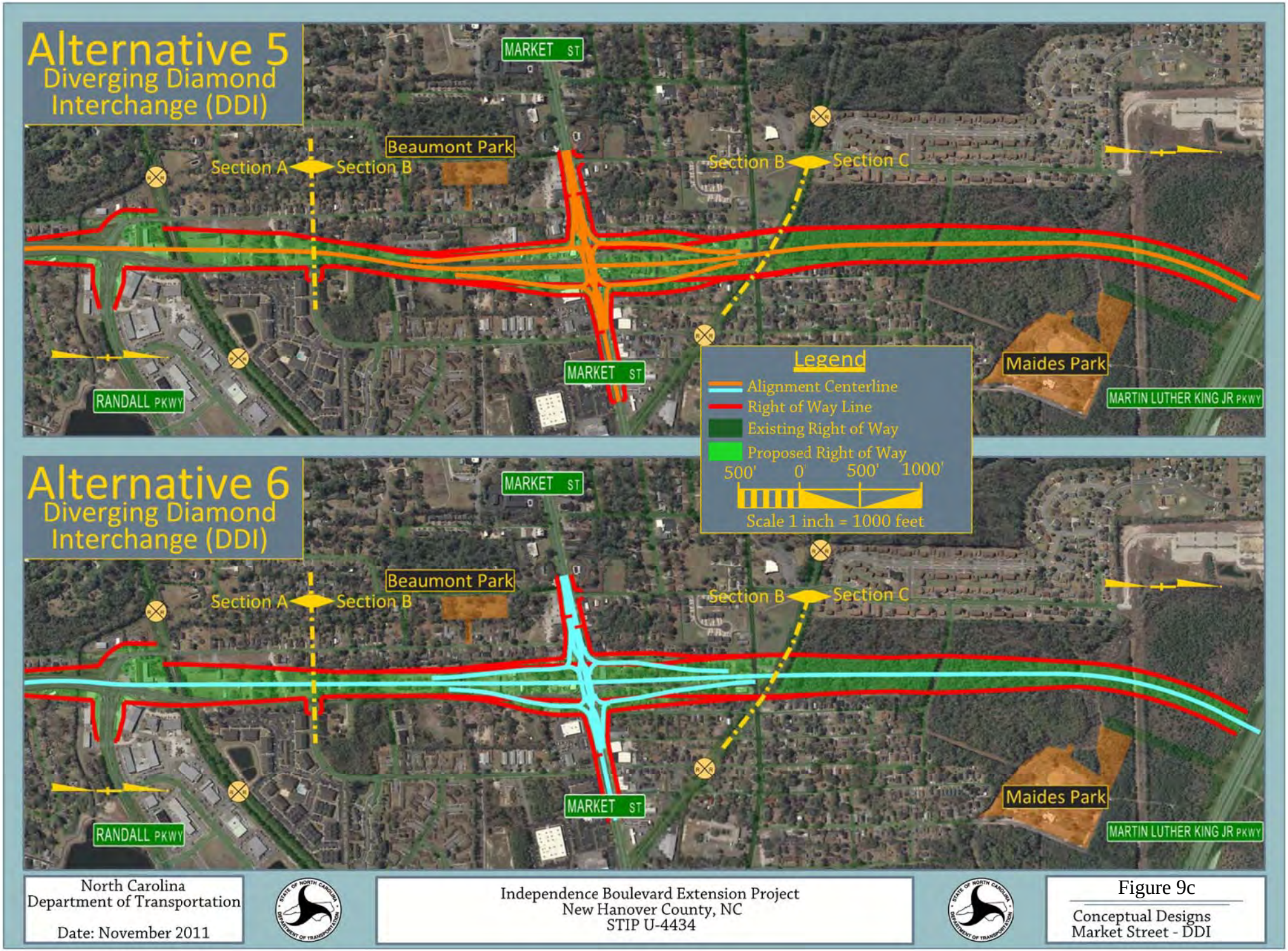
North Carolina Department of Transportation

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Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 9b

Conceptual Designs
Market Street - DDI



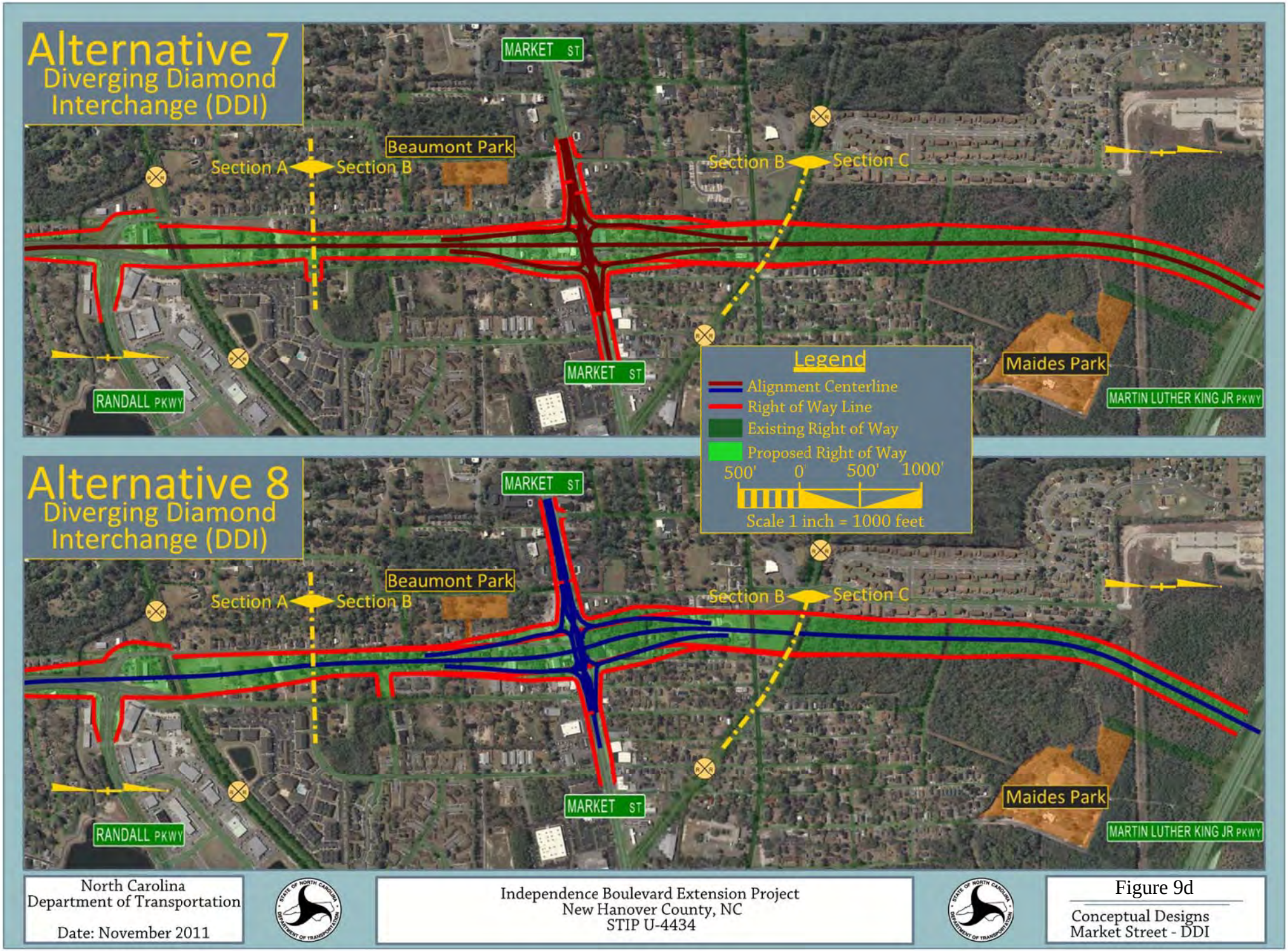
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Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 9c

Conceptual Designs
Market Street - DDI



North Carolina Department of Transportation

Date: November 2011

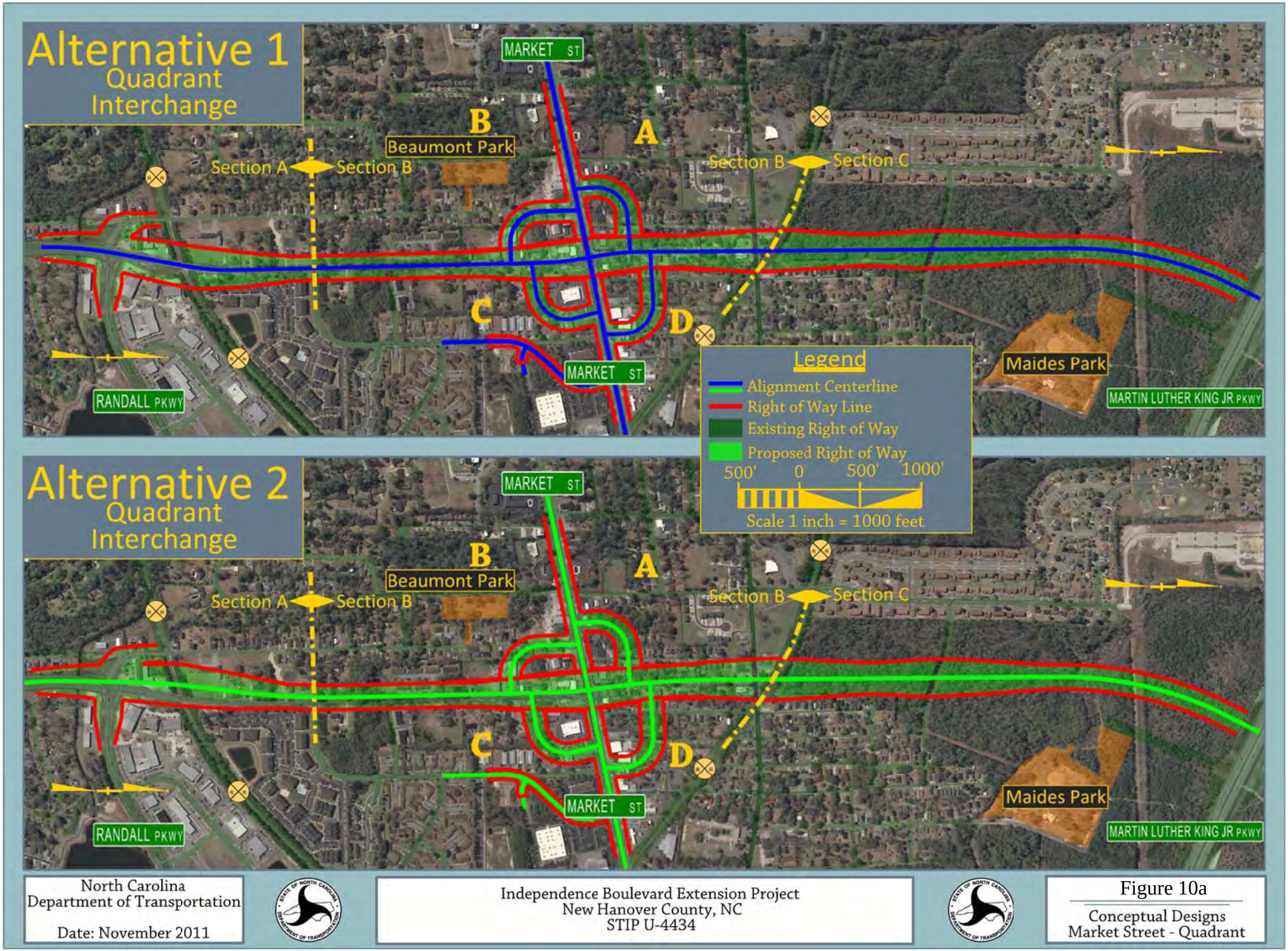
Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 9d

Conceptual Designs
Market Street - DDI

Appendix A3

Alignments with Quadrant Interchange Option



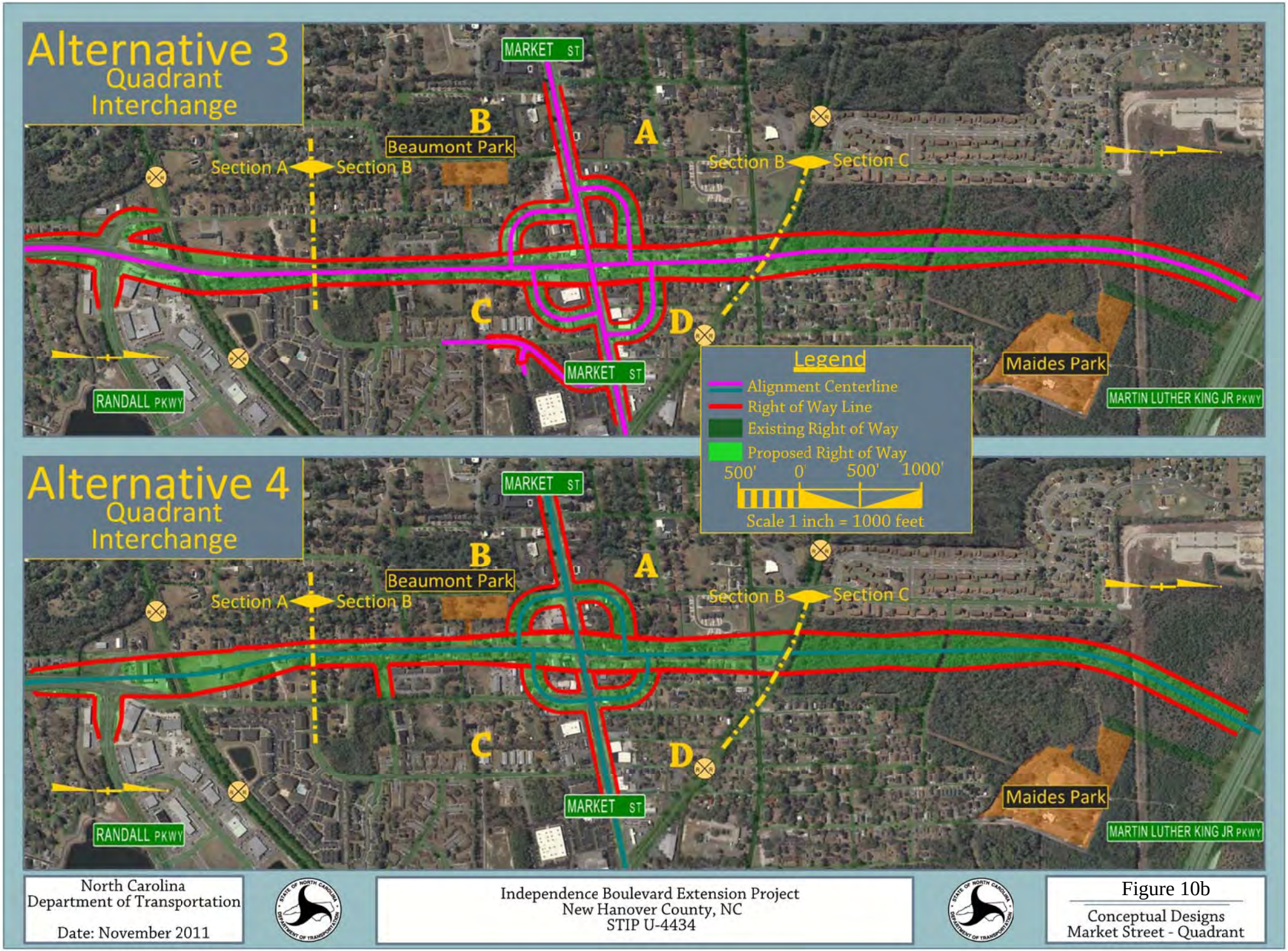
North Carolina
Department of Transportation

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Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 10a

Conceptual Designs
Market Street - Quadrant



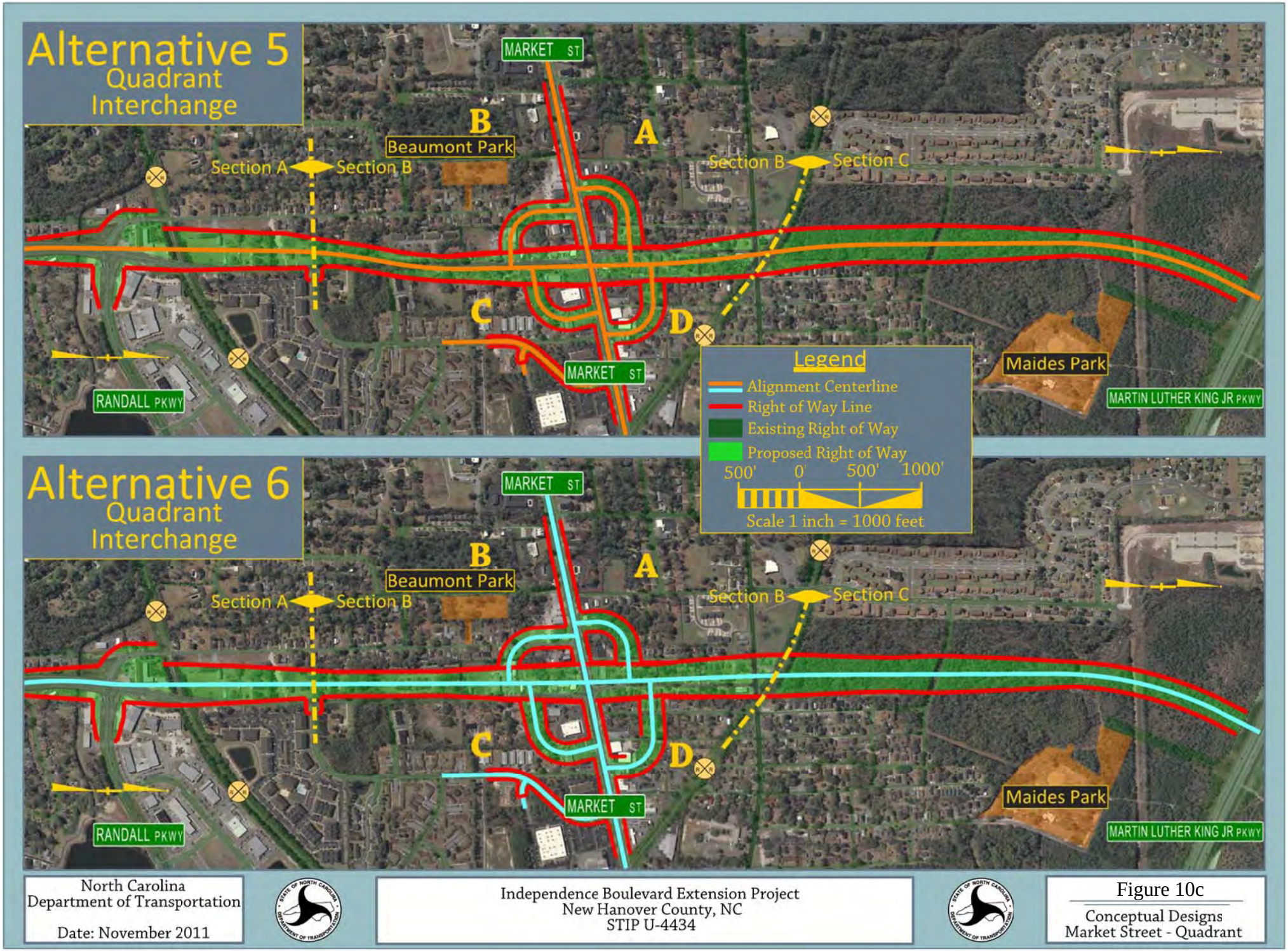
North Carolina
Department of Transportation

Date: November 2011

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 10b

Conceptual Designs
Market Street - Quadrant



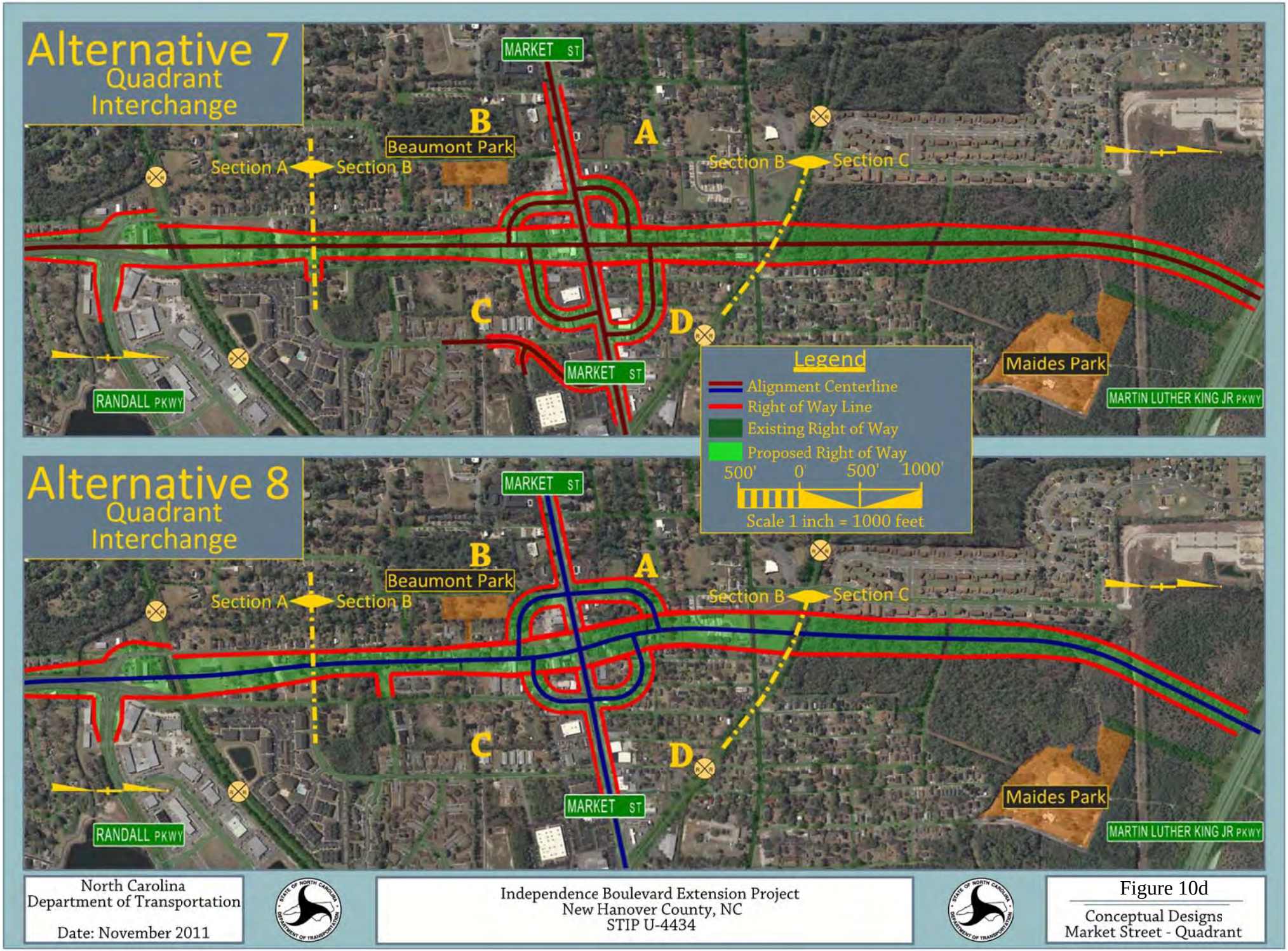
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Date: November 2011

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 10c

Conceptual Designs
Market Street - Quadrant



North Carolina
Department of Transportation

Date: November 2011

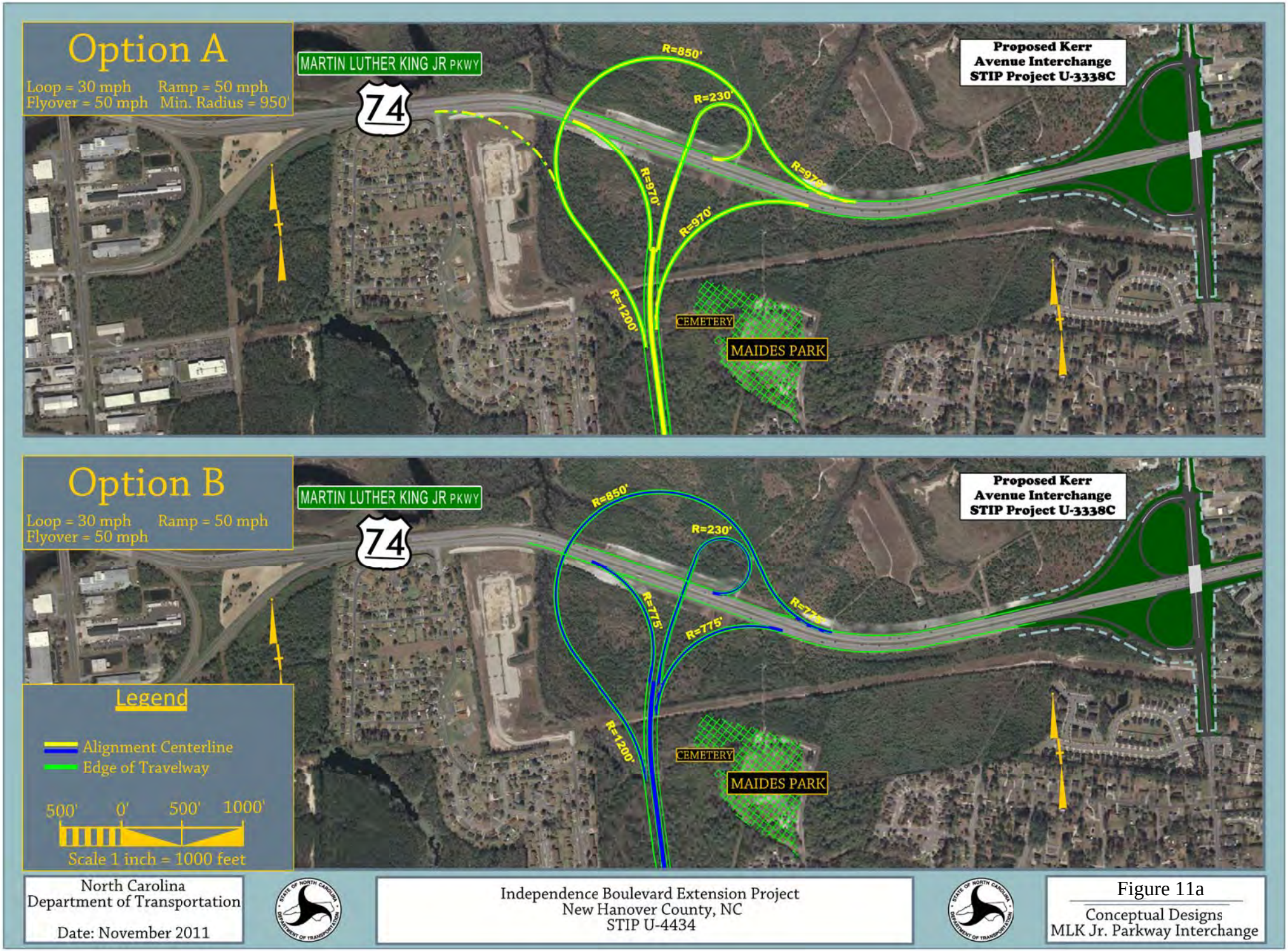
Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 10d

Conceptual Designs
Market Street - Quadrant

Appendix A4

Martin Luther King, Jr. Interchange Options



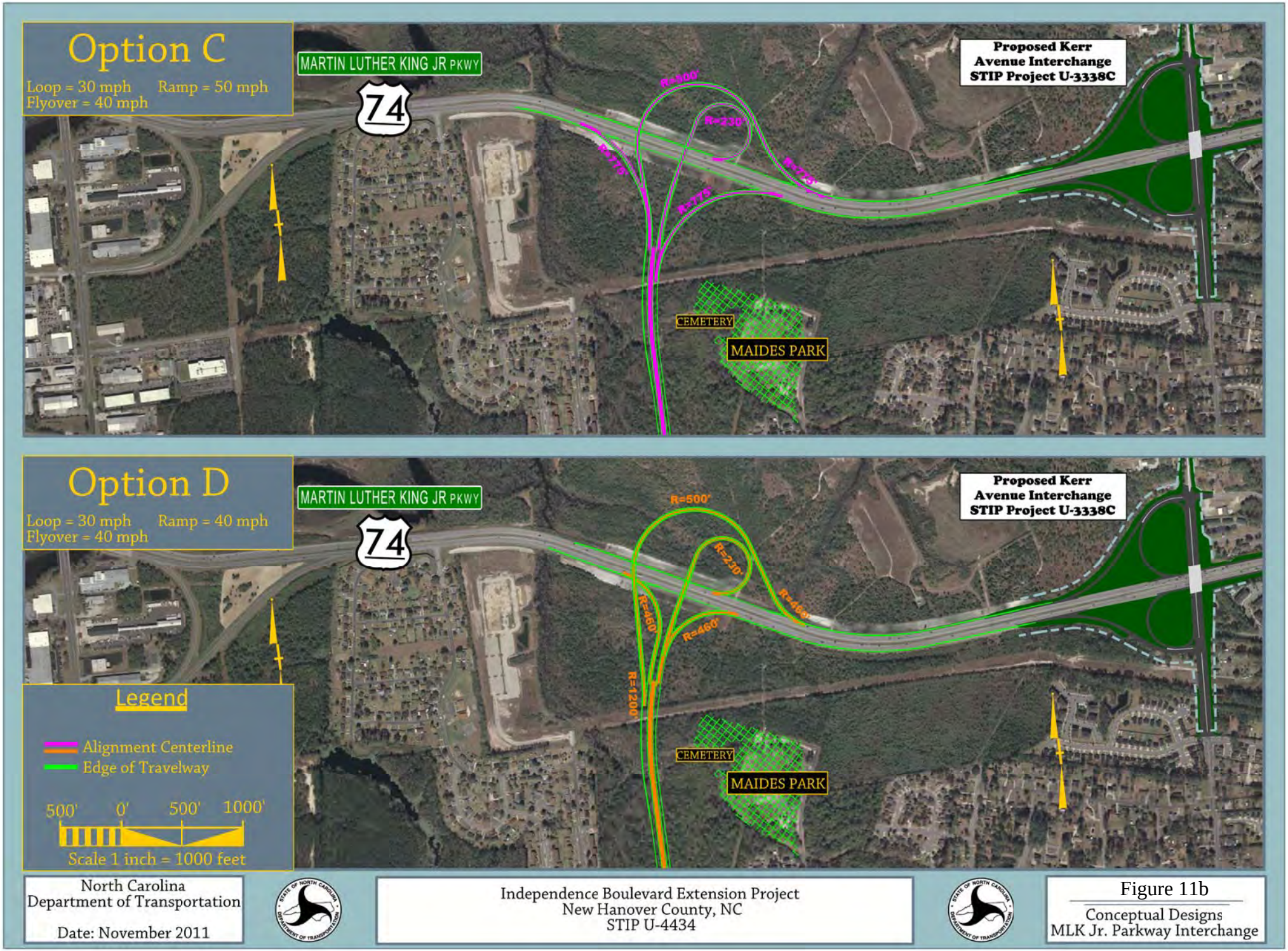
North Carolina
Department of Transportation

Date: November 2011

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 11a

Conceptual Designs
MLK Jr. Parkway Interchange



North Carolina
Department of Transportation

Date: November 2011

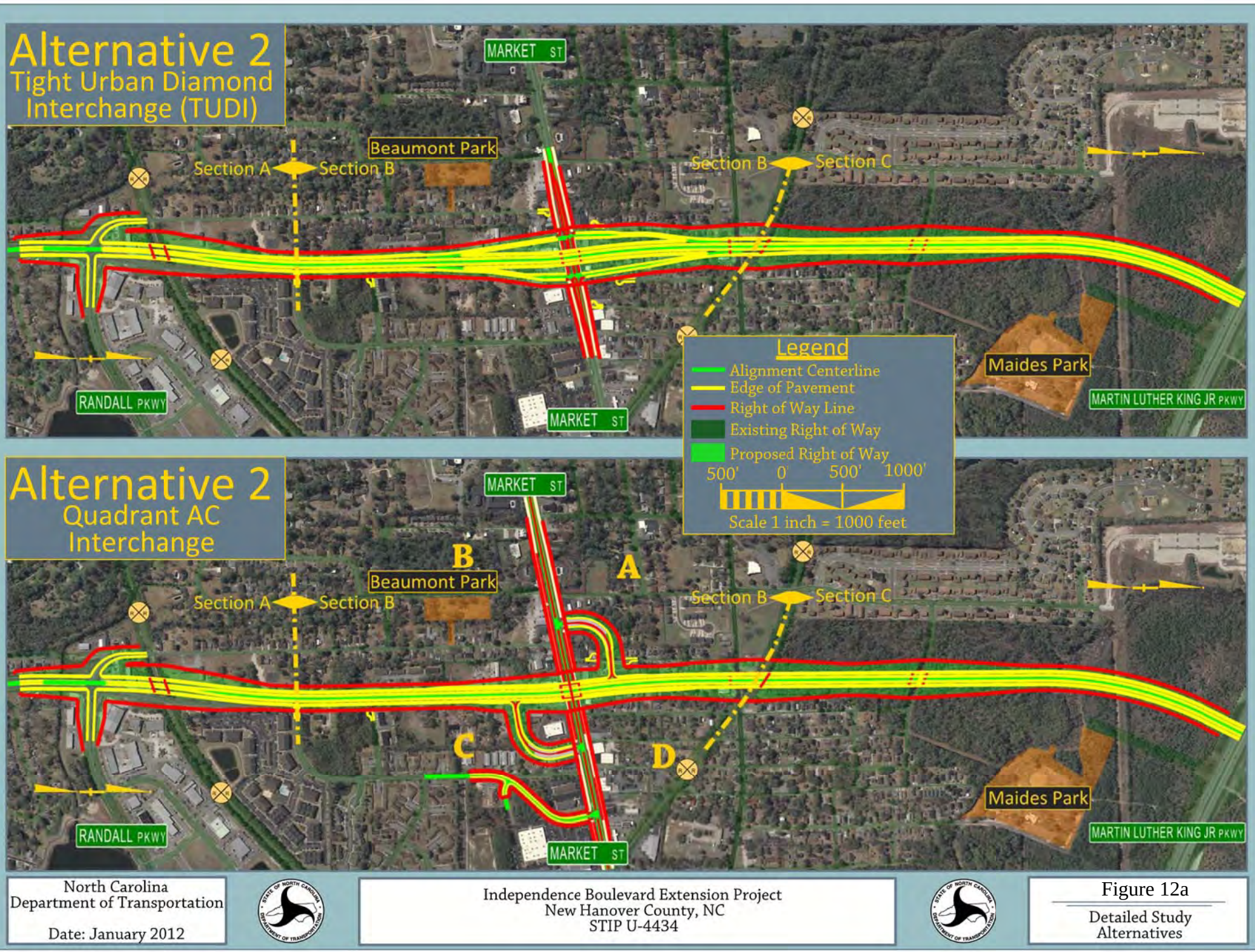
Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 11b

Conceptual Designs
MLK Jr. Parkway Interchange

APPENDIX B

INITIAL DETAILED STUDY ALTERNATIVES



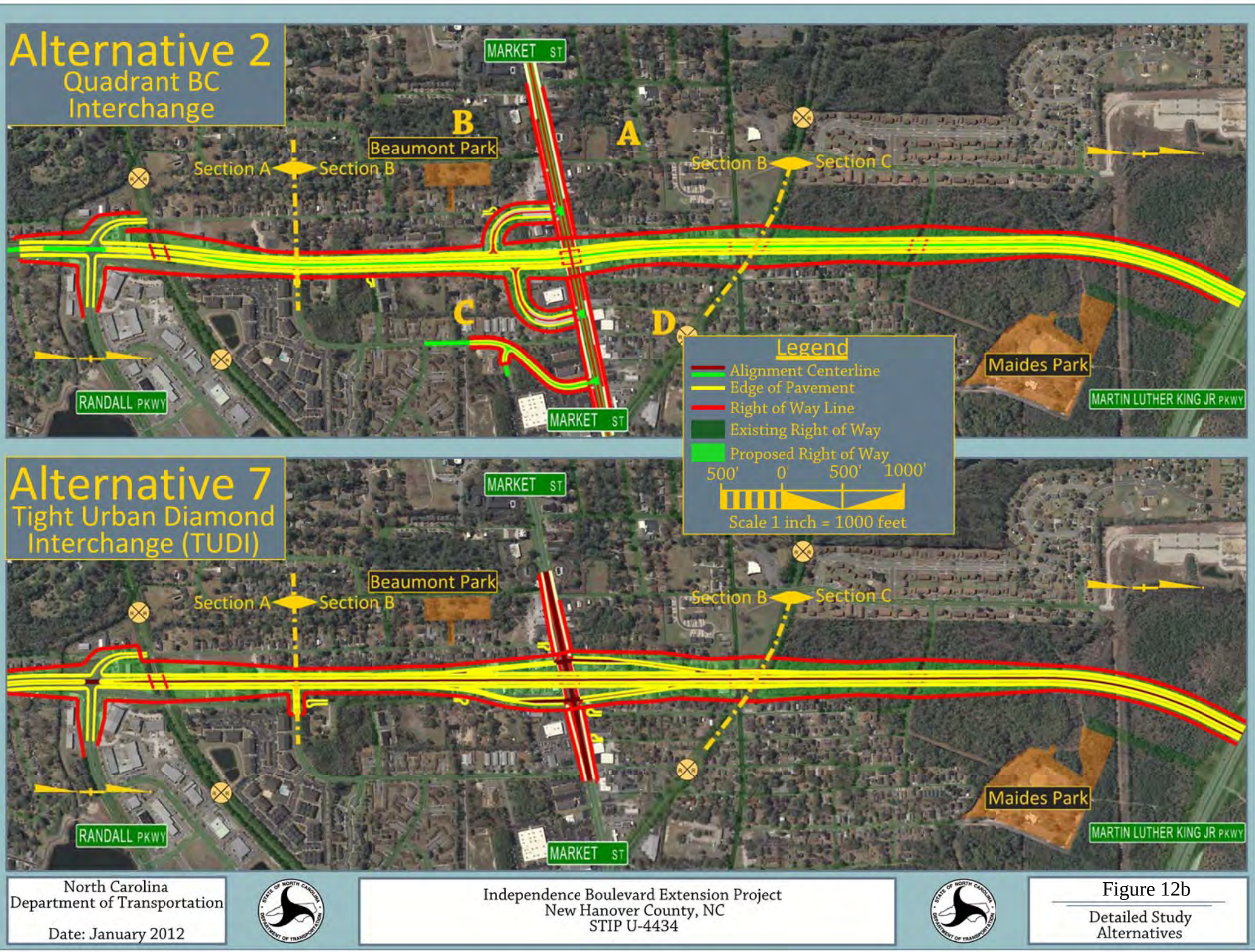
North Carolina Department of Transportation

Date: January 2012

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 12a

Detailed Study Alternatives



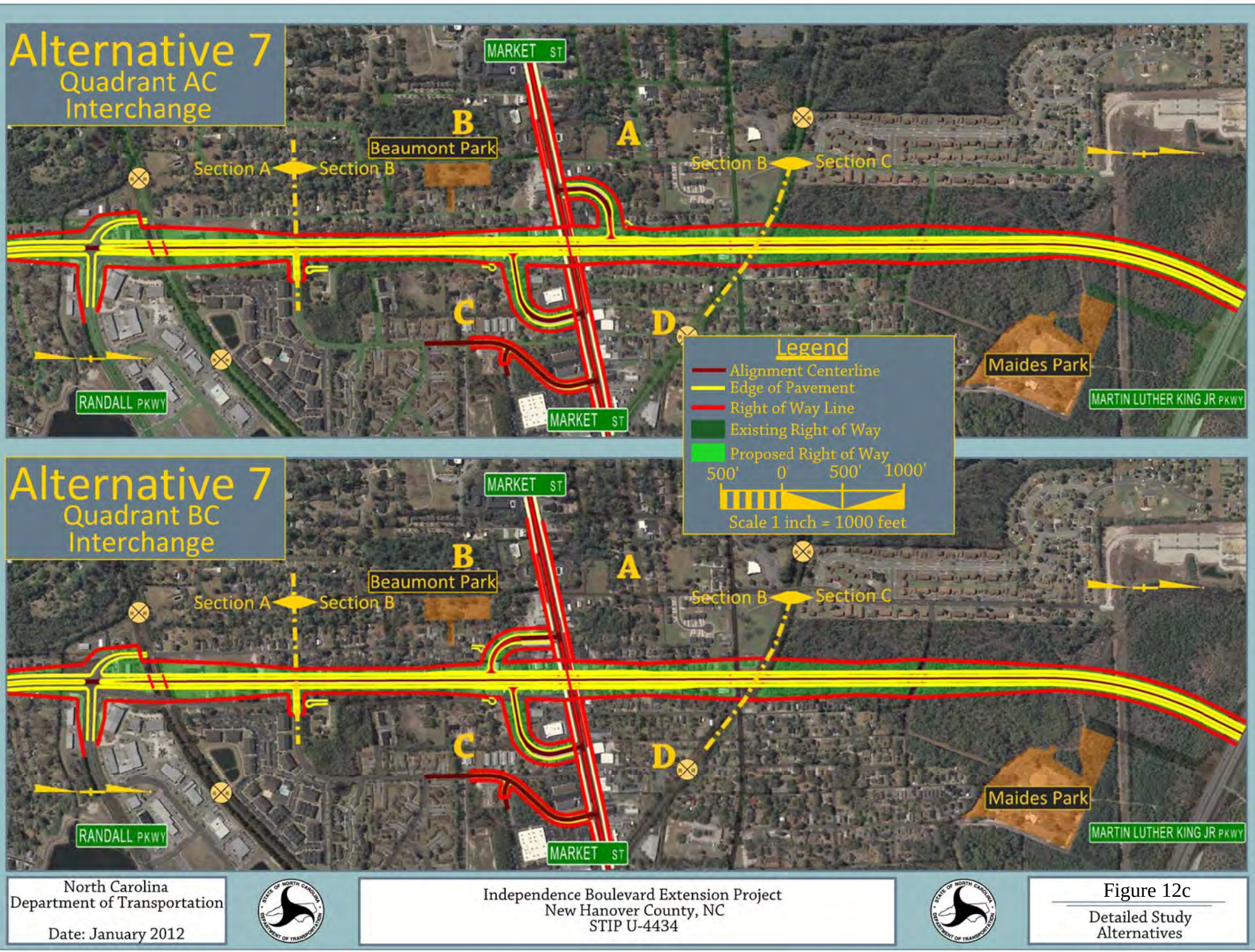
North Carolina
Department of Transportation

Date: January 2012

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 12b

Detailed Study
Alternatives



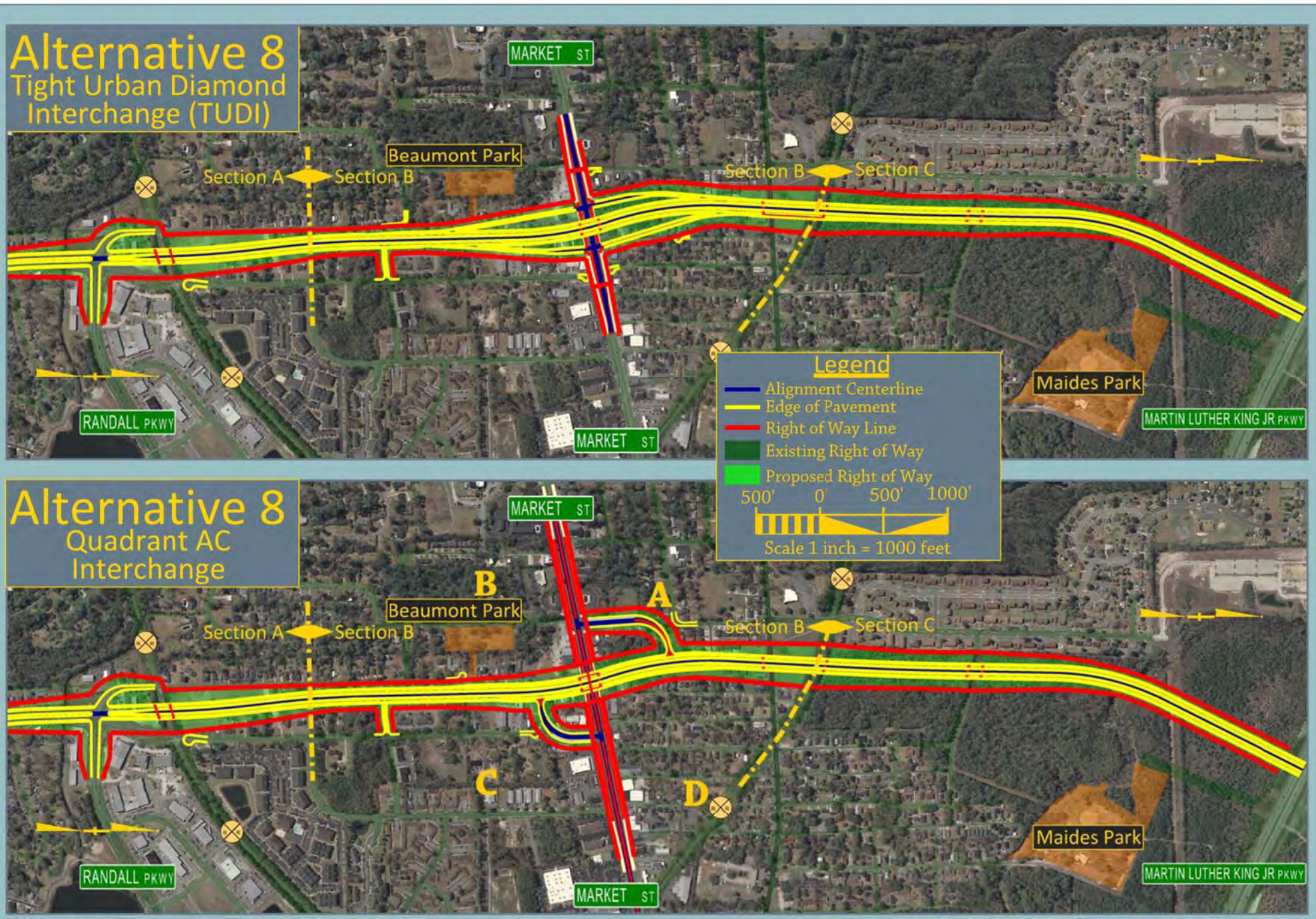
North Carolina
Department of Transportation

Date: January 2012

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 12c

Detailed Study
Alternatives



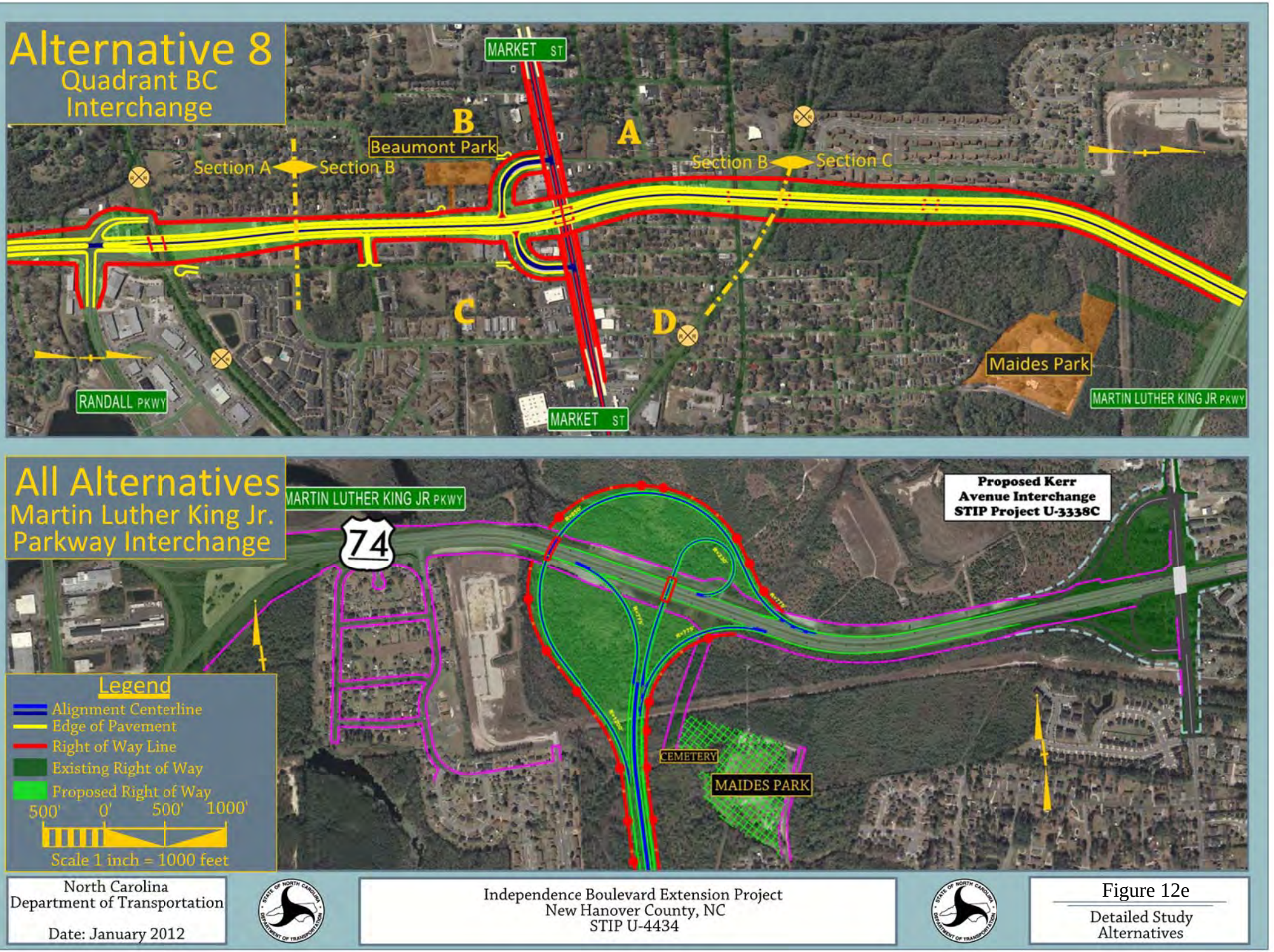
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Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 12d

Detailed Study Alternatives



North Carolina
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Date: January 2012

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure 12e

Detailed Study
Alternatives

APPENDIX C

RAISED RAIL AND DEPRESSED FACILITY OPTIONS

Appendix C1

Raised Rail Option

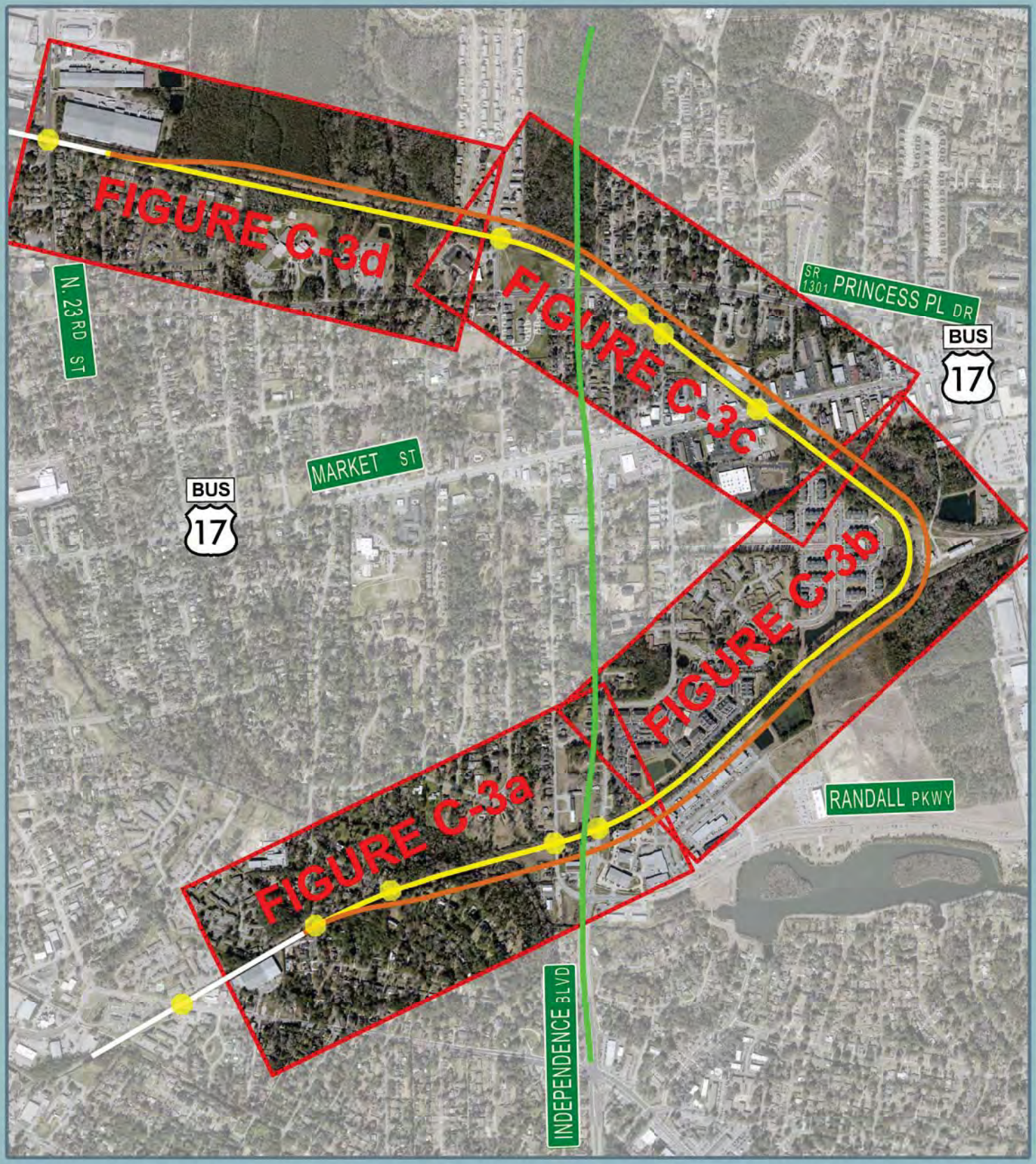
Table 1: U-4434 RAISED RAILROAD CONCEPTUAL ALTERNATIVE IMPACT COMPARISON

IMPACT DESCRIPTION	RAISED RAILROAD ALTERNATIVE			REPRESENTATIVE ELEVATED FACILITY (Bridge Over Exist. RR)*
	RAISED RR Portion	BOULEVARD Portion	TOTAL RAISED RR & BOULEVARD	
RELOCATIONS				
Residential				
Owner	27 **	75 **	102	69
Tenant	135 **	40 **	175	63
Subtotal			**277**	**132**
Business				
Owner	17 **	17 **	34	26
Tenant	**	**	**	17
Non-Profit	**	**	**	3
Subtotal			**34**	**46**
TOTAL RELOCATIONS			**311**	**178**
COST				
Right-of-Way (millions)	$100.08 **	$48.53 **	$148.61	$77.38
Utility Relocations (millions)	**	**	**	$0.66
Construction (millions)***	$52.90	$68.80	$121.70	$76.60
TOTAL COST			**$270.31**	**$154.64**
Railroad Closures				
Close existing RR crossings (Forest Hills Dr. and Princess Place Dr.)	2	none	2	none
Close or bridge existing RR crossings (Mercer Ave., Henry St., Clay St., N. 30th St.)	4	none	4	none

* Alternative 7 Tight Urban Diamond Interchange (TUDI) impacts and costs data shown for comparison purposes.

** Relocation and Right of Way costs estimated using GIS analysis of parcel data containing appraised building and land values. Should this alternative be carried forward for detailed study, a Right of Way Cost Estimates, Relocation Report , and Utility Cost Estimates would be completed.

***Note: Construction cost estimates based on functional design with cost per mile unit rates.



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Date: January 2013

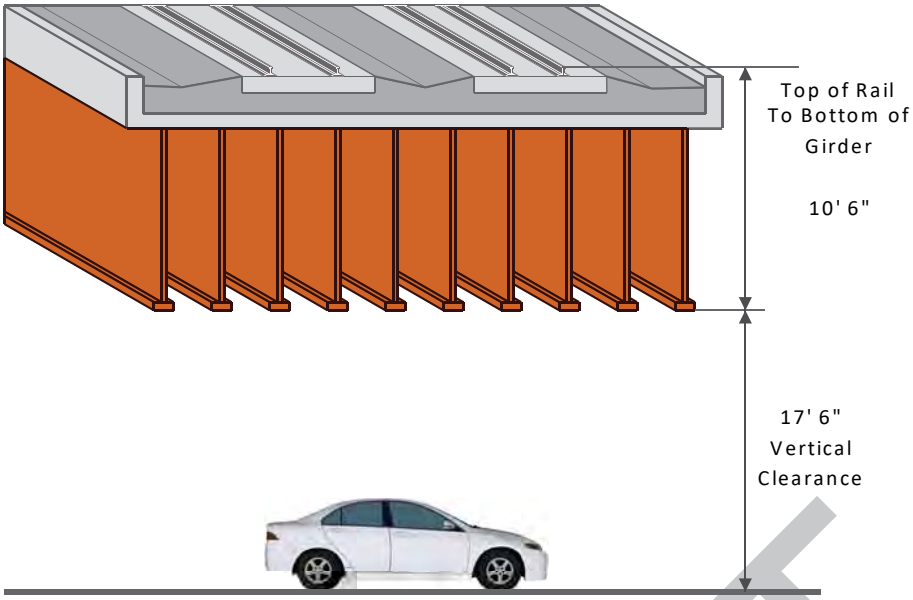
Legend

- Existing At-grade Railroad Crossing
- Existing Railroad Track
- Proposed Railroad Track
- Independence Blvd. Extension

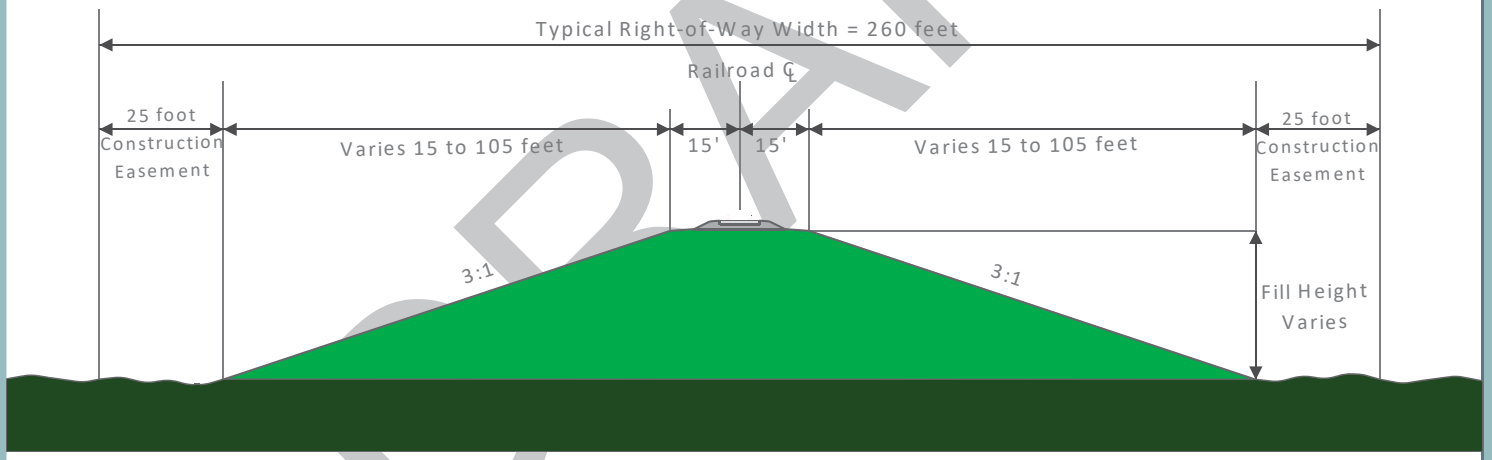
Independence Boulevard
Extension Project
New Hanover County, NC
STIP U-4434

Figure C-1

Elevated Railroad
Overview Figure



Railroad Bridge Typical Section



Elevated Railroad Typical Section

DRAFT

North Carolina
Department of Transportation

Date: January 2013

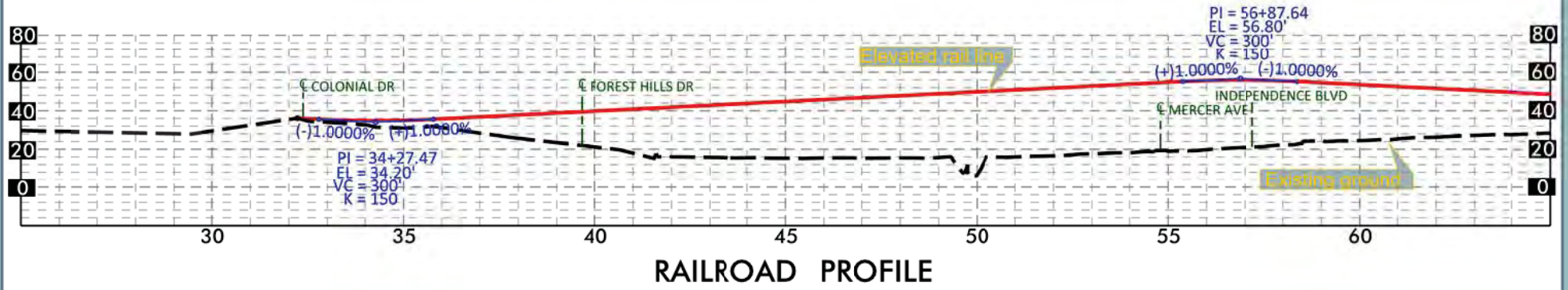
Legend

Independence Boulevard
Extension Project
New Hanover County, NC
STIP U-4434

Figure C-2

Elevated Railroad
Typical Sections





RAILROAD PROFILE

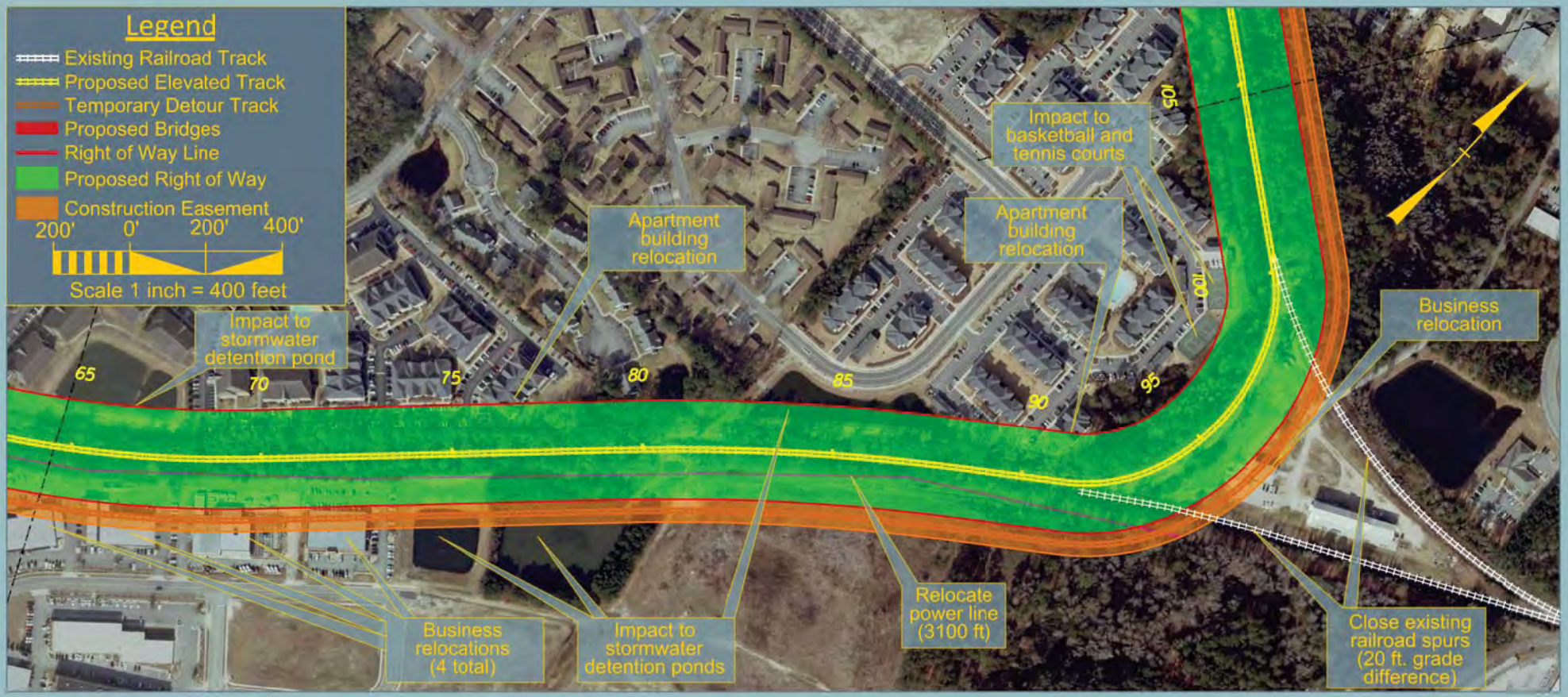
North Carolina
Department of Transportation

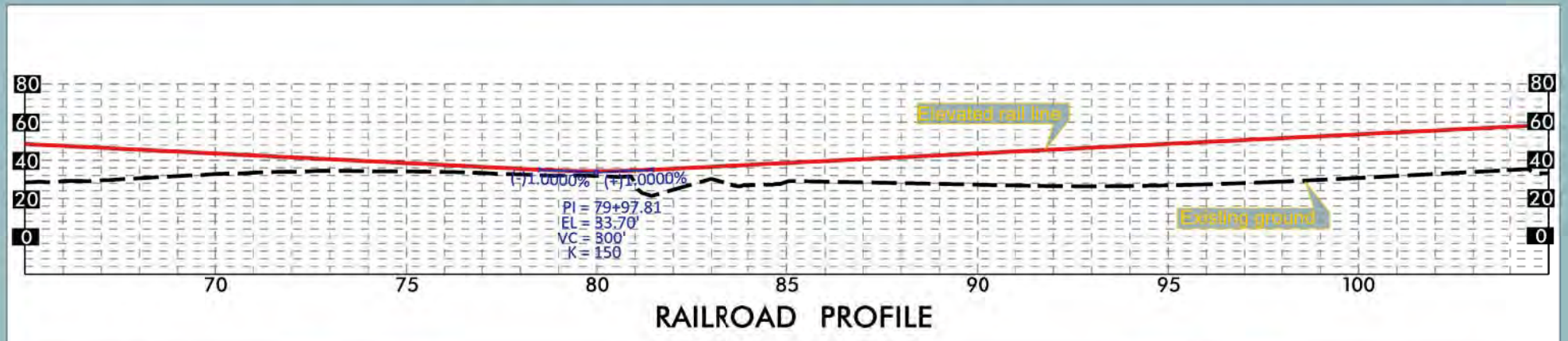
Date: January 2013

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure C-3a

Conceptual Designs
Elevated Railroad





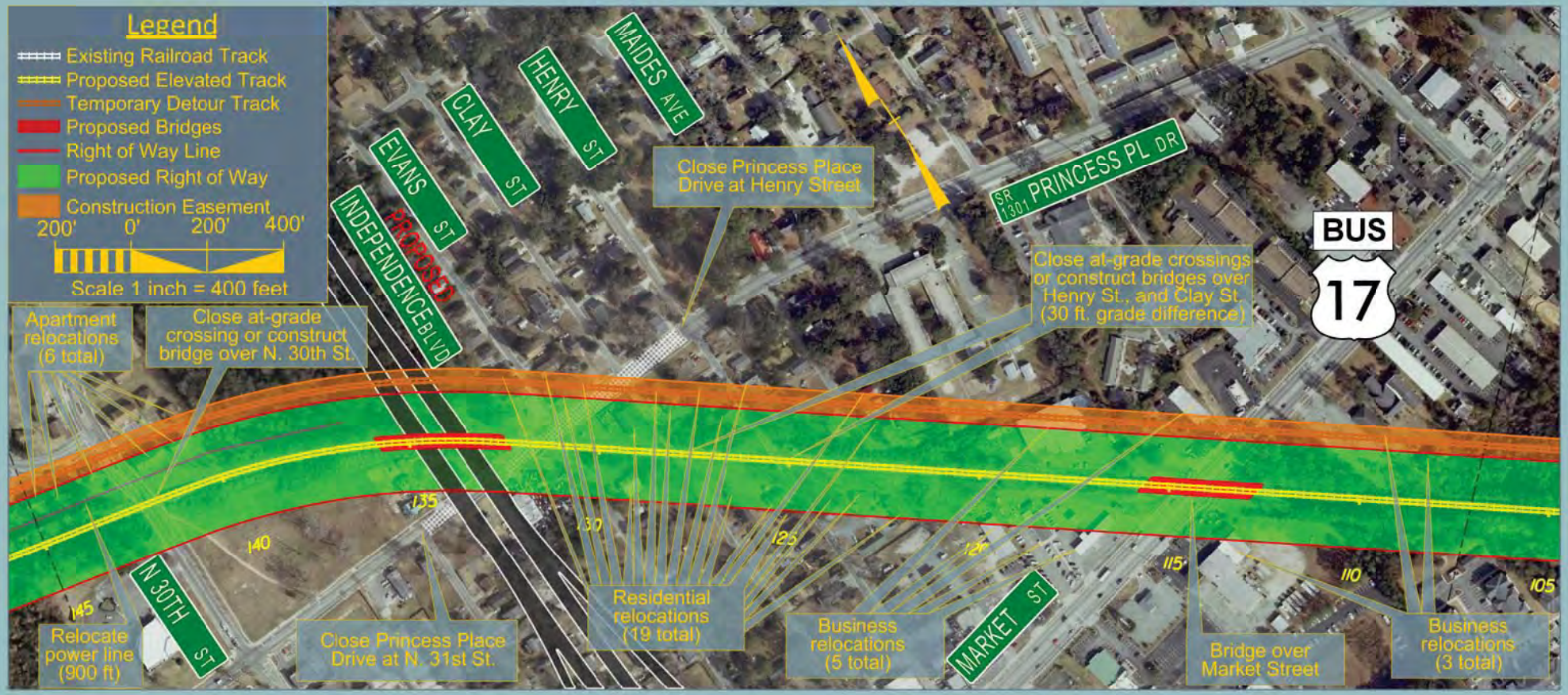
North Carolina Department of Transportation

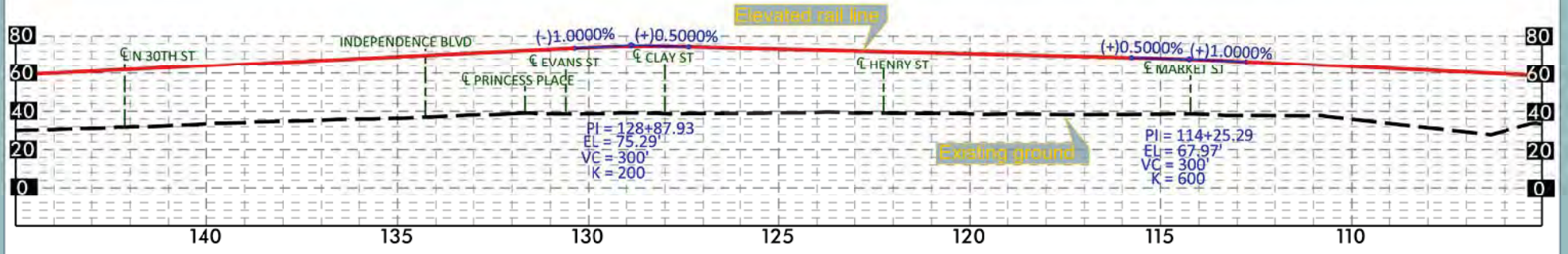
Date: January 2013

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure C-3b

Conceptual Designs
Elevated Railroad





RAILROAD PROFILE

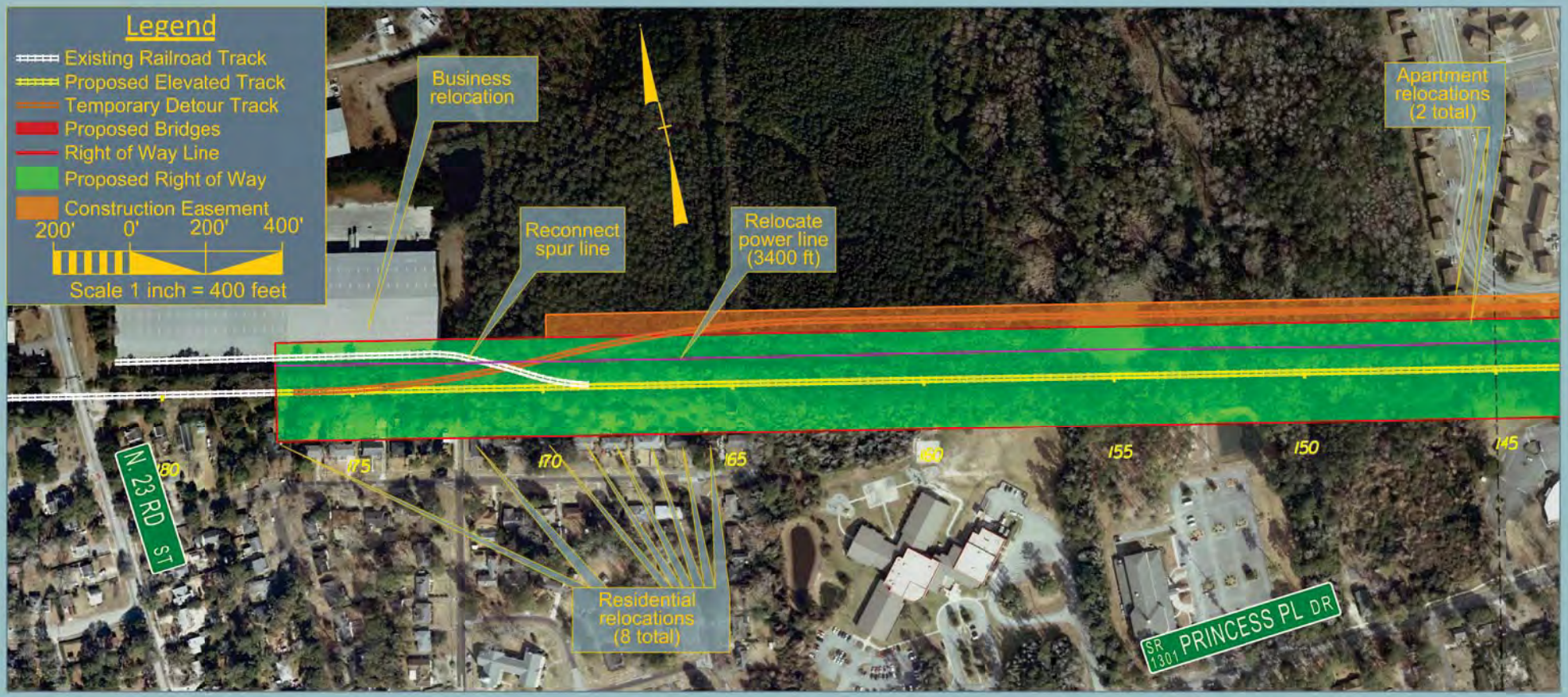
North Carolina
Department of Transportation

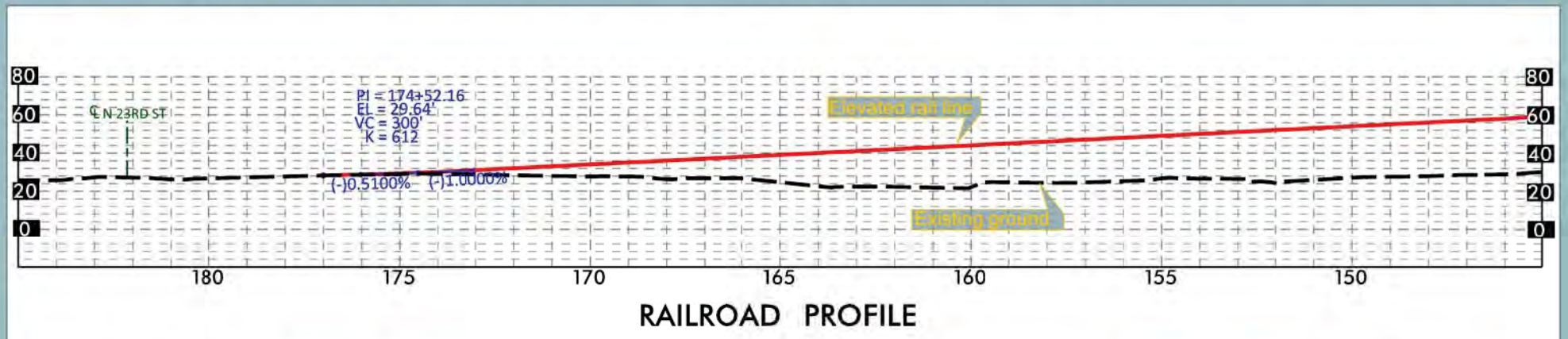
Date: January 2013

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure C-3c

Conceptual Designs
Elevated Railroad





RAILROAD PROFILE

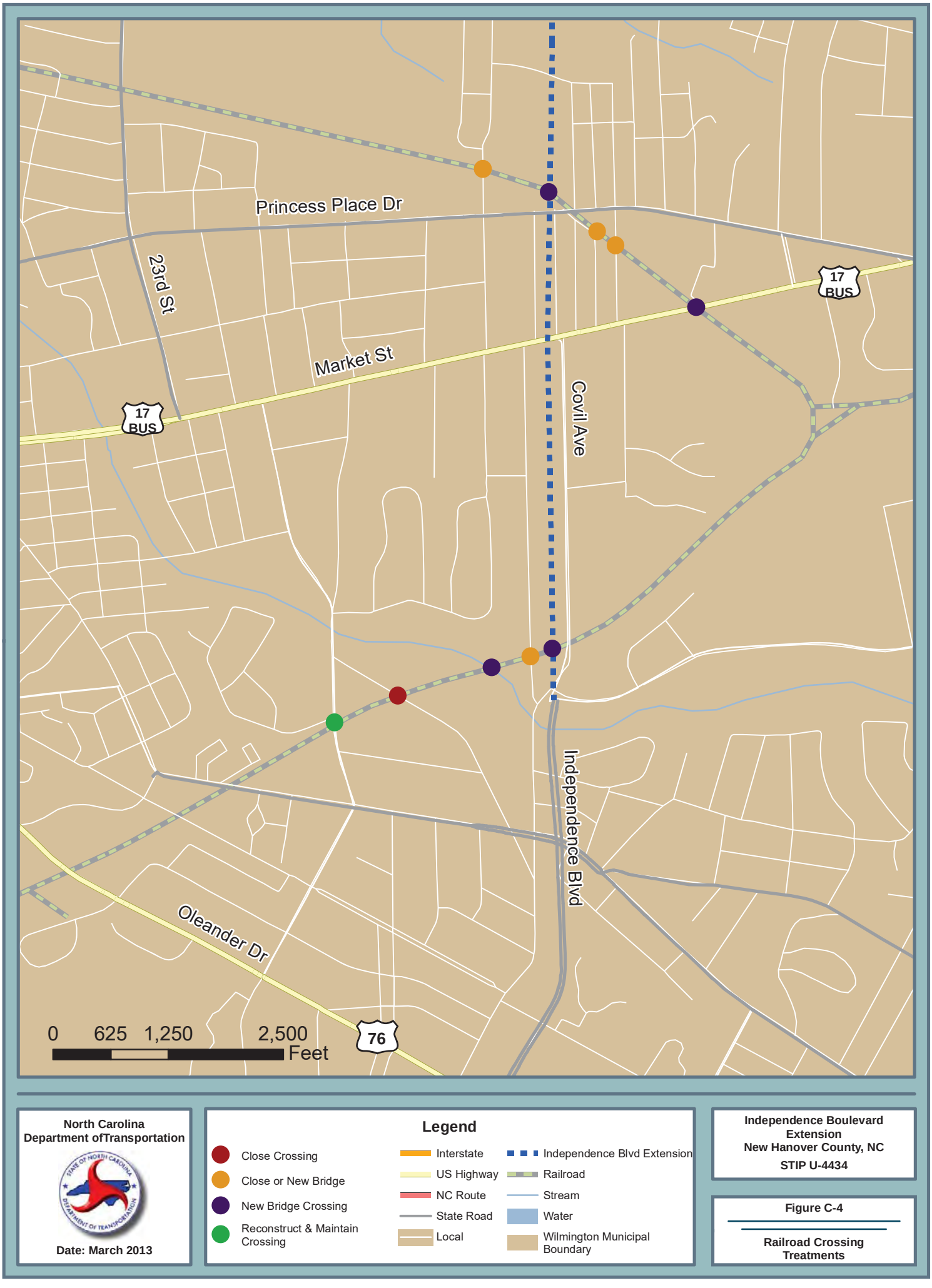
North Carolina
Department of Transportation

Date: January 2013

Independence Boulevard Extension Project
New Hanover County, NC
STIP U-4434

Figure C-3d

Conceptual Designs
Elevated Railroad



North Carolina Department of Transportation

Date: March 2013

Legend

- Close Crossing
- Close or New Bridge
- New Bridge Crossing
- Reconstruct & Maintain Crossing
- Interstate
- US Highway
- NC Route
- State Road
- Local
- Independence Blvd Extension
- Railroad
- Stream
- Water
- Wilmington Municipal Boundary

Independence Boulevard Extension
New Hanover County, NC
STIP U-4434

Figure C-4

Railroad Crossing Treatments

Appendix C2

Depressed Facility Option

Appendix D – Depressed Facility Functional Alternative (April 2014)

The following section describes the development of an alternative that would utilize a "depressed urban facility" cross section for the proposed Independence Boulevard Extension. Photographs showing several depressed urban facilities in the United States are included at the end of this section.

Purpose:

The purpose of this memorandum is to summarize the approach and methodology used to develop and evaluate the viability a depressed roadway facility alternative (DF) for the U-4434 project in New Hanover County. This memorandum summarizes the assumptions and evaluation utilized in developing the plans and estimates for the DF, including considerations for constructability and long term operation and maintenance.

Background:

Although not common in North Carolina, depressed facilities have been successfully utilized in other locations around the country. Typically, the vertical profile of a depressed facility is approximately 20 feet below the existing grade, allowing cross roads to be bridged over the facility at or near the existing grade of the cross roads, which minimizes impacts to the adjacent area and maintains roadway network and community continuity.

A typical cross section for a depressed urban facility would include a narrow center median with a median barrier and retaining walls or steep slopes on the outside. These treatments are typically used to minimize the right of way required. The structures over the facility are typically two-span and include a center pier which coincides with the median barrier.

General Advantages of a Depressed Urban Facility:

- Reduced right of way results in lower ROW impacts and costs
- Reduced visual impact
- Reduced noise impact

Generally, impacts to neighborhoods with a depressed facility are less than with a typical at-grade or elevated facility. More of the surrounding area is preserved due to the smaller footprint and the facility is not visible until you are very close to it. A raised or at-grade roadway, particularly one with noise walls, acts more like a barrier dividing the neighborhood through which it passes than does a depressed roadway.

General Disadvantages of a Depressed Urban Facility:

- Higher construction cost
- Pump stations are usually required to accommodate surface drainage
- Aesthetics for facility traffic are decreased due to adjacent walls and median barriers

- Extensive relocation/lowering of utilities such as gas mains, water mains, sanitary sewers, storm sewers, electric power, and telecommunication lines are typically required. Lift stations are typically required for sanitary sewers which cross the roadway.
- Fencing may be required on the retaining walls to prevent objects from being dropped or thrown onto vehicles below.
- When the facility is located below the water table, additional expense is required to counteract the buoyancy force of the water table on the pavement and to prevent groundwater from entering the storm sewer and being continually pumped.

The pump stations required for a depressed facility invariably come with an initial construction cost and on-going operation and maintenance costs for the life of the facility. There also is a continual operating risk associated with relying on pump stations to protect the facility from surface water. If a pump fails due to damage or power failure, the facility can become flooded. Flood damage to the facility and the electrical components of the pump stations would be costly. To mitigate this potential, most pump stations for depressed facilities include emergency alarm and notification provisions and redundant backup electrical systems to protect and maintain operations in extreme weather conditions.

Nationwide, typically pump stations are designed to accommodate a fifty year storm event. At least three pumps are used; in the event one pump fails, the station still has 67 percent capacity. Four or five pumps are not unusual.

Provisions for backup power include:

- Emergency power receptacle used with a portable generator that is brought to the site.
- On-site emergency generator with automatic transfer switch; diesel or gas powered generators are most common.
- Electrical power supplied by two separate primary power feeds.

Sensitive equipment is located above the 100 year flood level, preferably with one foot of freeboard. Modern stations are trending toward placing such equipment in a building completely separate from the station.

Independence Boulevard DF Project Background

The consideration of a depressed roadway facility was introduced to objectively consider if a facility such as this could be constructed and reduce impacts for the Independence Boulevard Extension project over those of more traditional raised facility type alternatives. The project team held numerous internal and external coordination meetings to openly discuss the viability of these types of facilities given the project location, size of the roadway facility, adjacency of neighborhoods and other community features. The project team relied heavily upon the knowledge of various NCDOT units and that of national experts with experience in the typical issues likely to be encountered on facilities such as these. These experts were relied on for their specific knowledge and experience relating to construction dewatering, groundwater control, specialty structural design, geotechnical engineering, stormwater and pumping systems, as well as the traditional roadway, rail and structure design disciplines.

Given the location of the proposed project and available subsurface information from the general vicinity, the design team identified several construction, operation and maintenance considerations that would need to be evaluated to determine a practical solution that could be implemented for a depressed roadway facility for this project. These included:

- Addressing construction groundwater issues
- Construction methodologies to counteract uplift forces from buoyancy
- Stormwater pumping and conveyance
- Methods to minimize post-construction groundwater intrusion

Roadway Design Criteria

American Association of State Highway and Transportation Officials (AASHTO), North Carolina Department of Transportation (NCDOT), and American Railway Engineering and Maintenance of Way Association (AREMA) guidelines and standards were used in to develop the design criteria for the depressed facility functional alternative. The design criteria assumed for this evaluation are as follows:

- Independence Boulevard: Four lane median divided facility with 10-foot inside shoulders and 12-foot outside shoulders
- Design Speed: 60 mph
- Minimum Vertical Clearance : 16.5 feet
- Maximum roadway grade: 5%
- Maximum Railroad grade: 1%
- Local roadways would match existing alignments and profiles (where possible).

Proposed Design

The proposed functional design, including a typical cross section, plan and profile are shown at the end of this appendix. The design was developed using a "tight" cross section with a median barrier and retaining walls on the outside where needed. During development of the functional design, primary attention was given to minimizing right-of-way impacts and minimizing the depth and extent to which Independence Boulevard will be below the ground water table.

In keeping with these goals, the structures over Independence Boulevard each have a center pier which coincides with the median barrier and full height abutment walls on the outside. This minimizes the span lengths and structural depth of the bridges, which allows for a higher facility profile and less intrusion into the groundwater table. The functional design developed includes the following features:

- The project horizontal location would match the currently proposed Alternative 7 Tight Urban Diamond configuration to allow for comparison.

- The two railroad crossing locations would be raised to lessen the intrusion into assumed project groundwater table.
- Railroad grade changes would require horizontal realignment at both locations to facility continuity of rail operations.
- The profiles for Market Street and Princess Place follow the existing profiles.
- Covil Avenue and Mercer Avenue were connected south of Darlington Avenue with a bridge over the DF to maintain local access, allow for raising the grade of the DF, and to avoid intrusion below the assumed groundwater table.
- Market Street would now be bridged over the DF as well as Princess Place and two (2) railroad crossings.
- The depressed portion of Independence Boulevard ends south of Hurst Street. North of this point, including Independence Boulevard over Hurst Street and the Interchange with MLK, are the same as Alternative 7.
- There are three low points in the Independence Boulevard profile. Pump Stations are assumed to be required at all three of these low points.

Geotechnical Design

Based on the likelihood of significant groundwater issues and the effects associated with them, the team considered two potential construction approaches that were carefully developed and evaluated to facilitate the project. Cost estimates were developed for each system since the exact subsurface conditions inside the project corridor are unknown at this time.

1. Subgrade Jet Grouting combined with construction wellpoint dewatering systems and permanent sheet pile installation
2. Cutoff Walls socketed into an impermeable clay layer combined with construction wellpoint dewatering systems and permanent sheet pile installation

These two solutions were deemed the most practical options to evaluate in implementing a depressed roadway facility for this project.

According to the roadway profile, the alignment will be depressed from approximately Stations 19+00 through 77+00, where approximately 4 to greater than 32 feet of cut sections are anticipated. The 100 year flood elevations are +15 feet for Burnt Mill Creek near Station 14+00, and +8 feet for an unnamed creek to Smith Creek near Station 98+00. Due the deep excavation depths and high groundwater levels, temporary shoring will have to be utilized to facilitate the depressed facility construction.

Subsurface investigation has not been performed at the time of the cost estimate. However, subsurface information from adjacent projects indicate an impervious stratum (PeeDee Formation Clay) may exist near an elevation of -20 feet. The temporary shoring system can be embedded in this stratum to cut off the groundwater. If this impervious stratum does not exist, jet grouting has to be utilized to cut off the groundwater. Cost estimates were prepared based upon these two scenarios.

Assumptions for the temporary/permanent shoring system are as follows:

- Temporary shoring will be needed if groundwater is higher than proposed subgrade or if excavation depth is greater than 10'.
- Temporary shoring system consists of soil cement deep mixing wall with steel soldier beams and tiebacks.
- Seasonal high groundwater level is at elevation +15 feet for Stations 19+00 through 40+00, and elevation +12 feet for Stations 40+00 through 77+00.
- Jet grout will be utilized for the no impervious stratum scenario. A factor of safety of 1.6 is used for buoyancy resistance.
- For the impervious stratum scenario, the cutoff walls will be embedded 5’ into the PeeDee Formation clay.
- A 12-inch permanent concrete facing will be placed along the shoring.

Example photos of various stages of construction, proposed typical sections, and a sample pump station detail can be found in the following pages.

TYPICAL DEEP EXCAVATION DEWATERING



TYPICAL EXCAVATION DEWATERING



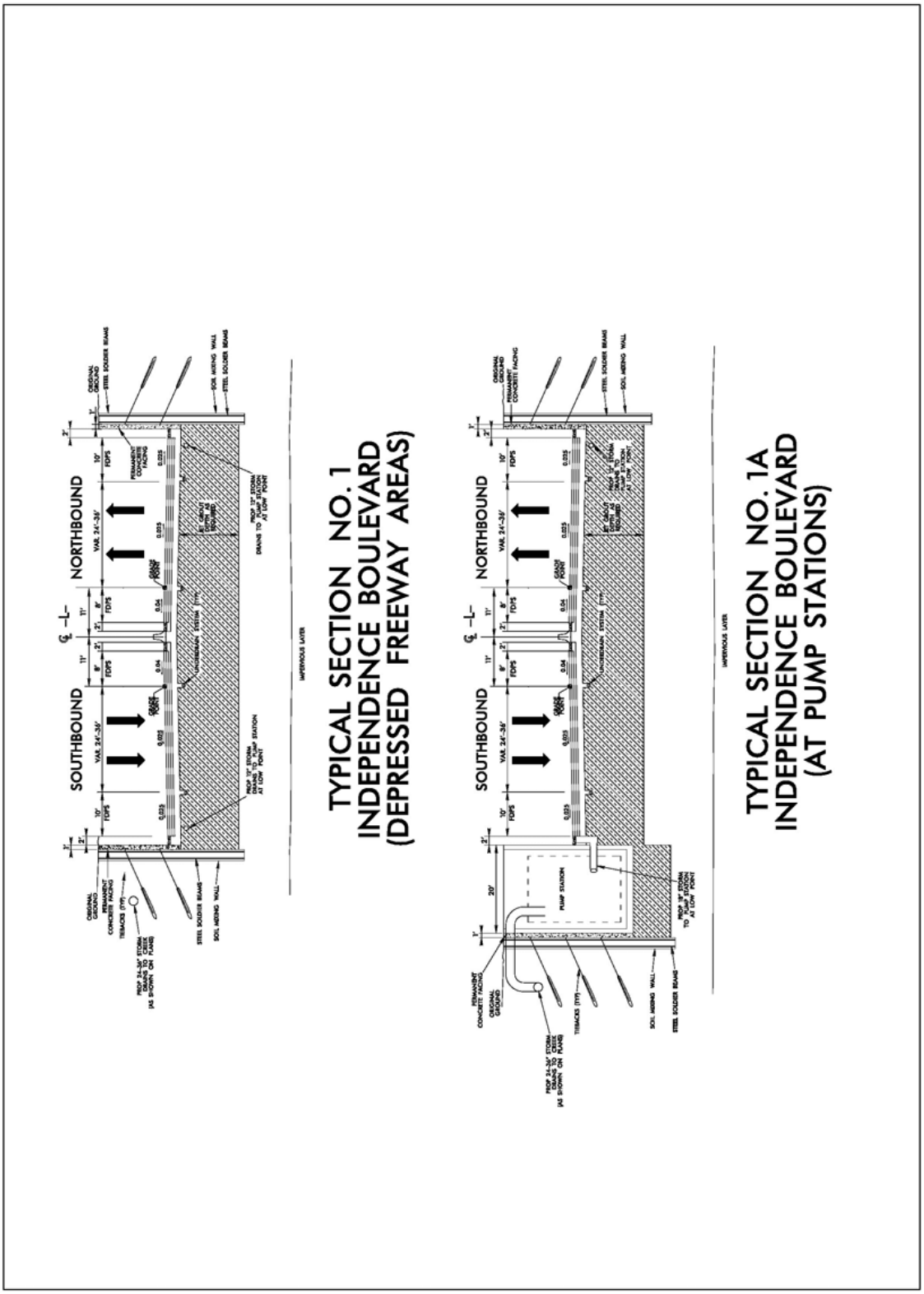
TYPICAL DEEP EXCAVATION WITH TIE-BACK

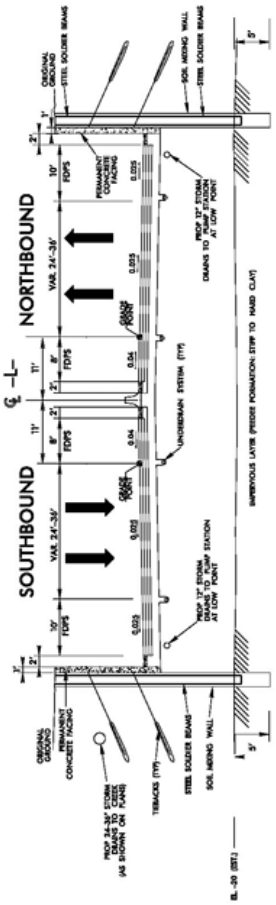


TYPICAL TIE-BACK INSTALLATION

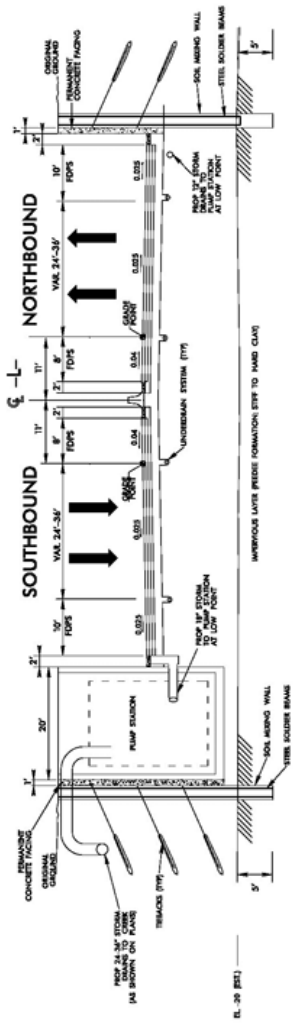


TYPICAL SECTIONS



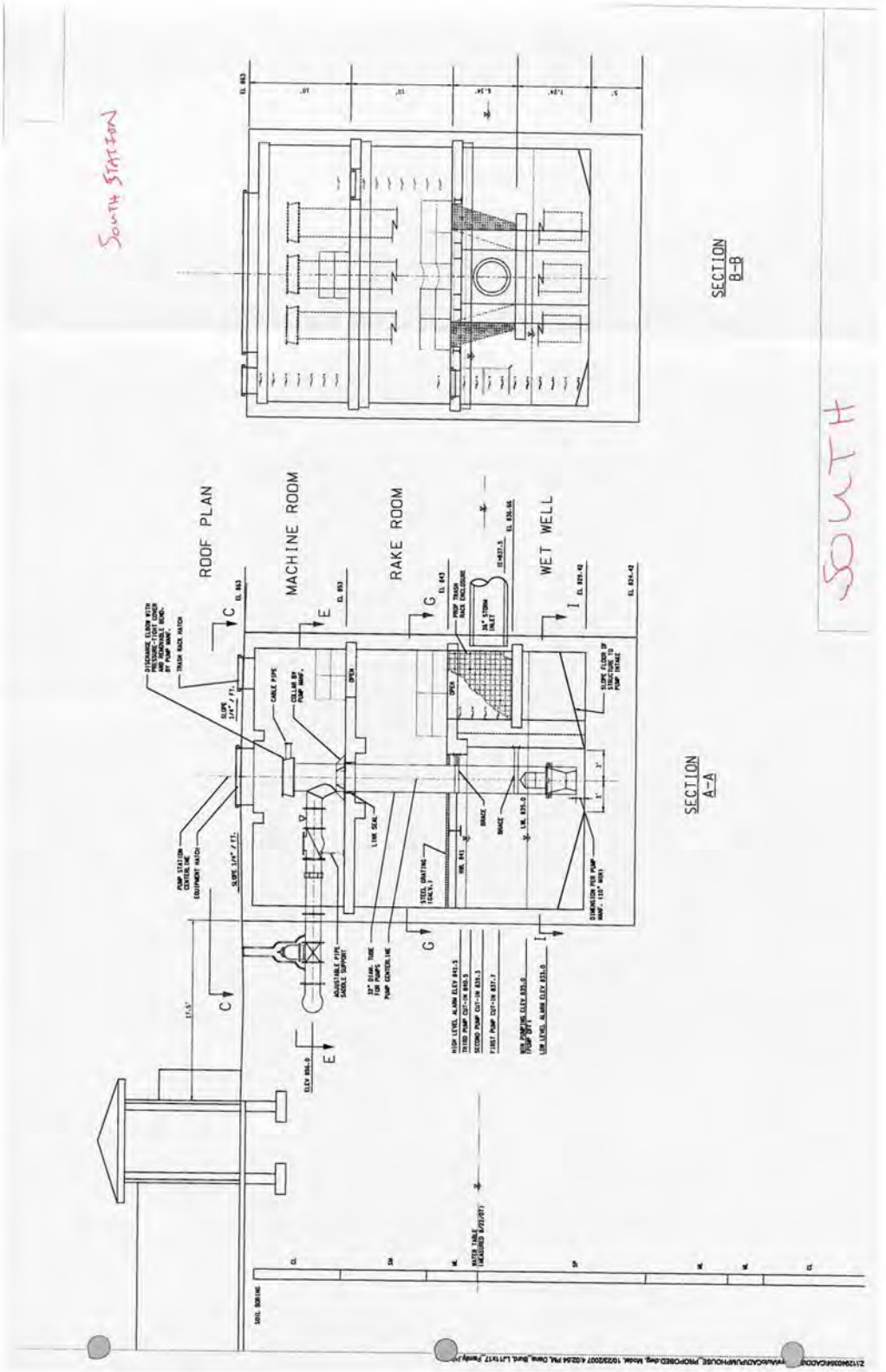


TYPICAL SECTION NO. 1
INDEPENDENCE BOULEVARD
(DEPRESSED FREEWAY AREAS)



TYPICAL SECTION NO. 1A
INDEPENDENCE BOULEVARD
(AT PUMP STATIONS)

SAMPLE PUMP STATION DETAIL



Drainage Design

The proposed storm sewer placement dictates the flow going to the three pumps stations. The pump station sizing assumes $2.5 Million each for the pump stations in the construction cost estimate.

Assumptions for the pump stations are as follows:

- HEC 24 recommends using a 50 year return period for the design of the stations. This is because depressed highways have no other overflow routes during large storms. Discharge pipes also need to be designed for the 50 Year Storm, so the entire enclosed storm sewer system needs to be designed for the 50 Year Storm.

- Probable operation and maintenance costs for each pump station is $500.00 per cubic feet per second per year. Using the pipe sizes and slopes shown to estimate flows, this works out to between $15,000 and $20,000 per station per year. This covers routine maintenance, energy, and agency labor to monitor the pump stations. $20,000 per pump station per year = $60,000 per year.

Replacement costs are usually separate from operation and maintenance costs because replacement will take place all at one time. Pumps and electronics have a design life of about 25 years. Their cost is about 1/3 the initial capital cost ($ 0.83 million per station). Using an interest rate of 2 percent, this would require an annual investment in today's dollars of $43,000 per station. For three pump stations the annual cost for pump and other major part replacement comes to $130,000 per year.

Impact Evaluation for the Depressed Urban Facility Functional Design

The principal advantages of the depressed urban facility concept, when compared with the other concepts, are that the footprint, right of way requirements, and neighborhood division impacts are reduced.

Right of way requirements for this concept include:

- Residential
  - Owner : 57
  - Tenant : 39
- Business
  - Owner : 24
  - Tenant: 16
  - Non-Profit: 3

Noise impacts will be less than with other alternatives. Additional noise analysis will need to be prepared should this alternative be selected for detailed study.

Disadvantages of the Independence Boulevard depressed urban facility concept include higher costs and constructability issues related to construction below the water table.

Construction Estimate

Construction costs are estimated to be $139 million for this alternative with the cut off wall, and $172 million with jet grouting. A detailed breakdown of the construction cost estimates follows at the end of this appendix. The right-of-way cost for the DF alternative is estimated at $75.425 million.

The plans (attached at the end of this appendix) were developed based on assumptions of the depth of groundwater, available surface drainage options, and other known constraints. Based on the approach methodology and the plan for the roadway facility, the profile was fine-tuned and cross sections were developed as well as preliminary quantities for the construction of the facility. For ease of presenting the complexities and estimation assumptions for a project of this magnitude, the estimate was separated into 3 primary sections:

- Part A – Roadway Construction Costs – Roadway construction costs were treated very similar to traditional NCDOT Preliminary Roadway Estimate procedures. Appropriate quantities for typical roadway design elements were quantified and estimated at a Preliminary Design level for the entire project to be equally compared with traditional raised facility alternatives. These costs included typical miscellaneous and mobilization costs normal for this level of design. Additionally they included the stormwater pump stations, wet wells, housing structures and pressure conveyance system costs specific to this type of facility along with the traditional roadway gravity flow drainage costs for draining the pavement areas.

- Part B – Railroad Construction Costs – Rail construction costs were estimated based on length of relocation required to accomplish the raising of the grade for the tracks, traditional bridging costs, as well as normal miscellaneous and mobilization costs consistent with the level of design.

- Part C – Groundwater/Constructability Methods – The costs included the construction methodologies to address the temporary and long-term groundwater issues, shoring, sheet piling, tiebacks, and retaining walls. The methods to address the groundwater, subgrade jet grouting and groundwater cutoff walls were quantified and estimated separately based on limited knowledge of subsurface conditions.

Summary

A depressed facility alternative was developed in order to determine if the impacts associated with this alternative would be less than the impacts of bridging Independence Boulevard over the CSX Railroad. The horizontal location would match the currently proposed Alternative 7 Tight Urban Diamond configuration and include a “tight” cross section with a median barrier and retaining walls on the outside where needed to minimize right-of-way impacts and to minimize the depth and extent to which Independence Boulevard will be below the ground water table. Structures over Independence Boulevard would include a center pier which coincides with the median barrier and full height abutment

walls on the outside, minimizing span lengths and structural depths of the bridges, to allow for a higher facility profile and less intrusion into the groundwater table. This alternative would include an at-grade intersection with Randall Parkway/Mercer Avenue, include a grade separation under the CSX railroad (which will need to be slightly raised), include a new grade separation south of Darlington Avenue over the extension of Independence Boulevard, include an interchange at Market Street, include a grade separation under Princess Place Drive and the under the northern crossing of the CSX railroad. North of this point, the designs will match all other alternatives which include a grade separation over Hurst Street and include an interchange with Martin Luther King Junior Parkway.

Although every effort was made to minimize intrusion into the ground water table with the Independence Boulevard roadway, groundwater in this area is expected to be high and approximately 4300 feet of the Independence Boulevard roadway will likely be below the ground water elevation.

The existing ground water table will likely match the elevations of the two creeks where Independence Boulevard crosses them. Away from the creeks, the groundwater table will rise as the ground rises. Where data is available nearby, the groundwater was measured at between five and ten feet below existing ground during the dry season. Groundwater elevations seasonally rise and the groundwater may be even less than five feet below existing ground at some locations for portions of the year. With cuts up to 30 feet deep to the top of pavement, the roadway could be as much as 25 feet into the water table.

Construction of a depressed facility where groundwater is high has been done in other areas. For a section of I-64/I-55 in East Saint Louis, Illinois, a dewatering system was used which includes an extensive system of high capacity (700 gpm) pumped alluvial wells. Operation and maintenance costs are very high for this section of roadway. Lowering the groundwater table, as was done for this location, also can result in damage to nearby properties from settlement if compressible soils are present and extensive studies of the effects on the area associated with lowering the groundwater table would be needed. This option for construction below the ground water table should be avoided, if possible. For the cut and cover tunnel portion of the Atlantic City-Brigantine Connector constructed in 2001 in Atlantic City, New Jersey, a thick concrete slab was used to counteract the buoyancy force. This is a more common approach to constructing below the groundwater table and the approach used to estimate costs for this alternative. Although pumping groundwater permanently is not needed with this approach, substantial pumping during construction is still required.

Based on the likelihood of significant groundwater issues and the effects associated with them, two potential construction approaches that were developed and evaluated to facilitate the project. Option 1 included Subgrade Jet Grouting combined with construction wellpoint dewatering systems and permanent sheet pile installation. Option 2 included Cutoff Walls socketed into an impermeable clay layer combined with construction wellpoint dewatering systems and permanent sheet pile installation. According to the roadway profile, the alignment will be depressed from approximately Stations 19+00 through 77+00, where approximately 4 to greater than 32 feet of cut sections are anticipated. The 100 year flood elevations are +15 feet for Burnt Mill Creek near Station 14+00, and +8 feet for an unnamed creek to Smith Creek near Station 98+00. Due the deep excavation depths and high groundwater levels,

temporary shoring will have to be utilized to facilitate the depressed facility construction. Subsurface investigation has not been performed; however, subsurface information from adjacent projects indicate an impervious stratum (PeeDee Formation Clay) may exist near an elevation of -20 feet. The temporary shoring system can be embedded in this stratum to cut off the groundwater. If this impervious stratum does not exist, jet grouting has to be utilized to cut off the groundwater. Cost estimates were developed for each system since the exact subsurface conditions inside the project corridor are unknown at this time.

Given there are three locations with depressions three pump stations will be required to accommodate surface drainage. Pump stations are designed to accommodate a fifty year storm event, with at least three pumps per station in the event one pump fails, the station still has 67 percent capacity. Provisions for pump station backup power include emergency power receptacle used with a portable generators that are brought to the site, on-site emergency generators with automatic transfer switch (diesel or gas powered generators typically), and electrical power supplied by two separate primary power feeds. The proposed storm sewer placement dictates the flow going to the three pumps stations. The pump station sizing assumes $2.5 Million each for the pump stations for construction cost estimates. Given depressed facilities have no other overflow routes during large storms, 50 year return period was assumed. Discharge pipes also need to be designed for the 50 Year Storm, so the entire enclosed storm sewer system needs to be designed for the 50 Year Storm.

Impacts associated with the extension of Independence Boulevard as a Depressed Facility include:

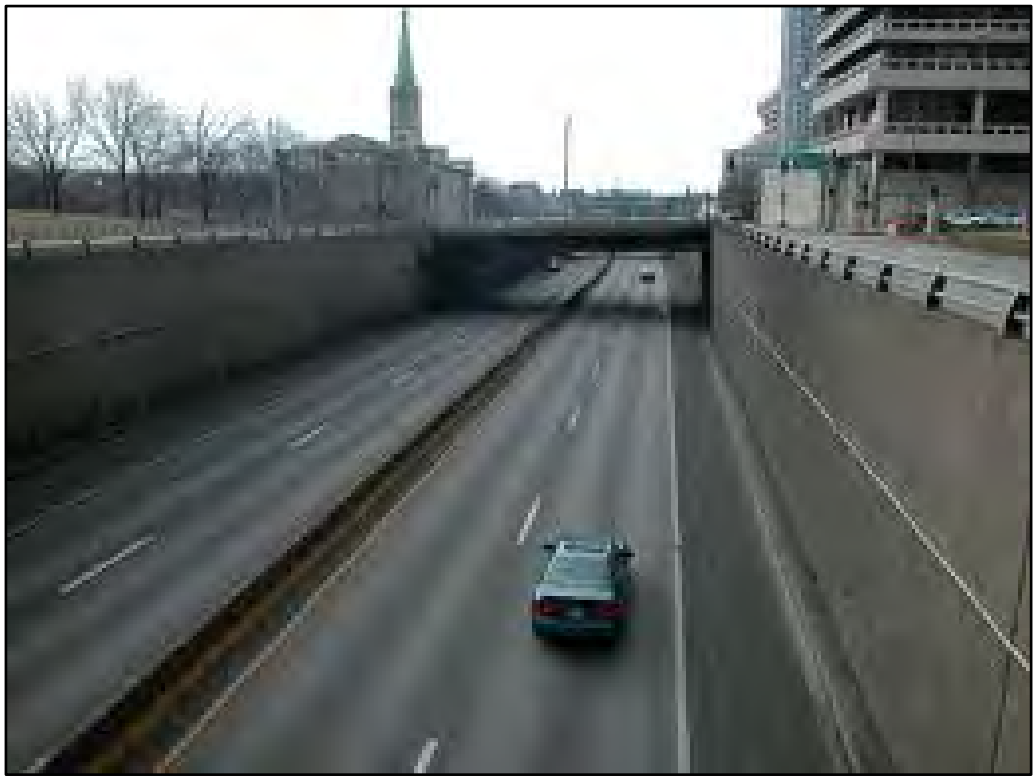
- Raising the profile of the southern CSX crossing of the project
- Rerouting Darlington Avenue and Covil Avenue access to Randall Parkway via a grade separation over Independence Boulevard to Mercer Avenue
- 96 residential relocations (57 owner and 39 tenant)
- 43 Business relocation (24 owner, 16 tenants, and 3 Non-Profit)

Construction cost estimates for the Depressed Facility Alternative with the cut off wall is approximately $139,000,000 and approximately $172,000,000 with jet grouting, with an additional $75,425,000 required for purchase of right of way and an additional $452,000 in utility relocation. Depending upon construction method utilized, total cost for the Depressed Facility Alternative ranges from $214,877,000 to $248,877,000. In comparison, construction cost estimates for a representative elevated facility, Alternative 7 TUDI is approximately $76,600,000 with an additional $75,325,000 required for purchase of right of way and an additional $633,000 in utility relocation, resulting with a total cost of $151,558,000. Should this alternative be carried forward for detailed study, detailed Right of Way Cost Estimates, a Utility Estimate and a Relocation Report would be completed. The Depressed Facility Alternative reduces impacts when compared to Alternative 7 TUDI (which includes 132 residential relocations and 46 business relocations).

In conclusion, construction and maintenance of a depressed facility includes design, constructability, geotechnical, drainage and maintenance complexities. Due to these complexities and the increase in

total cost ranging from 42% to 64% more than Alternative 7 TUDI, it is recommended that the Depressed Facility Alternative should not be considered as a Detailed Study Alternative for the proposed project.

DEPRESSED FACILITY EXAMPLES



I-70 in Saint Louis, Missouri



Vine Street in Philadelphia, Pennsylvania



Depressed facility approach to tunnel below water table, Atlantic City, New Jersey



Davison Facility, Detroit Michigan



I-96, Livonia, Michigan showing facility, slip ramp, and one-way frontage road



I-75 near Mack Avenue, Detroit, Michigan



I-696, Royal Oak, Michigan showing a park constructed on top of a bridge over the facility



M-10 Freeway in Detroit, Michigan. 206 foot wide ROW for the freeway, ramps, and frontage roads used in this area



U-Turn Roadway between frontage roads and over I-696 in Oakland County, Michigan.



Stormwater Pump Station along I-75 in Detroit, Michigan

APPENDIX D

RELOCATION REPORTS

REQUEST FOR R/W COST ESTIMATE / RELOCATION EIS

COST ESTIMATE REQUEST ☒ **RELOCATION EIS REPORT** ☒

NEW REQUEST: ☐ **UPDATE REQUEST:** ☒ Update to **2019** Estimate **REVISION REQUEST:** ☐ Revision to ____ Estimate Revision No.: ____

DATE RECEIVED: 02/09/22 **DATE ASSIGNED**: 02/21/22 **# of Alternates Requested**: 2

DATE DUE: 04/06/22

TIP No.: U-4434	**DESCRIPTION:** Extension of Independence Blvd (SR 1209) on new location from Randall Pkwy to Martin Luther King Jr. Pkwy (US 74) in Wilmington. The 1.7 mile project would consist of 2 travel lanes in either direction. Overpasses and interchanges are proposed at multiple locations along the corridor.

WBS ELEMENT: 37764.1.1 **COUNTY**: New Hanover **DIV**: 3 **APPRAISAL OFFICE**: 1

REQUESTOR: Krista Kimmel & Susan Westberry **DEPT**: Div 3 & AECOM

TYPE OF PLANS: HEARING MAPS☐ | LOCATION MAP☐ | AERIAL☐ | VICINITY☐ | PRELIMINARY☒ | CONCEPTUAL☐

** Based on past project historical data, the land and damage figures have been adjusted to include condemnation and administrative increases that occur during settlement of all parcels.**

APPRAISER: John H. Savage **COMPLETED**: 03/22/2022 **# of Alternates Completed**: 2

	Alt 7 SPUI		Alt 7 TUDI	
TYPE OF ACCESS:	NONE:☐	LIMITED: ☐	NONE: ☐	LIMITED: ☐
	PARTIAL:☒	FULL: ☐	PARTIAL:☒	FULL: ☐
ESTIMATED NO. OF PARCELS:	179		206	
RESIDENTIAL RELOCATEES:	59	$	71	$
BUSINESS RELOCATEES:	31	$	37	$
GRAVES:	0	$	0	$
CHURCH / NON – PROFIT:	1	$	2	$
MISC:	0	$	0	$
SIGNS:	2	$	2	$
LAND, IMPROVEMENTS, & DAMAGES:	$ 33,849,900		$ 42,987,700	
ACQUISTION:	$		$	
TOTAL ESTIMATED R/W COST:	$		$	

**** THIS IS A COST ESTIMATE AND NOT TO BE USED AS AN APPRAISAL ****

NOTES: Please see the attached "Notes to the Estimate"

U-4434 Notes to the Updated Estimate
03/22/2022

- Values were established using local costs sources and comparing tax values to the market. It should be noted that several of the properties on the project have sold within the last two years which provided current market data for the subject estimate.

- The New Hanover County Tax Office performed a tax re-valuation effective January 1, 2022. Based on several recent sales of properties on the project, some of the new tax values are not consistent with the current market.

- A number of residential properties adjacent to the proposed corridor have been remodeled with significant repairs since the last estimate.

- Some of the proposed R/W areas for given parcels exceeded the total area of said parcel. Therefore, the values for those total takes are slightly higher than the before land value. The discrepancy is very minor and does not have a considerable impact on the R/W cost.

- The on-premise signs located on the commercial sites are considered Realty and were included in the value of the site improvements. Only the Billboards were recognized as Personal Property where a separate relocation claim is needed.

- Any structures, either commercial or residential, that are in the proposed R/W were considered relocation claims. The nature of rental properties fluctuates where they could be vacant on a specific date and inhabited the following day or week. If the structure was not in disrepair, it was considered a relocation claim with anticipation that it will soon be occupied.

- The estimator was unable to access the area of parcel 175 on the SPUI Alternate and parcel 202 on the TUDI Alternate to determine if any graves are located at the proposed acquisition area. However, in studying the GIS aerial maps and the provided plans, it is determined that no graves are within the proposed Right of Way acquisition.

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:	37764.1.1	COUNTY	New Hanover	Alternate 7 of SPUI Alternate
T.I.P. NO.:	U-4434			
DESCRIPTION OF PROJECT:	Extension of Independence Blvd on new location from Randall Pkway to Martin Luther King Jr. Pkwy (US 74) - SPUI Alternate			

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	23	36	59	40
Businesses	9	22	31	8
Farms	0	0	0	0
Non-Profit	1	0	1	1

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	18	20	21

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M		$ 0-150		0-20M		$ 0-150	
20-40M		150-250		20-40M		150-250	
40-70M		250-400		40-70M		250-400	
70-100M		400-600		70-100M		400-600	
100 UP	23	600 UP	36	100 UP	235	600 UP	37
TOTAL	23		36		235		37

ANSWER ALL QUESTIONS

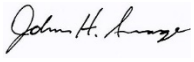
Yes	No	Explain all "YES" answers.	
	x	1.	Will special relocation services be necessary?
x		2.	Will schools or churches be affected by displacement?
x		3.	Will business services still be available after project?
x		4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	x	5.	Will relocation cause a housing shortage?
		6.	Source for available housing (list).
	x	7.	Will additional housing programs be needed?
x		8.	Should Last Resort Housing be considered?
	x	9.	Are there large, disabled, elderly, etc. families? (Unable to determine)
x		10.	Will public housing be needed for project?
x		11.	Is public housing available?
x		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
x		13.	Will there be a problem of housing within financial means?
x		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? **12-18 months**

REMARKS (Respond by Number)

2. One Church is within the acquisition
3. There is an ample supply of unaffected businesses.
4. See the EIS Relocation Report Attached
6. Local Realtors and the MLS Service
8. As required by law
10. Public Housing may be needed
11. Public Housing (New Hanover County)
14. Local Realtors and the MLS Service

13. Due to the low number of properties available for sale and rent in the Wilmington and New Hanover County areas, It may be difficult to locate residential properties for displaced residents.

***The reason questions 12 and 13 were marked yes, although there is a current housing shortage, forecasts indicate housing demands will relax within the next 12 to 24 months. Therefore, it is believed more housing will be available in the future.**

John H. Savage 	03/22/2022		03/29/2022
Right of Way Agent	Date	Chris Coughlin Relocation Coordinator	Date

FRM15-E
Revised 7/7/14

U-4434 Update 03/22/2022 SPUI EIS BUSINESS RELOCATION ATTACHMENT

Parcel	Business Name	Type	Size	Tenant	Owner	No. of Employees
027	R E Michel Co.	Wholesale	LG.		X	15
030	Fowler Warehouses	Warehouse Stg.	LG.	X		15
064	Hospital Automotive	Auto Repair	MD.		X	5
065	Coastal Rebuilders	Const. Office	MD.		X	5
066	Sheally Insurance Corp.	Insurance Office	MD.	X		5
067	Ocean Blue Pools and Spa	Office and Retail	MD.		X	5
070	Carolina Inn and Hotel	Motel Office	MD.	X		6
073	Hydro Organics	Retail	MD.	X		5
073	Max's Auto Service	Retail	MD.	X		5
073	Anchor Hardware	Retail	MD.	X		5
076	The Ivy Cottage 1	Retail	MD.	X		5
077	Integrated Paint Solutions	Office / Service	SM.		X	3
078	The Ivy Cottage	Retail	MD.	X		5
081	Azelea Inn Suites	Motel Office	MD.	X		6
089	Fisher Holdings	Warehouse	SM.		X	2
090	Mobile Zone	Cell Phone	SM.	x		3
090	Dr. Stylze	Hair Salon	SM.	x		3
090	Nail Today	Nail Salon	SM.	x		3
090	Tobacco Shop	Retail	SM.	x		3
091	Elite Motors	Used Cars	SM.	X		3
091	Pawn Shop	Pawn Shop	SM.	X		2
093	Daniel Tours	Tour Guide	SM.	X		3
095	Linprint (Combined w/ 117)	Print Shop	MD.		X	5
100	Flea Body's	Retail	MD.	X		5
102	Superior Auto and Tire	Tire and Auto	MD.	X		5
103	Lighting Design	Retail Home Furn.	MD.		X	6
105	Northstate Acceptance	Office/Credit Co.	MD.	X		8
117	Linprint (Combined with 095)					
120	William Buck Office Bldg.	Office	SM.	X		3
169	Barnett's Garage	Auto Repair	SM.		X	3
171	Hezekiah Johnson	Comm. Bldg.	SM.	X		3
172	Natural Sound Studios	Comm. Bldg.	SM.	X		3
Totals	**31**			**22**	**9**	**153**

0EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:	37764.1.1	COUNTY	New Hanover	Alternate 7 of TUDI Alternate	
T.I.P. NO.:	U-4434				
DESCRIPTION OF PROJECT:	Extension of Independence Blvd on new location from Randall Pkway to Martin Luther King Jr. Pkwy (US 74) - TUDI Alternate				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	28	43	71	48
Businesses	12	25	37	9
Farms	0	0	0	0
Non-Profit	1	1	2	2

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	22	24	25

VALUE OF DWELLING

Owners		Tenants	
0-20M		$ 0-150	
20-40M		150-250	
40-70M		250-400	
70-100M		400-600	
100 UP	28	600 UP	43
TOTAL	28		43

DSS DWELLING AVAILABLE

For Sale		For Rent	
0-20M		$ 0-150	
20-40M		150-250	
40-70M		250-400	
70-100M		400-600	
100 UP	213	600 UP	34
TOTAL	235		37

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	x	1. Will special relocation services be necessary?
x		2. Will schools or churches be affected by displacement?
x		3. Will business services still be available after project?
x		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	x	5. Will relocation cause a housing shortage?
		6. Source for available housing (list).
	x	7. Will additional housing programs be needed?
x		8. Should Last Resort Housing be considered?
	x	9. Are there large, disabled, elderly, etc. families? (Unable to Determine)
x		10. Will public housing be needed for project?
x		11. Is public housing available?
x		12. Is it felt there will be adequate DSS housing housing available during relocation period?
x		13. Will there be a problem of housing within financial means?
x		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? **12-18 months**

REMARKS (Respond by Number)

2. Two Churches are within the acquisition
3. There is an ample supply of unaffected businesses.
4. See the EIS Relocation Report Attached
6. Local Realtors and the MLS Service
8. As required by law
10. Public Housing may be needed
11. Public Housing (New Hanover County)
14. Local Realtors and the MLS Service

13. Due to the low number of properties available for sale and rent in the Wilmington and New Hanover County areas, It may be difficult to locate residential properties for displaced residents.

***The reason questions 5, 7, 12 and 13 were marked yes, although there is a current housing shortage, forecasts indicate housing demands will relax within the next 12 to 24 months. Therefore, it is believed more housing will be available in the future.**

John H. Savage	03/22/2022	Chris Coughlin	08/24/2023
Right of Way Agent	Date	Relocation Coordinator	Date
			Rec'd 08/21/23

FRM15-E
Revised 7/7/14

U-4434 Update 03/22/2022 TUDI EIS BUSINESS RELOCATION ATTACHMENT

Parcel	Business Name	Type	Size	Tenant	Owner	No. of Employees
028	R E Michel Co.	Wholesale	LG.		X	15
031	Fowler Warehouses	Warehouse Stg.	LG.	X		15
068	Hospital Automotive	Auto Repair	MD.		X	5
070	Coastal Rebuilders	Const. Office	MD.		X	5
072	Outdoor Creations	Office	SM.		X	3
074	Sheally Insurance Corp.	Insurance Office	MD.	X		5
078	Ocean Blue Pools and Spa	Office and Retail	MD.		X	5
080	Perfect Auto Specialist	Auto Repair	MD.		X	6
083	Carolina Inn and Hotel	Motel Office	MD.	X		6
086	The Ivy Cottage 1	Retail	MD.	X		5
087	Hydro Organics	Retail	MD.	X		5
087	Max's Auto Service	Retail	MD.	X		5
087	Anchor Hardware	Retail	MD.	X		5
090	Integrated Paint Solutions	Office / Service	SM.		X	3
091	The Ivy Cottage 2	Retail	MD.	X		5
092	The Ivy Cottage 2	Retail	MD.	X		5
094	CVS Pharmacy	Retail Drugs	LG.	X		10
095	Azalea Inn Suites	Motel Office	MD.	X		6
097	Market Street Insurance	Insurance Office	SM.		X	4
101	Fisher Holdings	Warehouse	SM.		X	2
102	Chic Lady Beauty Supply	Retail Supply	SM.	X		4
103	Mobile Zone	Cell Phone	SM.	x		3
103	Dr. Stylze	Hair Salon	SM.	x		3
103	Nail Today	Nail Salon	SM.	x		3
103	City Tobacco	Tobacco Shop	SM.	x		3
105	Daniel Tours	Tour Guide	SM.	X		3
107	Elite Motors	Used Cars	SM.	x		3
107	Pawn Shop	Pawn Shop	SM.	x		2
108	Linprint	Print Shop	MD.		X	5
113	Flea Body's	Retail	MD.	X		5
114	Superior Auto and Tire	Tire and Auto	MD.	X		5
116	Lighting Design	Retail Home Furn.	MD.		X	6
117	Northstate Acceptance	Office/Credit Co.	MD.	X		8
131	Linprint (Combined with 108)					
137	William Buck Office Building	Office	SM.	X		3
196	Barnett's Garage	Auto Repair	SM.		X	3
198	Hezekiah Johnson	Comm. Bldg.	SM.	X		3
199	Natural Sound Studios	Comm. Bldg.	SM.	X		3
Totals	**37**			**25**	**12**	**188**

U-4434 New Hanover County Update Business Relocatees Page 1

TUDI / RED SPUI / GREEN 03/22/2022

Parcel 028 / 027



Parcel 031 / 030



Parcel 068 / 064



Parcel 070 / 065



Parcel 072



Parcel 074 / 066



Parcel 078 / 067



Parcel 078A / 067



Parcel 080



Parcel 083 / 070



Parcel 086 / 076



Parcel 087 / 073



Photos Taken by John H. Savage on 03/11/2022

U-4434 New Hanover County Update Business Relocatees Page 2

TUDI / RED SPUI / GREEN 03/22/2022

Parcel 087A / 073A



Parcel 087B / 073B



Parcel 090 / 077



Parcel 091 / 078



Parcel 092



Parcel 094



Parcel 095 / 081



Parcel 095A



Parcel 097



Parcel 101 / 089



Parcel 102, 1 Bus.



Parcel 103 / 90 X 4



Photos Taken by John H. Savage on 3/11/2022

U-4434 New Hanover County Update Church-Non-Profit Relocatees

TUDI / RED SPUI / GREEN 03/22/2022

Parcel 041 / 040 Building A



Building B



This is a single church campus and was analyzed as one church relocatee

Parcel 102



This Church is part of a Duplex shared with a Business

Photos Taken by John H. Savage on 03/11/2022

APPENDIX E

CULTURAL RESOURCES CORRESPONDENCE

North Carolina Department of Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Beverly Eaves Perdue, Governor
Linda A. Carlisle, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

April 23, 2012

MEMORANDUM

TO: Thomas Devens
NC Department of Transportation
Project Developemnt and Environmental Analysis

FROM: Ramona M. Bartos RSL for Ramona M. Bartos

SUBJECT: Independence Boulevard Extension, Randall Parkway to Martin Luther King, Jr. Parkway, U-4434, New Hanover County, ER 04-2963

We have reviewed the revised study area for the Independence Boulevard Extension between Randall Parkway and Martin Luther King, Jr. Parkway.

The area of potential effect associated with the Smith Creek Parkway corridor (Martin Luther King Jr. Parkway), Section C was surveyed in 1994 by NCDOT archaeologists. Because of this a significant portion of the northern study area will not require attention. The archaeologists working on the Independence Boulevard Extension project should concentrate their survey on landform types typically associated with the occurrence of archaeological sites. While prehistoric and historic occupation sites are important, abandoned industrial sites may be significant and perhaps the more abundant, particularly in the vicinity of Smith Creek. If significant archaeological sites are identified, appropriate measures should be taken to avoid or minimize adverse impacts.

We have determined that the project as proposed will not have an effect on any historic structures.

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 919-807-6579. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Matt Wilkerson, NCDOT

From: Gledhill-earley, Renee
To: Furr, Mary Pope
Subject: RE: New Hanover County reviewer
Date: Thursday, March 28, 2019 2:47:33 PM
Attachments: image003.png
image001.png

Yes, I feel okay with the no survey call. Justin reviewed it and he was very thorough.
Renee

--

Please note, effective October 9th, my phone number changed to 919-814-6579

Renee Gledhill-Earley
Environmental Review Coordinator
State Historic Preservation Office
109 E Jones St MSC 4617 Raleigh, NC 27699
919 814 6579 *office*

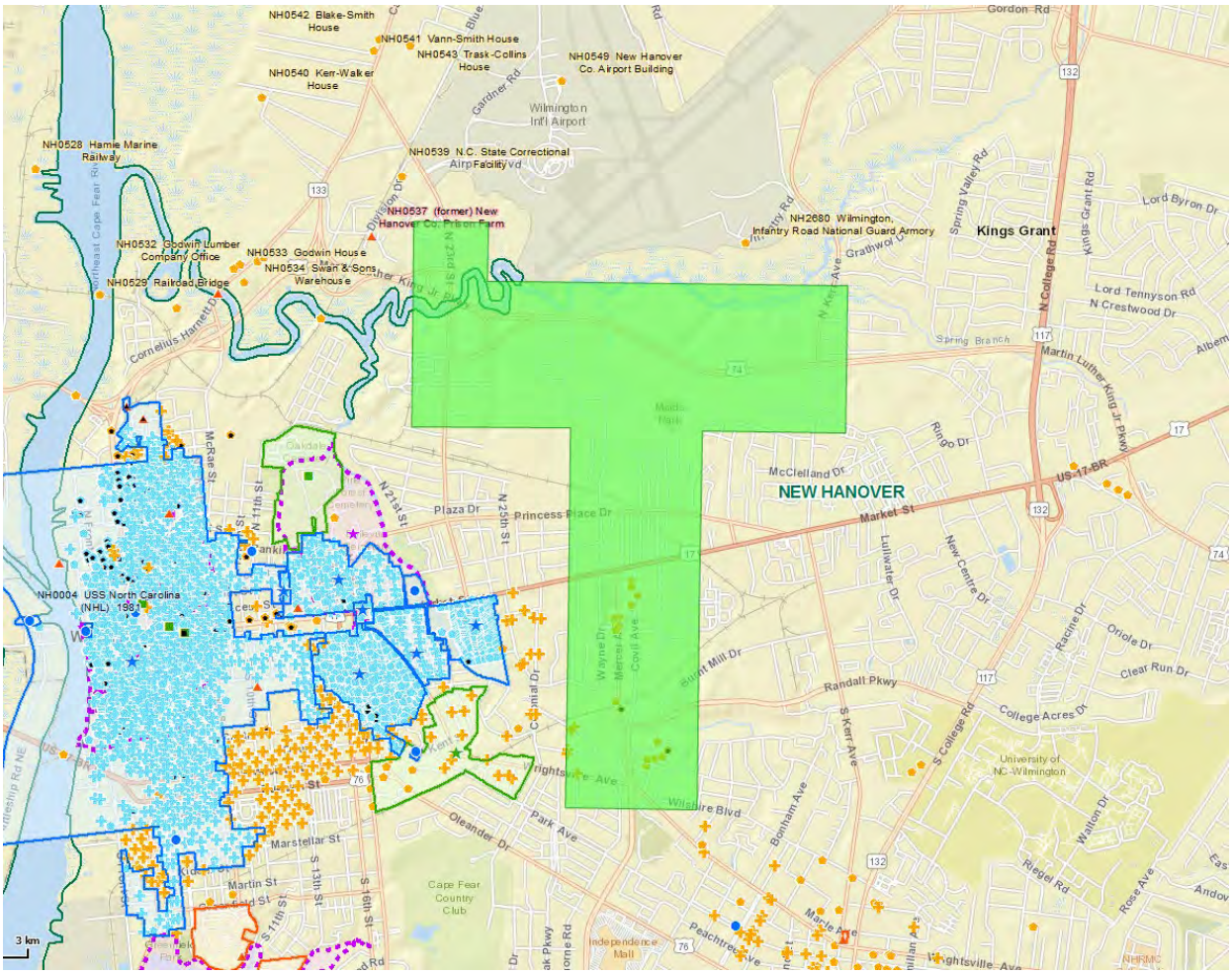
NC DEPARTMENT OF NATURAL AND CULTURAL RESOURCES

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

Please Note: Requests for project review or responses to our review comments should be sent to our Environmental Review emailbox at environmental.review@ncdcr.gov Otherwise, I will have to return your request and ask that you send it to the proper mailbox. This will cause delays in your project. Information on email project submittal is at: http://www.hpo.ncdcr.gov/er/er_email_submittal.html

From: Furr, Mary Pope <mfurr@ncdot.gov>
Sent: Thursday, March 28, 2019 2:39 PM
To: Gledhill-earley, Renee <renee.gledhill-earley@ncdcr.gov>
Subject: New Hanover County reviewer

I'm reviewing project U-4434, which your office provided scoping comments in 2012 (attached). No survey was recommended. It is an EIS level project. The project area shown in green below is generally the same study area provided to you in 2012. Are you still OK with the no survey call? I drove through the area last Friday and a didn't see anything that stood out as eligible, but I just wanted to check. Mostly commercial development and some low income housing.



Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

North Carolina Department of Natural and Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary Susi H. Hamilton

Office of Archives and History
Deputy Secretary Kevin Cherry

March 31, 2020

Matthew Jorgenson, RPA
AECOM, Inc.
701 Corporate Center Driver, Suite 475
Raleigh, NC 27607

Re: Report: Intensive Archaeological Survey and Evaluation TIP U-4434 Independence Boulevard Extension New Hanover County, North Carolina. ER 04-2963, Bib#8208

Mr. Jorgenson:

Thank you for submitting the above reference report detailing the archaeological work performed within the APE of the proposed Independence Boulevard Extension in Wilmington. The report was well researched and the fieldwork well focused.

To reiterate the findings, two archaeological sites were identified. The historic Maides Park Cemetery, 31NH886, was determined to be outside of the current APE for the project and no further work is recommended. One prehistoric site was discovered, 31NH887, within the current APE and adjacent to the Martin Luther King Parkway.

Testing revealed that site 31NH887 contains material evidence of 5000 years of short-term habitations. Despite the site's proximity to the MLK Parkway, it still retains integrity indicating its likelihood to yield information important to prehistory. AECOM recommends that the site be subjected to data recovery excavations if avoidance is not possible.

We recommend that mitigation in the form of additional data recovery be conducted because the site's proximity to the MLK Parkway and the future Independence Boulevard intersection make avoidance of this important archaeological site improbable. We further recommend that disturbance by the NCDOT Wildflower Program, for which a portion of the site is currently being used, be discontinued until the archaeology is complete

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, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Renee Gledhill-Earley

Ramona Bartos, Deputy
State Historic Preservation Officer

cc: Matt Wilkerson, NCDOT

APPENDIX F

APPROVED PRELIMINARY JURISDICTIONAL DETERMINATION AND STREAM DETERMINATION LETTER

Electronically Transmitted and Revised

U.S. ARMY CORPS OF ENGINEERS

WILMINGTON DISTRICT

Action Id. **SAW-2004-00168** County: **New Hanover** U.S.G.S. Quad: **Castle Hayne**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner: **NCDOT-Division 3**
attn: Mr. Mason Herndon
Address: **5501 Barbados Blvd**
Castle Hayne, NC 28429

Size (acres)	**+/- 632**	Nearest Town	**Wilmington**
Nearest Waterway	**Smith Creek**	River Basin	**Cape Fear**
USGS HUC	**3030007**	Coordinates	Latitude: **34.2378**
			Longitude: **-77.90661**

Location description: **The project (U-4434)study area extends from Independence Blvd(SR 1209) from the intersection with Randall Parkway and Mercer Ave. to Martin Luther King Jr. Blvd (SR 2649), New Hanover County.**

Indicate Which of the Following Apply:

A. Preliminary Determination

X Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are waters of the U.S. including wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

_ The waters of the U.S. including wetlands on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

_ The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our

published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Morehead City, NC, at (252) 808-2808 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Brad Shaver** at **910-251-4611 or Brad.E.Shaver@usace.army.mil.**

C. Basis For Determination: A final jurisdictional determination has not been completed.

D. Remarks: This updated prelim JD covers an updated PJD effort and is accurately depicted on the attached field sketch.

Corps Regulatory Official: Monte Matthews Date: 2019.09.11 15:01:54 -04'00'

Date: **September 11, 2019** Expiration Date: **N/A**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at http://regulatory.usacesurvey.com/.

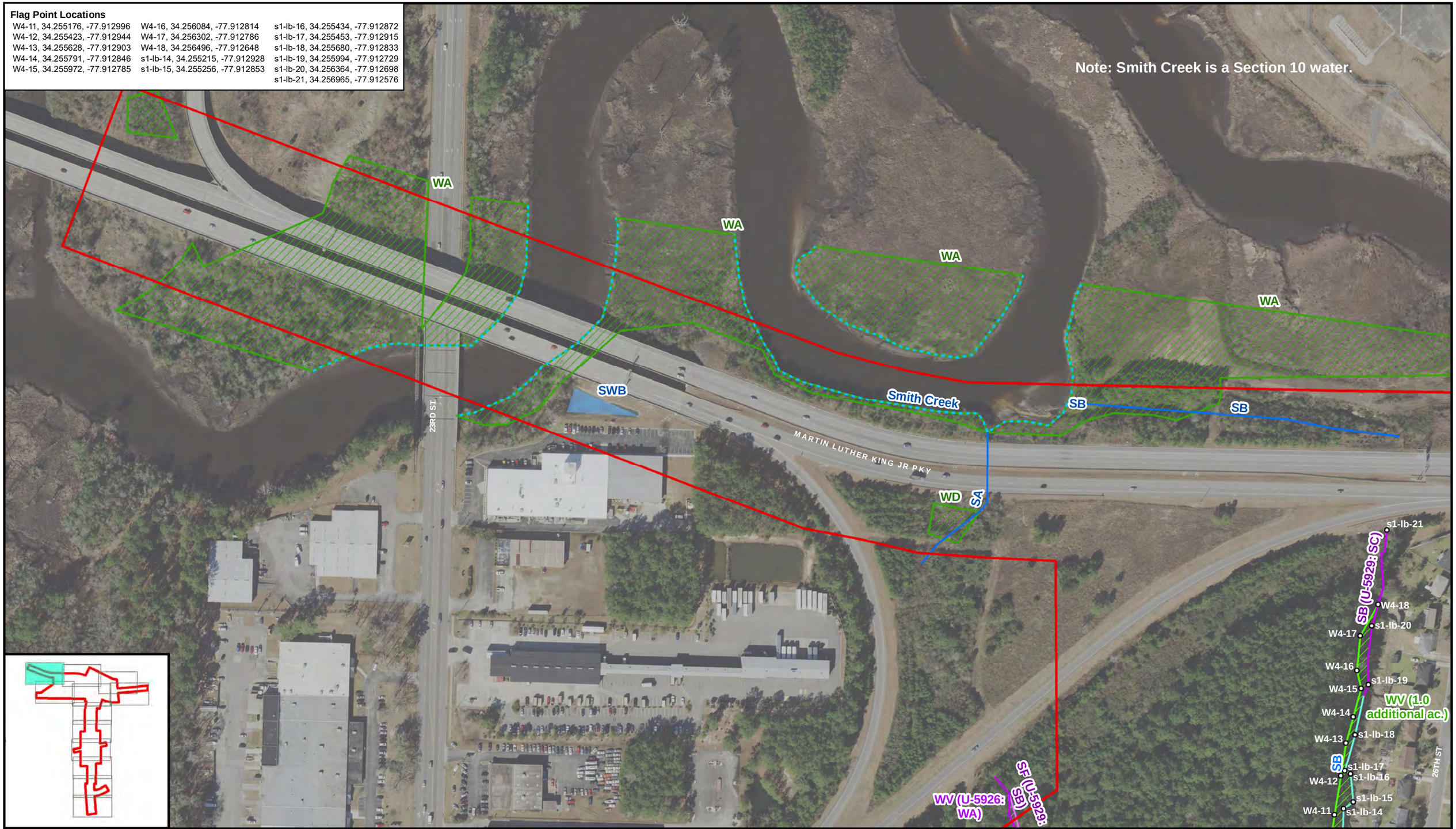
Copy furnished (electronic):

NCDEQ-DWR attn: Ms. Joanne Steenhuis

Flag Point Locations

W4-11, 34.255176, -77.912996	W4-16, 34.256084, -77.912814	s1-lb-16, 34.255434, -77.912872
W4-12, 34.255423, -77.912944	W4-17, 34.256302, -77.912786	s1-lb-17, 34.255453, -77.912915
W4-13, 34.255628, -77.912903	W4-18, 34.256496, -77.912648	s1-lb-18, 34.255680, -77.912833
W4-14, 34.255791, -77.912846	s1-lb-14, 34.255215, -77.912928	s1-lb-19, 34.255994, -77.912729
W4-15, 34.255972, -77.912785	s1-lb-15, 34.255256, -77.912853	s1-lb-20, 34.256364, -77.912698
		s1-lb-21, 34.256965, -77.912576

Note: Smith Creek is a Section 10 water.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Flag Point (2019)
- Stream (U-5926 PJD)
- Stream (2011)
- Stream (2019)
- Approximate Stream Channel
- Surface Water (2011)
- Wetland (2019)
- Wetland (U-5926 PJD)
- Wetland (2011)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-1

Flag Point Locations
s1-lb-21, 34.256965, -77.912576

Note: Smith Creek and portions of SH in the vicinity of Martin Luther King Jr Parkway are Section 10 waters.

WA
Smith Creek
WA
WA
SB
WE
MARTIN LUTHER KING JR PKY
SR
C-WU
SR
s1-lb-21
SH
WE
FORBES CT
26TH ST
KORNEGAY AVE
WJ
C-WE
BUNCHE ST
WK
SWM

SH on Figure 3-2 is tidally influenced and deemed Section 10 waters

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Flag Point (2019)
- Stream (U-5926 PJD)
- Stream (2011)
- Approximate Stream Channel
- Surface Water (2011)
- Wetland (Cameron Tract)
- Wetland (2011)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

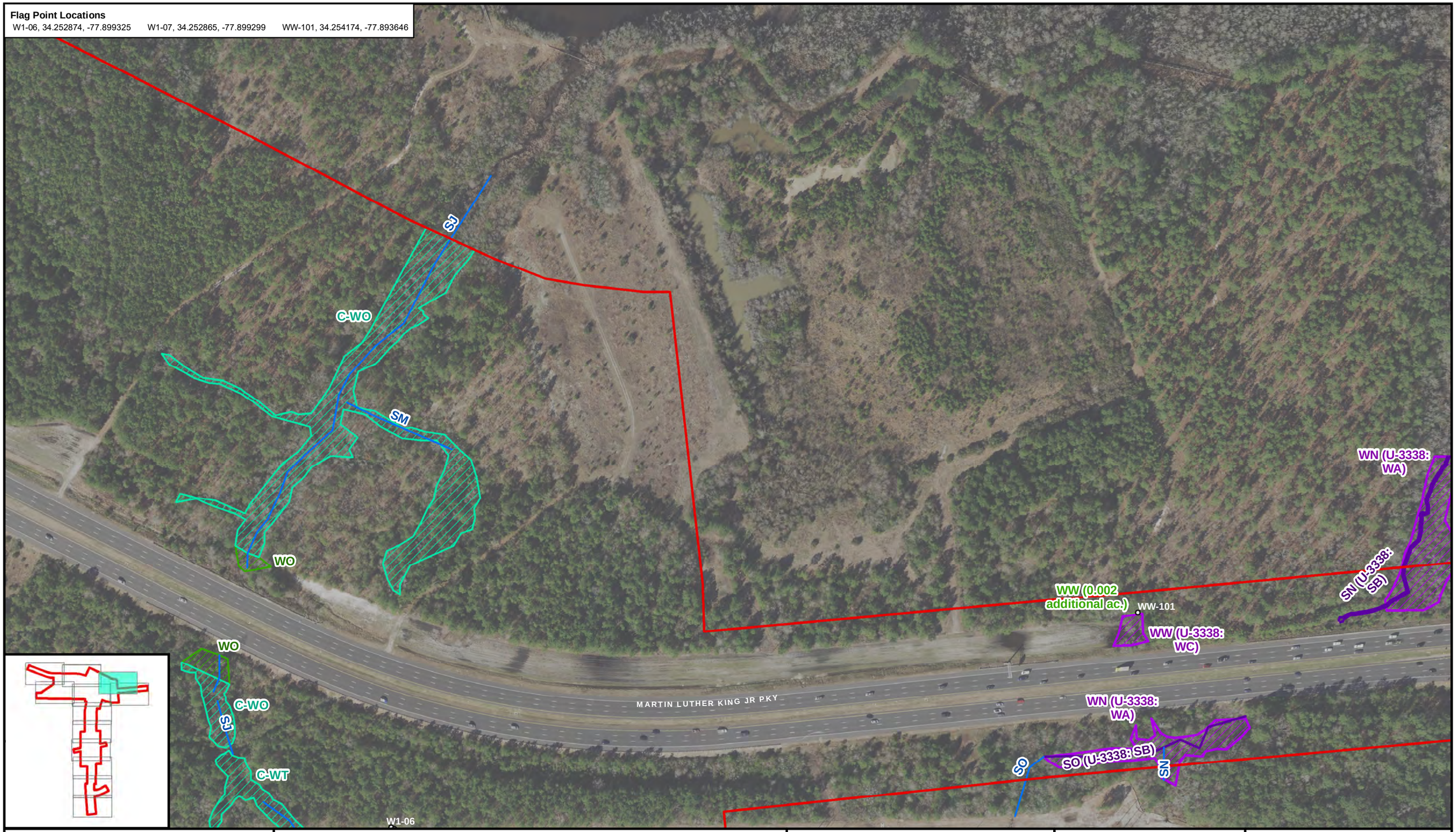
0 100 200 Feet

N

Div:	TIP#	Figure
3	U-4434	3-2
Date: August 2019		

Flag Point Locations

W1-06, 34.252874, -77.899325 W1-07, 34.252865, -77.899299 WW-101, 34.254174, -77.893646



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Flag Point (2019)
- Stream (2011)
- Stream (U-3338 PJD)
- Approximate Stream Channel
- Wetland (U-3338 PJD)
- Wetland (Cameron Tract)
- Wetland (2011)
- Wetland (2019)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

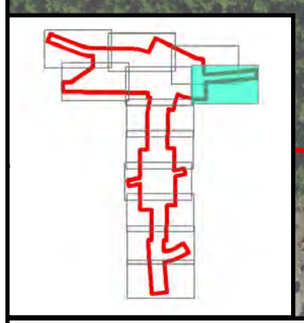
N

Div: 3	TIP# U-4434
Date: August 2019	

Figure 3-3

Flag Point Locations
WW-101, 34.254174, -77.893646

WW (0.002 additional ac.)
WW-101
WW (U-3338: WC)
WN (U-3338: WA)
SN (U-3338: SB)
WN (U-3338: WA)
SO (U-3338: SB)
SO
SN
MARTIN LUTHER KING JR PKY
KERR AVE
XING
GREENTREE RD
SAGEDALE DR
KERR AVE
INDICA CT
TABOR LN
CRIMSON CT
SUNGLOW DR
SHORTFIN DR
NEW CENTRE DR



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Flag Point (2019)
- Stream (2011)
- Stream (U-3338 PJD)
- Approximate Stream Channel
- Wetland (U-3338 PJD)
- Wetland (Cameron Tract)
- Wetland (2019)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

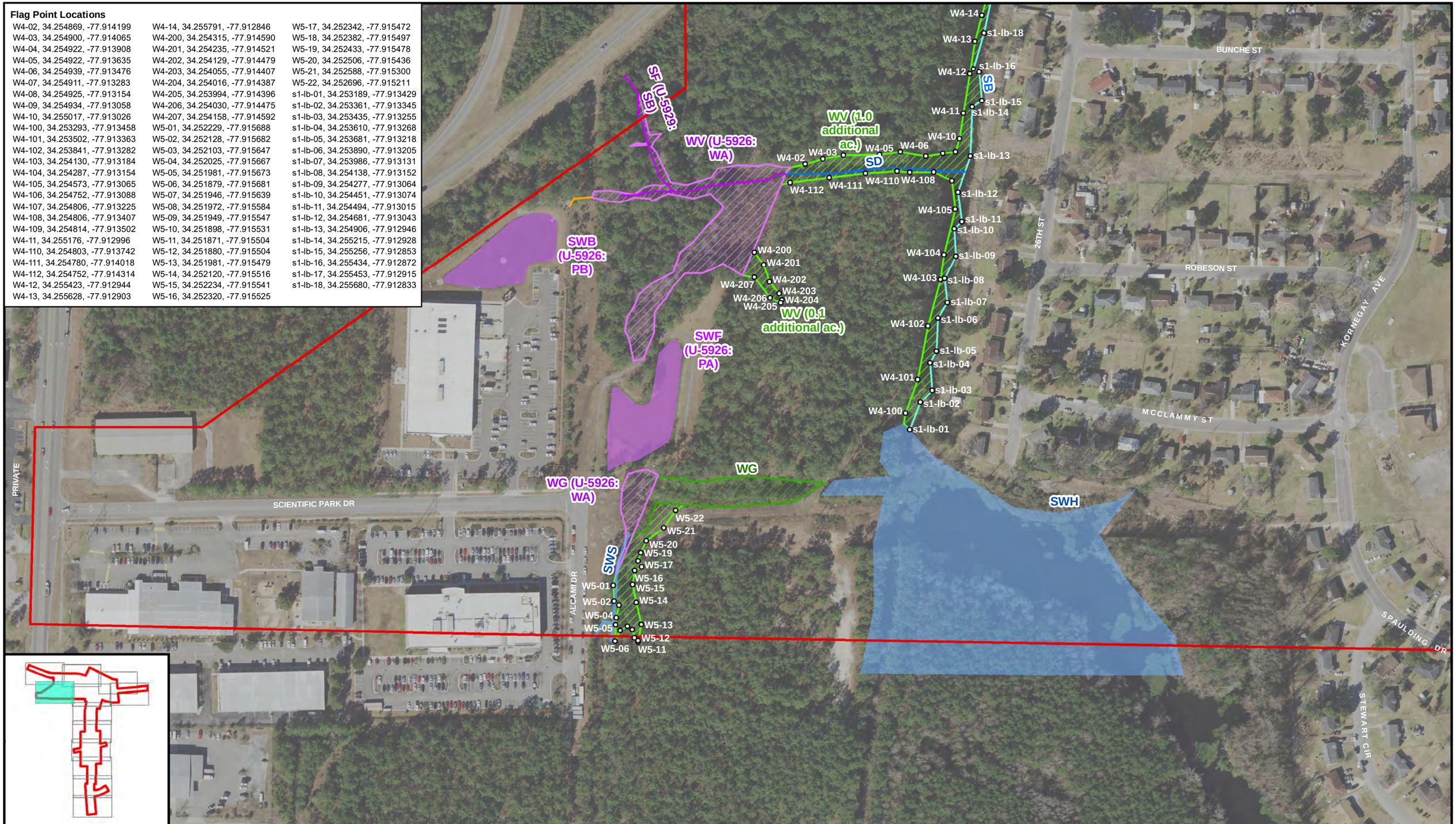
Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-4

Flag Point Locations

W4-02, 34.254869, -77.914199	W4-14, 34.255791, -77.912846	W5-17, 34.252342, -77.915472
W4-03, 34.254900, -77.914065	W4-200, 34.254315, -77.914590	W5-18, 34.252382, -77.915497
W4-04, 34.254922, -77.913908	W4-201, 34.254235, -77.914521	W5-19, 34.252433, -77.915478
W4-05, 34.254922, -77.913635	W4-202, 34.254129, -77.914479	W5-20, 34.252506, -77.915436
W4-06, 34.254939, -77.913476	W4-203, 34.254055, -77.914407	W5-21, 34.252588, -77.915300
W4-07, 34.254911, -77.913283	W4-204, 34.254016, -77.914387	W5-22, 34.252696, -77.915211
W4-08, 34.254925, -77.913154	W4-205, 34.253994, -77.914396	s1-lb-01, 34.253189, -77.913429
W4-09, 34.254934, -77.913058	W4-206, 34.254030, -77.914475	s1-lb-02, 34.253361, -77.913345
W4-10, 34.255017, -77.913026	W4-207, 34.254158, -77.914592	s1-lb-03, 34.253435, -77.913255
W4-100, 34.253293, -77.913458	W5-01, 34.252229, -77.915688	s1-lb-04, 34.253610, -77.913268
W4-101, 34.253502, -77.913363	W5-02, 34.252128, -77.915682	s1-lb-05, 34.253681, -77.913218
W4-102, 34.253841, -77.913282	W5-03, 34.252103, -77.915647	s1-lb-06, 34.253890, -77.913205
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W4-104, 34.254287, -77.913154	W5-05, 34.251981, -77.915673	s1-lb-08, 34.254138, -77.913152
W4-105, 34.254573, -77.913065	W5-06, 34.251879, -77.915681	s1-lb-09, 34.254277, -77.913064
W4-106, 34.254752, -77.913088	W5-07, 34.251946, -77.915639	s1-lb-10, 34.254451, -77.913074
W4-107, 34.254806, -77.913225	W5-08, 34.251972, -77.915584	s1-lb-11, 34.254494, -77.913015
W4-108, 34.254806, -77.913407	W5-09, 34.251949, -77.915547	s1-lb-12, 34.254681, -77.913043
W4-109, 34.254814, -77.913502	W5-10, 34.251898, -77.915531	s1-lb-13, 34.254906, -77.912946
W4-11, 34.255176, -77.912996	W5-11, 34.251871, -77.915504	s1-lb-14, 34.255215, -77.912928
W4-110, 34.254803, -77.913742	W5-12, 34.251880, -77.915504	s1-lb-15, 34.255256, -77.912853
W4-111, 34.254780, -77.914018	W5-13, 34.251981, -77.915479	s1-lb-16, 34.255434, -77.912872
W4-112, 34.254752, -77.914314	W5-14, 34.252120, -77.915516	s1-lb-17, 34.255453, -77.912915
W4-12, 34.255423, -77.912944	W5-15, 34.252234, -77.915541	s1-lb-18, 34.255680, -77.912833
W4-13, 34.255628, -77.912903	W5-16, 34.252320, -77.915525	



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Flag Point (2019)
- Tributary WOUS (U-5926 PJD)
- Stream (U-5926 PJD)
- Stream (2011)
- Stream (2019)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-5

Flag Point Locations

W1-01, 34.252741, -77.899830	W3-08, 34.251633, -77.902871	W6-110, 34.249995, -77.904437
W1-02, 34.252741, -77.899708	W6-01, 34.251284, -77.905522	W6-111, 34.250106, -77.904518
W1-03, 34.252756, -77.899549	W6-02, 34.251095, -77.905723	W6-112, 34.250229, -77.904551
W1-04, 34.252787, -77.899428	W6-03, 34.250944, -77.905843	W6-113, 34.250270, -77.904535
W1-05, 34.252811, -77.899378	W6-04, 34.250761, -77.905989	W6-114, 34.250389, -77.904524
W1-06, 34.252874, -77.899325	W6-05, 34.250617, -77.906085	W6-115, 34.250572, -77.904489
W1-07, 34.252865, -77.899299	W6-06, 34.250586, -77.906091	W6-116, 34.250762, -77.904440
W1-08, 34.252849, -77.899289	W6-07, 34.250557, -77.906078	W6-117, 34.250757, -77.904372
W1-09, 34.252727, -77.899357	W6-08, 34.250699, -77.905963	W6-118, 34.250830, -77.904270
W1-10, 34.252723, -77.899504	W6-09, 34.250904, -77.905775	W6-119, 34.250780, -77.904218
W1-11, 34.252710, -77.899641	W6-10, 34.251044, -77.905559	W6-12, 34.250950, -77.905535
W1-12, 34.252704, -77.899792	W6-100, 34.250798, -77.904505	W6-120, 34.250736, -77.904187
W3-01, 34.251836, -77.903350	W6-101, 34.250659, -77.904500	W6-13, 34.250797, -77.905459
W3-02, 34.251814, -77.903181	W6-102, 34.250559, -77.904555	W6-132, 34.250783, -77.904155
W3-03, 34.251764, -77.903068	W6-103, 34.250396, -77.904568	W6-14, 34.250837, -77.905464
W3-04, 34.251816, -77.903005	W6-104, 34.250313, -77.904589	W6-15, 34.250928, -77.905463
W3-05, 34.251791, -77.902918	W6-105, 34.250197, -77.904596	W6-16, 34.251053, -77.905479
W3-06, 34.251790, -77.902860	W6-106, 34.250047, -77.904520	W6-17, 34.251116, -77.905451
W3-07, 34.251736, -77.902847	W6-11, 34.251073, -77.905524	W6-18, 34.251196, -77.905401
		W6-19, 34.251249, -77.905320

MARTIN LUTHER KING JR PKY
SPAULDING DR
STEWART CIR
COOPER CT
30TH ST
MANLY AVE
CJ
C-WO
WO
C-WT
WE
SH
SG
WE (0.2 additional ac.)
WE (0.3 additional ac.)
W1-01
W1-02
W1-03
W1-04
W1-05
W1-06
W1-07
W1-08
W1-09
W1-10
W1-11
W1-12
W3-01
W3-02
W3-03
W3-04
W3-05
W3-06
W3-07
W3-08
W6-01
W6-02
W6-03
W6-04
W6-05
W6-06
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W6-09
W6-10
W6-11
W6-12
W6-13
W6-14
W6-15
W6-16
W6-17
W6-18
W6-19
W6-100
W6-101
W6-102
W6-103
W6-104
W6-105
W6-106
W6-110
W6-111
W6-112
W6-113
W6-114
W6-115
W6-120
W6-132

Legend

- Study Area
- Flag Point (2019)
- Stream (2011)
- Approximate Stream Channel
- Surface Water (2011)
- Wetland (Cameron Tract)
- Wetland (2011)
- Wetland (2019)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

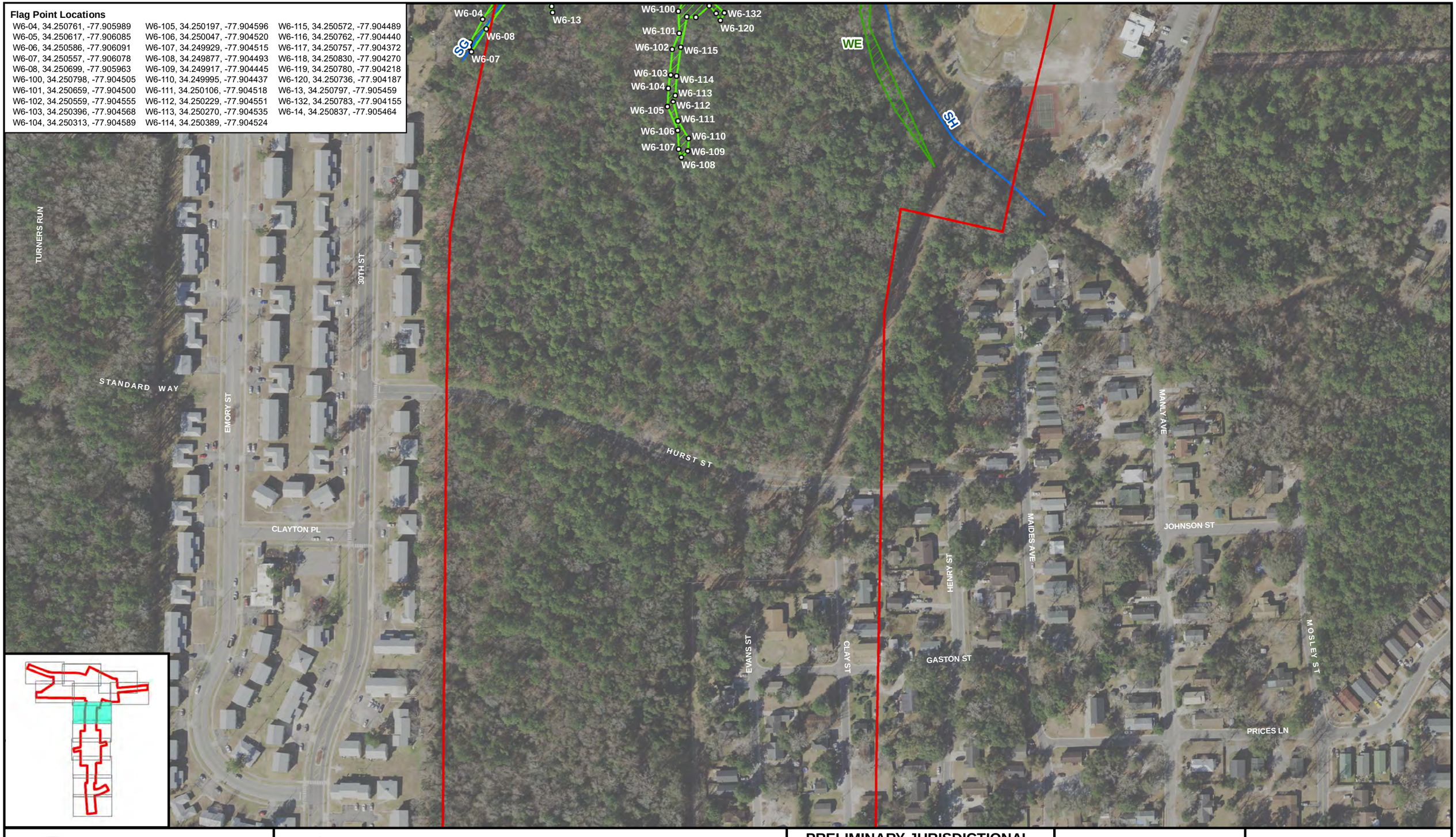
0 100 200 Feet

N

Div:	TIP#	Figure
3	U-4434	3-6
Date: August 2019		

Flag Point Locations

W6-04, 34.250761, -77.905989	W6-105, 34.250197, -77.904596	W6-115, 34.250572, -77.904489
W6-05, 34.250617, -77.906085	W6-106, 34.250047, -77.904520	W6-116, 34.250762, -77.904440
W6-06, 34.250586, -77.906091	W6-107, 34.249929, -77.904515	W6-117, 34.250757, -77.904372
W6-07, 34.250557, -77.906078	W6-108, 34.249877, -77.904493	W6-118, 34.250830, -77.904270
W6-08, 34.250699, -77.905963	W6-109, 34.249917, -77.904445	W6-119, 34.250780, -77.904218
W6-100, 34.250798, -77.904505	W6-110, 34.249995, -77.904437	W6-120, 34.250736, -77.904187
W6-101, 34.250659, -77.904500	W6-111, 34.250106, -77.904518	W6-13, 34.250797, -77.905459
W6-102, 34.250559, -77.904555	W6-112, 34.250229, -77.904551	W6-132, 34.250783, -77.904155
W6-103, 34.250396, -77.904568	W6-113, 34.250270, -77.904535	W6-14, 34.250837, -77.905464
W6-104, 34.250313, -77.904589	W6-114, 34.250389, -77.904524	



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Flag Point (2019)
- Stream (2011)
- Approximate Stream Channel
- Wetland (2011)
- Wetland (2019)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-7

Flag Point Locations



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Approximate Stream Channel

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-8

Flag Point Locations

CHESTNUT ST
LORING ALY
29TH ST
30TH ST
31ST ST
MONTGOMERY AVE
EVANS ST
CLAY ST
HENRY ST
SYCAMORE ST
LYNDON AVE
MARKET ST
PRIVATE
WAYNE DR
MERCER AVE
COVIL AVE
DARLINGTON AVE
LANCELOT LN
SPRING AVE
SK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Stream (2011)
- Approximate Stream Channel

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-9

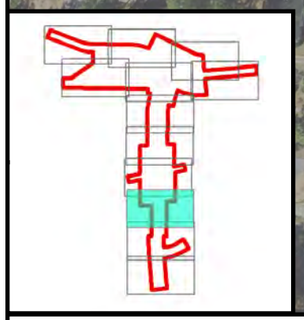
Flag Point Locations

SK

WS

Portion of WS from 2011 Delineation no longer exists.

29TH ST
MERCER AVE
PRIVATE
WAKEFIELD RD
BROAD ST
WAYNE DR
LANCELOT LN
SPRING AVE
METTING RD
DARLINGTON AVE
FROG POND PL
RENOVAH CIR
STRADLEIGH RD
COVIL AVE
PRIVATE
PRIVATE
BURNT MILL DR



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Wetland (2011)
- Stream (2011)
- Approximate Stream Channel

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

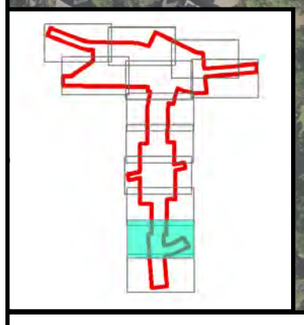
Date: August 2019

Figure 3-10

Flag Point Locations

RENOVAH CIR
STRADLEIGH RD
WAYNE DR
MERCER AVE
COVIL AVE
PRIVATE
BURNT MILL DR
BRAILSFORD DR
JAECKLE DR
RANDALL PKY
XING
INDEPENDENCE BLV

SWQ
SWR
SL



NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Stream (2011)
- Approximate Stream Channel
- Surface Water (2011)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-11

Flag Point Locations

SL

COLUMBIA AVE

FOREST HILLS DR

MERCER AVE

INDEPENDENCE BLV

CAMDEN CIR

FARMERS ST

ASHLEY CIR

MALPASS AVE

ROSEMONT AVE

WINSTON BLV

ORCHARD AVE

W RIGHTSVILLE AVE

FOREST HILLS DR

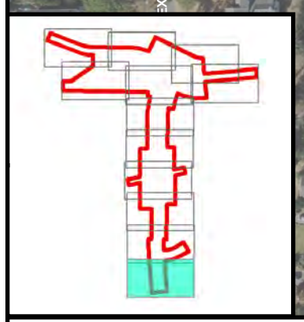
PRINCETON DR

HARVARD DR

CASWELL ST

WILSHIRE BLV

LATIMER DR



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Stream (2011)
- Approximate Stream Channel

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina

STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-12

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
LINDA CULPEPPER
Director

NORTH CAROLINA
Environmental Quality

October 30, 2019

Mason Herndon, Environmental Program Supervisor
NC DOT Division 3
5501 Barbados Blvd.
Castle Hayne, NC 28429

Subject: NCDOT STIP U-4434, New Hanover County
Smith Creek and Burnt Mill Creek in the Cape Fear River Basin

Revised On-Site Determination for Applicability to the Mitigation Rules (15A NCAC 2H .0506[h])

Dear Mason:

On June 27, 2019, at your request and in your attendance, Joanne Steenhuis, NC Division of Water Resource (NCDWR) staff, conducted an on-site determination to review drainage features located within the addendum area for the Independence Boulevard Extension from the end of the existing Independence Boulevard at Randall Parkway to MLK Parkway, for applicability to the mitigation rules (15A NCAC 2H .0506[h]). Additional site visits were also conducted on August 12, 2019 and August 21, 2019. This letter also references previous stream calls conducted on the original determination for U-4434 in 2011 and 2012, and additional stream call letters written on January 23, 2012 for U-3338 and October 2, 2017 for U-5926. Additional site visits were conducted on October 25, 2019 and October 30, 2019 in order to identify and reconfirm the stream types for the 2011 and 2012 stream call letters. The drainage features are approximated on the attached maps signed and dated September 11, 2019.

Stream Name	River Basin	Stream Type	Stream Classification	Stream Index Number
UT to Smith Creek (SA)	Cape Fear	Intermittent	C;Sw	18-74-63
UT to Smith Creek (SB)** (SC in U-5926)	Cape Fear	Perennial	C;Sw	18-74-63
UT to Smith Creek (SD)**(SA in U 5926)	Cape Fear	Intermittent/Perennial from the Beaver Dam	C;Sw	18-74-63
UT to Smith Creek (SF)**	Cape Fear	Intermittent	C;Sw	18-74-63
UT to Smith Creek (SG)	Cape Fear	Perennial	C;Sw	18-74-63
UT to Smith Creek (SH)	Cape Fear	Perennial	C;Sw	18-74-63
UT to Smith Creek (SJ)	Cape Fear	Perennial	C;Sw	18-74-63
UT to Burnt Mill Creek (SK)	Cape Fear	Intermittent	C;Sw	18-74-63-2
UT to Burnt Mill Creek (SL)	Cape Fear	Perennial	C;Sw	18-74-63-2
UT to Smith Creek (SM)	Cape Fear	Intermittent	C;Sw	18-74-63
UT to Smith Creek (SN)	Cape Fear	Perennial	C;Sw	18-74-63
UT to Smith Creek (SO)***	Cape Fear	Perennial	C;Sw	18-74-63
UT to Smith Creek (SR)	Cape Fear	Intermittent/Perennial from the wetland finger	C;Sw	18-74-63

** SB, SD and SF reference the stream call letter for U-5926 dated October 2, 2017
*** SO reference the stream call letter for U-3338 dated January 23, 2012

Please note that other sites identified in the jurisdictional determination in previous determinations will be considered accurate as presented. This letter only addresses the applicability to the mitigation rules, the Waters of the United States, or Waters of the State. Any impacts to wetlands and/or streams must comply with the 404/401 regulations, water supply regulations (15A NCAC 2B .0216), and any other required federal, state and local regulations. Please be aware that the USACE may require mitigation for impacts to intermittent and perennial streams, NCDWR limits mitigation to perennial streams with impacts greater than 300 linear feet.

The owner (or future owners) or permittee should notify NCDWR (and other relevant agencies) of this determination in any future correspondences concerning this property and/or project. This on-site determination shall expire five (5) years from the date of this letter.

Landowners or affected parties that dispute a determination made by NCDWR or Delegated Local Authority that a surface water exists and that it is subject to the mitigation rules may request a determination by the Director. A request for a determination by the Director shall be referred to the Director in writing c/o Amy Chapman, NCDWR Wetlands/401 Unit, 1617 Mail Service Center, Raleigh, NC 27699-1617.

Individuals that dispute a determination by NCDWR or Delegated Local Authority that "exempts" a surface water from the mitigation rules may ask for an adjudicatory hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice and the date the affected party (including downstream and adjacent landowners) is notified of this decision. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Sam M. Hayes, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27600-1601

This determination is final and binding unless you ask for a hearing within 60 days.

If you have any additional questions or require additional information, please contact me at (910) 796-7306 or joanne.steenhuis@ncdenr.gov.

Sincerely,

Joanne Steenhuis, Environmental Specialist II
Division of Water Resources

Attachments: Figure 3 (Figures 1 – 12) (12 pages)

Electronic copy only distribution:
Brad Shaver, US Army Corps of Engineers, Wilmington Field Office
File Copy

Flag Point Locations

W4-11, 34.255176, -77.912996	W4-16, 34.256084, -77.912814	s1-lb-16, 34.255434, -77.912872
W4-12, 34.255423, -77.912944	W4-17, 34.256302, -77.912786	s1-lb-17, 34.255453, -77.912915
W4-13, 34.255628, -77.912903	W4-18, 34.256496, -77.912648	s1-lb-18, 34.255680, -77.912833
W4-14, 34.255791, -77.912846	s1-lb-14, 34.255215, -77.912928	s1-lb-19, 34.255994, -77.912729
W4-15, 34.255972, -77.912785	s1-lb-15, 34.255256, -77.912853	s1-lb-20, 34.256364, -77.912698
		s1-lb-21, 34.256965, -77.912576

Note: Smith Creek is a Section 10 water.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

Joanne Steenhuis 10/30/2019

- Study Area
- Flag Point (2019)
- Stream (U-5926 PJD)
- Stream (2011)
- Stream (2019)
- Approximate Stream Channel
- Surface Water (2011)
- Wetland (2019)
- Wetland (U-5926 PJD)
- Wetland (2011)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-1

Flag Point Locations
s1-lb-21, 34.256965, -77.912576

Note: Smith Creek and portions of SH in the vicinity of Martin Luther King Jr Parkway are Section 10 waters.

WA
Smith Creek
WA
WA
SB
WE
MARTIN LUTHER KING JR PKY
SR
C-WU
SR
Intermittent/Perennial Point
s1-lb-21
FORBES CT
26TH ST
KORNEGAY AVE
BUNCHE ST
SH
WE
WJ
C-WE
WK
SWM

SH on Figure 3-2 is tidally influenced and deemed Section 10 waters

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

Joanne Steenhuis 10/30/2019

- Study Area
- Flag Point (2019)
- Stream (U-5926 PJD)
- Stream (2011)
- Approximate Stream Channel
- Surface Water (2011)
- Wetland (Cameron Tract)
- Wetland (2011)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div: 3	TIP# U-4434	Figure 3-2
Date: August 2019		

Flag Point Locations

W1-06, 34.252874, -77.899325 W1-07, 34.252865, -77.899299 WW-101, 34.254174, -77.893646

SJ

C-WO

SM

WO

WO

C-WO

SJ

C-WT

W1-06

MARTIN LUTHER KING JR PKY

WN (U-3338: WA)

SN (U-3338: SB)

WW (0.002 additional ac.)

WW-101

WW (U-3338: WC)

WN (U-3338: WA)

SO

SO (U-3338: SB)

SN

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

Joanne Steenhuis 10/30/2019

- Study Area
- Flag Point (2019)
- Stream (2011)
- Stream (U-3338 PJD)
- Approximate Stream Channel
- Wetland (U-3338 PJD)
- Wetland (Cameron Tract)
- Wetland (2011)
- Wetland (2019)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

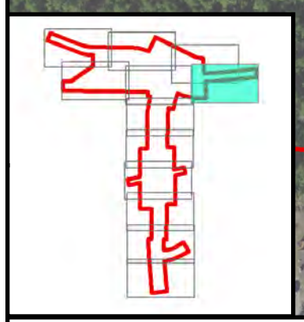
Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-3

Flag Point Locations
WW-101, 34.254174, -77.893646

WW (0.002 additional ac.)
WW-101
WW (U-3338: WC)
WN (U-3338: WA)
SN (U-3338: SB)
WN (U-3338: WA)
SO (U-3338: SB)
SO
SN
MARTIN LUTHER KING JR PKY
KERR AVE
XING
GREENTREE RD
SAGEDALE DR
KERR AVE
INDICA CT
TABOR LN
CRIMSON CT
SUNGLOW DR
SHORTFIN DR
NEW CENTRE DR



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

Joanne Steenhuis 10/30/2019

- Study Area
- Flag Point (2019)
- Stream (2011)
- Stream (U-3338 PJD)
- Approximate Stream Channel
- Wetland (U-3338 PJD)
- Wetland (Cameron Tract)
- Wetland (2019)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

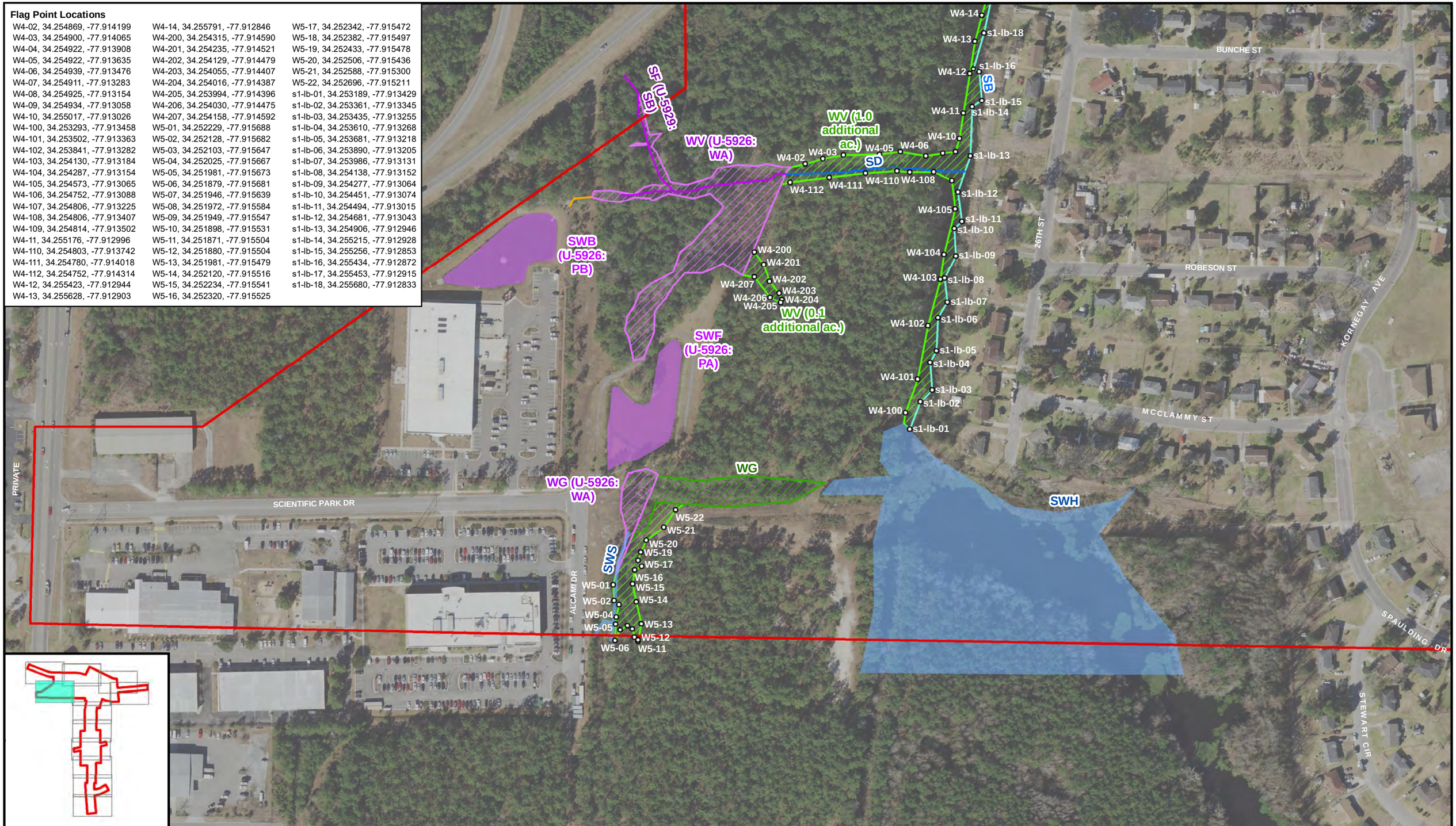
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Div: 3	TIP# U-4434
Date: August 2019	

Figure 3-4

Flag Point Locations

W4-02, 34.254869, -77.914199	W4-14, 34.255791, -77.912846	W5-17, 34.252342, -77.915472
W4-03, 34.254900, -77.914065	W4-200, 34.254315, -77.914590	W5-18, 34.252382, -77.915497
W4-04, 34.254922, -77.913908	W4-201, 34.254235, -77.914521	W5-19, 34.252433, -77.915478
W4-05, 34.254922, -77.913635	W4-202, 34.254129, -77.914479	W5-20, 34.252506, -77.915436
W4-06, 34.254939, -77.913476	W4-203, 34.254055, -77.914407	W5-21, 34.252588, -77.915300
W4-07, 34.254911, -77.913283	W4-204, 34.254016, -77.914387	W5-22, 34.252696, -77.915211
W4-08, 34.254925, -77.913154	W4-205, 34.253994, -77.914396	s1-lb-01, 34.253189, -77.913429
W4-09, 34.254934, -77.913058	W4-206, 34.254030, -77.914475	s1-lb-02, 34.253361, -77.913345
W4-10, 34.255017, -77.913026	W4-207, 34.254158, -77.914592	s1-lb-03, 34.253435, -77.913255
W4-100, 34.253293, -77.913458	W5-01, 34.252229, -77.915688	s1-lb-04, 34.253610, -77.913268
W4-101, 34.253502, -77.913363	W5-02, 34.252128, -77.915682	s1-lb-05, 34.253681, -77.913218
W4-102, 34.253841, -77.913282	W5-03, 34.252103, -77.915647	s1-lb-06, 34.253890, -77.913205
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W4-104, 34.254287, -77.913154	W5-05, 34.251981, -77.915673	s1-lb-08, 34.254138, -77.913152
W4-105, 34.254573, -77.913065	W5-06, 34.251879, -77.915681	s1-lb-09, 34.254277, -77.913064
W4-106, 34.254752, -77.913088	W5-07, 34.251946, -77.915639	s1-lb-10, 34.254451, -77.913074
W4-107, 34.254806, -77.913225	W5-08, 34.251972, -77.915584	s1-lb-11, 34.254494, -77.913015
W4-108, 34.254806, -77.913407	W5-09, 34.251949, -77.915547	s1-lb-12, 34.254681, -77.913043
W4-109, 34.254814, -77.913502	W5-10, 34.251898, -77.915531	s1-lb-13, 34.254906, -77.912946
W4-11, 34.255176, -77.912996	W5-11, 34.251871, -77.915504	s1-lb-14, 34.255215, -77.912928
W4-110, 34.254803, -77.913742	W5-12, 34.251880, -77.915504	s1-lb-15, 34.255256, -77.912853
W4-111, 34.254780, -77.914018	W5-13, 34.251981, -77.915479	s1-lb-16, 34.255434, -77.912872
W4-112, 34.254752, -77.914314	W5-14, 34.252120, -77.915516	s1-lb-17, 34.255453, -77.912915
W4-12, 34.255423, -77.912944	W5-15, 34.252234, -77.915541	s1-lb-18, 34.255680, -77.912833
W4-13, 34.255628, -77.912903	W5-16, 34.252320, -77.915525	



Legend

- Study Area
- Flag Point (2019)
- Tributary WOUS (U-5926 PJD)
- Stream (U-5926 PJD)
- Stream (2011)
- Stream (2019)

Joanne Steenhuis 10/30/2019

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

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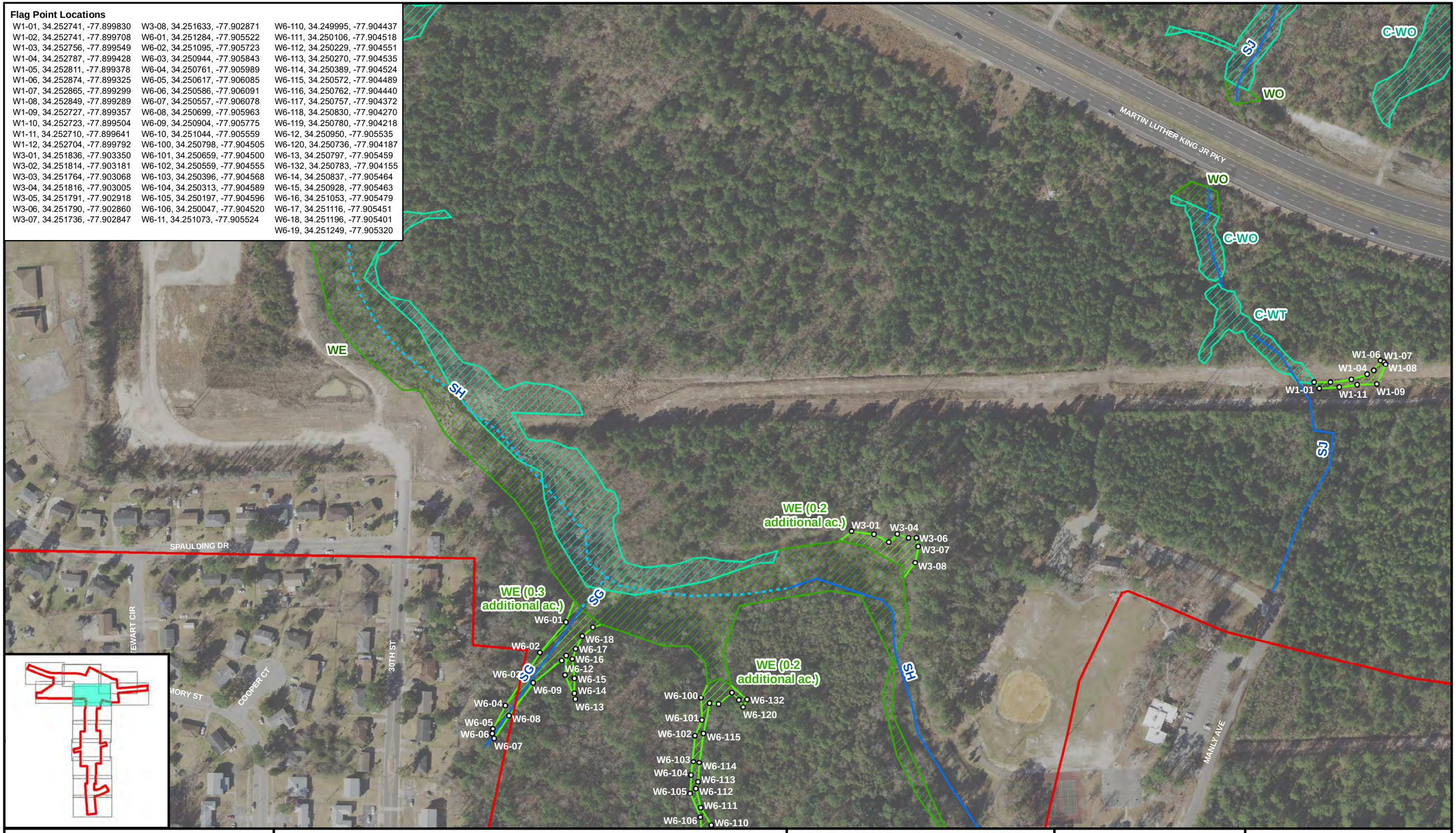
Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-5

Flag Point Locations

W1-01, 34.252741, -77.899830	W3-08, 34.251633, -77.902871	W6-110, 34.249995, -77.904437
W1-02, 34.252741, -77.899708	W6-01, 34.251284, -77.905522	W6-111, 34.250106, -77.904518
W1-03, 34.252756, -77.899549	W6-02, 34.251095, -77.905723	W6-112, 34.250229, -77.904551
W1-04, 34.252787, -77.899428	W6-03, 34.250944, -77.905843	W6-113, 34.250270, -77.904535
W1-05, 34.252811, -77.899378	W6-04, 34.250761, -77.905989	W6-114, 34.250389, -77.904524
W1-06, 34.252874, -77.899325	W6-05, 34.250617, -77.906085	W6-115, 34.250572, -77.904489
W1-07, 34.252865, -77.899299	W6-06, 34.250586, -77.906091	W6-116, 34.250762, -77.904440
W1-08, 34.252849, -77.899289	W6-07, 34.250557, -77.906078	W6-117, 34.250757, -77.904372
W1-09, 34.252727, -77.899357	W6-08, 34.250699, -77.905963	W6-118, 34.250830, -77.904270
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W3-07, 34.251736, -77.902847	W6-11, 34.251073, -77.905524	W6-18, 34.251196, -77.905401
		W6-19, 34.251249, -77.905320



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

Joanne Steenhuis 10/30/2019

- Study Area
- Flag Point (2019)
- Stream (2011)
- Approximate Stream Channel
- Surface Water (2011)
- Wetland (Cameron Tract)
- Wetland (2011)
- Wetland (2019)

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

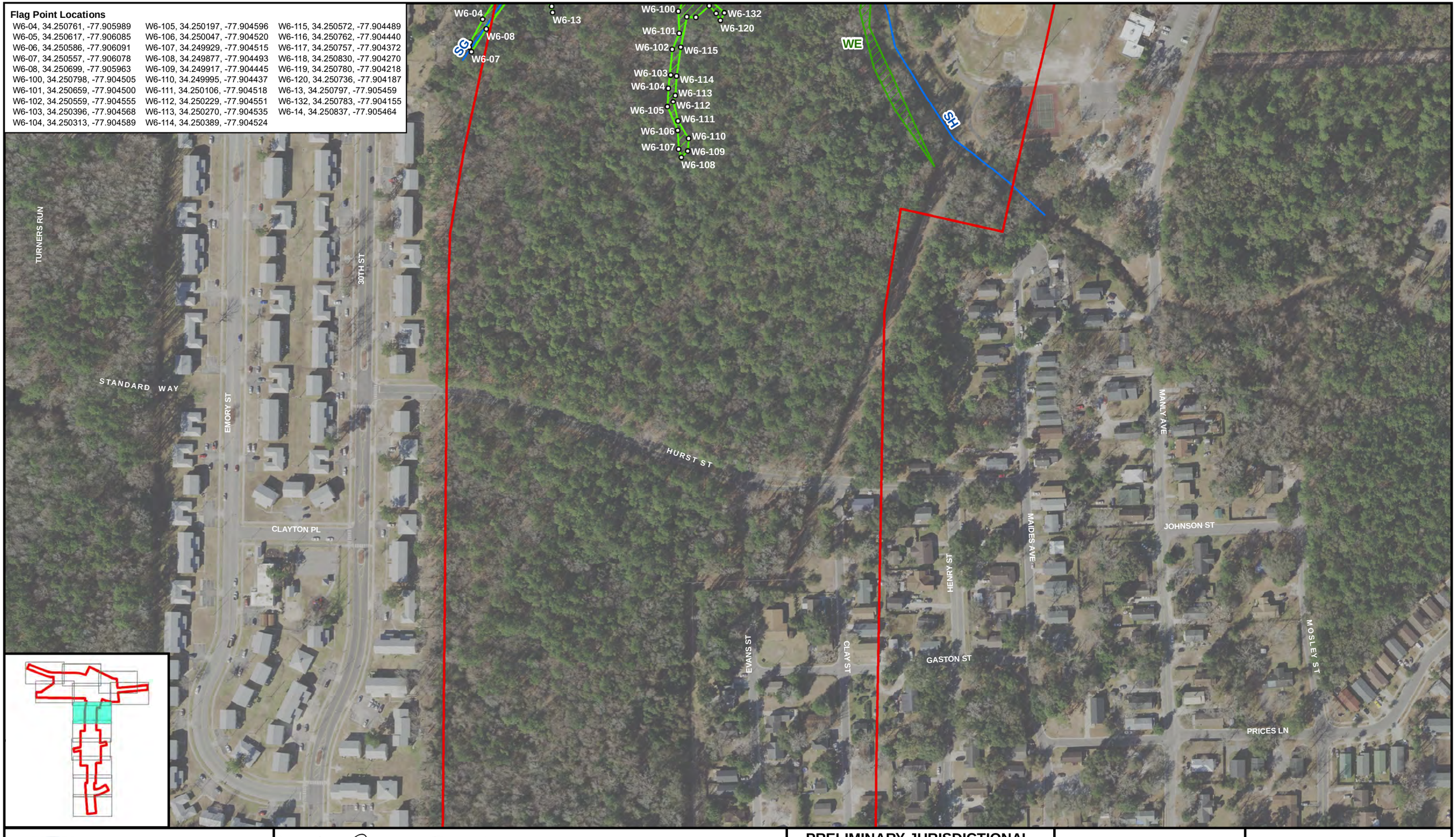
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Div:	TIP#	Figure
3	U-4434	3-6
Date: August 2019		

Flag Point Locations

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W6-05, 34.250617, -77.906085	W6-106, 34.250047, -77.904520	W6-116, 34.250762, -77.904440
W6-06, 34.250586, -77.906091	W6-107, 34.249929, -77.904515	W6-117, 34.250757, -77.904372
W6-07, 34.250557, -77.906078	W6-108, 34.249877, -77.904493	W6-118, 34.250830, -77.904270
W6-08, 34.250699, -77.905963	W6-109, 34.249917, -77.904445	W6-119, 34.250780, -77.904218
W6-100, 34.250798, -77.904505	W6-110, 34.249995, -77.904437	W6-120, 34.250736, -77.904187
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W6-102, 34.250559, -77.904555	W6-112, 34.250229, -77.904551	W6-132, 34.250783, -77.904155
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W6-104, 34.250313, -77.904589	W6-114, 34.250389, -77.904524	



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

Study Area
Flag Point (2019)
Stream (2011)
Approximate Stream Channel
Wetland (2011)
Wetland (2019)

Joanne Steenhuis 10/30/2019

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

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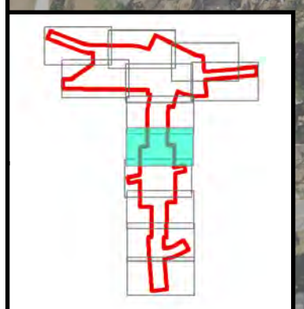
Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-7

Flag Point Locations

EMORY ST
PRICES LN
EVANS ST
MAIDES AVE
MANLY AVE
MOSLEY ST
PRINCESS PLACE DR
CLAY ST
HENRY ST
SYCAMORE ST
30TH ST
PAULINE LN
31ST ST
MONTGOMERY AVE
EVANS ST
WILLOW ST
CHESTNUT ST
LORING ALY



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

Study Area

Approximate Stream Channel

Joanne Steenhuis 10/30/2019

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-8

Flag Point Locations

CHESTNUT ST
LORING ALY
29TH ST
30TH ST
31ST ST
MONTGOMERY AVE
EVANS ST
CLAY ST
HENRY ST
SYCAMORE ST
LYNDON AVE
MARKET ST
PRIVATE
WAYNE DR
MERCER AVE
COVIL AVE
DARLINGTON AVE
LANCELOT LN
SPRING AVE
SK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Stream (2011)
- Approximate Stream Channel

Joanne Steenhuis 10/30/2019

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

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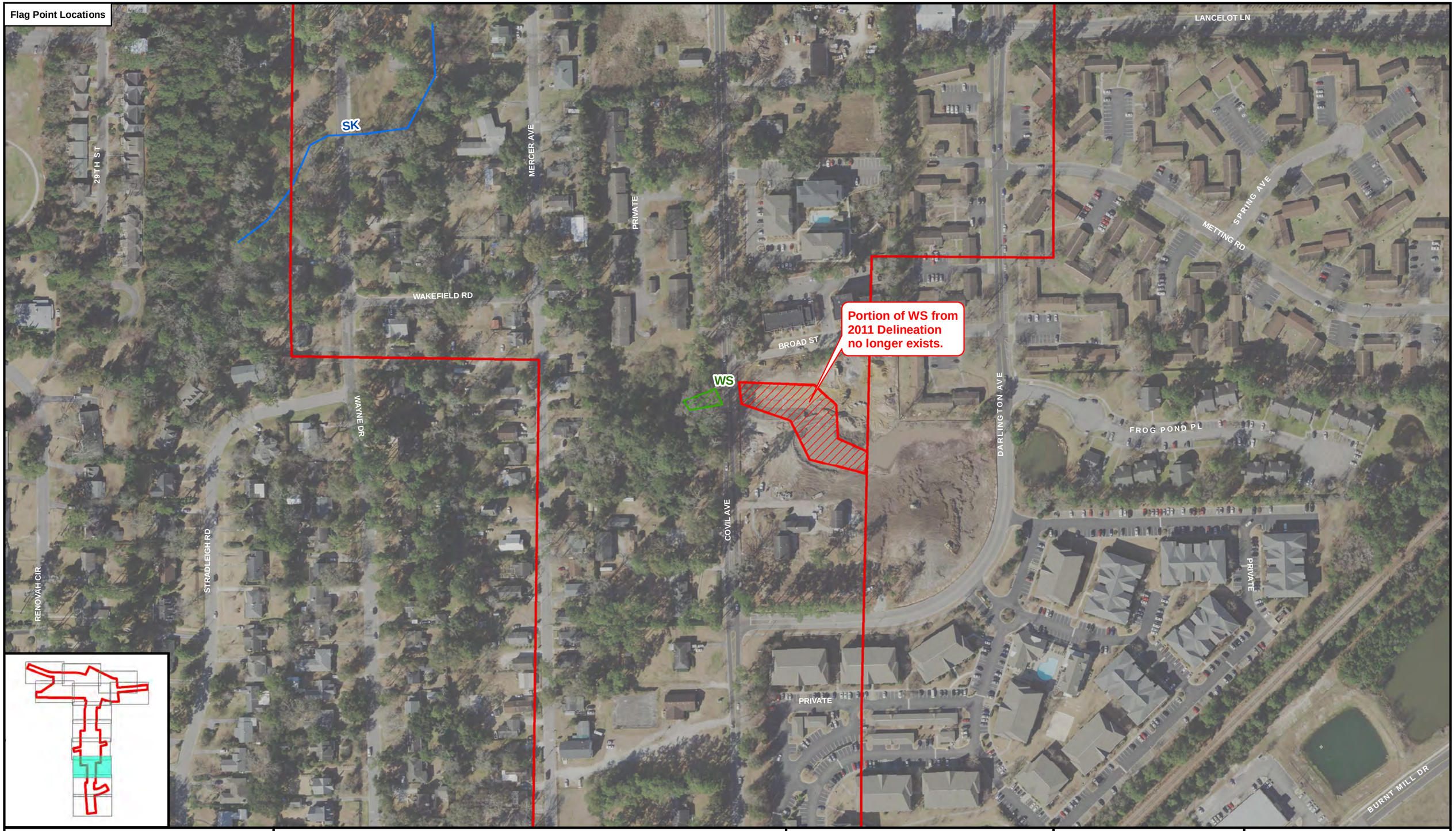
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Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-9

Flag Point Locations



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Stream (2011)
- Approximate Stream Channel
- Wetland (2011)

Joanne Steenhuis 10/30/2019

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

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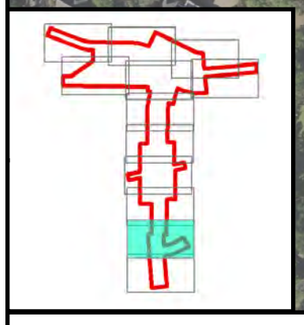
Div:	TIP#
3	U-4434

Date: August 2019

Figure 3-10

Flag Point Locations

RENOVAH CIR
STRADLEIGH RD
WAYNE DR
MERCER AVE
COVIL AVE
PRIVATE
BURNT MILL DR
BRAILSFORD DR
JAECKLE DR
RANDALL PKY
XING
INDEPENDENCE BLV
SWQ
SWR
SL



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Stream (2011)
- Approximate Stream Channel
- Surface Water (2011)

Joanne Steenhuis 10/30/2019

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

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Div:	TIP#
3	U-4434

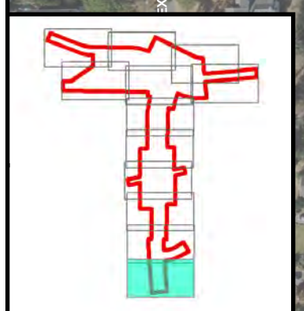
Date: August 2019

Figure 3-11

Flag Point Locations

SL

COLUMBIA AVE
FOREST HILLS DR
MERCER AVE
INDEPENDENCE BLV
CAMDEN CIR
FARMERS ST
MALPASS AVE
ORCHARD AVE
ROSEMONT AVE
WINSTON BLV
ASHLEY CIR
W RIGHTSVILLE AVE
FOREST HILLS DR
PRINCETON DR
HARVARD DR
CASWELL ST
WILSHIRE BLV
LATIMER DR



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Legend

- Study Area
- Stream (2011)
- Approximate Stream Channel

Joanne Steenhuis 10/30/2019

PRELIMINARY JURISDICTIONAL FEATURES MAP

Independence Boulevard Extension
New Hanover County, North Carolina
STIP U-4434

Service Layer Credits: NC Center for Geographic Information & Analysis

0 100 200 Feet

N

Div: 3	TIP# U-4434
Date: August 2019	

Figure 3-12

APPENDIX G

AGENCY CORRESPONDENCE

31823722
January 9, 2004

M E M O R A N D U M

TO: Project File

FROM: Kate Wolfe

SUBJECT: **Report of Wilmington Housing Authority Meeting, January 9, 2004, 3:30 P.M. City Hall, Wilmington, North Carolina. Independence Boulevard Extension Project, New Hanover County. TIP Project No. U-4434.**

ATTENDEES

Joe Blair, NCDOT
Allen Pope, NCDOT
Mark Tinkler, City of Wilmington
John Hatton, Housing and Economic Opportunities, Inc.
Chuck Holden, Housing and Economic Opportunities, Inc.
Dewey Harris
Richard Kirk
Ben Quattlebaum
Emily Swanenger
Hugh Caldwell, City of Wilmington
David Griffin, URS
Kate Wolfe, URS

URS attended a portion of the Wilmington Housing Authority Meeting. The bullet points that follow are not official meeting notes but are instead a summary of the portions of the meeting that were relevant to the Independence Boulevard Extension Project.

- The park has plans to acquire additional property for ball fields at the north end of site.
- Wilmington Housing Authority (WHA) has conceptual plans for housing development.
- WHA has acquired 49 acres of the Winfield-Smith property east of 30th Street. They need to accommodate future housing and to relocate some communities in order to revitalize other properties.
- WHA has assumed that the roadway extension will be located along the right side of Montgomery Avenue.
- Existing properties may need access from 30th Street if Hurst is cut-off by the roadway extension.

- Flyovers and cloverleafs at Princess Place are potential elements of the extension project.
- WHA assumed that the extension project would have a 100-foot right-of-way (ROW); however, the proposal showed the potential for a 150-foot ROW. WHA said that they should be able to accommodate a 150-foot ROW if it is located on the east side of the property.
- WHA wants to know how much additional space would be needed if a cloverleaf is constructed over the railroad crossing north of Princess Place.
- WHA plans to start building in 18 to 24 months. They hoped to have the property purchased by the end of the day on January 9, 2004.
- This land would take care of 70 percent of the Hope 6 requirements assuming a 150-foot corridor for the roadway extension project.
- The property has a 30-foot easement on the east side so WHA is hoping that the 150-foot corridor for the roadway extension project would include this easement.
- There are also utilities in this area.
- The cloverleaf would span over the railroad tracks but could have access under the cloverleaf, if necessary.
- There would be ramps and loops over the railroad tracks that would impact the SW and NE quadrants of property.
- A determination regarding if access is important at Princess Place needs to be determined.
- There has already been some environmental work on this property because there was talk of excavating sand in that area many years ago. The wetlands areas are located north of the planned housing development. The roadway extension project will likely bridge these wetlands.
- The WHA is using Boney Architects and HDR out of Charlotte as their community planning company.
- WHA plans for 135 units under the present zoning conditions.
- Dewey Harris said that he could help with talking to neighborhood associations, churches, and local TV channels to get the word out regarding workshops and public hearings for the roadway project.
- Hurst will likely dead end at the roadway extension. However, one of the roadways could be raised; however, there is the concern that a raised roadway would be unattractive to the residents below.
- A store near the railroad crossing has moved west in anticipation of the project.
- A trumpet interchange is planned at MLK Parkway.
- The WHA has plans to revitalize the South Creekwood Community.
- Controlled access between Princess Place and MLK Parkway is not necessarily unattractive to WHA because it might allow for a more pleasant gated community.
- The WHA and City have regularly scheduled meetings on the first Thursday of every month at 3:30. URS plans to attend the meeting in April.
- John Hatton will send URS their conceptual plan.
- $60 million for Hope 6.

- Park at north end could be 4(f) because it is a planned park.
- Roadway extension alternatives would be designed in April at the earliest.

ACTIONS REQUIRED:

- URS plans to attend the WHA and City meeting on the first Thursday in April at 3:30.
- John Hatton will send URS their conceptual plan.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 8, 2007

PROJECT: Independence Boulevard Extension, Randall Parkway to Martin Luther King, Jr. Parkway, WBS No. 37764.1.1 (U-4434), New Hanover County F. A. Project No.STP-1209(4)

SUBJECT: Redevelopment at the NE and SE Corners of Market Street and Kerr Avenue

ATTENDEES:

Stephanie Ayers, NC State Ports Authority
Bill Bennett, NC State Ports Authority
Layton Bedsole, NC State Ports Authority
David Griffin, URS Corp.
Pete Trecansky, URS Corp
Wade Kirby, NCDOT

David Griffin opened the meeting requesting an introduction of attendees and discussed the purpose of the meeting. The meeting was then turned over to Peter Trencansky.

Mr. Trecansky said URS was developing the Purpose and Need of the project. The project proposes an alternative North South route in Wilmington to College Road. The project is proposed to extend Independence Boulevard form Randall Parkway to Martin Luther King. Independence Boulevard will be part of the Wilmington loop. A portion of the project is on new location and based on the Feasibility Study, approximately 120 to 150 households would be relocated. Because of this, NCDOT has filed a Notice of Intent to complete an Environental Impact Statement (EIS).

NCDOT requested the meeting with the NC State Ports Authority to evaluate whether an intermodal link between the State Ports and the Wilmington Airport could be used as part of the Purpose and Need of the project. Mr. Trecansky expressed concerns the Merger Team may request NCDOT consider widening College Road as a viable alternative.

The Port Authority indicated there was not enough traffic or communication between the Ship Port and the Airport to support this linkage as part of the Purpose and Need of the project.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE:
www.ncdot.org /doh /preconstruct /pe /

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC 27601

The Port Authority said the truckers took either I-140 or MLK Parkway to NC 133 to US 421 to the Port. The Port Authority believed the Skyway Bridge once completed, could be a primary truck route as oppose to coming through downtown Wilmington. They generally felt Independence Boulevard to MLK would not be a viable truck route.

URS asked about the clearance over the railroad tracks. The Port Authority said clearance needed to allow for double stacked containers with one "High Cube Container" allowed. A "High Cube Container" is 8-inches taller then a standard container. The Port Authority said the empty containers go all the way to the West Coast as double stacked. The Port Authority will try to get a clearance height for design.

URS asked the Port Authority if they had any project volumes of railroad traffic. This information would be useful because the Independence Boulevard extension proposes to cross the railroad tracks twice. This information would be used to evaluate the need for grade separation. The northern most crossing will probably require grade separation. The southernmost crossing is more challenging because the grade may not be able to be reduced quickly enough to tie into existing conditions on the south side. The southern tie in may require some reconfiguration of the area. The Port Authority said Billy Helms (corrected after the meeting to Bill Tucker via e-mail), with the Wilmington Terminal Rail Yard, should have information on the train volume.

The Port Authority presented the Long-Range Plan from the Wilmington MPO. The plans show the tracks being re-route to the west side of the Cape Fear River. This would eliminate the two crossings associated with the project.

Following the meeting the Port Authority provided the following information in e-mails from Mr. Bennett and Ms. Ayers:

- Projected Rail growth for the Year 2015 (Sent to NCDOT Rail Division)
- Contact Information for Bill Tucker: (910) 343-0461
- After discussion with the Business Development department, the Ports Authority do not anticipate that there will be any cargo moving in combination water-air via Port of Wilmington (to or from ILM airport).
- The minimum CSX height requirement of 23' 6" is sufficient for moving double stacked containers via rail.

M E M O R A N D U M

August 10, 2007

TO: Project File

FROM: Peter Trencansky

SUBJECT: **Record of Meeting with NCDOT, August 10, 2007. Room 470, Highway Building, 1 Wilmington Street, Raleigh.**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension
Merger Screening Meeting

ATTENDEES
Brian Yamamoto, North Carolina Department of Transportation (NCDOT), Project Development and Environmental Analysis Branch (PDEA)
Wade Kirby, NCDOT, PDEA
Ron Lucas, Federal Highway Administration (FHWA)
Greg Brew, NCDOT Roadway
David Wainwright, North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality (DWQ)
John Merritt NCDOT PDEA Natural Environment Unit (NEU)
Worth Calfee NCDOT PDEA NEU
Peter Trencansky, URS
Jeff Weisner, URS
Duane Verner, URS

Teleconference ATTENDEES
Mason Herndon, NCDOT PDEA Division 3
Jennifer Fry, United States Army Corps of Engineers (USACE)

PURPOSE

The purpose of the meeting was to discuss the applicability of the Merger 01 process to the Independence Boulevard Extension project.

MEETING NOTES

NCDOT opened the meeting stating the purpose is to discuss whether or not the project would benefit from the Merger 01 process. URS followed with a brief history of the project and project constraints as identified by the Environmental Determination Report. URS noted the project would likely require an individual permit and met the threshold for inclusion in the Merger process, but the range of alternatives

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is limited. URS noted impact to the human environment was the major issue in that 80-100 relocations were possible.

With limited alternatives, there is little benefit to include the project in the Merger 01 process. The range of alternatives was limited due to the existing terminus of Independence Boulevard, the existing development, Maides Park and the need for interchange spacing along Martin Luther King Jr. Parkway (MLK).

USACE noted wetlands on a large portion of the Cameron property in the northern section of the study area, south of MLK, had been drained and a jurisdictional determination (JD) was requested for Maides Park. USACE also noted coordination could be handled through the permitting process.

NCDOT suggested a 2A/4A concurrence point meeting to discuss bridging and minimization issues. USACE stated this was not necessary and coordination could be handled through the permitting process. FHWA agreed key issues could be handled through the permitting processes.

NCDWQ and USACE discussed streams in the study area. USACE noted the streams represented standard urban systems already impacted. As such, NCDWQ agreed the project could be removed from the Merger 01 process.

With limited alternatives, NCDOT will evaluate whether the project can be downscoped from Environmental Impact Assessment (EIS) to an Environmental Assessment (EA). In such case, FHWA may have to rescind the Notice of Intent. If the project becomes controversial with the Wilmington Housing Authority, then the EIS could be reconsidered.

Consensus was achieved among the co-chairs to take the project out of the Merger 01 process. The meeting was adjourned.

cc: Attendees
File

M E M O R A N D U M

November 26, 2007

TO: Project File

FROM: Chris Werner

SUBJECT: **Record of Meeting with Wilmington Housing Authority (WHA), November 26, 2007.**
WHA Conference Room
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension
Project Coordination Meeting

ATTENDEES

Glenn Floyd	HEO, Inc
Don Tise	Tise-Kiester
Richard James	Wilmington Housing Authority
Laura Hines	Wilmington Housing Authority
Donna Ray Mitchell	Cole, Jenest & Stone
Windell Daniels	Daniels Development
Anthony Prinz	Wilmington Metropolitan Planning Organization
Wade Kirby	NCDOT Program Development and Environmental Analysis Branch
Brian Yamamoto	NCDOT Program Development and Environmental Analysis Branch
Allen Pope	NCDOT Division 3
Joe Blair	NCDOT Division 3
Peter Trencansky	URS Corporation
Chris Werner	URS Corporation

PURPOSE

The purpose of the meeting was to continue coordination of the Independence Boulevard extension through the Winfield Scott property, owned by the Wilmington Housting Authority (WHA). The meeting included representatives from the WHA, the Housing and Economic Opportunities, Incorporated (HEO, Inc), and NCDOT. The HEO, Inc is a non-profit subsidiary of the WHA and is responsible for managing the development of the Winfield Smith property.

MEETING NOTES

Wade Kirby began the meeting with introductions and followed by a brief project description and history. NCDOT has contracted URS to prepare the Environmental Document for the extension of Independence Boulevard to Martin Luther King Jr. Parkway (MLK). The project will include a full range of alternatives

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with one of the better alternatives being considered traversing the Winfield Smith property. NCDOT would like to maintain coordination with the WHA to minimize possible conflicts between the two projects. Items discussed include the following:

- Allen Pope noted this project is currently not funded for Right of Way acquisition or construction through the Transportation Planning Program (TIP); however, additional funding sources are possible outside of the TIP so the project could start sooner.
- Peter Trencansky reviewed the NEPA Process, identifying the studies which will need to be completed as well as the Agencies which will be participating in the decision making process.
- Glenn Floyd, of HEO Inc., noted direct access to the Independence Boulevard Extension would be desired in order to re-orient the access to the redevelopment project via Hurst Street. Allen Pope replied an access point at Hurst Street is not likely because the grade separation at the railroad crossing and Martin Luther King, Jr. Parkway would prohibit access here. Mr. Pope noted access to Princess Place from Independence Boulevard per the Feasibility Study would be difficult because of the grade separation at the railroad crossing.
- HEO, Inc wanted to secure funding for the Winfield Smith property for September 2008 which means the tax credit would need to be submitted in January 2008. They were considering constructing one larger building with 90 to 100 units on this property. Considering the Independence Boulevard alignment, the front of the building would be changed to face the 30th Street direction. Per a follow up conversation between HEO, Inc and NCDOT, Mr. Floyd indicated they decided not to apply for tax credit for the Winfield Smith property in 2008. HEO, Inc. believed without knowing how Independence Boulevard would traverse the property, funding would likely not be approved. They would proceed with site evaluation including a wetland survey.
- NCDOT is currently in the process of converting MLK to full control of access and no new access points are anticipated. Mr. Windell Daniels noted a new church is to be constructed east of Kornegay Avenue.He did not think the church was aware the right of way control on MLK was to changeand indicated he would inform them.
- Don Tise of Tise-Keister Architects noted their plans currently reserved 100 feet of right of way for the Independence Boulevard Extension. Brian Yamamoto stated the expected four-lane typical section will require a right of way width greater than 100 feet and requested URS to determine and provide the typical right of way width to WHA for incorporation into their future plans. (This has been attached to these minutes.)
- Mr. Floyd asked if moving the Independence Boulevard Extension corridor closer to 30th Street was being considered. Mr. Yamamoto stated that a full range of alternatives would be evaluated and the final corridor would not be selected at least until 2010. No guarantee can be made as to the final location of the Independence Boulevard Extension before then.
- NCDOT anticipates holding a public workshop in the late spring/early summer of 2008 to receive public comment on the concepts/alternatives. NCDOT would also coordinate with the WHA prior to the workshop.
- NCDOT is currently involved in a condemnation lawsuit for a tract of land located within the northern portion of the study area The case is suppose to be reviewed in mid-January so NCDOT anticipates knowing more by then. . NCDOT suggested another reconvening at this time.

cc: Attendees
File

"Devens, Thomas E"
<tedevens@ncdot.gov>
05/17/2011 02:37 PM

To "Peter_Trencansky@URSCorp.com" <Peter_Trencansky@URSCorp.com>, "Mccollum, Ron" <remccollum@ncdot.gov>, "Johnson, Benjetta L"
cc "Mike_Littlefield@URSCorp.com" <Mike_Littlefield@URSCorp.com>, "Michael_Lindgren@URSCorp.com"
bcc

Subject RE: U-4434 Summary of Roadway Design Meeting

History: This message has been replied to.

Thanks Peter. My minor clarifications are in BLUE.
ted

From: Peter_Trencansky@URSCorp.com [mailto:Peter_Trencansky@URSCorp.com]
Sent: Monday, May 16, 2011 7:32 AM
To: Devens, Thomas E; Mccollum, Ron; Johnson, Benjetta L; Sura, Chandrakant C
Cc: Mike_Littlefield@URSCorp.com; Michael_Lindgren@URSCorp.com
Subject: U-4434 Summary of Roadway Design Meeting

All,

Below is a summary of the decisions made at last weeks meeting and a scope for developing the conceptual designs. Please take a look and let me know if you have and questions or additional comments.

Summary of Meeting

Attendees: Ted Devens, Ron McCollum, Benjetta Johnson, Chandrakant Sura, Peter Trencansky, Mike Littlefield

Date: May 10, 2011

A meeting was held to discuss moving forward with functional designs for the Independence Boulevard Extension. Decisions and Action Items from the meeting include the following:

- URS would prepare a scope that would include developing conceptual level designs that include a centerline and assumed slope stakes based on estimated fill height and 3:1 slopes. If feasible the designs will have common breakpoints to minimize the effort of quantifying impacts
- NCDOT and URS will finalize a scope and determine an appropriate manday estimate that can be used against the functional design manday estimate negotiated in Task Order 5
- URS will identify any gaps in the traffic forecast data (such as adjacent intersections along Market Street and the 23rd Street interchange) and make recommendations to NCDOT on how to fill these gaps
- URS will evaluate intersection and interchange options for the Market Street crossing from a traffic standpoint to determine what may be feasible (via quick-ron capacity analysis) prior to developing any functional designs
- Ron McCollum will send the Preliminary Mapping to URS via FTS
- A field visit should be scheduled in the near future to help the project team better understand the

study area and design constraints. Peter and Ted will work to set up the visit and notify the appropriate individuals who should attend . Site visit will attempt to include a meeting with Wilmington Housing Authority.

Scope for Conceptual Designs

The CONSULTANT shall develop up to eight (8) conceptual centerline designs for the Independence Blvd extension component, that meet the design criteria established for the project and will include alternatives that have partial and full control of access. The conceptual designs will include horizontal alignments only for the entire length of the project and profiles and cross sections will not be developed under this scope of work. In addition to the horizontal centerline and slopestakes, edge of pavements will be drawn by offsetting the centerline. For non-controlled access alternatives, centerline and edge of pavements will be drawn for public roadway connections (driveway connections will not be included in the design). To the extent possible, the designs will utilize common breakpoints in order to provide for quantification and comparison of impacts , and for mix-and-match opportunities.

The CONSULTANT shall develop assumed slope stake limits based on estimated height of fill and a 3:1 fill slope (or between 4:1 and 6:1 where the alignment is at-grade). An assumed right-of-way limit will also be established based on offsetting the slope stake limits 25-feet, to account for drainage ditches, construction access and uncertainty due to the level of design. Once right-of-way limits are established, the CONSULTANT will develop a summary of relocations, including categorizing business and residential relocations separately. Parcels that will lose access will also be identified for each alternative and summarized.

The deliverable for the conceptual designs will be 3' x 6' roll plots showing the design (centerline, edge of pavements, slope stakes and R/W), relocations (reloaction pacels shaded), base mapping, aerial photography and a matrix summary of impacts for each of the eight (8) alternatives.

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M E M O R A N D U M

July 14, 2011

TO: Ron McCollum

FROM: Peter Trencansky

SUBJECT: **Record of Meeting with NCDOT, July 14, 2011**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension

ATTENDEES
Ron McCollum, NCDOT
Peter Trencansky, URS
Mike Littlefield, URS

PURPOSE

The purpose of the meeting was to discuss the Functional Design Guidelines for the Independence Boulevard Extension project.

MEETING NOTES

Peter opened the meeting stating the purpose is to discuss the details of the functional design submittal including approval of the proposed design criteria. The following bullets are representative of the details discussed.

- Ron will review the proposed design criteria submitted by URS for approval. His review will be limited to the –L- line (Independence Blvd.)
- URS will provide typical sections for –L-, -Y2- (Randall Parkway), -Y6- (Market Street), -Y10- (MLK), and other unnamed –Y- line side streets where the quadrant interchange ramps tie. Typical sections are not needed for ramps and loops.
- URS will use GEOPAK automated superelevation for –L- and –Y- lines. Superelevation calculations are not required.
- URS will design alignments with spirals, excluding curves with a curvature of less than 4 percent and on curb and gutter sections. Horizontal curve lengths will be at least as long as the spirals in the same curve.
- URS will show turn lanes based on the preliminary capacity analysis results
- URS will show full curve data (properly grouped for spirals) on the plan sheets
- URS will provide vertical clearance calculations using the minimum number of points needed to show adequate clearance
- URS will use three points to calculate gores. Detailed gore calculations are not required.
- URS will include the sizing of any culverts 72 inches and greater in its manday estimate and quantities.

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- URS will not show station equalities on the plan or profile view for horizontal and vertical ties.
- URS will not show guardrail on the plan sheets, but will include widening for guardrail on the cross sections where guardrail is required.
- URS will show all grade separated crossings in the profile sheets.
- URS will tie all proposed profiles to within 0.5% of the existing profile grade and tie directly to existing ground. A detailed description of the tie point is not required.
- URS will provide PDF's and the DGN files for all cross section sheets.
- URS will run –L- and ramp cross sections separate from one another. The superelevation shapes from –L- will be displayed in the ramp cross sections and vice versa. In areas such as the tight urban diamond interchange, URS will run ramp cross sections on the same pattern line / cell / cross section file as –L-.

cc: Attendees
File

M E M O R A N D U M

August 26, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

SUBJECT: **Final Record of Meeting with Wilmington Housing Authority, August 10, 2011**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension

ATTENDEES

Michael Krausse	Wilmington Housing Authority (WHA)
Adrian Early	WHA
Glenn Floyd	WHA
Allen Pope	North Carolina Department of Transportation (NCDOT) – Division 3
Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Mike Kozlosky	Wilmington Metropolitan Planning Organization (WMPO)
Peter Trencansky	URS Corporations

PURPOSE

The purpose of the meeting was to continue coordination with Wilmington Housing Authority than began in 2004 and 2007.

MEETING NOTES

Ted opened the meeting stating the purpose of the meeting was to discuss the Wilmington Housing Authorities ongoing and future plans in the vicinity of the Independence Boulevard Extension. The following bullets are representative of the details discussed.

- WHA stated that they had recently applied for a $5 million federal grant to build an Educational Resource Center on the portion of the Winfield-Smith property south of Hurst Street. The center would be utilized for community activities such as the Headstart program, etc. and would serve the community as a whole. Conceptual architectural site plans (attached) for the site, as well as the site north of Hurst were provided to NCDOT and WMP by WHA.
- WHA had submitted a previous grant application for the first round of funding and were unsuccessful; however based on subsequent meeting with Housing and Urban Development (HUD) they were cautiously optimistic about getting a grant during the second round of funding. The anticipated announcement of the grant awards is for the end of September 2011.
- WHA stated that if the grant application was successful that construction of the facility would have to be completed in 18 months. WHA noted that they currently only have a site plan and rough floor plans and that design of the facility had not been undertaken. WHA also noted that

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there had been some preliminary discussions on partnering with local governments to provide recreational amenities on the property, in the form of walking trails, etc.

- WHA stated that they currently did not have imminent plans for the portion of the parcel located north of Hurst Street.
- WHA stated that they (as well as HUD) would have some concerns with developing the property if there would be an elevated roadway adjacent to the development.
- WHA stated that they would maintain ownership of the entire parcel and that it was not anticipated that any of the recreational elements would be considered public parks or recreation areas. NCDOT noted that parks are considered Section 4(f) resources and area planning constraint. WMPO stated that it was not likely that the City would designate the walking trails as a park.
- WHA also stated that Creekside South was undergoing a $13 million renovation, including the interior and exteriors of all of the units, with completion slated for December 31, 2012. The renovations would not change the physical footprint of the development and WHA would consider the property to be a planning constraint.
- WHA also confirmed that they had a development at the intersection of Covil Avenue and Broad Street known as the Robert S. Jervay-Covil development, which consists of 14 units, with 11 for public housing and 3 are eligible for Section 8.
- NCDOT stated that conceptual design was underway and that functional designs would likely begin development in the fall of 2011. NCDOT re-affirmed that there would not likely be access from Independence Boulevard to Hurst Street and that an overpass was being considered at the crossing, with Hurst Street remaining open under the overpass.
- NCDOT also re-affirmed that the railroad crossing would be grade separated and that the likely right-of-way width at the southern end of the Winfield-Smith property would be in the range of 350-400 feet wide. NCDOT also stated that the right-of-way width throughout the parcel would be 150-200 feet with slightly more needed at the Hurst Street grade separation.
- It was agreed that additional coordination would be needed in the future and that NCDOT would coordinate with WHA as we begin functional design development. WHA will contact Mike Kozlosky at the WMPO to let him know the outcome of the grant application. WMPO will provide this information to NCDOT.

cc: Attendees
File

M E M O R A N D U M

August 26, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

SUBJECT: **Record of Meeting on Conceptual Design, August 25, 2011**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension

ATTENDEES

Brian Yamamoto	NCDOT – Project Development & Environmental Analysis (PDEA)
Ted Devens	NCDOT – PDEA
Ron McCollum	NCDOT – Roadway Design Unit
Chandrakant Sura	NCDOT – Transportation Mobility and Safety
Matt Carlisle	NCDOT – Transportation Mobility and safety
Peter Trencansky	URS Corporations

PURPOSE

The purpose of the meeting was to continue discussion on the conceptual design of the project and discuss potential intersection treatments and the typical section for the project.

MEETING NOTES

Ted opened the meeting stating the purpose of the meeting was to discuss the conceptual design and provide URS with guidance on how to move forward with completing the conceptual design. The following bullets are representative of the details discussed.

- The first topic of discussion related to confirming the recommendations for grade separated crossings at the two railroad crossings. Peter Trencansky stated that there were currently two trains a day, which translates to an exposure rate of 85,200, which is more than 2.8 times the threshold for grade separation. All attendees agreed that moving forward with both crossings as grade separated was the most appropriate solution.
- The group concluded that for quadrant intersections designs, the need exists for a high level of access control on any quadrant intersection connector roads – either limited or full control – in order to maintain long-term capacity. Connector roads will require turn lanes, as appropriate, where they connect to Independence and Market. The group also identified a possible/probable need for three-lanes on the connector roads where any left-turn movements may occur, with monolithic islands to control access.
- The next topic related to the potential for an at-grade intersection at Market Street. Previous capacity analysis has shown that a conventional at-grade intersection would not work. URS completed a conceptual capacity analysis of an at-grade quadrant configuration that showed that

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the capacity was at the very upper threshold of being operational in the design year. Based on a conversation the following reasons were identified for eliminating the at-grade quadrant intersection option:

- Traffic capacity was at the upper limits of LOS acceptability, with several intersections having movements that had volume to capacity (v/c) ratios greater than 1.0. This was a concern especially due to the area being a high growth area and that the forecast would be redone in the future with a design year of 2040 – which will likely increase volumes above the existing forecast.
- That the footprint and access control impacts of an at-grade quadrant would be similar to designs for a grade separated quadrant configuration or interchanges, especially if the quadrant connector ramps had a higher level of access control.
- The at-grade design is not consistent with the Market Street Corridor Study, which recommends a grade separation at Independence.
- Simulation of the traffic analysis in SimTraffic showed traffic queues backing up from quadrant connector roads onto Independence Boulevard.
- Without a grade separation, it would be more difficult to include the acceleration and deceleration lanes onto Independence, that were shown to be needed by the capacity analysis, due to the quadrant ramps being located in close proximity to the main at-grade intersection.
- An at-grade quadrant would not be as safe as grade separated options due to the greater number of conflict points for the at-grade configuration.

- Similarly, a list of reasons to potentially eliminate the grade separated quadrant configuration were developed, including:
  - Impacts may be of similar magnitude as interchange options and could be greater depending on the level of access control along the quadrant ramps
  - Capacity would be better than the at-grade options, but not as good as for an interchange.
  - May cause the closure of several of the north-south roadways parallel to Independence in order to allow the quadrant ramp connections
- The group discussed specific locations for grade separations, and determined that designs for the extension must include grade separations at the following locations:
  - Two RR Crossings (due to exposure index)
  - Market Street (see reasons to eliminate an at-grade design, above)
  - Princess Place (because of proximity to RR crossing)
  - Hurst Ave - lies in a very short project section between elevated highway bridges at the interchange at MLK and the grade separation at the RR and Princess Place that would not allow for adequate distance to provide access
- Substantial discussion revolved about which typical sections to study. Capacity analysis dictates that at least a 6-lane curb and gutter design with median is necessary for an at-grade crossing at Market Street; yet a 4-lane, median divided highway will work for a shoulder section without numerous at grade intersections. Early conceptual designs have provided alignments and footprints for both typical sections – to generate preliminary impact calculations with the hope of eliminating some. The following observations were made:

  - Between Market and MLK: Due to the grade separations at Market, Princess Place, RR crossing, and MLK interchange and due to the short length of the segment, it is apparent that nearly the entire length of the segment will be elevated.
  - Between Randall and Market: Due to the grade separations at the RR crossing and a grade separation at Market and due to the short length of that segment, it is apparent that the a majority of the length of the segment will be elevated.
  - If nearly the entire Independence Blvd is elevated: For connections, reasonable bike grades, and for easy ADA compliance, it is preferable to have bike/ped accommodations at normal grade – which implies using a shoulder typical section at the top.
  - The difference in footprint of a 6-lane C&G section with 23-foot median, as compared to a 4-lane w/ 46-foot median, is only one-foot. However, a 6-lane cross-section does not "work" according to its normal functions, based on several factors:
    - Since it is established the highway will be elevated, curb and gutter (usually for driveways and adjacent street connections) does not make sense.
    - The extra cost for six lanes of pavement is not warranted, when traffic can be carried by four lanes on a median-divided shoulder section.

- Based on these discussions the following preliminary decisions were made, subject to coordination with the third tri-manager, the Division 3 engineer:
  1. Both railroad crossings would be grade separated due to the exposure index being exceeded
  2. NCDOT will eliminate all at-grade alternatives at Market Street and move forward with only grade-separated alternatives
  3. NCDOT will maintain the grade separated quadrant configuration throughout the conceptual design phase.
  4. Based on the constraints within the corridor that essentially the entire project would be elevated; a six-lane curb and gutter typical section is not viable
  5. A four-lane elevated boulevard with a 46-foot depressed grass median would be the typical section used for the project.
  6. Chapter 2 of the DEIS will show all conceptual designs that are being considered,. Based on alternative eliminations at conceptual design stage, the document will then show what moved into functional design and what was subsequently removed (or added) at that time. The same for preliminary design.
  7. Once the traffic projection is updated, more refined capacity analysis will occur for interchange and grade-separated quadrant intersection options – at Market St.

cc: Attendees
File

M E M O R A N D U M

October 07, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

SUBJECT: **Record of Meeting with NCDOT Project Team, October 03, 2011 State Project 37764.1.1 (TIP U-4434) Independence Boulevard Extension, New Hanover County**

ATTENDEES

Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Ron McCollum	NCDOT – Roadway Design Unit
BenJetta Johnson	NCDOT – Congestion Management Unit
Chandrakant Sura	NCDOT – Congestion Management Unit
Peter Trencansky	URS Corporations

PURPOSE

The purpose of the meeting was to continue the ongoing review of the conceptual design plans and associated traffic capacity analysis with the goal of making recommendations on which alternatives to carry forward to functional design.

MEETING NOTES

Note: The naming convention for the quadrant interchanges was revised at this meeting, The draft meeting minutes included a full summary of the meeting based on the naming convention prior to meeting, with the new naming convention being included using track changes. Once the minutes were reviewed, the final meeting minutes accepted all changes such that the new naming convention will be included moving forward.

Ted opened the meeting stating the purpose of the meeting was to discuss the conceptual design drawings for the Independence Boulevard Extension. The goal was to provide input to URS such that the design drawings could be revised and re-submitted to NCDOT for final review prior to the alternative selection meeting.

The following bullets are representative of the details discussed.

- The project team re-iterated the prior decision that at-grade quadrant intersection would be eliminated due to inadequate traffic operations.
- The group discussed the quadrant interchange layouts, with the following items being discussed:
    - That the quadrant naming convention should be revised such that quadrant A is in the top right corner of the plan sheets as it follows the –L- alignment.

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- That the operations results for all of the quadrant configuration with left-overs on Independence Boulevard were relatively poor and included queuing along Independence Boulevard. It was agreed to by the team that the recommendation be made that the **left-over options along Independence Boulevard should not be carried forward to the functional design stage**.
- Quadrant D (with AD and BD combinations)
  - Does not operate as well as the other quadrants from a traffic standpoint
  - Very heavy left turn movement from Eastbound Market Street to Northbound Independence Boulevard. May eventually require triple left turn lanes.
  - Substantially higher impacts than other quadrant options
  - Impacts minority community
  - Not consistent with Market Street Corridor Study
  - A connection opposite Darlington Avenue would create an 8-phase signal with very high volumes
  - Quadrant AD travel time double the other options and had some spillback along Market Street
  - **Recommended that Quadrant AD and BD combinations be eliminated**
- Quadrant B (With BC combination) (BD combination eliminated above)
  - Design should be revised such that it does not close Wayne Street, if possible.
  - Eastern alignments require realignment of Darlington Avenue (in quadrant C) and Western alignments cause closure of Wayne Street
  - A connection at the existing Mercer Avenue intersection would allow for a 3-leg intersection at Market Street, improving the traffic operations substantially
  - Would be consistent with Market Street Corridor Study
  - Team felt that the **BC combination was very strong and should be recommended as an alternative that is carried forward to the functional design stage**
- Quadrant A (with AC combination, AD combination eliminated above)
  - Maintaining access to 30th Street would be more difficult with this configurations, especially the further west the alignment is located
  - For western alignments, 30th Street would need to be realigned to connect to 29th Street
  - Team felt that **AC combination had enough positive attributes that it could be recommended as an alternative that is carried forward to functional design depending on the centerline alignments that are chosen.**

- The group also discussed the two interchange options as follows:
  - Diverging Diamond Interchange (DDI)
    - Works from a capacity standpoint, but there are some concerns with the tight footprint and cars potentially queuing within the interchange.
    - Average travel time is longer (37% longer than TUDI for PM Peak, similar for AM Peak)
    - Consistently causes greater impacts than the TUDI or quadrant options
    - Conceptually requires control of access further along Market Street
    - Team felt that the recommendation should be made that the **DDI should not be carried forward to functional design.**

  - Tight Urban Diamond Interchange (TUDI)
    - Worked well from a traffic operations standpoint
    - Had fewer impacts than DDI interchange, but was generally higher than quadrant options.
    - Team felt that the recommendations should be made that the **TUDI should be carried forward to functional design**
- The group discussed the interchange options at Martin Luther King Jr. Parkway and the project team agreed that the 50 mph flyover design should be included in the functional design stage of the project. NCDOT policy dictates that the driver expectation is for a higher speed connection, consistent with a 50 mph design. Minimization to a lesser design speed or bridging will be considered at a later date if environmental constraints are substantial.

MEETING RECOMMENDATIONS

The following recommendations will be made by the project team when the alternative selection meeting is held with Division 3 and Wilmington MPO staff:

- Quadrant option AC should be carried forward to functional design depending on the centerline alignment selected
- Quadrant Option BC should be carried forward to functional design
- Eliminate Quadrant Options AD and BD from further study
- Tight Urban Diamond Interchange should be carried forward to functional design
- Eliminate Diverging Diamond Interchange from further study
- Trumpet interchange with 50 mph design speed be carried forward to functional design
- All at-grade quadrant options and grade separated quadrants with left-overs along Independence Boulevard should be eliminated

ACTION ITEMS

- URS to re-run capacity analysis to try to eliminate any individual movements that operate at LOS E or F.
- URS to develop additional analysis of 3-leg option for quadrant BC option that can be utilized with Eastern Alignments
- URS to develop a graphic that shows the individual movement LOS for each configuration being evaluated
- URS to update Conceptual Design Plans based on NCDOT input and re-plot designs with relocations shown. Provide NCDOT with 1 set of revised plans
- URS to update impact matrices based on design revisions
- URS to re-designate quadrant naming convention on all elements of the analysis
- URS to provide meeting summary to attendees

cc: Attendees
File

M E M O R A N D U M

October 27, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

SUBJECT: **Record of Meeting with NCDOT Project Team,**
October 26, 2011
State Project 37764.1.1 (TIP U-4434)
Independence Boulevard Extension, New Hanover County

ATTENDEES

Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT - Project Development & Environmental Analysis (PDEA)
Ron McCollum	NCDOT – Roadway Design Unit
Gary Lovering	NCDOT – Roadway Design Unit
BenJetta Johnson	NCDOT – Congestion Management Unit
Chandrakant Sura	NCDOT – Congestion Management Unit
Chris Werner	URS Corporation
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to continue the ongoing review of the conceptual design plans and associated traffic capacity analysis with the goal of making Project Team recommendations on which alternatives to carry forward to next stage in design phase. The recommendations would then be presented to Wilmington MPO and Division 3 staff at a future meeting for their input.

MATERIAL ATTACHMENTS

For documentation purposes, several attachments are pertinent to these minutes. These items presented information which was discussed as a material part of decision-making:

- Meeting Agenda
- Quantitative Comparison of Alternatives - matrix
- Qualitative Comparison of Alternatives – two different matrices

MEETING NOTES

Ted opened the meeting stating the purpose of the meeting. Peter then distributed the agenda for the meeting and began by summarizing the conclusions from project team meetings held on 7/5/2011, 8/25/2011 and 10/3/2011 as outlined on the attached agenda.

Peter also reviewed the updates to the capacity analysis, including the evaluation of quadrant configuration BC with three-leg intersections at Market Street. The evaluation showed that the average delay would be reduced by approximately 10 seconds if the intersections had a three-leg configuration. BenJetta and Chandrakant re-affirmed their conclusions from the 10/3/2011 meeting that the Tight Urban Diamond Interchange (TUDI), Quadrant BC and Quadrant AC were the most desirable and that the Diverging Diamond Interchange (DDI), Quadrant AD, and Quadrant BD were less desirable.

Prior to beginning the selection process Peter reviewed the environmental constraints within the study area and stated that the field delineations that were ongoing were very consistent with those shown on the environmental features map, with the following exceptions:

- The wetlands in the southeast quadrant of the Randall Parkway/Independence Boulevard intersection were much less than those shown in the GIS database due to the recent development in the area.
- A small wetland pocket was identified along both sides of Covil Avenue slightly south of the Broad Street intersection
- The wetlands on the Wilmington Housing Authority parcel were determined to not be wetlands during the delineation process

Following the review of the decisions from previous meetings and the environment features, the team began the process of selecting which alternatives would be carried forward to preliminary design.

The following items are representative of the details discussed.

<u>Market Street Interchange Alternatives</u>

- The project team re-affirmed the prior decision from the 10/3/2011 meeting that the general TUDI, Quadrant AC and Quadrant BC would be carried forward in the evaluation of alternatives. Each of the interchange options would be considered for the each of the alignments selection in the next section, with a final determination made for each combination of alignment and interchange type.

<u>Selection of Alignment Alternatives to Carry Forward</u>

- The evaluation of alignment began by comparing the alignments that had similar attributes, including:
    - Covil Avenue Corridors (Alternatives 1, 2, 3 and 5) – those that follow or closely parallel the existing Covil Avenue and Montgomery Avenue alignment, and would essentially replace the existing roadway with the proposed extension
    - Mercer Avenue Corridor (Alternatives 4 and 8) – those that follow or closely parallel the existing Mercer Avenue Corridor
    - New Location Corridors (Alternative 6 and 7) – those that would be located between Covil Avenue and Mercer Avenue and would maintain substantial portions of the existing roadways

- The evaluation included both quantitative evaluations based on the impacts presented in the impact matrices and qualitative evaluations based on the effects denoted on the *Qualitative Alternatives Comparison*.

<u>Covil Avenue Corridors (Alternatives 1, 2, 3 and 5)</u>

- The corridors were compared and the positive and negative attributes of each corridor were discussed. Based on the comparison it was determined that the **Alternative 2 alignment was preferred** over the remaining three alignments due to the following reasons:
    - Better alignment to accommodate traffic control of Randall Pkwy intersection improvement

  - Less impact to east side of Covil
  - Reduces Multi-family residential impacts
  - Abuts east side of Wilmington Housing Authority parcel
  - Has a more compact footprint between Market Street and Princess Place and affects fewer blocks of houses, leaving more complete blocks parallel to the corridor
  - Does not have any relocations in Section C
  - Does not conflict with power line in Section C
- It was also recommended that additional evaluation of the parcels south of Market Street be conducted to determine the feasibility of providing access to the areas that would become landlocked by the project

Mercer Avenue Corridors (Alternative 4 and 8)

- The corridors were compared and the positive and negative attributes of each corridor were discussed. Based on the comparison it was determined that the **Alternative 8 alignment was preferred** over Alternative 4 due to the following reasons:
  - Maintains more of the Mercer Avenue alignment and provides access to Randall Parkway
  - Abuts the western edge of the Wilmington Housing Authority property instead of splitting the parcel into two pieces, likely leaving the parcel undevelopable
  - Has substantially lower overall impacts than Alternative 4.
  - Alternative 8 is among those alternatives with the lowest overall impacts.

New Location Corridors (Alternatives 6 and 7)

- Both alignments are very similar to each other, with the maximum distance separating the centerlines being less than 35 feet. After a review and comparison of the alignments it was determined that the **Alternative 7 alignment was preferred** over Alternative 6 due to the following reasons:
  - Alignment was slightly better.
  - Fewer impacts
  - Allowed for more of Covil Avenue to remain open due to the alignment being slightly to the west
  - Alternative 7 has the lowest overall impacts of any alternative.

Review of Interchange and Alignment Combinations

- Each of the three alignments (Alternatives 2, 7 and 8) were evaluated based on the three interchange options at Market Street (TUDI, Quadrant AC, Quadrant BC) with the following conclusions being agreed to by the project team:
  - Alternative 2 and 7 were determined to be acceptable for all three interchange options at Market Street
  - Alternative 8 was determined to be acceptable for the TUDI option at Market Street
  - Alternative 8 with the Quadrant AC and BC were discussed and the following concerns were raised by the project team:
    - Quadrant AC would require the relocation of the Econo Lodge or result in an offset intersection at Market Street due to the existing location of the Market Street intersection with Wayne Avenue
    - Quadrant BC would require the closure of the Wayne Street intersection at Market Street, resulting in a re-routing of traffic to Colonial Drive, a detour of about 1.3 miles.
- Following the discussion of combinations it was determined that all three interchange options for each of the three alignments would be carried forward at this point and presented at the meeting with the Division 3 and MPO staff. A determination on whether or not to eliminate any of the quadrant alternatives for Alternative 8 would be made at that meeting.

Discussion of Next Steps

Following the selection of alternatives to carry forward, the team discussed the next steps in the project with the following outcomes:

- That the information presented to the Division/MPO should focus more on what alternatives we are recommending than taking them through the entire process. A brief summary of the decisions will be included but the majority of the time should be spent on discussing the options recommended
- During further design efforts, the selected conceptual designs can be modified slightly to include some additional detail needed to develop construction costs. The current conceptual designs would be considered to be to the level of functional design
- Construction cost estimates would be prepared for all alternatives and right-of-way cost estimates would be requested for the TUDI options for Alternatives 2, 7 and 8. Update TIP cost estimates accordingly.
- The alternatives screening report will be prepared and include an extensive discussion of the alternatives selection process documenting the decisions of the project team meetings held to date.
- It was agreed that a meeting with local governments would be held prior to the public workshop to prepare the locals and give them a better understanding of the proposed alternatives. Bicycle and Pedestrian accommodations will need to be determined, through coordination with Bob Mosher in the NCDOT Bicycle and Pedestrian Division, prior to preliminary designs being developed.
- The evaluation of noise impacts and mitigation was discussed and it was determined that the noise study would be conducted between the development of the preliminary designs and the corridor public hearing. It was also recommended that Greg Smith be invited to attend the Citizen's Informational Workshop due to the likely concerns with noise.

MEETING RECOMMENDATIONS

The following recommendations were agreed to by the project team and will be presented when the alternative selection meeting is held with Division 3 and Wilmington MPO staff:

- Alternatives 2, 7 and 8 are recommended to be carried forward with the TUDI, Quadrant AC and Quadrant BC options at Market Street for each alignment
- Trumpet interchange with 50 mph design

cc: Attendees

Meeting Agenda

Independence Boulevard Extension
STIP Projects No. U-4434

Project Team Meeting
October 26, 2011

Meeting Purpose

Determine Project Team recommendations on which alternatives to carry forward to next stage in design phase. The recommendations will be presented to Wilmington MPO and Division 3 staff at a future meeting for their input.

Meeting Agenda

- Review of July 5, 2011 Project Team Meeting
    - Feasibility Study included a six-lane roadway with an at-grade intersection at Market Street
    - Traffic Forecasts were prepared for several typical sections and interchange configurations at Martin Luther king Jr. Parkway
    - Team determined that forecast "Build B" was the most appropriate forecast for use in evaluating the alternatives for the project
- Review of August 25, 2011 Project Team Meeting Findings
    - Capacity analysis developed for two cross-sections based on the projected traffic volumes:
        - If the highway is at-grade (which would involve signals), then a 6-lane median-divided facility could not accommodate the projected "Build B" volumes.
        - If the highway is elevated or otherwise does not have signalized intersections, then a 4-lane median-divided facility is appropriate.
    - Confirmed that both railroad crossings would be grade separated
    - Conventional at-grade intersection at Market Street would not work from a capacity standpoint
    - At-grade quadrant intersection would not work due concerns with capacity, queuing of traffic on Independence Boulevard, inability to accommodate acceleration and deceleration lanes and inconsistency with Market Street Corridor Study
    - Quadrant designs would need high level of access control – either limited or full control
    - Grade separation required at the following locations: both railroad crossings, Market Street, Princess Place, Hurst Avenue and Martin Luther King Jr. Parkway.
    - Based on above findings, it was determined that most of the new highway must be elevated as it advances northward from the Randall Parkway intersection.
    - Four-lane median divided typical section with a 46-foot median and open shoulders was determined to be the appropriate typical section
- Review of October 3, 2011 Project Team Meeting Findings
    - Quadrant Option AC should be carried forward to functional design depending on the centerline alignment selected
    - Quadrant Option BC should be carried forward to functional design
    - Eliminate Quadrant Options AD and BD from further study
    - Tight Urban Diamond Interchange should be carried forward to functional design
    - Eliminate Diverging Diamond Interchange from further study
    - Trumpet interchange with 50 mph design speed be carried forward to functional design

    - All at-grade quadrant options and grade separated quadrants with left-overs along Independence Boulevard should be eliminated
- Review newer Capacity Analysis runs of connection alternatives at Market St
- Selection of Alternatives to Carry Forward based on the Market Street Intersection Alternatives
- Review Environmental Features
- Selection Alignment Alternatives to Carry Forward
- Review of Intersection and Alignment Alternative Combinations
- Final Selection of Alternative Combinations to Carry Forward
- Discussion of Next Steps
    - Validate Conceptual Designs
    - Meet with Division 3 Engineer and MPO to formally select alternatives to carry forward
    - Develop Construction Cost and Right-of-Way Estimates
        - Unit-Length ($/lf) Cost comparison of retaining wall options, for future reference
    - Develop Traffic Forecast Update
    - Draft NRTR (fieldwork closely validates existing environ. features mapping south of MLK)
    - Develop Draft Alternatives Screening Report
    - Determine Bicycle and Pedestrian Accommodations (Prior to Preliminary Design)
    - Present Conceptual Designs to Wilmington and New Hanover County
    - Present Conceptual Designs to Public at CIW #2
    - Begin to Develop Preliminary Design Plans
        - Develop auxiliary lanes along MLK

STIP U-4434 Conceptual Design Impact Summary

Alternative 1 Impacts

Description: Symmetric widening of Covil Avenue and Montgomery Avenue

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	40	83	8	1	**132**	**120**	43	4	2.92	1.45	2 / 460	0 / 0.00	☐	☐
TUDI	379	417	398	31	83	8	1	**123**	**113**	44	4	2.92	1.45	2 / 460	0 / 0.00	☐	☐
Quadrant AC	563	375	469	29	71	8	1	**109**	**101**	43	4	2.92	1.45	2 / 460	0 / 0.00	☐	☐
Quadrant AD	1088	635	862	29	87	8	1	**125**	**117**	45	4	2.92	1.45	2 / 460	0 / 0.00	☐	☐
Quadrant BC	287	420	354	29	73	8	1	**111**	**102**	44	3	2.92	1.45	2 / 460	0 / 0.00	☐	☐
Quadrant BD	437	453	445	29	89	8	1	**127**	**118**	46	3	2.92	1.45	2 / 460	0 / 0.00	☐	☐

Alternative 2 Impacts

Description: Asymmetric widening along West Side of Covil Avenue and Montgomery Avenue

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	39	85	6	1	**131**	**121**	47	4	2.89	1.15	2 / 470	0 / 0.00	☐	☐
TUDI	379	417	398	31	84	6	1	**122**	**114**	43	4	2.89	1.15	2 / 470	0 / 0.00	☐	☐
Quadrant AC	563	375	469	27	67	6	1	**101**	**101**	45	4	2.89	1.15	2 / 470	0 / 0.00	☐	☐
Quadrant AD	1088	635	862	27	85	6	1	**119**	**119**	42	4	2.89	1.15	2 / 470	0 / 0.00	☐	☐
Quadrant BC	287	420	354	28	69	6	1	**104**	**103**	46	3	2.89	1.15	2 / 470	0 / 0.00	☐	☐
Quadrant BD	437	453	445	28	87	6	1	**122**	**121**	43	3	2.89	1.15	2 / 470	0 / 0.00	☐	☐

Alternative 3 Impacts

Description: Asymmetric widening along East side of Covil Avenue and new location East of Montgomery Avenue

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	35	88	8	0	**131**	**121**	39	4	3.11	1.35	2 / 490	0 / 0.00	☐	☐
TUDI	379	417	398	29	84	8	0	**121**	**116**	36	3	3.11	1.35	2 / 490	0 / 0.00	☐	☐
Quadrant AC	563	375	469	28	77	8	0	**113**	**108**	33	4	3.11	1.35	2 / 490	0 / 0.00	☐	☐
Quadrant AD	1088	635	862	28	93	8	0	**129**	**124**	34	4	3.11	1.35	2 / 490	0 / 0.00	☐	☐
Quadrant BC	287	420	354	26	78	8	0	**112**	**106**	32	3	3.11	1.35	2 / 490	0 / 0.00	☐	☐
Quadrant BD	437	453	445	26	94	8	0	**128**	**122**	33	3	3.11	1.35	2 / 490	0 / 0.00	☐	☐

Alternative 4 Impacts

Description: Asymmetric widening along East side of Mercer Avenue and new location west of N. 31st Street

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	26	110	0	1	**137**	**134**	60	5	2.81	1.2	2 / 620	1 / 0.11	☐	☐
TUDI	379	417	398	24	110	0	1	**135**	**133**	57	5	2.81	1.2	2 / 620	1 / 0.11	☐	☐
Quadrant AC	563	375	469	25	101	0	1	**127**	**126**	44	6	2.81	1.2	2 / 620	1 / 0.07	☐	☐
Quadrant AD	1088	635	862	23	111	0	1	**135**	**134**	51	5	2.81	1.2	2 / 620	1 / 0.06	☐	☐
Quadrant BC	287	420	354	24	98	0	1	**123**	**122**	47	4	2.81	1.2	2 / 620	1 / 0.07	☐	☐
Quadrant BD	437	453	445	22	108	0	1	**131**	**130**	54	3	2.81	1.2	2 / 620	1 / 0.06	☐	☐

Alternative 5 Impacts

Description: Widening along West side of Covil Avenue, transitioning to East side of Covil Avenue with new location east of Montgomery Avenue

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	32	89	6	1	**128**	**120**	47	5	3.07	1.15	2 / 480	0 / 0.00	☐	☐
TUDI	379	417	398	28	88	6	1	**123**	**118**	37	4	3.07	1.15	2 / 480	0 / 0.00	☐	☐
Quadrant AC	563	375	469	27	72	6	1	**106**	**101**	37	5	3.07	1.15	2 / 480	0 / 0.00	☐	☐
Quadrant AD	1088	635	862	27	87	6	1	**121**	**116**	38	5	3.07	1.15	2 / 480	0 / 0.00	☐	☐
Quadrant BC	287	420	354	25	72	6	1	**104**	**99**	35	4	3.07	1.15	2 / 480	0 / 0.00	☐	☐
Quadrant BD	437	453	445	25	87	6	1	**119**	**114**	36	4	3.07	1.15	2 / 480	0 / 0.00	☐	☐

Alternative 6 Impacts

Description: New location paralell to West side of Covil Avenue and Montgomery Avenue

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	38	92	6	1	**137**	**132**	49	5	3.08	0.9	2 / 470	0 / 0.00	☐	☐
TUDI	379	417	398	33	88	6	1	**128**	**125**	49	4	3.08	0.9	2 / 470	0 / 0.00	☐	☐
Quadrant AC	563	375	469	28	68	6	1	**103**	**102**	46	5	3.08	0.9	2 / 470	0 / 0.00	☐	☐
Quadrant AD	1088	635	862	29	83	6	1	**119**	**118**	46	4	3.08	0.9	2 / 470	0 / 0.00	☐	☐
Quadrant BC	287	420	354	28	74	6	1	**109**	**108**	47	4	3.08	0.9	2 / 470	0 / 0.00	☐	☐
Quadrant BD	437	453	445	29	89	6	1	**125**	**124**	47	3	3.08	0.9	2 / 470	0 / 0.00	☐	☐

Alternative 7 Impacts

Description: New location paralell to West side of Covil Avenue and Montgomery Avenue, slightly West of Alternative 6

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	34	85	6	1	**126**	**116**	51	5	2.98	1.2	2 / 480	0 / 0.00	☐	☐
TUDI	379	417	398	30	80	6	1	**117**	**110**	51	5	2.98	1.2	2 / 480	0 / 0.00	☐	☐
Quadrant AC	563	375	469	25	63	6	1	**95**	**90**	46	5	2.98	1.2	2 / 480	0 / 0.00	☐	☐
Quadrant AD	1088	635	862	25	78	6	1	**110**	**105**	47	4	2.98	1.2	2 / 480	0 / 0.00	☐	☐
Quadrant BC	287	420	354	25	68	6	1	**100**	**95**	47	4	2.98	1.2	2 / 480	0 / 0.00	☐	☐
Quadrant BD	437	453	445	25	83	6	1	**115**	**110**	48	3	2.98	1.2	2 / 480	0 / 0.00	☐	☐

Alternative 8 Impacts

Description: New location paralell to East side of Mercer Avenue, transitioning to run parallel to N. 30th Street

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation: Business	Relocation: Single Family Residential	Relocation: Multi-Family Residential	Relocation: Churches	Relocation: Total	Relocation: Total After Potential Avoidance	Relocation: Accessory Structure	Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)	Carry Forward	Comments
Combined Total																	
DDI	371	560	466	26	92	4	2	**124**	**112**	43	5	3.76	1.45	2 / 640	1 / 0.04	☐	☐
TUDI	379	417	398	26	89	4	2	**121**	**111**	39	5	3.76	1.45	2 / 640	1 / 0.03	☐	☐
Quadrant AC	563	375	469	21	77	4	2	**104**	**98**	39	6	3.76	1.45	2 / 640	0 / 0.00	☐	☐
Quadrant AD	1088	635	862	18	88	4	2	**112**	**107**	49	5	3.76	1.45	2 / 640	0 / 0.00	☐	☐
Quadrant BC	287	420	354	19	68	4	2	**93**	**89**	42	4	3.76	1.45	2 / 640	0 / 0.00	☐	☐
Quadrant BD	437	453	445	16	79	4	2	**101**	**98**	52	3	3.76	1.45	2 / 640	0 / 0.00	☐	☐

Alternative 1 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				6	7	1	1	**15**	**13**	7	0.47	1	0	0	2.09	1.1	1 / 250	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				18	57	7	0	**82**	**80**	34	0.71	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	4	0	0	**4**	**0**	1	0.78	1	0	0	0.83	0.35	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**24**	**68**	**8**	**1**	**101**	**93**	**42**	**1.96**	**2**	**2**	**0**	**2.92**	**1.45**	**2 / 460**	**0**	**0**	**0**	**0 / 0**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				16	15	0	0	**31**	**27**	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				7	15	0	0	**22**	**20**	2	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	3	0	0	**5**	**5**	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	5	0	0	**7**	**6**	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	0	0	0	**3**	**3**	0	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				3	16	0	0	**19**	**19**	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	40	83	8	1	**132**	**120**	43	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	31	83	8	1	**123**	**113**	44	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	29	71	8	1	**109**	**101**	43	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	29	87	8	1	**125**	**117**	45	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	29	73	8	1	**111**	**102**	44	1.96	2	3	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	29	89	8	1	**127**	**118**	46	1.96	2	3	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 2 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	8	0	1	**13**	**13**	9	0.47	1	0	0	2.17	0.85	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				18	56	6	0	**80**	**80**	30	0.71	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	**0**	**0**	0	0.77	1	0	0	0.72	0.3	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**22**	**64**	**6**	**1**	**93**	**93**	**39**	**1.95**	**2**	**2**	**0**	**2.89**	**1.15**	**2 / 470**	**0**	**0**	**0**	**0 / 0**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				17	21	0	0	**38**	**28**	8	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				9	20	0	0	**29**	**21**	4	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	3	0	0	**5**	**5**	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				3	5	0	0	**8**	**7**	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	0	0	0	**3**	**3**	5	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				3	18	0	0	**21**	**21**	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	39	85	6	1	**131**	**121**	47	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	31	84	6	1	**122**	**114**	43	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	27	67	6	1	**101**	**101**	45	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	27	85	6	1	**119**	**119**	42	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	28	69	6	1	**104**	**103**	46	1.95	2	3	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	28	87	6	1	**122**	**121**	43	1.95	2	3	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 3 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				6	9	1	0	**16**	**16**	11	0.47	1	0	0	2.29	1.1	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				14	54	7	0	**75**	**75**	16	0.70	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	9	0	0	**9**	**4**	1	0.78	1	0	0	0.82	0.25	1 / 230	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**20**	**72**	**8**	**0**	**100**	**95**	**28**	**1.95**	**2**	**2**	**0**	**3.11**	**1.35**	**2 / 490**	**0**	**0**	**0**	**0 / 0**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				15	16	0	0	**31**	**26**	11	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				9	12	0	0	**21**	**21**	8	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				5	5	0	0	**10**	**10**	4	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				3	6	0	0	**9**	**8**	3	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	0	0	0	**3**	**3**	1	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				3	16	0	0	**19**	**19**	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	35	88	8	0	**131**	**121**	39	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	29	84	8	0	**121**	**116**	36	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	28	77	8	0	**113**	**108**	33	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	28	93	8	0	**129**	**124**	34	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	26	78	8	0	**112**	**106**	32	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	26	94	8	0	**128**	**122**	33	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 4 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				3	13	0	1	**17**	**16**	12	0.47	1	1	0	1.55	1	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				15	82	0	0	**97**	**97**	30	0.74	0	2	0	0	0	0 / 0	0	0	0	1 / 0.06	0	0	0 / 0	0 / 0
Section C				0	0	0	0	**0**	**0**	0	0.76	1	0	0	1.26	0.2	1 / 360	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**18**	**95**	**0**	**1**	**114**	**113**	**42**	**1.97**	**2**	**3**	**0**	**2.81**	**1.2**	**2 / 620**	**0**	**0**	**0**	**1 / 0.06**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				8	15	0	0	**23**	**21**	18	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0.05	0	0	0 / 0	0 / 0
TUDI				6	15	0	0	**21**	**20**	15	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0.05	0	0	0 / 0	0 / 0
Quadrant A				3	4	0	0	**7**	**7**	0	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	1	0	0	**3**	**3**	3	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	2	0	0	**6**	**6**	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0.01	0	0	0 / 0	0 / 0
Quadrant D				2	12	0	0	**14**	**14**	9	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	26	110	0	1	**137**	**134**	60	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.11	0	0	0 / 0	0 / 0
TUDI	379	417	398	24	110	0	1	**135**	**133**	57	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.11	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	25	101	0	1	**127**	**126**	44	1.97	2	6	0	2.81	1.2	2 / 620	0	0	0	1 / 0.07	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	23	111	0	1	**135**	**134**	51	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.06	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	24	98	0	1	**123**	**122**	47	1.97	2	4	0	2.81	1.2	2 / 620	0	0	0	1 / 0.07	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	22	108	0	1	**131**	**130**	54	1.97	2	3	0	2.81	1.2	2 / 620	0	0	0	1 / 0.06	0	0	0 / 0	0 / 0

Alternative 5 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	8	0	1	**13**	**12**	10	0.46	1	1	0	2.34	0.9	1 / 270	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				14	56	6	0	**76**	**74**	21	0.71	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	2	0	0	**2**	**0**	1	0.78	1	0	0	0.73	0.25	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**18**	**66**	**6**	**1**	**91**	**86**	**32**	**1.95**	**2**	**3**	**0**	**3.07**	**1.15**	**2 / 480**	**0**	**0**	**0**	**0 / 0**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				14	23	0	0	**37**	**34**	15	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				10	22	0	0	**32**	**32**	5	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				5	6	0	0	**11**	**11**	4	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				3	6	0	0	**9**	**9**	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	0	0	0	**4**	**4**	1	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				4	15	0	0	**19**	**19**	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	32	89	6	1	**128**	**120**	47	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	28	88	6	1	**123**	**118**	37	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	27	72	6	1	**106**	**101**	37	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	27	87	6	1	**121**	**116**	38	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	25	72	6	1	**104**	**99**	35	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	25	87	6	1	**119**	**114**	36	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 6 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	8	0	1	**13**	**12**	11	0.46	1	1	0	2.35	0.65	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				19	57	6	0	**82**	**82**	29	0.72	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	**0**	**0**	0	0.77	1	0	0	0.73	0.25	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**23**	**65**	**6**	**1**	**95**	**94**	**40**	**1.95**	**2**	**2**	**0**	**3.08**	**0.9**	**2 / 470**	**0**	**0**	**0**	**0 / 0**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				15	27	0	0	**42**	**38**	9	0	0	3	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				10	23	0	0	**33**	**31**	9	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	1	0	0	**3**	**3**	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	7	0	0	**9**	**9**	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	2	0	0	**5**	**5**	5	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				4	17	0	0	**21**	**21**	5	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	38	92	6	1	**137**	**132**	49	1.95	2	5	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	33	88	6	1	**128**	**125**	49	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	28	68	6	1	**103**	**102**	46	1.95	2	5	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	29	83	6	1	**119**	**118**	46	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	28	74	6	1	**109**	**108**	47	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	29	89	6	1	**125**	**124**	47	1.95	2	3	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 7 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				3	8	0	1	**12**	**9**	12	0.46	1	1	0	2.26	0.85	1 / 270	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				16	52	6	0	**74**	**72**	28	0.71	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	**0**	**0**	0	0.77	1	0	0	0.72	0.35	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**19**	**60**	**6**	**1**	**86**	**81**	**40**	**1.94**	**2**	**2**	**0**	**2.98**	**1.2**	**2 / 480**	**0**	**0**	**0**	**0 / 0**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				15	25	0	0	**40**	**35**	11	0	0	3	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				11	20	0	0	**31**	**29**	11	0	0	3	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	1	0	0	**3**	**3**	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	6	0	0	**8**	**8**	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	2	0	0	**6**	**6**	5	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				4	17	0	0	**21**	**21**	6	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	34	85	6	1	**126**	**116**	51	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	30	80	6	1	**117**	**110**	51	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	25	63	6	1	**95**	**90**	46	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	25	78	6	1	**110**	**105**	47	1.94	2	4	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	25	68	6	1	**100**	**95**	47	1.94	2	4	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	25	83	6	1	**115**	**110**	48	1.94	2	3	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 8 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplan (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Ciritical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	10	0	2	**16**	**13**	15	0.46	1	1	0	2.5	1.2	1 / 300	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				9	53	4	0	**66**	**65**	22	0.76	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	**0**	**0**	0	0.75	1	0	0	1.26	0.25	1 / 340	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				**13**	**63**	**4**	**2**	**82**	**78**	**37**	**1.97**	**2**	**3**	**0**	**3.76**	**1.45**	**2 / 640**	**0**	**0**	**0**	**0 / 0**	**0**	**0**	**0 / 0**	**0 / 0**
DDI				13	29	0	0	**42**	**34**	6	0	0	2	0	0	0	0 / 0	0	0	0	1 / 0.04	0	0	0 / 0	0 / 0
TUDI				13	26	0	0	**39**	**33**	2	0	0	2	0	0	0	0 / 0	0	0	0	1 / 0.03	0	0	0 / 0	0 / 0
Quadrant A				4	12	0	0	**16**	**14**	0	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	3	0	0	**5**	**5**	3	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	2	0	0	**6**	**6**	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				1	13	0	0	**14**	**15**	12	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	26	92	4	2	**124**	**112**	43	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	1 / 0.04	0	0	0 / 0	0 / 0
TUDI	379	417	398	26	89	4	2	**121**	**111**	39	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	1 / 0.03	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	21	77	4	2	**104**	**98**	39	1.97	2	6	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	18	88	4	2	**112**	**107**	49	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	19	68	4	2	**93**	**89**	42	1.97	2	4	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	16	79	4	2	**101**	**98**	52	1.97	2	3	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0

U-4434 Alternatives Comparison: Total Impacts (Considering potential avoidances)

Devens - Oct 2011

Alt	Alignment ONLY				Alignment WITH Market Street Intersection Configuration						Wetlands	Stream	Comments
	A	B	C	Total	DDI	TUDI	Quad AC	Quad AD	Quad BC	Quad BD			
1	13	80	0	93	120	113	101	117	102	118	1.45	460	1 church in Section A
2	13	80	0	93	121	114	101	119	103	121	1.15	470	1 church in Section A
3	16	75	4	95	121	116	108	124	106	122	1.35	490	No churches
4	16	97	0	113	134	133	126	134	122	130	1.2	620	1 church in Section A, hits Beaumont Park access parcel
5	12	74	0	86	120	118	101	116	99	114	1.15	480	1 church in Section A
6	12	82	0	94	132	125	102	118	108	124	0.9	470	1 church in Section A
7	9	72	0	81	116	110	90	105	95	110	1.2	480	Takes 1 church in Section A
8	13	65	0	78	112	111	98	107	89	98	1.45	640	Takes 2 churches in Section A, hits Beaumont Park access parcel
High	16	97	4	113			High	134			High	1.45	640
Lo	9	65	0	78			Lo	89			Lo	0.9	460
Avg	13	78.1	0.5	91.6			Avg	113.4			Avg	1.2	513.8
							Std Dev	11.3	102	125			
							0.5x StD	5.7	108	119			
									Hi	Lo			

General Comments:
Wetland differences - inconsequential
Stream differences - minimum consequence, not enough to sway a decision

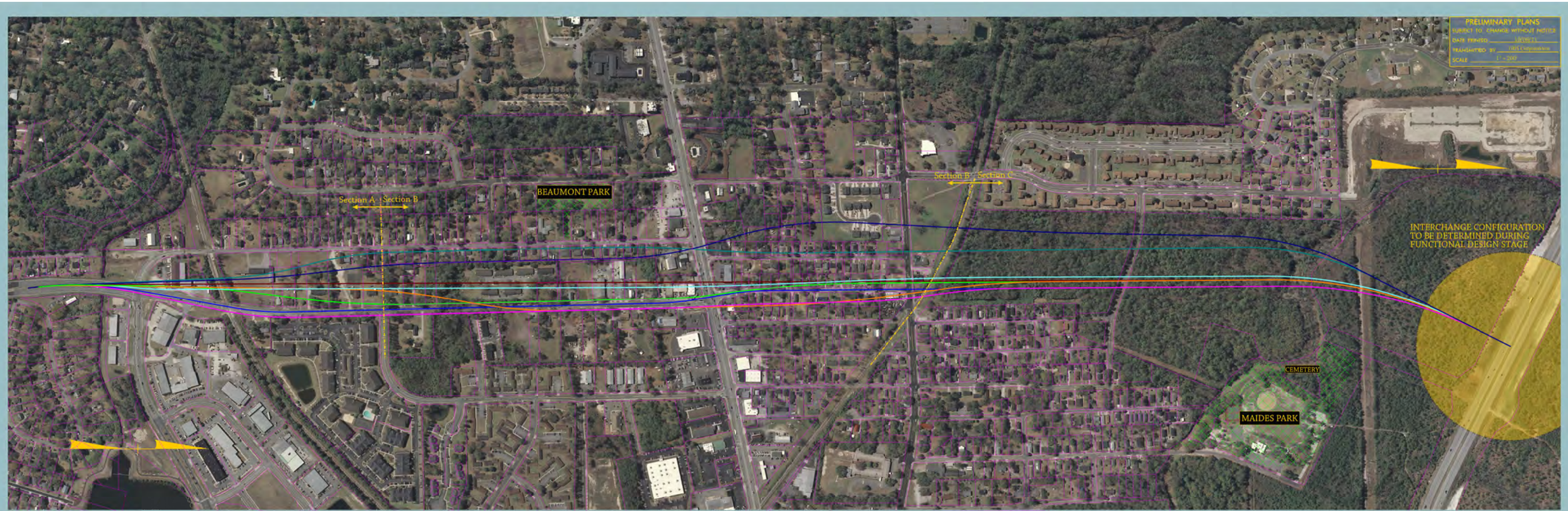
Lower Impacts = GOOD
Higher Impacts = BAD
Inadequate Capacity = BAD

102 or Lower (Avg minus Std Dev)
102-108 Range (Avg minus 0.5 x Std Dev)
125 or Higher (Avg plus Std Dev)
119-125 Range (Avg plus 0.5 x Std Dev)
No Fill = Mid-Range between High and Low Impacts
Inadequate Capacity

U-4434 Qualitative Alternatives Comparison			Devens - Oct 2011			
Alternative		**Alignment ITSELF**	**DDI Issues**	**TUDI Issues**	**Quad AC Issues**	**Quad BC Issues**
1	**Pros**	Follows "public expectation" alignment of Covil Ave and then Montgomery Ave. Abuts east side of WHA parcel. Short bridge at Princess Place (PP) and the RR	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		
	Cons	S-curve at Market St	Mercer Ave is cul-de-sac'd Evans, Clay, & 31st Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Evans & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
2	**Pros**	Comparable to Alt #1, but the S-curve is not as abrupt Follows "public expectation" alignment of Covil Ave and then Montgomery Ave Abuts east side of WHA parcel Short bridge at PP/RR	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		
	Cons		Mercer Ave is cul-de-sac'd Evans, Clay, & 31st Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Evans & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
3	**Pros**	Semi-Straight Alignment Follows Colvil Ave alignment (but not Montgomery Ave) Abuts east side of WHA parcel Short Bridge at PP/RR ONLY Alternative with NO church impacts	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact Mercer Ave connection to Market St stays intact		
	Cons	ONLY alt impacting 4 homes north of Princess Place (adjust alignment to avoid?)	Mercer Ave is cul-de-sac'd Evans St is taken/closed Clay & 31st Streets are cul-de-sac'd	Evans & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
4	**Pros**		Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd		Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd	Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd
	Cons	Impacts Beaumont Park Access Parcel Unexpected corridor for the public S-curve coming off of Randall Pkwy intersection Alignment runs down the center of WHA parcel Very long bridge at PP/RR	Mercer Ave is taken/closed 31st St is taken/closed Montgomery Ave & Evans St are cul-de-sac'd	Darlington Ave and Colvil Ave are cul-de-sac'd Mercer Ave is taken/closed 31st St is taken/closed Evans St is cul-de-sac'd	30th Street is Re-routed to the West onto 29th St 31st St is taken/closed	Mercer Ave is taken/closed Wayne Dr (west of Mercer) is cul-de-sac'd Quad B problems w/ neighborhood access to Market St
5	**Pros**		Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact Mercer Ave connection to Market St stays intact		
	Cons	S-curve in Section B and at Section B/C interface	Mercer Ave is cul-de-sac'd Evans St is taken/closed Clay & 31st Streets are cul-de-sac'd	Evans St is taken/closed Clay & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
6	**Pros**		Darlington Ave connection to Market stays intact			
	Cons	Does NOT abut east side of WHA parcel (uneconomic remnant) Mid-Length bridge at PP/RR	Mercer Ave is cul-de-sac'd Covil Ave is shortened and cul-de-sac'd 31st St is taken/closed Evans & Clay Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Covil Ave is cul-de-sac'd 31st St is taken/closed Evans St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
7	**Pros**	VERY straight alignment for project length Alignment runs "between blocks" Short-to-mid length bridge at PP/RR LOWEST res/bus impacts of any alternative	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		
	Cons	Does NOT abut east side of WHA parcel (uneconomic remnant)	Mercer Ave is cul-de-sac'd Covil Ave is shortened and cul-de-sac'd 31st St is taken/closed Evans & Clay Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Covil Ave is cul-de-sac'd 31st St is taken/closed Evans and Clay Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St Covil Ave is shorter and cul-de-sac'd 31st St is cul-de-sac'd	Darlington Ave is Re-routed to Market St Mercer Ave is cul-de-sac'd Covil Ave is shortened and cul-de-sac'd
8	**Pros**	Abuts WEST side of WHA parcel (can either be good or bad….?) VERY LOW res/bus impacts	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd
	Cons	Takes 2 Churches in Section A (only alt that does so) Very curvy alignment. A MAJOR S-curve occurs in Section A Impacts Beaumont Park Access parcel Very long bridge at PP/RR	North half of Mercer Ave is taken; re-routed to west 30th and 31st Streets are taken/closed Montgomery Ave & Evans St are cul-de-sac'd	North half of Mercer Ave is taken; re-routed to west 30th St is cul-de-sac'd; traffic must move west to 29th Covil Ave is cul-de-sac'd. 31st St is taken/closed. Montgomery Ave & Evans St are cul-de-sac'd	30th Street is Re-routed to the West onto 29th St	Mercer Ave is cul-de-sac'd Wayne Dr (west of Mercer) is cul-de-sac'd Quad B problems w/ neighborhood access to Market St Montgomery Ave is cul-de-sac'd
		General Comments: Later as retaining walls are considered, alignments may shift slightly as impacts are considered for avoidance/minimization. If selected for further study, Alt #8 offers the ability to straighten S-curve based on parcel takes.				

Alternative		Alignment (Itself)	TUDI	Quad AC	Quad BC
1 (Blue)	Pros	• Short Bridge at Princess/Railroad	• Darlington remains open	•	•
	Cons	• Large area of landlocked property • Impacts to 4 blocks north of Market Street • 4 Relocations in Section C • Conflicts with Power line	• Mercer cul-de-sac	• Darlington Re-routed to Market Street	• Darlington Re-routed to Market Street • Mercer cul-de-sac
2 (Green)	Pros	• No relocations in Section C • Impacts to 3 blocks north of Market Street (Better than Alt. 1,3,5) • No conflict with power line	• Darlington remains open	•	•
	Cons	• Large area of landlocked property • Larger area taken from WHA parcel	• Mercer cul-de-sac • Additional takes along west side of N. 31st Street (would require retaining walls)	• Darlington Re-routed to Market Street	• Darlington Re-routed to Market Street • Mercer cul-de-sac
3 (Purple)	Pros	• Short Bridge at Princess/Railroad • Leaves largest developable area for WHA parcel • Only alternative with no church impacts (however requires back access from Mercer)	• Mercer and Darlington remain open	•	•
	Cons	• Large area of landlocked property • Takes WHA Jervay Development • Takes 24-unit Apartment Building and parking for 2 other 24-unit buildings • 9 relocations in Section C • Conflicts with power line • Impacts to 4 blocks north of Market Street	•	• Darlington Re-routed to Market Street	• Darlington Re-routed to Market Street • Mercer cul-de-sac
4 (Teal)	Pros	• Avoids impact to group home • Fewer impacts between Market Street and Princess Place • Fewer business relocations than eastern alignments	•	• Darlington remains open	• Darlington remains open
	Cons	• Large area of landlocked property • Largest Impact to area between Darlington and Market Street • Impact to Park access (potential 4(f) impact) • Longer bridge at Princess/Railroad • Splits WHA parcel down the middle leaving it essentially undevelopable • Higher stream impacts than eastern alignments	• Covil Cul-de-sac • Mercer closed	• 30th Street cul-de-sac – requires re-routing to 3029th street	• Mercer cul-de-sac – requires re-routing to Colonial Drive

Alternative		Alignment (Itself)	TUDI	Quad AC	Quad BC
5 (Orange)	Pros	• Area crossed between Market Street and Princess place is less dense • Short bridge at Princess/Railroad	• Mercer and Darlington remain open	•	•
	Cons	• Large area of landlocked property • Impacts to 4 blocks north of Market Street • 2 Relocations in Section C • Conflicts with Power line	• Impacts 5th block north of Market Street	• Darlington Re-routed to Market Street	• Darlington Re-routed to Market Street • Mercer cul-de-sac
6 (Cyan)	Pros	• Least (along with Alt. 7) area of landlocked property • Avoids power line • No impacts in Section C • Impacts between Market and Princess contained to 3 blocks • Maintains access to portion of Covil Avenue (however less than Alt. 7)	• Darlington remains open	•	•
	Cons	• Larger area taken from WHA parcel • Higher total number of relocations	• Mercer cul-de-sac • Impacts 5th block north of Market Street	• Darlington Re-routed to Market Street	•
7 (Dark Red)	Pros	• Least (along with Alt. 6) area of landlocked property • Avoids power line • No impacts in Section C • Impacts between Market and Princess contained to 3 blocks • Maintains access to portion of Covil Avenue (better than Alt. 6)	• Darlington remains open	•	•
	Cons	• Larger area taken from WHA parcel	• Mercer cul-de-sac • Impacts 5th block north of Market Street (retaining walls needed to avoid impacts)	• Darlington Re-routed to Market Street	•
8 (Navy Blue)	Pros	• Fewest impacts between Market and Princess • Fewest Business relocations • Maintains Covil Avenue and substantial portion of Mercer Avenue	• Darlington remains open	• Darlington remains open	• Darlington remains open
	Cons	• Highest stream impacts • Impacts more churches (2) than other alignments • Long Bridge at Princess/Railroad • Creates barrier between WHA development and existing Creekside Development • Impacts Park access parcel (however, connection could be made due to relocations)	• Covil Cul-de-sac • Cuts access to park • 30th Street Cul-de-sac – rerouted to 29th street	• 30th Street Cul-de-sac – rerouted to 29th street	•



STIP PROJECT U-4434 INDEPENDENCE BOULEVARD EXTENSION

CONCEPT CENTERLINES

LEGEND

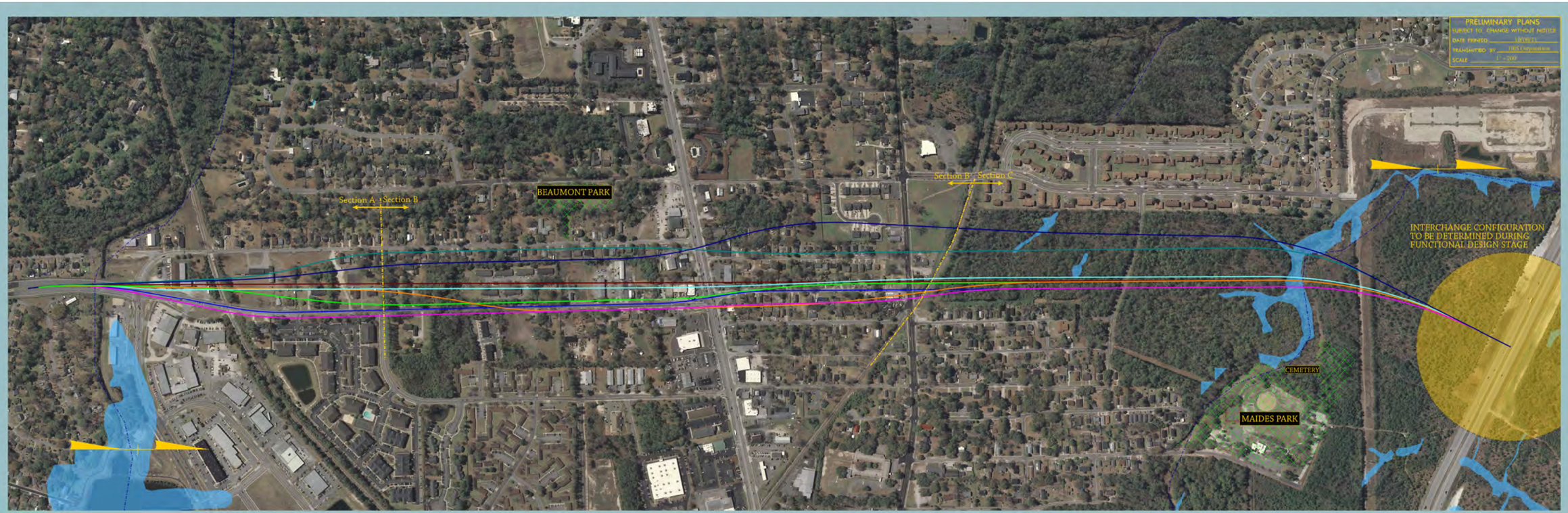
- ALTERNATIVE 1
- ALTERNATIVE 2
- ALTERNATIVE 3
- ALTERNATIVE 4
- ALTERNATIVE 5
- ALTERNATIVE 6
- ALTERNATIVE 7
- ALTERNATIVE 8

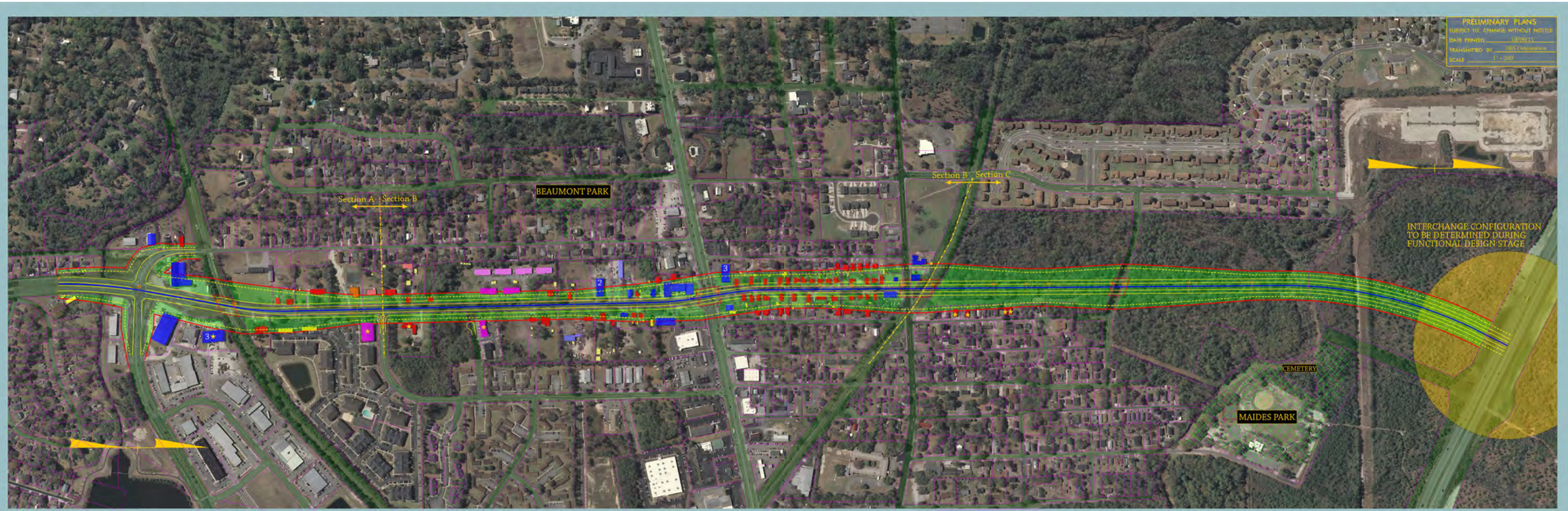
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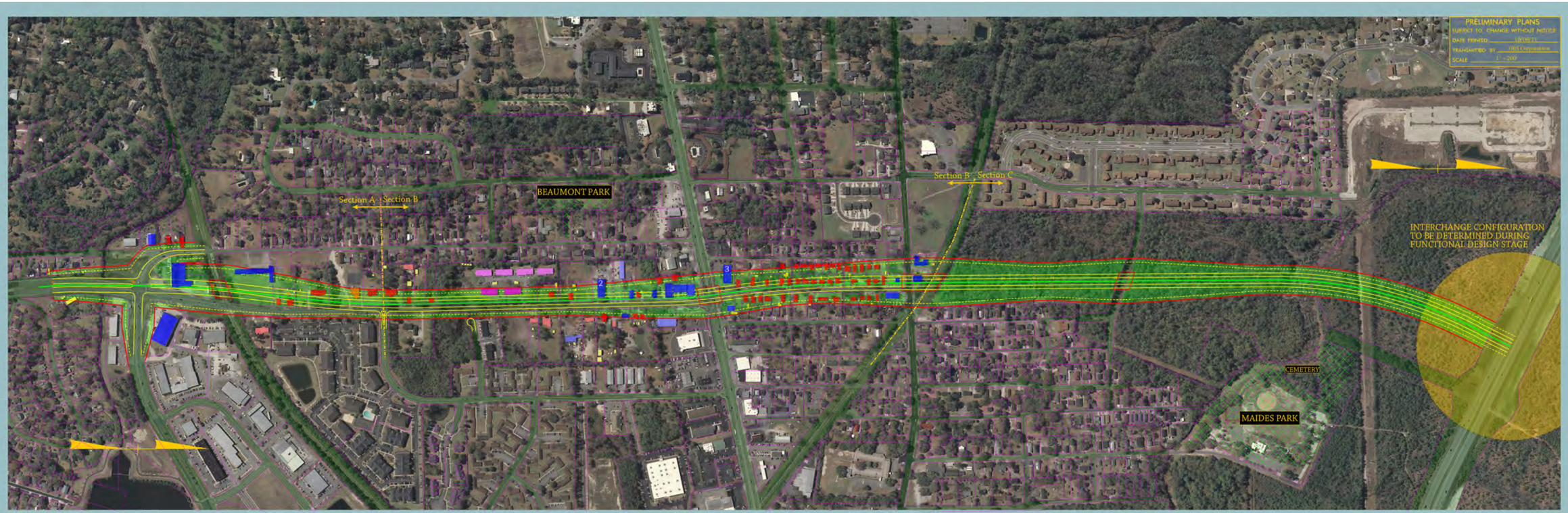
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OCTOBER 2011


PRELIMINARY PLANS
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Section A
Section B
BEAUMONT PARK
Section B
Section C
INTERCHANGE CONFIGURATION TO BE DETERMINED DURING FUNCTIONAL DESIGN STAGE
CEMETERY
MAIDES PARK
STIP PROJECT U-4434
INDEPENDENCE BOULEVARD EXTENSION
CONCEPT CENTERLINES
LEGEND
WETLAND
STREAM
ALTERNATIVE 1
ALTERNATIVE 2
ALTERNATIVE 3
ALTERNATIVE 4
ALTERNATIVE 5
ALTERNATIVE 6
ALTERNATIVE 7
ALTERNATIVE 8
200' 0' 200' 400'
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INDEPENDENCE BOULEVARD EXTENSION
CONCEPT ALTERNATIVE 1
LEGEND
CENTERLINE
EDGE OF TRAVEL WAY
ESTIMATED SLOPE STAKE
RIGHT-OF-WAY LIMIT
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
ASSUMED FILL HEIGHT
RELOCATIONS
Direct Impact
Loss of Access
Single Family Residential
Commercial
Multi-Family Residential
Church
Accessory Structure
No. of Units/Businesses
Potential for Avoidance
200' 0' 200' 400'
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STIP PROJECT U-4434 INDEPENDENCE BOULEVARD EXTENSION

CONCEPT ALTERNATIVE 2

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ASSUMED FILL HEIGHT

RELOCATIONS

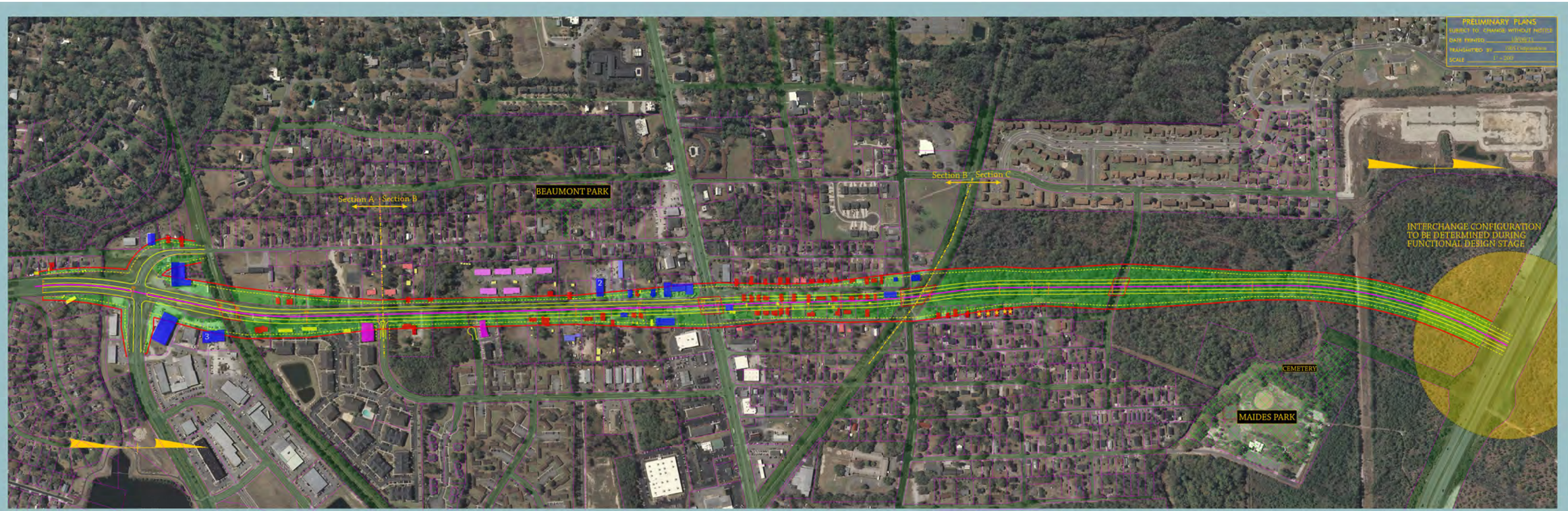
Direct Impact	Loss of Access	
		Single Family Residential
		Commercial
		Multi-Family Residential
		Church
		Accessory Structure
#		No. of Units/Businesses
★		Potential for Avoidance

200' 0' 200' 400'

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STIP PROJECT U-4434 INDEPENDENCE BOULEVARD EXTENSION

CONCEPT ALTERNATIVE 3

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ASSUMED FILL HEIGHT

RELOCATIONS

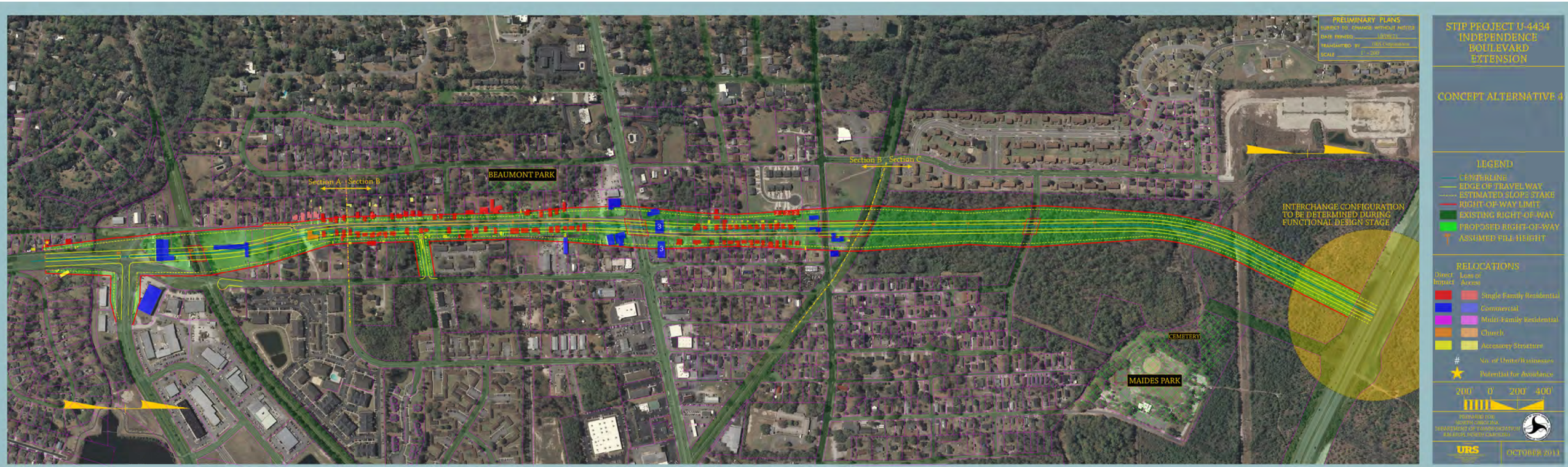
Direct Impact	Loss of Access	
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		Commercial
		Multi-Family Residential
		Church
		Accessory Structure
#		No. of Units/Businesses
★		Potential for Avoidance

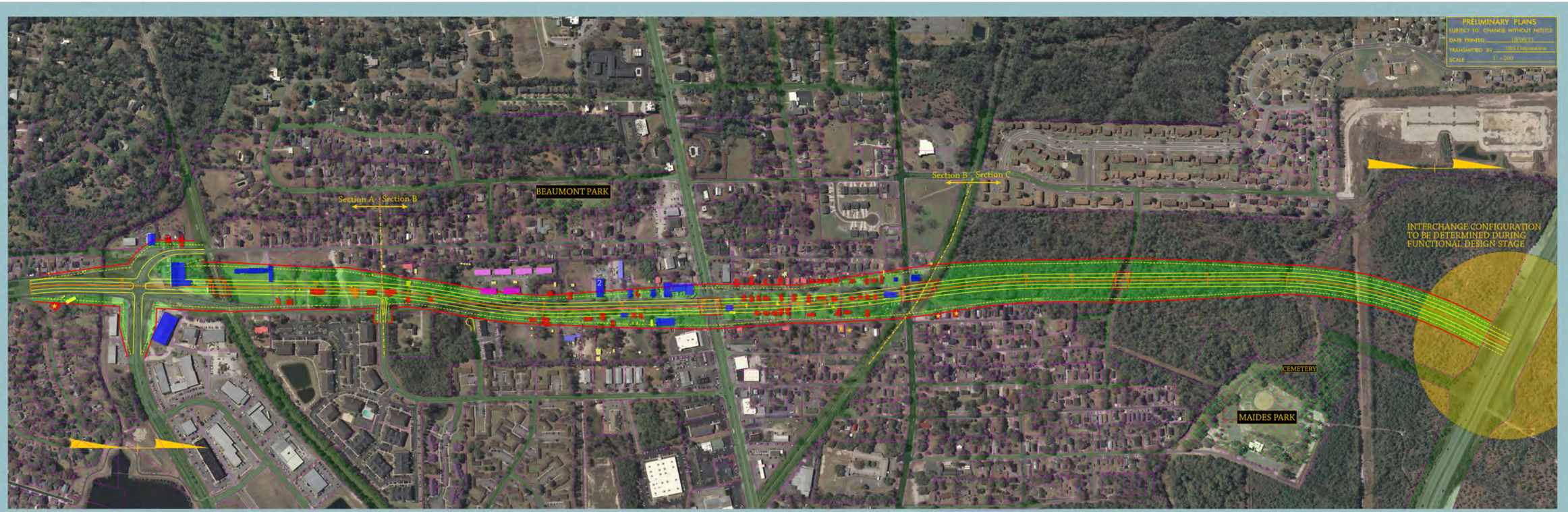
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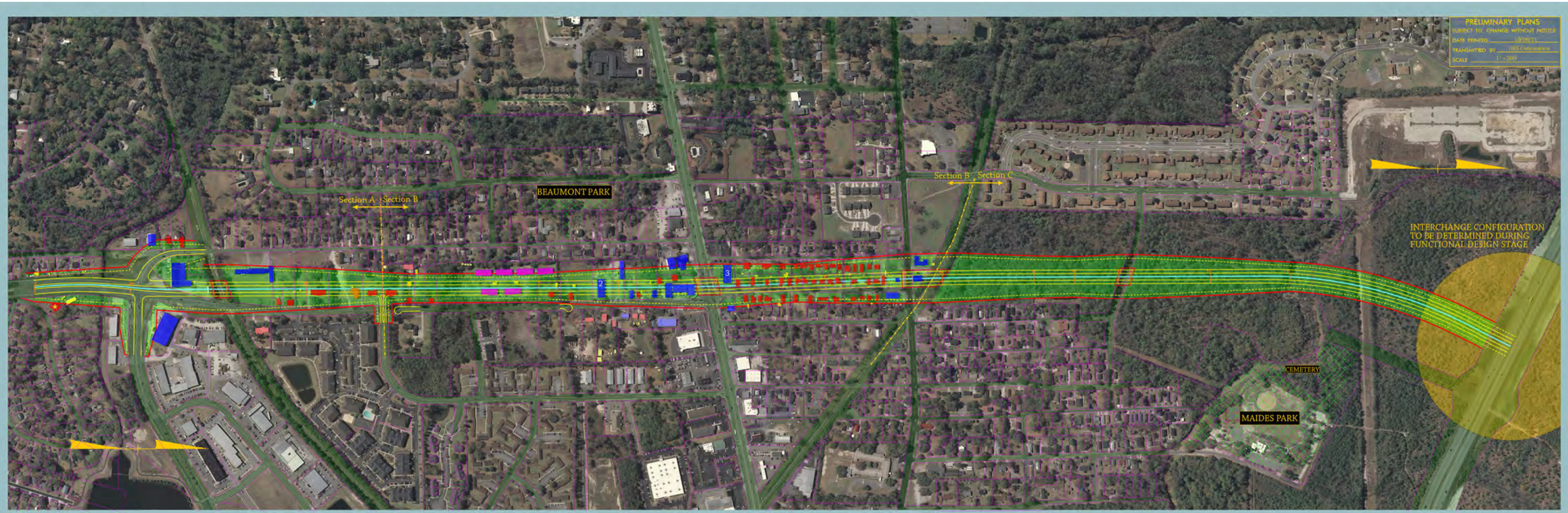
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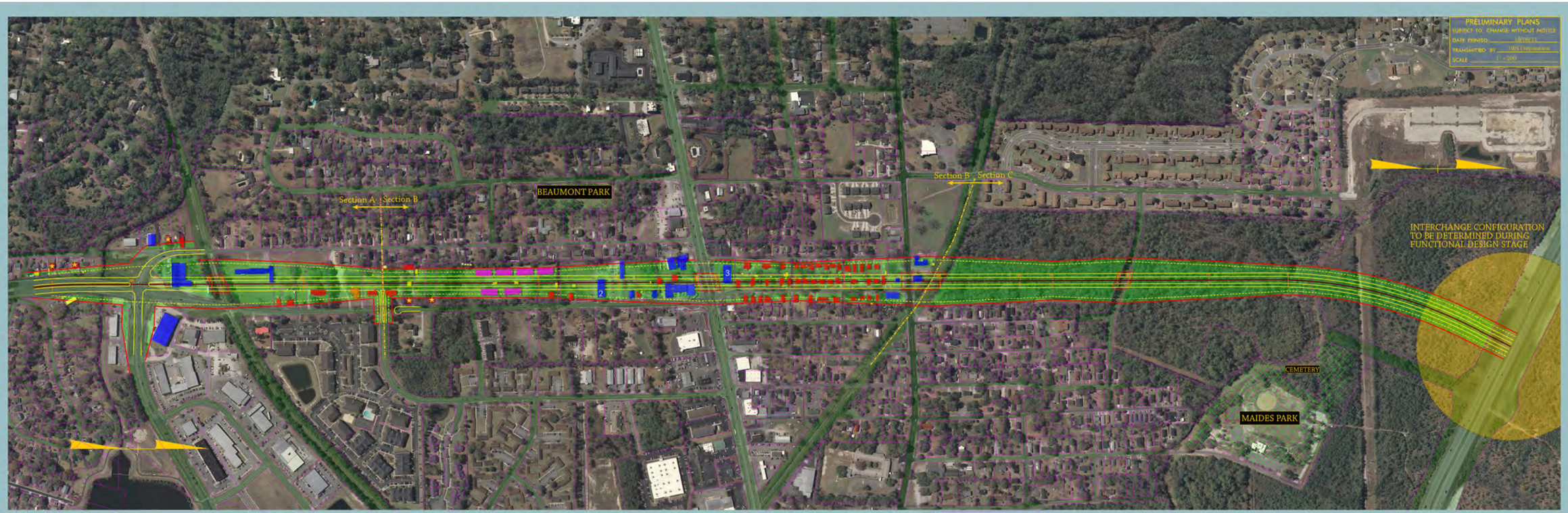
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INDEPENDENCE BOULEVARD EXTENSION
CONCEPT ALTERNATIVE 4
Section A
Section B
Section B
Section C
BEAUMONT PARK
INTERCHANGE CONFIGURATION TO BE DETERMINED DURING FUNCTIONAL DESIGN STAGE
CEMETERY
MAIDES PARK
LEGEND
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EDGE OF TRAVELWAY
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RIGHT-OF-WAY LIMIT
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Single Family Residential
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Multi-Family Residential
Church
Accessory Structure
No. of Units/Businesses
Potential for Avoidance
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Section A
Section B
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Section C
BEAUMONT PARK
INTERCHANGE CONFIGURATION TO BE DETERMINED DURING FUNCTIONAL DESIGN STAGE
CEMETERY
MAIDES PARK
STIP PROJECT U-4434
INDEPENDENCE BOULEVARD EXTENSION
CONCEPT ALTERNATIVE 5
LEGEND
CENTERLINE
EDGE OF TRAVELWAY
ESTIMATED SLOPE STAKE
RIGHT-OF-WAY LIMIT
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
ASSUMED FILL HEIGHT
RELOCATIONS
Direct Impact
Loss of Access
Single Family Residential
Commercial
Multi-Family Residential
Church
Accessory Structure
No. of Units/Businesses
Potential for Avoidance
200' 0' 200' 400'
PREPARED FOR:
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, NORTH CAROLINA
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INDEPENDENCE BOULEVARD EXTENSION
CONCEPT ALTERNATIVE 6
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CENTERLINE
EDGE OF TRAVEL WAY
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STIP PROJECT U-4434 INDEPENDENCE BOULEVARD EXTENSION

CONCEPT ALTERNATIVE 7

LEGEND

- CENTERLINE
- EDGE OF TRAVELWAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ASSUMED FILL HEIGHT

RELOCATIONS

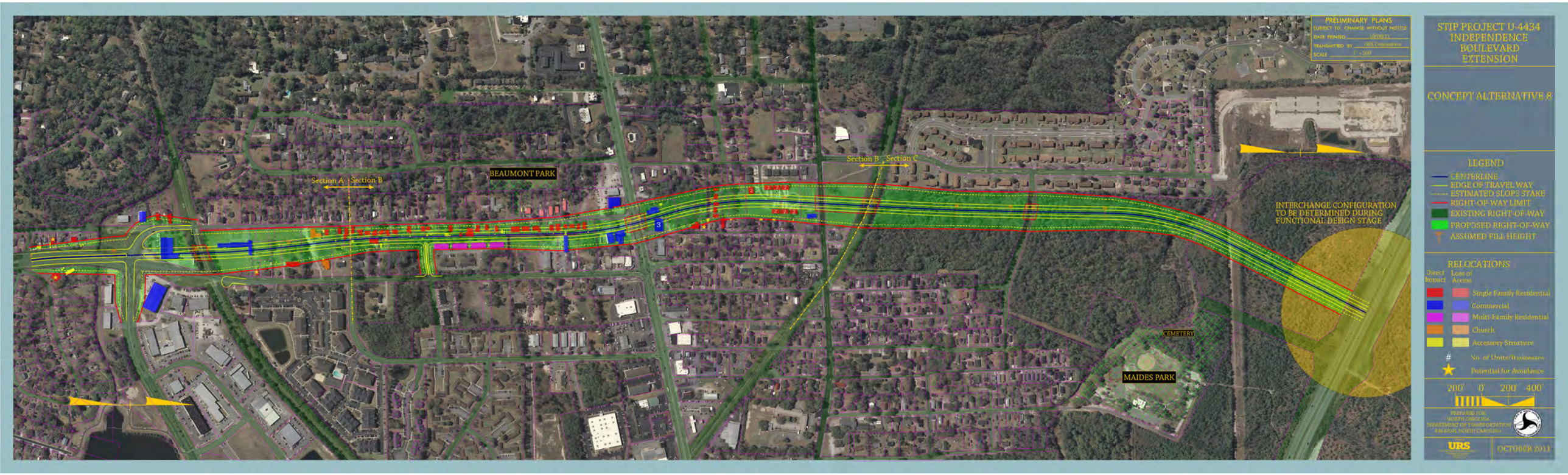
Direct Impact	Loss of Access	
		Single Family Residential
		Commercial
		Multi-Family Residential
		Church
		Accessory Structure
#		No. of Units/Businesses
★		Potential for Avoidance

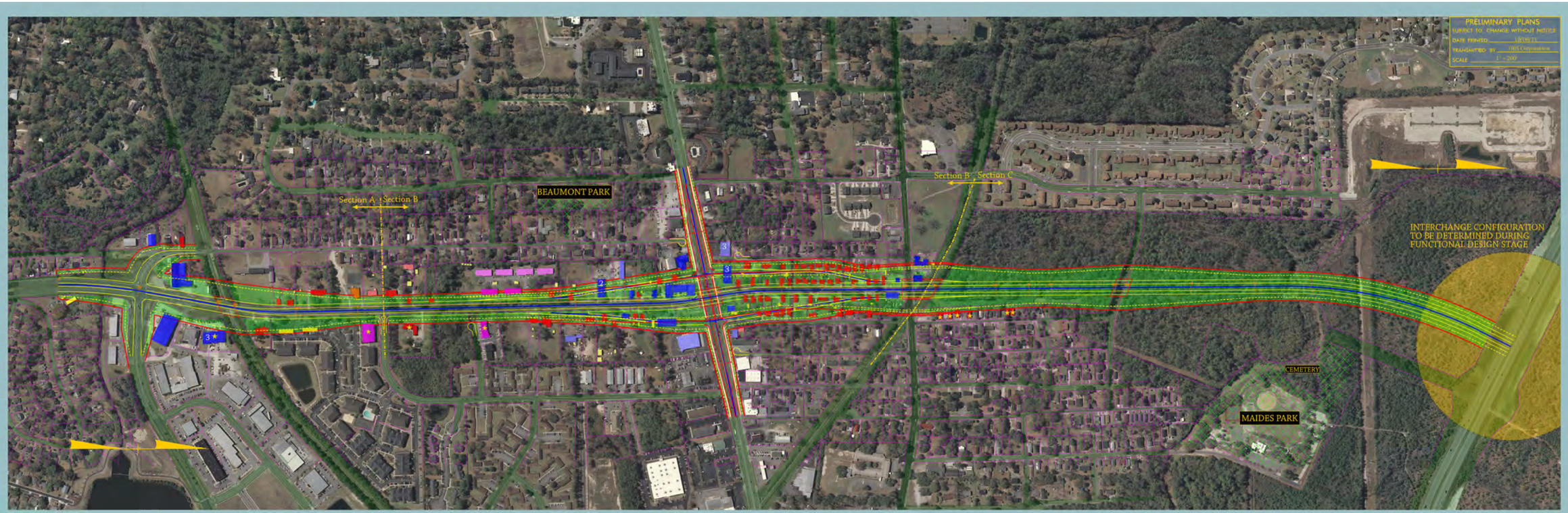
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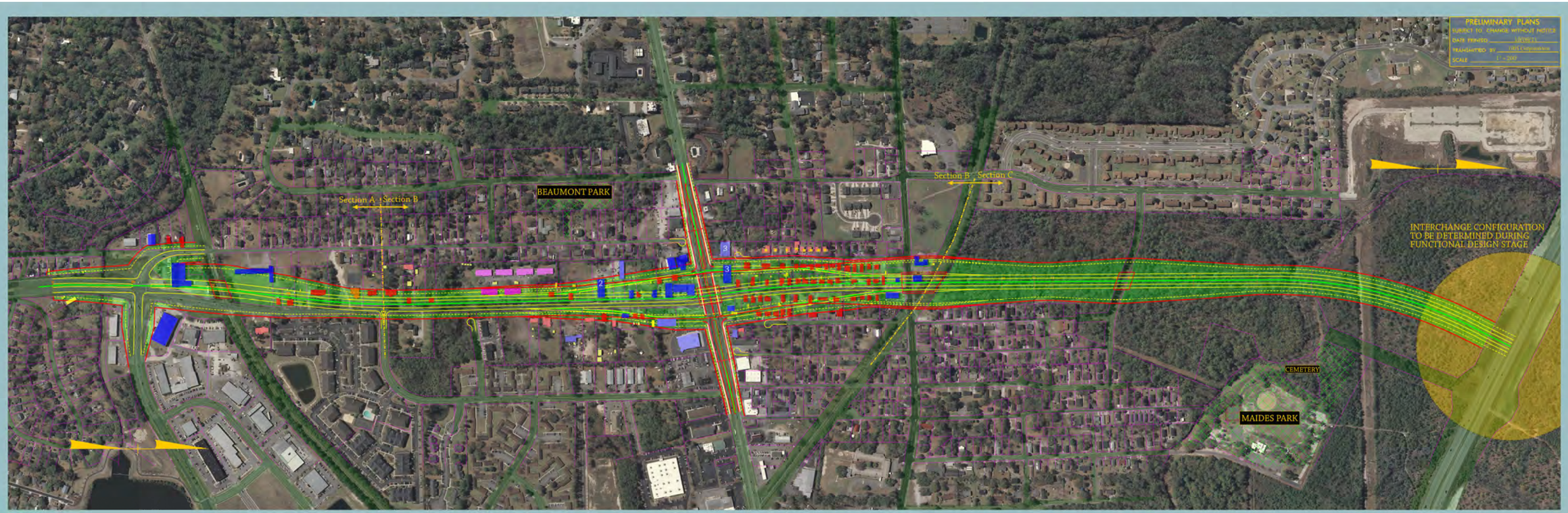
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RALEIGH, NORTH CAROLINA

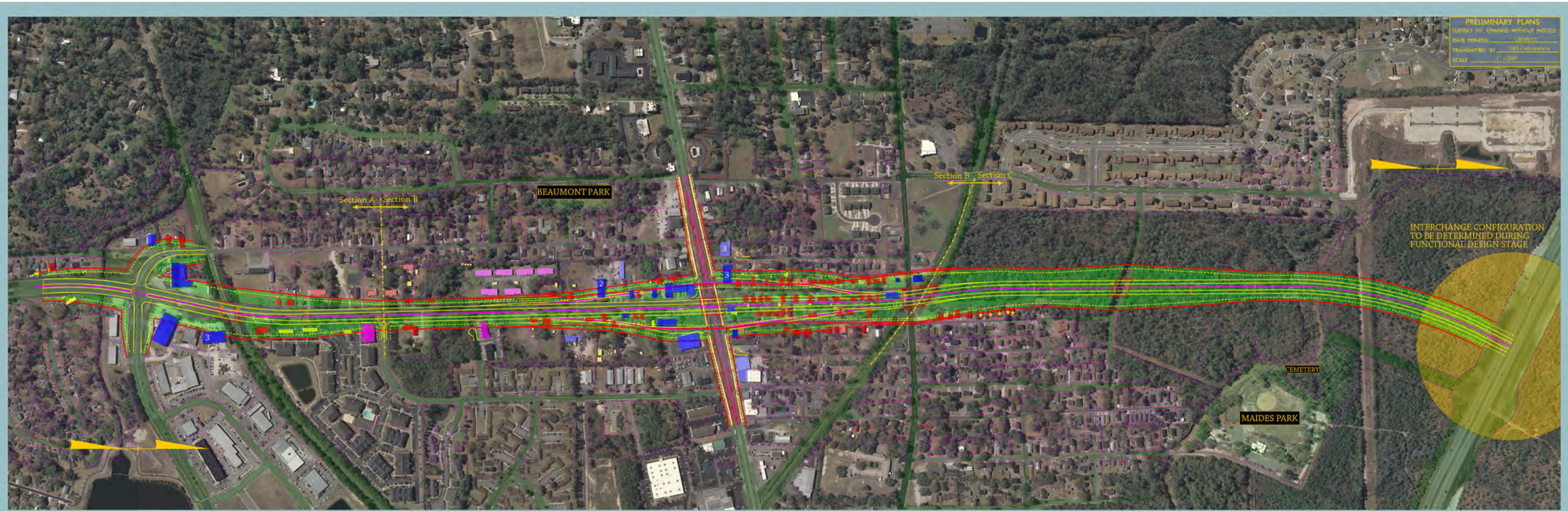
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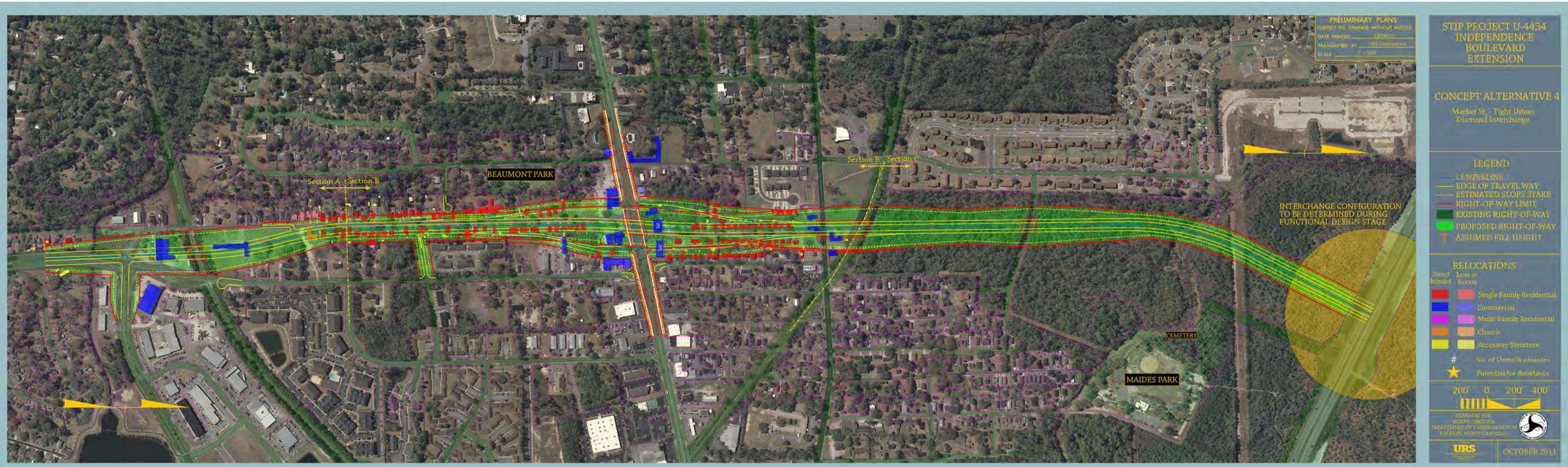
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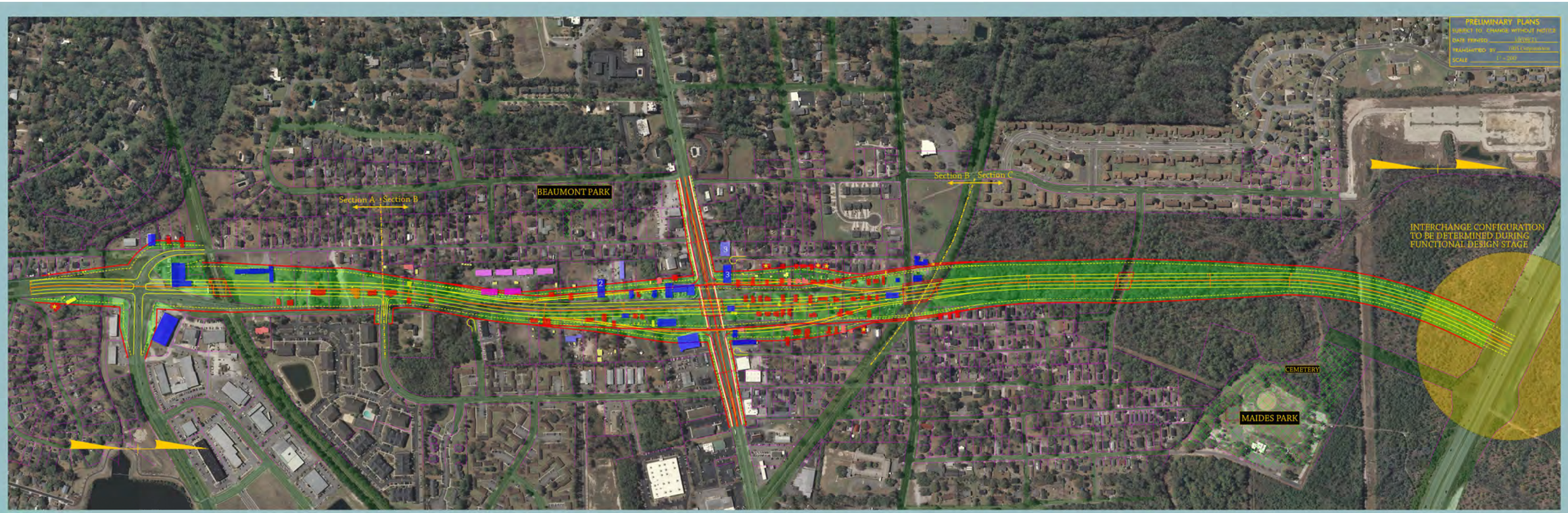

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STIP PROJECT U-4434
INDEPENDENCE BOULEVARD EXTENSION
CONCEPT ALTERNATIVE 8
Section A
Section B
Section B
Section C
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INTERCHANGE CONFIGURATION TO BE DETERMINED DURING FUNCTIONAL DESIGN STAGE
CEMETERY
MAIDES PARK
LEGEND
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ESTIMATED SLOPE STAKE
RIGHT-OF-WAY LIMIT
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No. of Units/Businesses
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200' 0' 200' 400'
PREPARED FOR:
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
COLUMBIA, SOUTH CAROLINA
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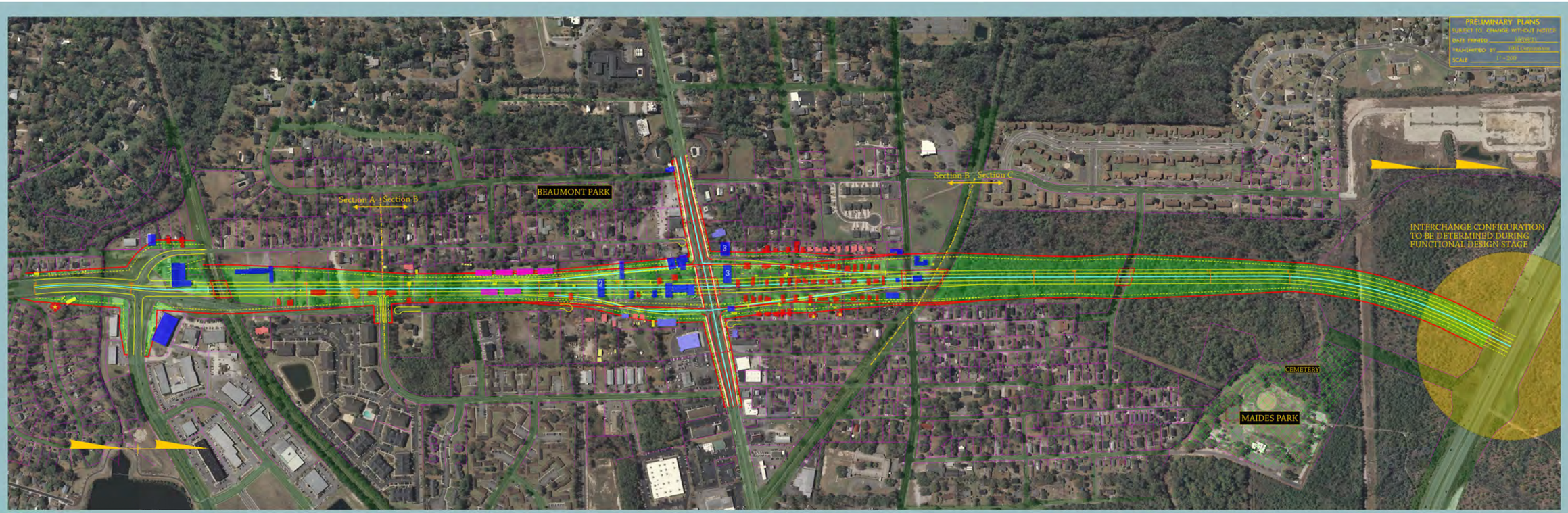

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BEAUMONT PARK
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INTERCHANGE CONFIGURATION TO BE DETERMINED DURING FUNCTIONAL DESIGN STAGE
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LEGEND
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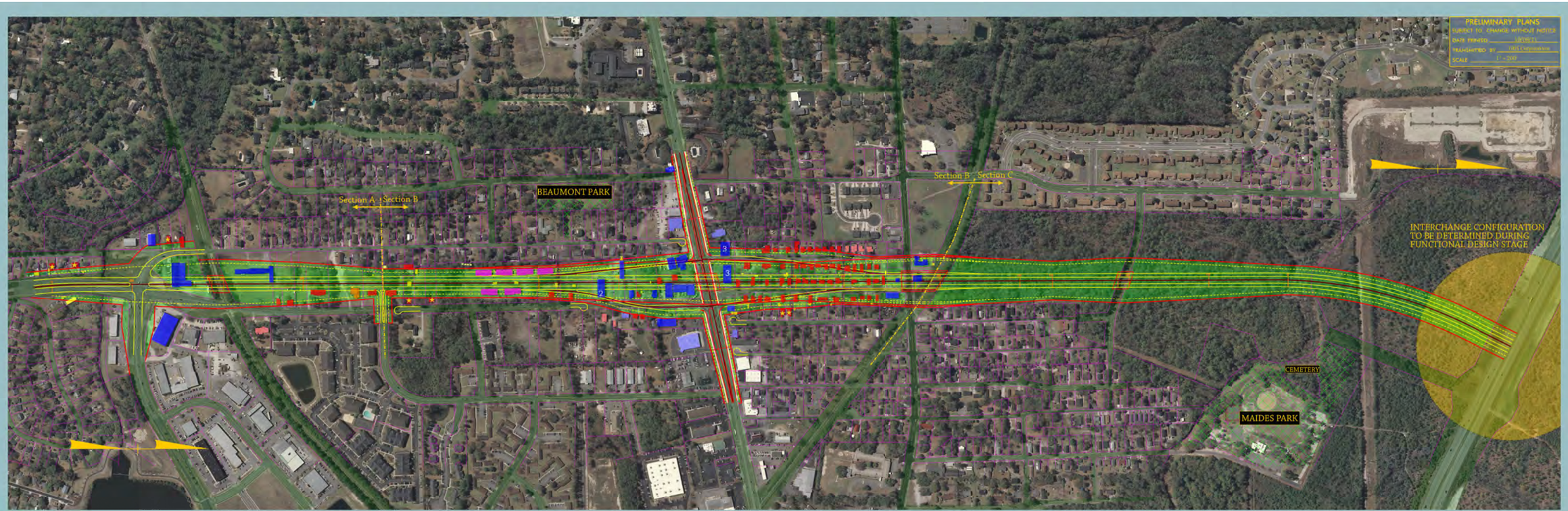

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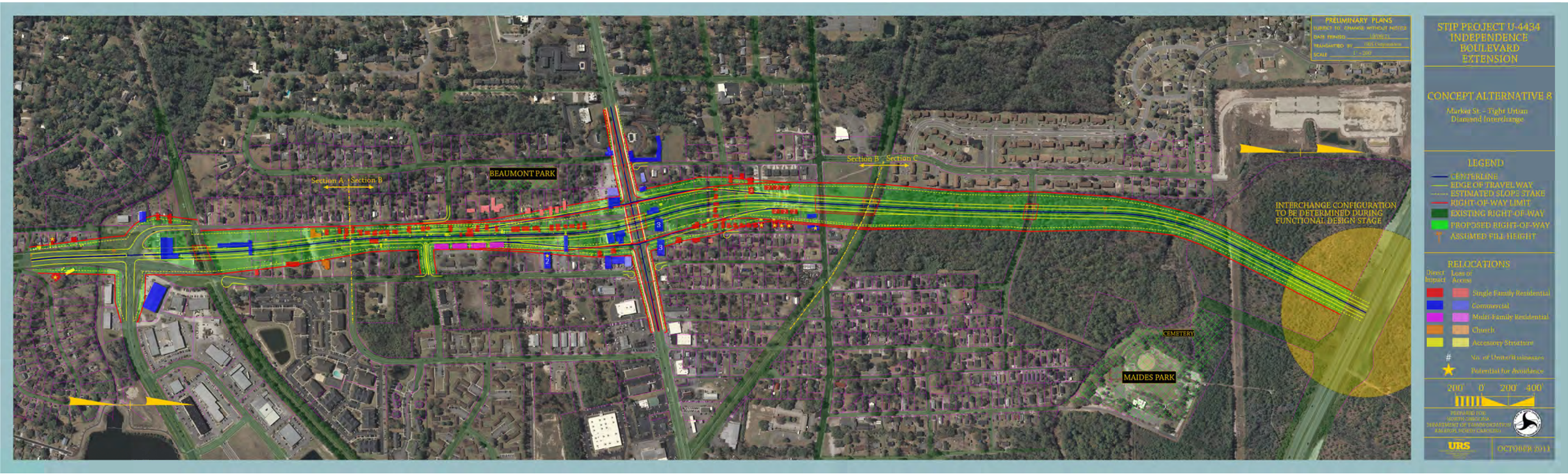

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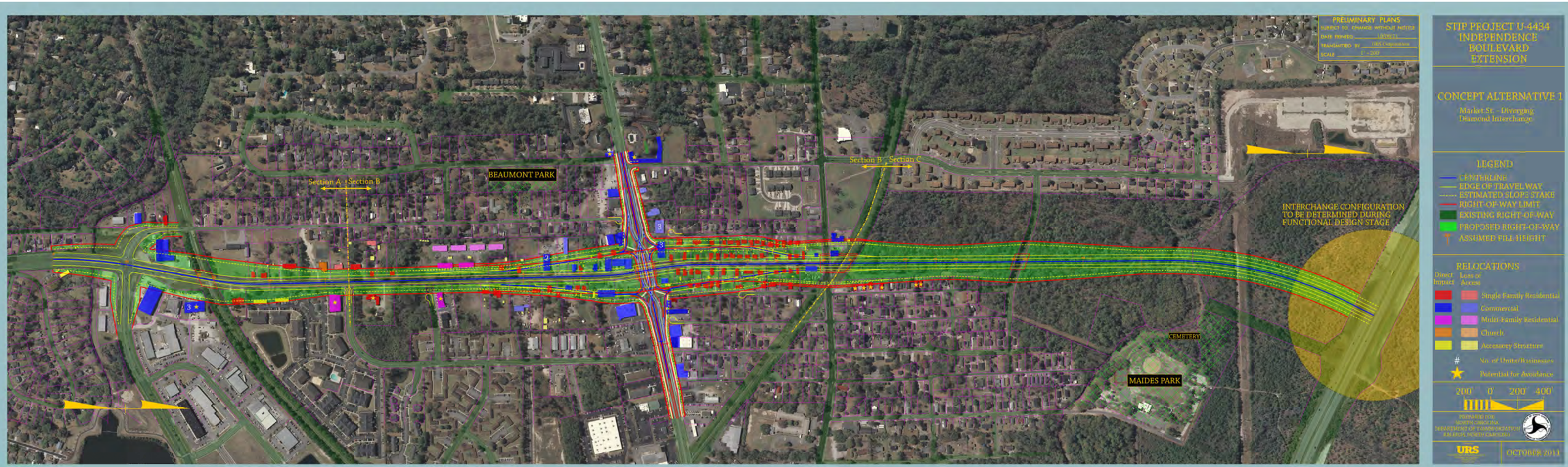

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Market St. - Tight Urban Diamond Interchange
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RALEIGH, NORTH CAROLINA
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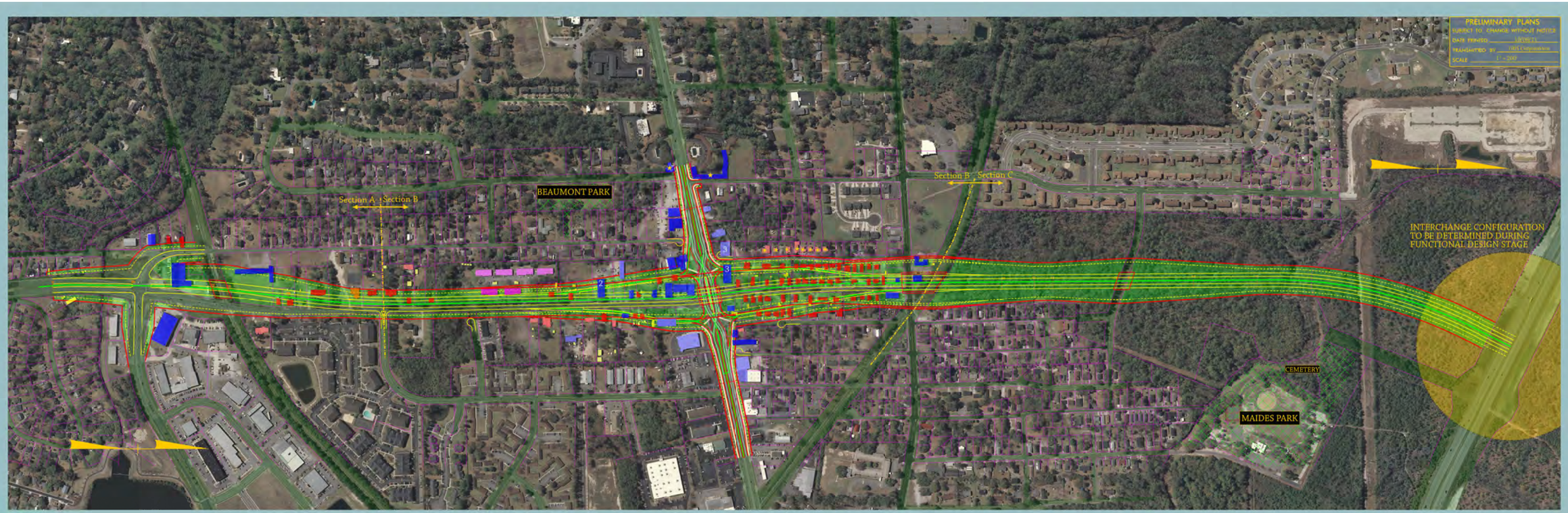

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CEMETERY
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CONCEPT ALTERNATIVE 5
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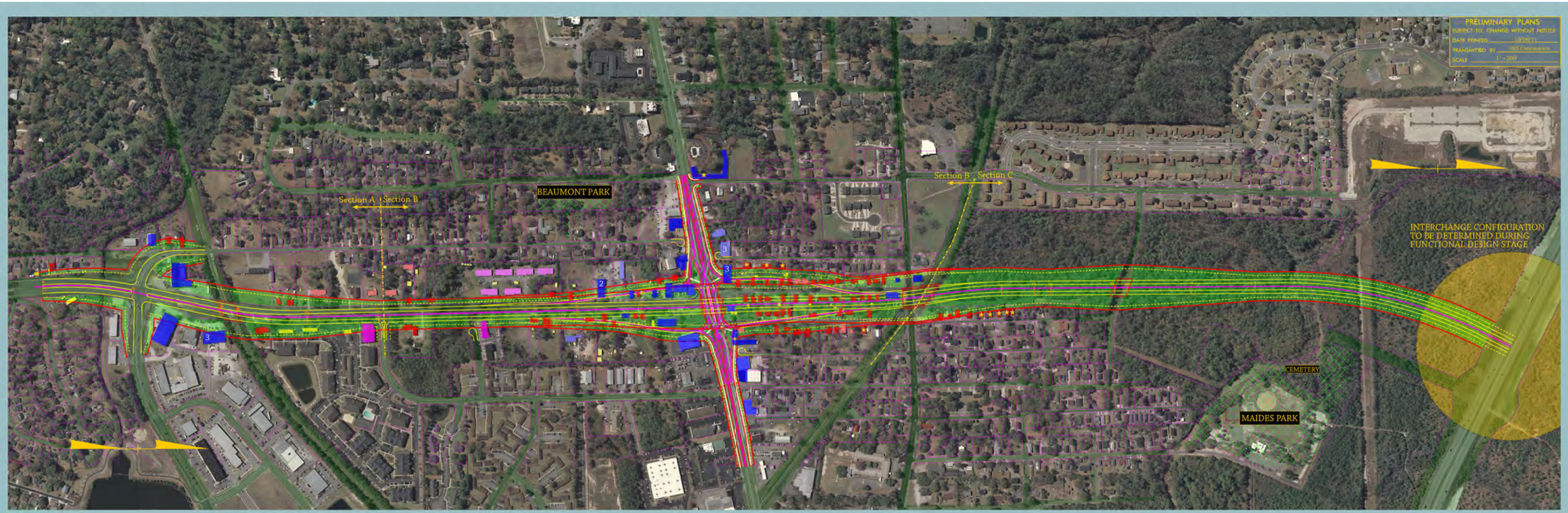

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RALEIGH, NORTH CAROLINA
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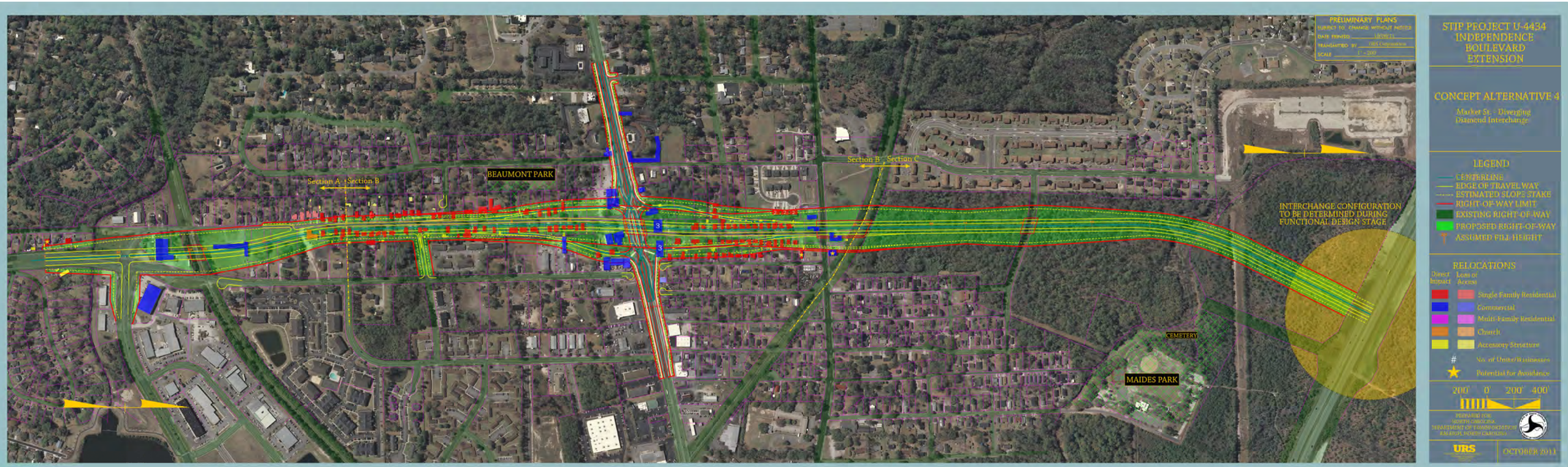

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CONCEPT ALTERNATIVE 7
Market St. - Tight Urban Diamond Interchange
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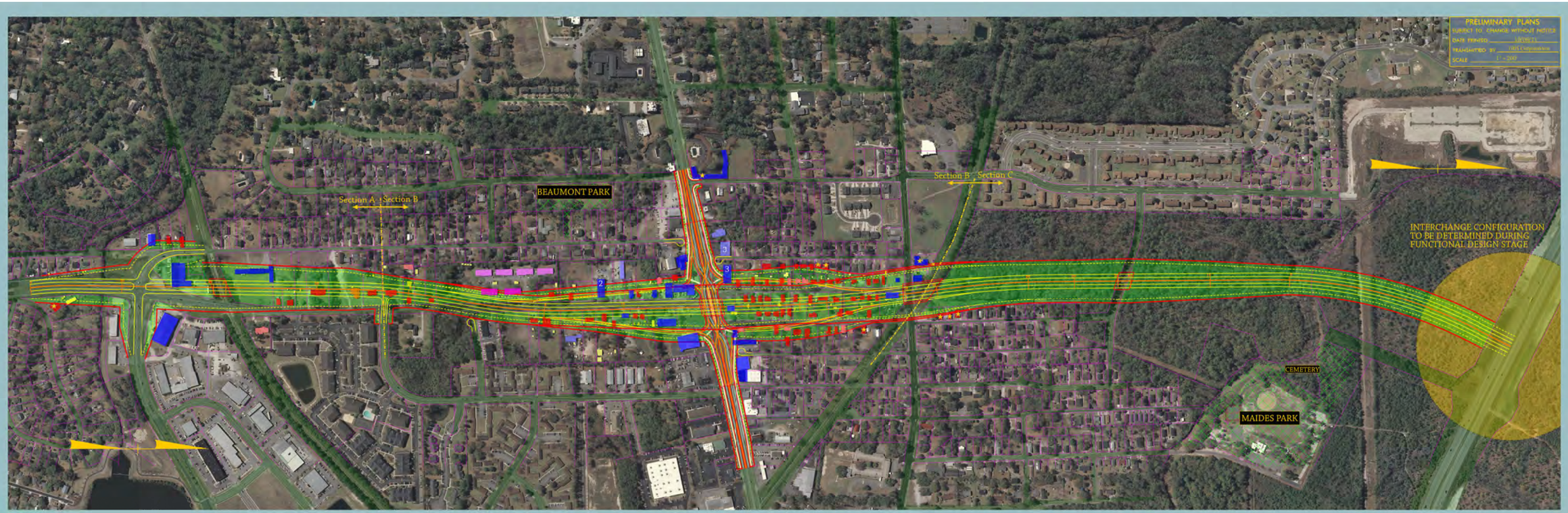

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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
RICHLAND, PICKENS COUNTIES
URS
OCTOBER 2011
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Section C
INTERCHANGE CONFIGURATION TO BE DETERMINED DURING FUNCTIONAL DESIGN STAGE

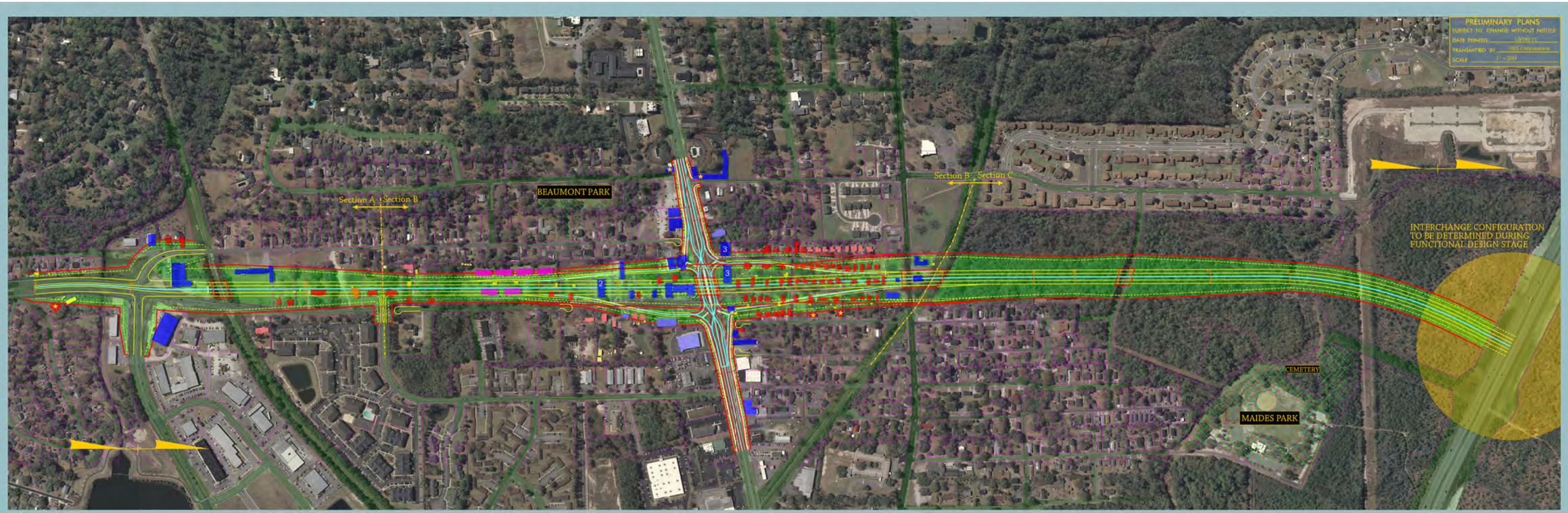

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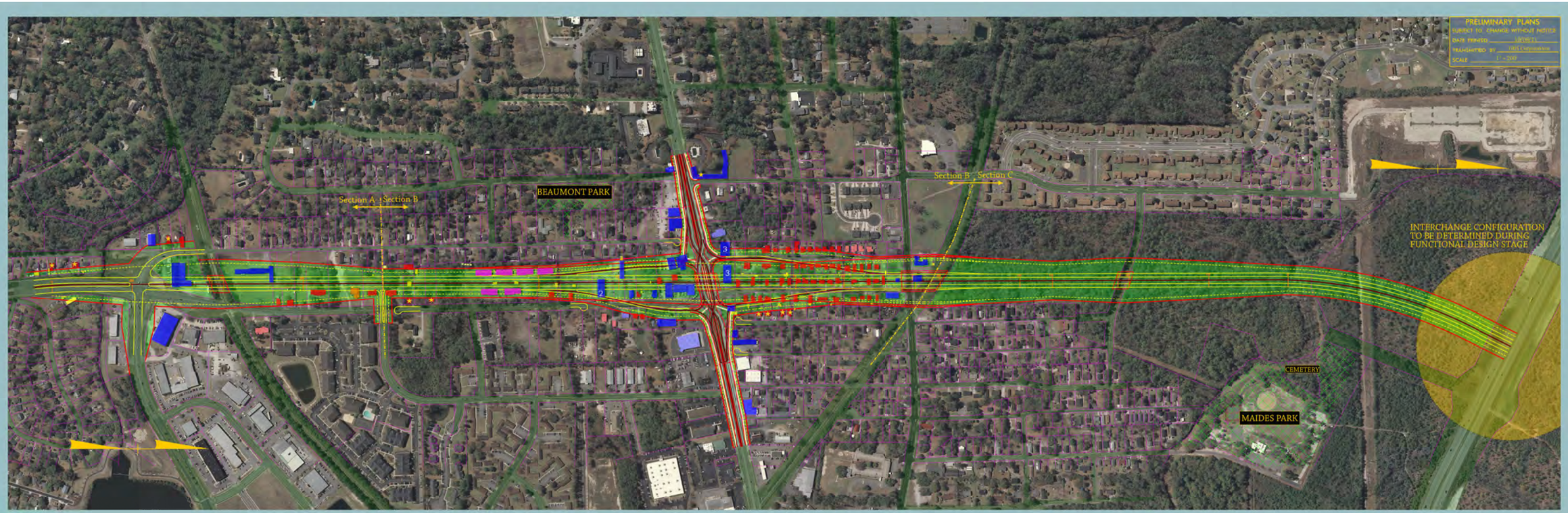

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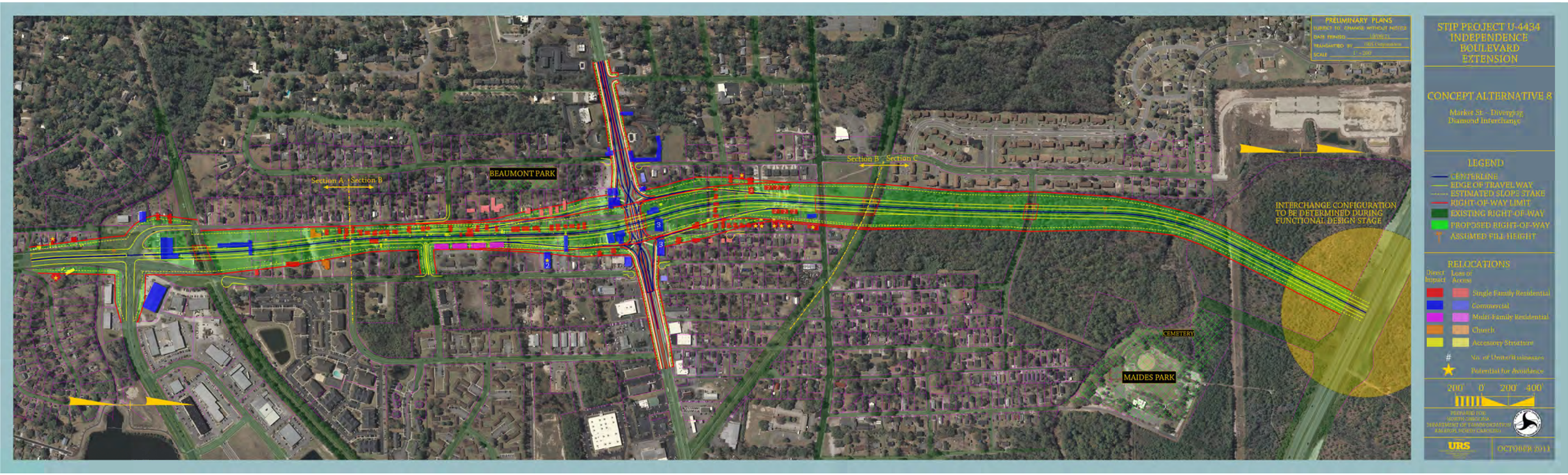

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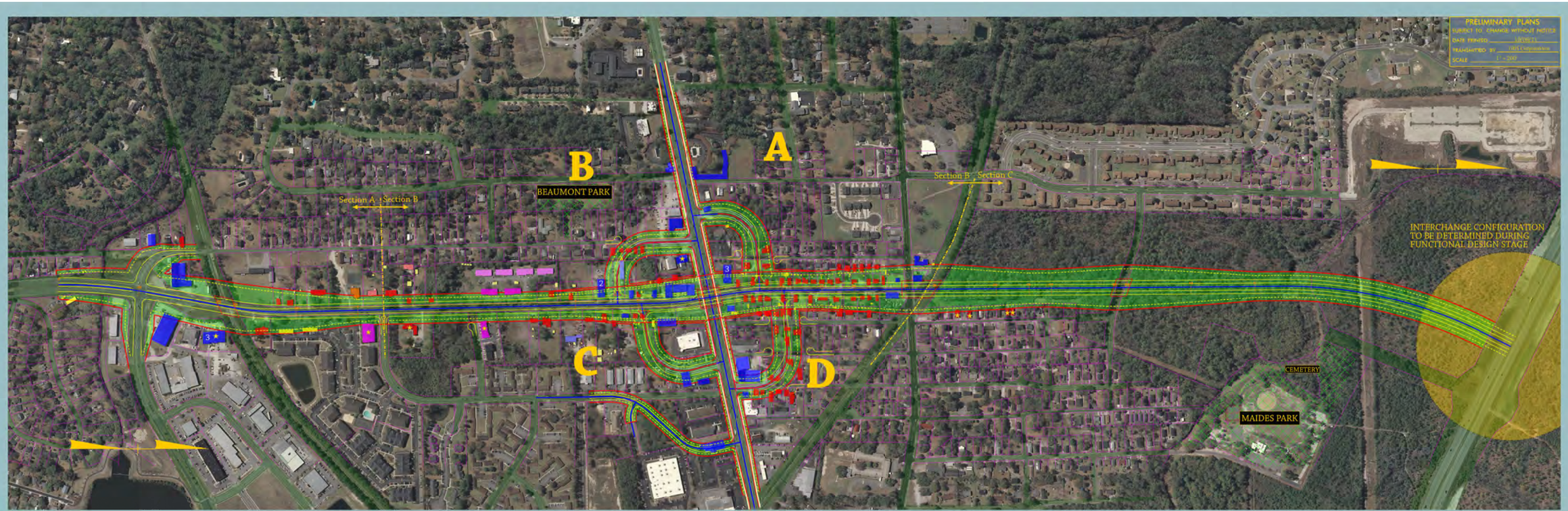

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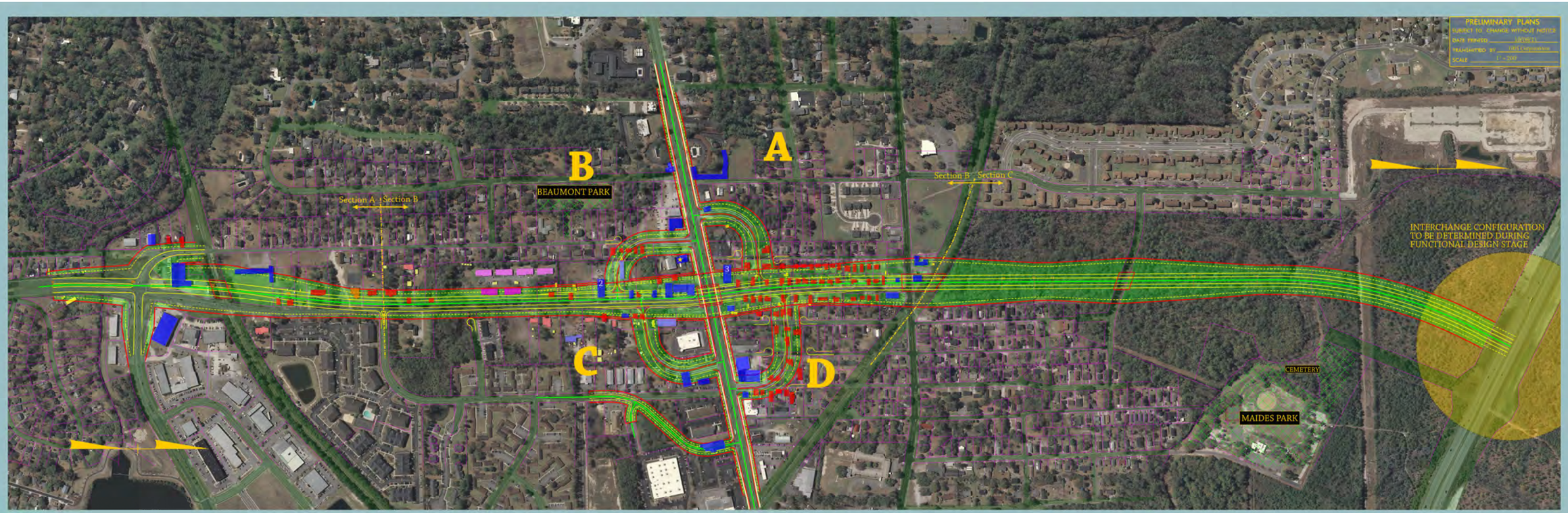

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URS
OCTOBER 2011

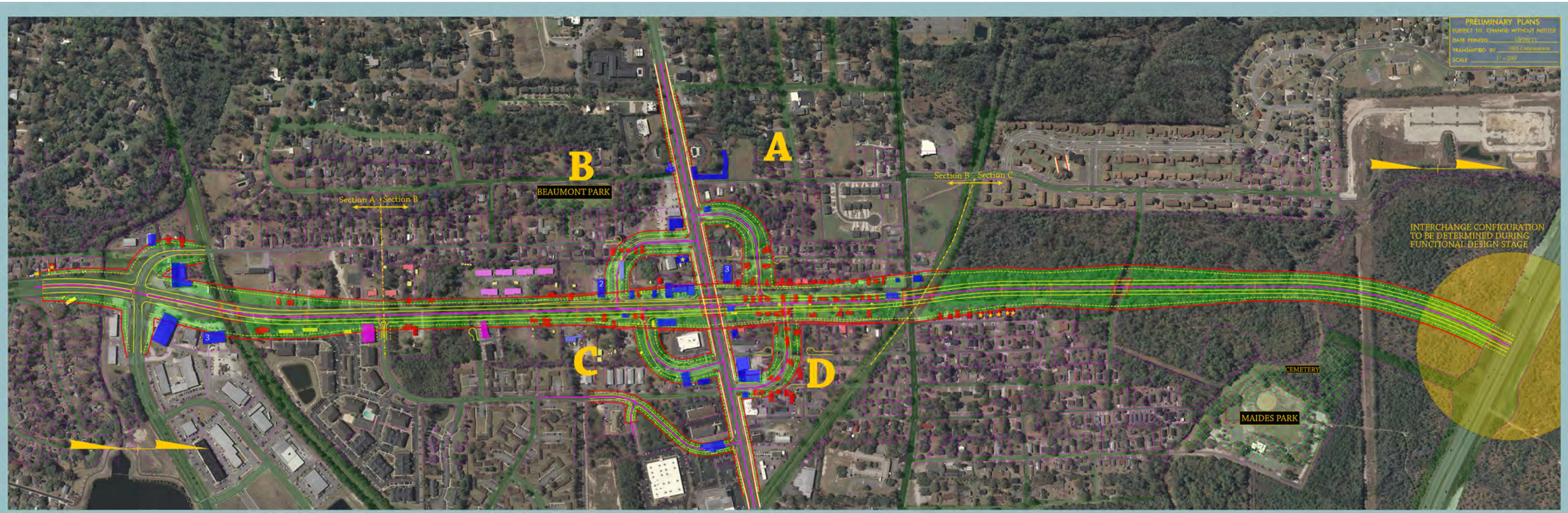

PRELIMINARY PLANS
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Section A
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Section C
BEAUMONT PARK
CEMETERY
MAIDES PARK
INTERCHANGE CONFIGURATION TO BE DETERMINED DURING FUNCTIONAL DESIGN STAGE
STIP PROJECT U-4434
INDEPENDENCE BOULEVARD EXTENSION
CONCEPT ALTERNATIVE 6
Market St. - Diverging Diamond Interchange
LEGEND
CENTERLINE
EDGE OF TRAVELWAY
ESTIMATED SLOPE STAKE
RIGHT-OF-WAY LIMIT
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
ASSUMED FILL HEIGHT
RELOCATIONS
Direct Impact
Loss of Access
Single Family Residential
Commercial
Multi-Family Residential
Church
Accessory Structure
No. of Units/Businesses
Potential for Avoidance
200' 0' 200' 400'
URS
OCTOBER 2011

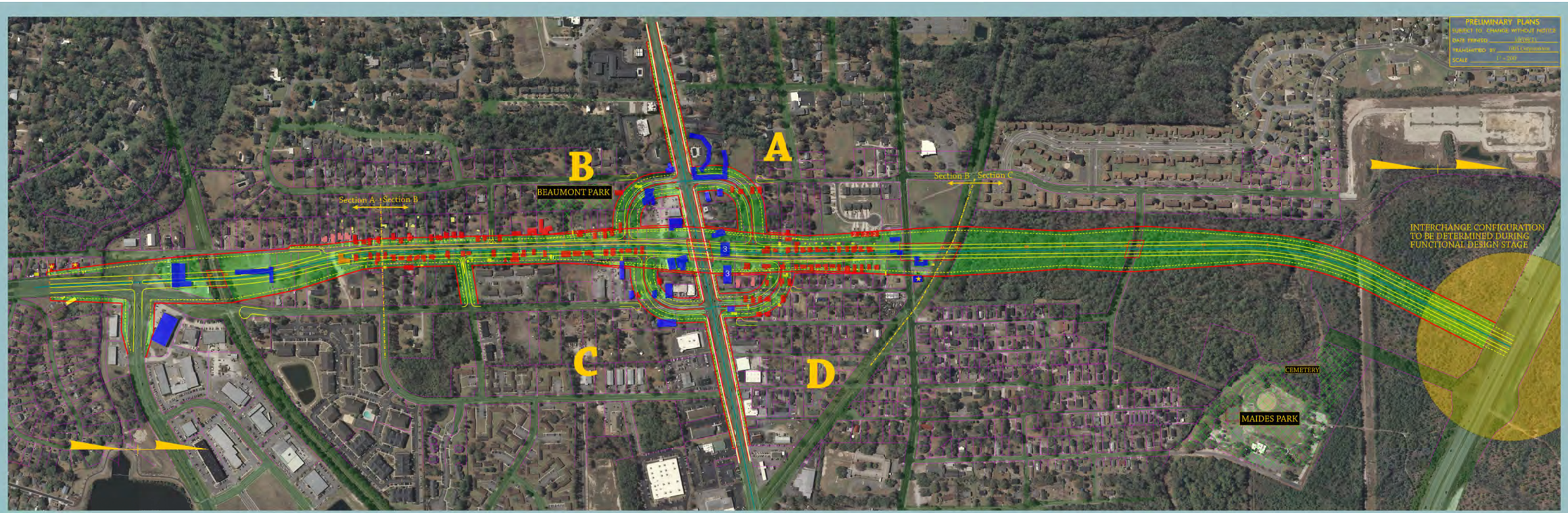

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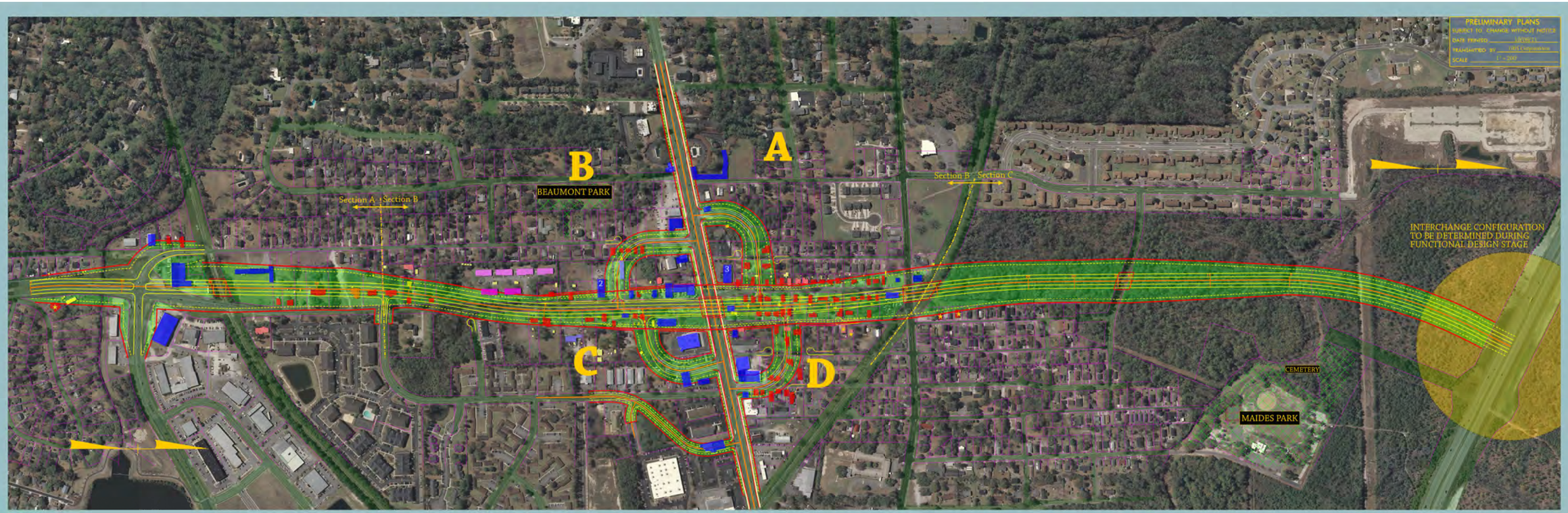

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COLUMBIA, SOUTH CAROLINA
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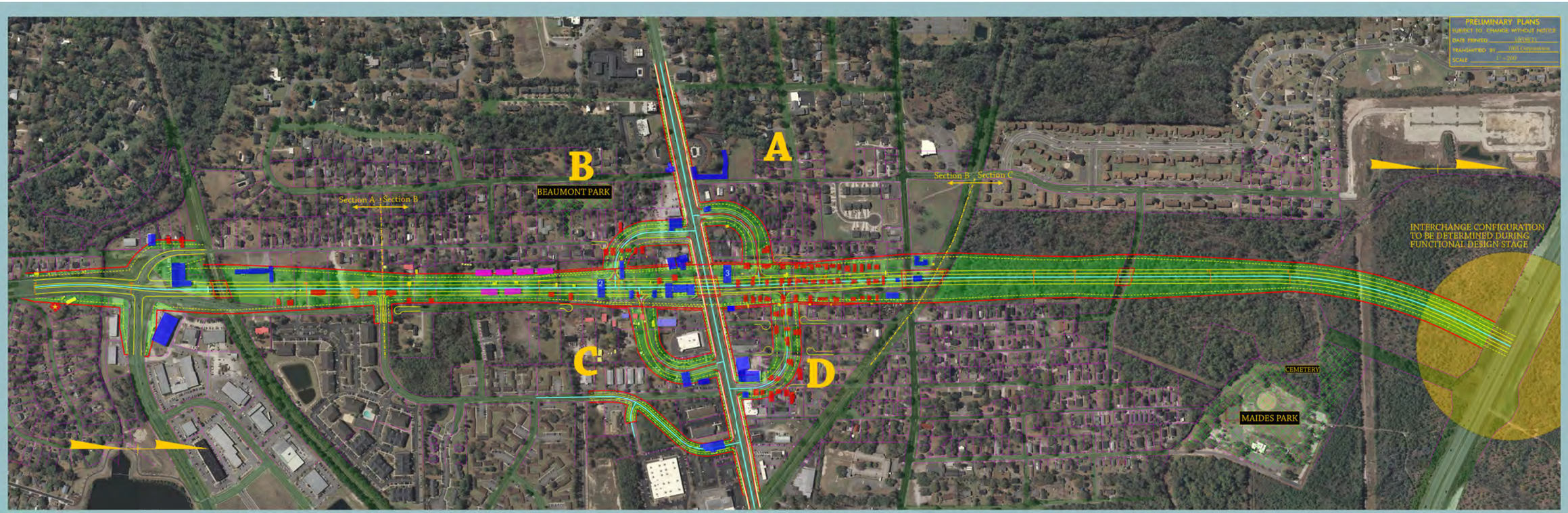

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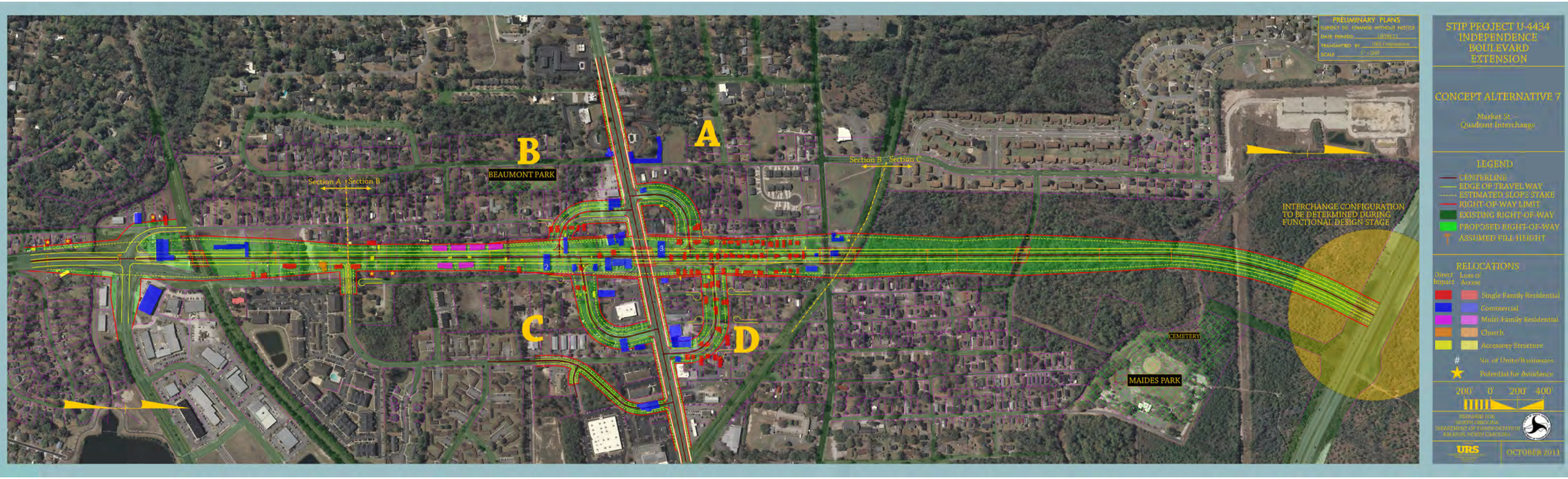

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CONCEPT ALTERNATIVE 2
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LEGEND
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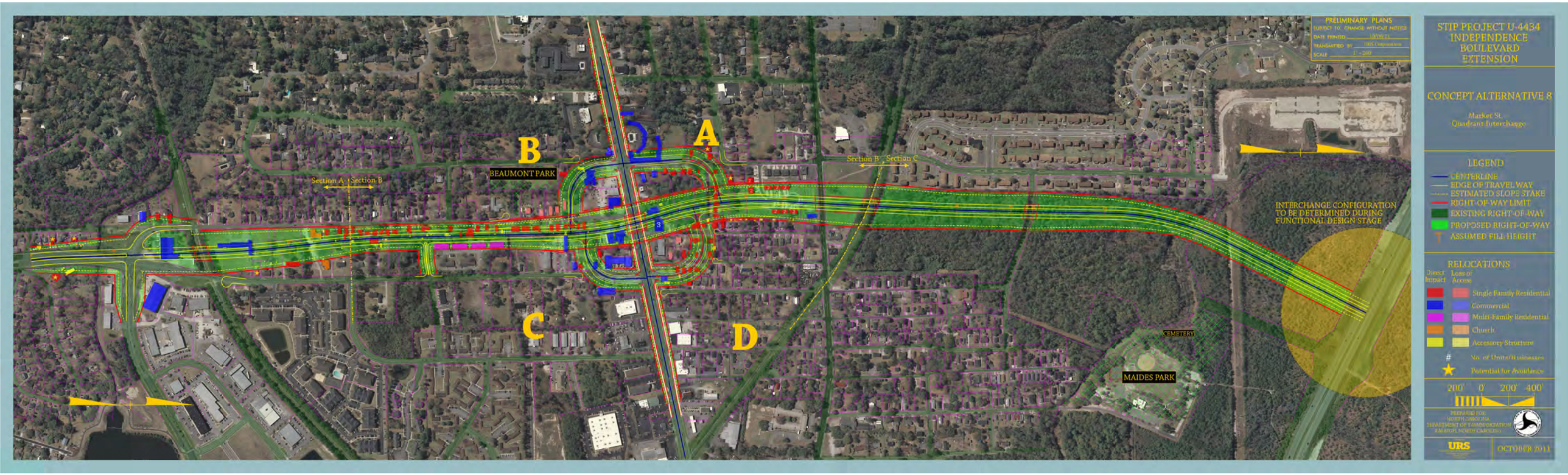

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CONCEPT ALTERNATIVE 3
Market St. – Quadrant Interchange
LEGEND
CENTERLINE
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RIGHT-OF-WAY LIMIT
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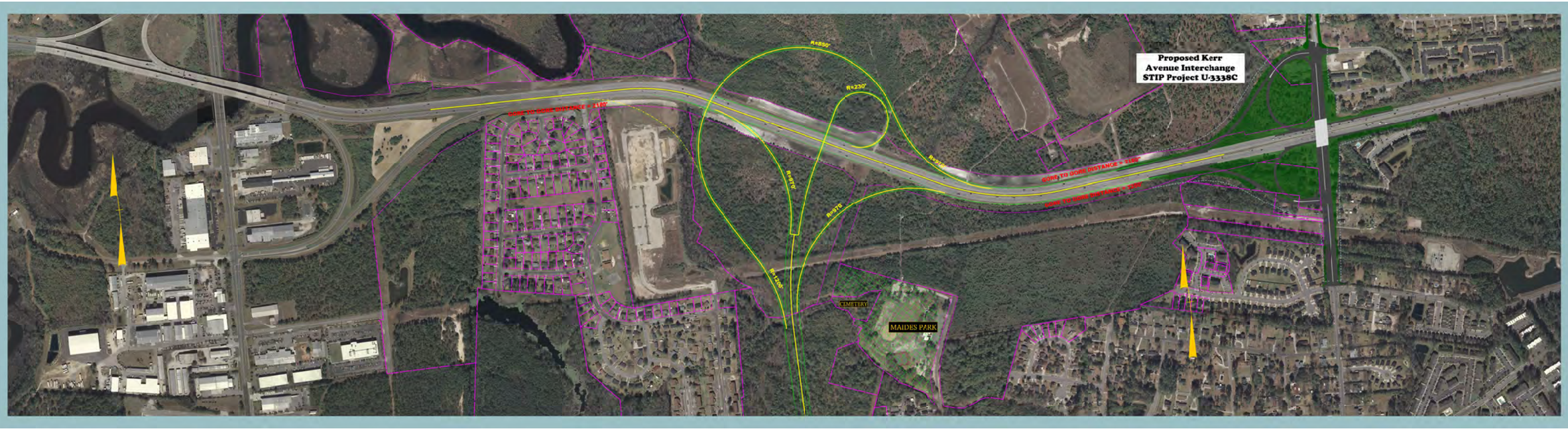

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Marker St.
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LEGEND
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& MAYOR, PATRICK CANNAVINO
URS
OCTOBER 2011
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INDEPENDENCE BOULEVARD EXTENSION
CONCEPT ALTERNATIVE 5
Market St.
(Quadrant Interchange)
LEGEND
CENTERLINE
EDGE OF TRAVELWAY
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COLUMBIA, SOUTH CAROLINA
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STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION

MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE

ALTERNATIVE A:
50 (Desirable)/50/30

DESIGN SPEEDS:

RAMP ENTRANCE/EXITS:
50 mph w/ 6 max. radius

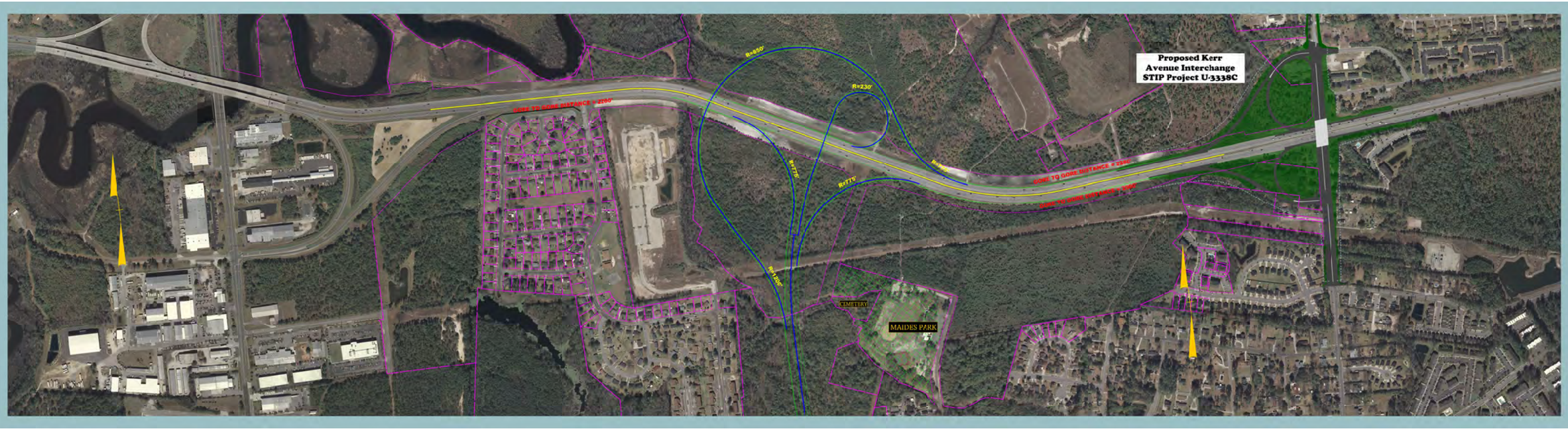
FLYOVER RAMP:
50 mph w/ 6% superelevation

LOOP RAMPS:
30 mph

200' 0' 200' 400'

URS

AUGUST 2013



STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION

MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE

ALTERNATIVE B
50 /Min.)/50/30

DESIGN SPEEDS:

RAMP ENTRANCE/EXITS:
50 mph w/ 8% superelevation

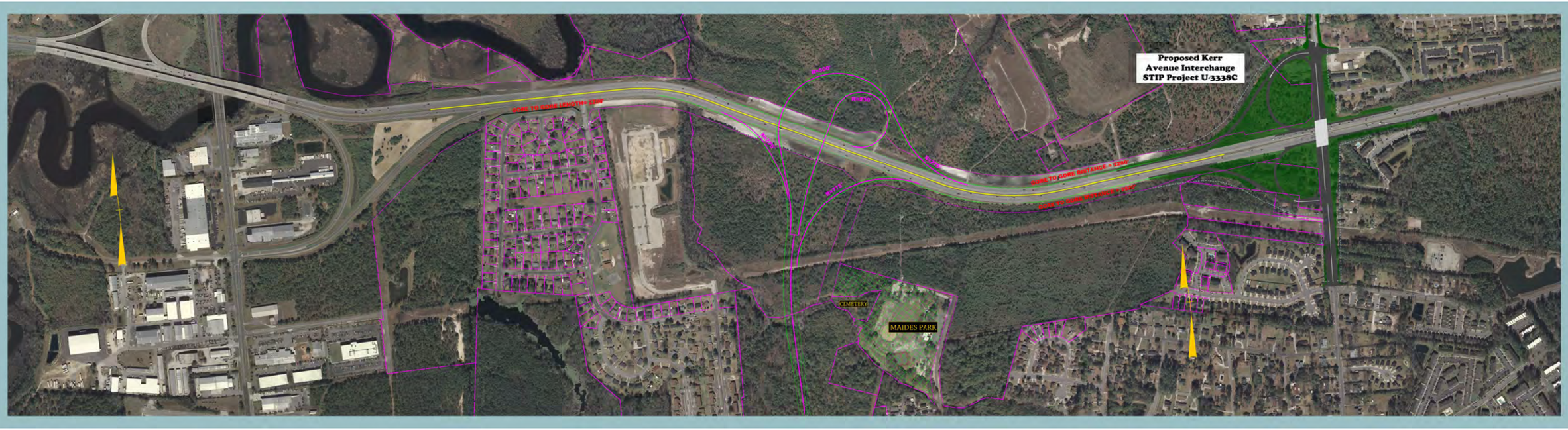
FLYOVER RAMP:
50 mph w/ 6% superelevation

LOOP RAMPS:
30 mph

200' 0' 200' 400'

URS

AUGUST 2013



STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION

MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE

ALTERNATIVE C:
50 (Min.)/40/30

DESIGN SPEEDS:

RAMP ENTRANCE/EXITS:
50 mph w/ 8% superelevation

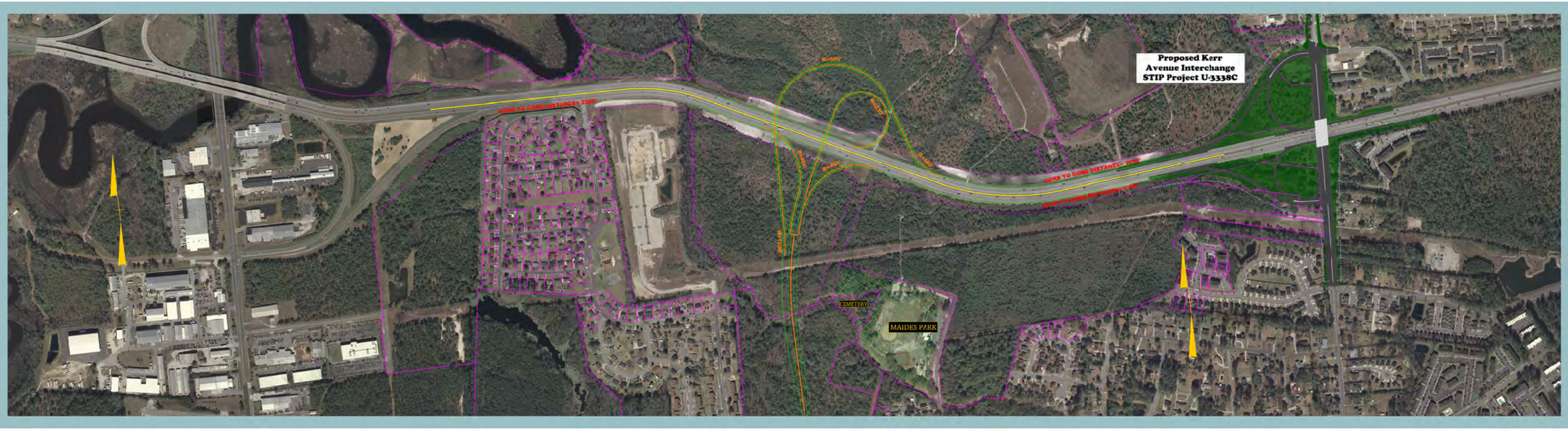
FLYOVER RAMP:
40 mph w/ 6% superelevation

LOOP RAMPS:
30 mph

200' 0' 200' 400'

URS

AUGUST 2013



STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION

MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE

ALTERNATIVE D:
90 (Min.)/40/30

DESIGN SPEEDS:

RAMP ENTRANCE/EXITS:
40 mph w/ 8% superelevation

FLYOVER RAMP:
40 mph w/ 6% superelevation

LOOP RAMPS:
30 mph

200' 0' 200' 400'

URS

AUGUST 2013

MEMORANDUM

December 15, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

SUBJECT: **Record of Meeting with NCDOT Project Team,**
December 12, 2011
State Project 37764.1.1 (TIP U-4434)
Independence Boulevard Extension, New Hanover County

ATTENDEES

Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT - Project Development & Environmental Analysis (PDEA)
Gary Lovering	NCDOT – Roadway Design Unit
Anthony West	NCDOT – Roadway Design Unit
BenJetta Johnson	NCDOT – Congestion Management Unit
Chandrakant Sura	NCDOT – Congestion Management Unit
Allen Pope	NCDOT – Division 3
Jackson Provost	NCDOT – Division 3
Chad Kimes	NCDOT – Division 3
Katie Hite	NCDOT – Division 3
Ron Lucas	Federal Highway Administration
Mike Kozlosky	Wilmington Urban Area Metropolitan Planning Organization
Mike Littlefield	URS Corporation
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to present the preliminary recommendations made by the Raleigh-based project team to the Wilmington MPO and Division 3 staff to make a final decision on which alternatives to carry forward into Preliminary Design. Additionally, project design issues and next steps in the project will be discussed.

MATERIAL ATTACHMENTS

For documentation purposes, several attachments are pertinent to these minutes. These items presented information which was discussed as a material part of decision-making:

- Meeting Agenda
- PowerPoint Presentation
- Preliminary Design Selection Meeting Handout

MEETING NOTES

Ted opened the meeting with introductions, by stating the purpose of the meeting and discussing the project timeline, noting that the project was on schedule. Peter then distributed the agenda and handout for the meeting and began with the PowerPoint presentation.

The following items are representative of the details discussed.

- The recommendations by the Raleigh-based project team included Alternatives 2, 7 and 8, each with the Tight Urban Diamond Interchange, Quadrant AC and Quadrant BC options at Market Street. The Division 3 and Wilmington MPO staff agreed with the recommendation.
- The Division 3 and Wilmington MPO staff also agreed with the recommendation for a 50 mph design speed for the flyover ramp from Martin Luther King Jr. Parkway to Independence Boulevard. The group recognized that natural resource impacts (and agency reaction) to the Smith Creek area may cause this design to be minimized at a later date.
- The typical section for Market Street was discussed and Mike Kozlosky felt that it was unlikely that bicycle lanes would be included along the roadway and that a wider sidewalk (greater than the standard 5 foot width) may be warranted. It was stated that the wider sidewalk or a multi-use path could transition to the planned road diet west of the project limits. Mike stated that it would be prudent to plan for a 10-foot multi-use path on both sides. With setback, he estimated need for a 13-foot berm width from back of curb. The accommodation of Bus Rapid Transit (BRT) along Market Street was also discussed and it was determined that the project would be designed based on the assumption that BRT would operate in mixed traffic along the outside travel lane within the limits of the proposed project and that no special transit accommodations were recommended along Market Street.
- Mike Kozlosky stated that at this point in the project it was safe to assume that the proposed project would not include any bus turnouts or transit amenities that would affect the project footprint.
- Bicycle and Pedestrian accommodations were discussed and Mike Kozlosky felt that it was likely that the Wilmington Greenway Plan that would be developed over the coming year would include a greenway that would run from Empie Park south of the project to Maides Park near the northern terminus of the project. The location of the greenway was discussed and the group felt it was preferable that the path would run along the toe of slope on the east side of the project; however, no formal decisions were made on specific bicycle or pedestrian accommodations. The challenges of two bike/ped RR crossings were briefly discussed. The project team discussed a recommendation from the NCDOT Bicycle and Pedestrian Unit staff that a design charrette be held to discuss the multi-modal amenities; however, the Division and MPO did not feel that it was the right time to have a meeting due to the uncertainty in future plans and the funding for the multi-modal improvements. NCDOT noted that their policies required the initial steps be taken by the local governments and requested that the MPO or City provide a letter detailing what types of accommodations they would like included in the proposed project.
- The closure of Kornegay Avenue (with reconnection to 23rd St) was discussed and Allen Pope stated that it used loop funds and was beyond the capacity of what could be done as a Division Design Construct (DDC) project and recommended that it be included in the proposed project instead. Mike Kozlosky noted that it had been included in the prioritizationand was included in the second tier of project which would mean it is not likely to be in place prior to the construction of the proposed project. Allen felt that unless the project could be built without the closure of Kornegay Avenue that it should be included in the proposed project. NCDOT PDEA will further investigate and determine the next steps relating to this issue.
- The next steps were also discussed and it was recommended that a meeting be held with local staff (possibly in the morning) and with local elected officials (possibly in the afternoon or evening). The Division

and MPO staff felt that holding the meeting 2-3 weeks before the workshop would be best from a timing standpoint.

- The conceptual phasing plan at Randall Parkway was discussed and the Division 3 staff felt that it seemed to present the most viable solution to maintaining traffic during construction.

MEETING RECOMMENDATIONS

The following recommendations were agreed to by the project team and will be developed as Preliminary Design Alternatives:

- Alternatives 2, 7 and 8 with the TUDI, Quadrant AC and Quadrant BC options at Market Street for each alignment
- Trumpet interchange with 50 mph design (Alternative B)

cc: Attendees

URS

M E M O R A N D U M

December 13, 2011

TO: Gary Lovering

FROM: Mike Littlefield

DATE: December 13, 2011

SUBJECT **Record of Meeting with NCDOT, December 13, 2011**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Gary Lovering	NCDOT Roadway Design
Anthony West	NCDOT Roadway Design
Peter Trencansky	URS Corporation
Mike Littlefield	URS Corporation

PURPOSE

The purpose of the meeting was to discuss the Preliminary Design Guidelines for the Independence Boulevard Extension Project and understand the expectations for the Preliminary Design phase of the project.

MEETING NOTES

Peter opened the meeting stating the purpose is to discuss the details of the preliminary design submittal including approval of the proposed design criteria. The following bullets are representative of the details discussed.

- Gary stated that URS is to follow NCDOT's Preliminary Design Guidelines as the baseline for work to be included in the preliminary design phase
- URS will provide typical sections for –L-, -Y2- (Randall Parkway), -Y9- (Market Street), -Y10- (MLK), -Y17- (Princess Place), -Y19- (Hurst Street), bridges on –L-, and the MLK flyover
- Gary will review the design criteria for –L- and the MLK flyover, ramps, and loop
- URS will include the design speed with the horizontal and vertical curve data on the

URS Corporation – North Carolina
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560
Tel: 919.461.1100
Fax: 919.461.1415

plans

- Gary stated that a pavement design is not needed at this point to proceed with preliminary design
- URS will show superelevation increments on the plans in full percentage points
- URS will only utilize spirals on the MLK interchange ramps exiting MLK
- URS will perform vertical clearance calculations with the minimum number of points necessary to prove adequate vertical clearance has been provided
- URS will label overall storage lengths at intersections and any tapers or transitions for median transitions and lane additions / drops. Minor tapers for adding turn lanes at intersections will not be labeled
- URS will show lane lines at intersections and along the roadways in the plans only to the extent necessary to display lane configurations (100'-150' from intersections with 100-200 foot long lane lines shown)
- URS will perform gore calculations for internal use in design, but not submit them. The gore calculations will be detailed enough to prove that the rollovers are acceptable
- URS will show all guardrail and anchor units in the plans
- URS will show right-of-way monuments in the plans but are not required to label the station and offset
- URS will dimension right-of-way widths where a consistent width is provided for an extended length
- URS will submit the plans on topographic mapping without aerials
- URS will include any channel relocations for major drainage ways; however no toe of fill ditches will be included in the design.
- URS will show proposed bridges in the profile including estimated length and structure depth
- URS will assume all proposed bridges are single span. If distance becomes excessive, URS will work with NCDOT to determine what type of span length to use.
- URS will show simple / smooth profile ties which do not include the pavement section of the –Y- line being tied to. The profile will note the cross slope of the roadway that is being tied to, for easier review of the tie.
- URS will assume a 3 inch overlay on Market Street to tie to
- URS is not required to provide an overlay profile on Market Street, but will show a 3 inch line above existing ground
- URS will provide 11x17 hard copy cross sections at 1"=10' scale
- URS is not required to utilize shear lines to develop cross sections but will provide enough detail in the cross section to get reasonable quantities for the earthwork. URS

will decide whether to run ramps and mainlines in the same cross section file or in separate files. The summary of earthwork will be broken out by alignment to the greatest extent possible.

- URS will not be required to break the quantity calculations into sections A, B, and C as shown on the conceptual plans
- URS will submit a summary of quantity totals, but are not required to provide individual break down quantity sheets
- URS will develop three –L- centerline chains to represent Alt2, Alt7, and Alt8. All quadrant and TUDI ramps will tie to these three centerlines and separate centerline will not be developed for the individual intersection options.
- URS and NCDOT discussed the expectations for how precise the designs need to be. URS had concerns that due to the urban nature and high number of constraints and variables to consider in the design that developing a completely optimized solution for all alternatives would be time consuming and costly. NCDOT agreed and stated that their expectation was that the designs should be to the level where they are within a reasonable tolerance of being optimized. For example, if the intent was to hold a property line then the designs should be within 10-15 feet of the property line. For estimating purposes it is assumed that the initial design will be developed and that one iteration of the design will be undertaken to further optimize the design. Additional optimization will be included later in design if needed or at the time a preferred alternative is selected.
- URS will develop the preliminary designs alignment without consideration for retaining walls and the inclusion of retaining walls into the design will be done at a later date as a minimization measure. Any future incorporation of retaining walls that require a shift in the alignment would be scoped in a future task order and are not included in the intial preliminary design scope.
- URS will provide develop a basic traffic control plan to show the phasing detail of the Randall Parkway / Independence Boulevard raised intersection including developing the detour and phasing to the preliminary design level, including the evaluation of retaining walls and temporary detour routes to maintain traffic during construction.
- NCDOT agreed that corridor modeling will not be used for the preliminary design of the project
- URS will submit hard copy plans and cross sections. Digital files are not required. Gary said he will provide a cursory review of the plans if URS would like to make a partial submittal of one of the design alternatives. The review will not include detailed review of the design, but will include a review of the completeness of the plans and whether they meet the expectations of NCDOT.

- URS will wait until a preferred alternative is selected to develop service road concepts
- URS is not required to include bike and pedestrian facilities into the preliminary design. Once a preferred alternative is identified and the local governments make commitments to the features the plans will be updated (under a separate scope of work) to incorporate the amenities
- The right-in/right-out connection for Darlington Street at –L- was discussed and NCDOT recommends that this connection be eliminated. URS will discuss this with PDEA and determine prior to developing preliminary designs if it can be removed from the design.

CC: Attendees
File

URS

M E M O R A N D U M

January 12, 2012

TO: Attendees

FROM: Mike Littlefield

DATE: January 9, 2012

SUBJECT **Record of Meeting with NCDOT, January 9, 2012**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Ted Devens	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Anthony West	NCDOT Roadway Design
Bob Mosher	NCDOT Bicycle and Pedestrian Division
Nancy Horne	NCDOT Rail Division
Andrew Thomas	NCDOT Rail Division
Richard Mullinax	NCDOT Rail Division
Peter Trencansky	URS Corporation
Mike Littlefield	URS Corporation

PURPOSE

The purpose of the meeting was to discuss the incorporation and design of a multi-use path along the Independence Boulevard Extension Project.

MEETING NOTES

Ted opened the meeting stating the purpose was to discuss the details of the multi-use path and the related right-of-way impacts associated with the addition of the path along the east side of Independence Boulevard. The following bullets are representative of the details discussed.

Multi-use Path Typical Section

- Bob stated that NCDOT's typical for a multi-use path does not apply in this application and that 40 feet of additional right-of-way would not be a necessary requirement along Independence Boulevard.

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- Bob stated that lighting along the multi-use path may be required, but the City of Wilmington would likely be required to pay for and maintain it.
- Peter stated that AASHTO does not require a 5 foot graded shoulder on multi-use paths (as shown in the NCDOT typical section) and that a 2 foot graded shoulder would likely work in this application.
- The group agreed that the multi-use path will be located on the east side of Independence Blvd. Unless special conditions exist, the path would be at-grade at the toe-of-slope of the highway.
- The group agreed that a design which would not require a ditch along the east side of the multi-use path would work best and reduce right-of-way requirements.
- Peter stated that a 1 percent cross slope draining back toward Independence Blvd. would work except in tight curves or specific areas where the path changes directions sharply or crosses streets. This design would allow for a v-ditch at the toe of fill on Independence Blvd to drain the multi-use path.
- The group agreed that additional room on the east shoulder of the path should be provided for lighting and that light poles could be placed at least 5 feet from the edge of the path.
- Gary stated that URS is not required to design the path for the preliminary design phase and will wait until an alternative has been selected before proceeding with the detailed design.
- The group agreed that 50 feet should be provided between the roadway slope stake on the eastern side of Independence Blvd and the proposed right-of-way line to allow room for the path and its impacts. The design plans will show a 40-foot wide strip that will designate the corridor for the multi-use path. The additional 10 feet is based on the standard offset for maintenance and construction, and also offers additional width to accommodate cut/fill that ties-in with existing landscape.

<u>Multi-use Path Location</u>

- Ted Devens conferenced in Mike Kozlosky via telephone and Mike and other MPO staff participated in the remainder of the meeting via conference call.
- The group agreed that the path should have a perpendicular crossing of Independence Blvd. and Randall Parkway at the Randall Parkway intersection. Connections from the Cross-City trail will need to be made to both an east-side multi-use path, as well as to neighborhoods bordering Mercer Avenue to the east side of Covil Avenue. The path will be on the south side of Randall Parkway and cross Randall Parkway and Independence Blvd. The group discussed potential options for crossing Independence south of the railroad track. Options discussed included a standard at-grade crossing

along the south side of the intersection (via crosswalk), a pedestrian culvert or extending the bridge over the railroad beyond the railroad right-of-way to accommodate a crossing. No decisions were made on the crossing type and URS will evaluate the options during Preliminary Design and make recommendations to NCDOT at a later date.

- Peter stated that URS is investigating whether or not Mercer Ave. can be connected to the intersection to create a 4-leg intersection. Gary stated that for preliminary design it would be acceptable if the grades on Mercer approached 8-9 percent in order to make the connection. Peter stated adding the Mercer connection may cause the intersection to fail from a traffic standpoint but would provide further feedback after the meeting with additional details.
- The group agreed that the path would cross the railroad at the existing Covil Avenue crossing location, which would be modified to prohibit vehicular traffic. The NCDOT Rail Division will coordinate with CSX, likely through the upcoming Wilmington Traffic Separation Study, on this approach.
- The group agreed that the path should cross Darlington Ave. at a perpendicular angle at the end of the radius return.
- The group agreed that running the path along the outside of Quadrant Ramp C and then west along Market (at the signalized intersection) before continuing north along the toe of slope for Independence Blvd is the best option.
- Gary stated that URS should use a curb and gutter typical section on all of the quadrant ramps, which would allow the multi-use path to be on a berm adjacent to the roadway rather than at the toe of fill.
- The group agreed that the multi-use path would run along the outside of the ramps for the Tight Urban Diamond Interchange options with a crossing at the ramp intersection with Market Street.
- Mike K. stated that the City desires 8 foot sidewalks along Market Street east of the Market Street interchange and the width would be 10 feet when overlapping with the multi-use path. Mike indicated that standard 5-foot sidewalks within the interchange (under the bridge) and west of the interchange were acceptable.
- Mike K. stated that he would provide a typical section on Market Street that reflects future construction planned by the City.
- A discussion was held on potential options for crossing the northern railroad crossing in the vicinity of Princess Place Drive. A multi-use path along the toe of slope would likely require a new at-grade crossing of the railroad for the path. There was concern that this type of design may be considered a new crossing by CSX and may require mitigation through the closure of other at-grade crossings along the railroad. The group also discussed the possibility of running the path along the edge of the roadway (behind the noise wall) at the top of the fill slope, utilizing the bridge crossing of the railroad. The

group felt this was less desirable as it would not allow for a connection to the adjacent neighborhoods nor the multi-modal accommodations along Princess Place and may be difficult from an ADA compliance standpoint due to the grades. Mike K said that he preferred the option that carried the path along the top of fill. NCDOT Rail Division will discuss the crossing with CSX Rail to determine how best to design the crossing. The group determined that the 50-foot offset would be adequate for either configuration during preliminary design and that the decision on the exact configuration could be made at a later time.

- A discussion was held about the options to tie the path into Maides Park and Mike K. will contact the Wilmington Housing Authority to determine if an easement through their property could be obtained to allow a new connection to the park.
- Mike K. stated that the City of Wilmington prefers the path connect to Maides Park through a connection on new location, but did not rule out the option of connecting to the park through existing city streets if all other options were too problematic.

ACTION ITEMS

- Mike Kozlosky will provide a typical section on Market Street that reflects future construction planned by the City. He will also provide guidance as to where to tie-in the multi-use path with Maides Park. (This location would mark the end of the multi-use path adjacent to highway).
- NCDOT Rail Division staff will coordinate with CSX Rail to determine if a vehicular crossing converted to a pedestrian crossing only at the southern crossing (Randall Parkway) and a new pedestrian only crossing for the northern crossing (Princess Place) will be allowed and how many, if any, at grade closures will be required in exchange for the modified crossing.
- Peter will provide a typical section of the proposed pedestrian only crossing and an overall impacts map for NCDOT Rail Division staff to use in coordinating with CSX Rail once the preliminary designs plans are developed enough to convey the intent of the design.
- Addition by Devens AFTER the meeting: Peter will provide a typical section of the proposed highway in combination with an east-side multi-use path at toe of slope. If it is later determined that the multi-use path will share highway grade, then Peter will also develop a typical section of this scenario.

CC: Attendees
File

URS

M E M O R A N D U M

August 31, 2012

TO: Attendees

FROM: Peter Trencansky

DATE: August 15, 2012

SUBJECT **Record of Meeting with NCDOT, August 15, 2012**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Ted Devens	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Fred Barkley	NCDOT Right of Way
Peter Trencansky	URS Corporation
Ed Edens	URS Corporation
Dena Snead	URS Corporation

PURPOSE

The purpose of the meeting was to review the preliminary design centerline alignments for the three mainline alternatives of the Independence Boulevard Extension Project. The goal was to reach agreement on the centerline locations for the three alternatives before URS begins developing the interchange options at Market Street. Once the alignments are agreed to URS will move forward with the interchange design and any change of alignment for the mainline requested by NCDOT would require an additional scope of services to complete.

MEETING NOTES

Ted opened the meeting stating he and Fred Barkley had discussed the designs provided to the right-of-way branch as part of the TIP right-of-way cost update. The designs provided were for the Alternative 2 alignment with Tight Urban Diamond Interchange. Ted provided a list of comments that were developed when they met.

<u>Randall Parkway/Independence Boulevard Intersection – common to all alternatives</u>
The main comment was the southern terminus of the project at Randall Parkway. Fred felt that we

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could shift the Randall Parkway intersection to the south to potentially minimize the impacts to the property in the northeast quadrant of the intersection. Following a discussion of the construction phasing and the location of the detour roadway it was determined that shifting the alignment would likely result in a minimal change to the impacts in the northeast quadrant due to the location of the Independence Boulevard mainline. Therefore, it was agreed that the design presented was adequate and that no changes would be made. It was noted that the possibility would exist for adding retaining walls later in the process to minimize impacts at this location, if determined to be feasible.

Alternative 2

The design for alternative was reviewed and Fred and Ted both noted that shifting the alignment to the west would minimize impacts. It was noted that Alternative 2 was meant to utilize the existing Covil Avenue corridor and that the shift would move the alignment to the location of Alternative 7. The alignment for the connection from Darlington Street to Independence Boulevard was discussed and it was agreed that the alignment should be shifted (for all three alternatives) such that none of the apartments to the south and east of the connection would be taken due to the Darlington connection, and if possible, such that no right-of-way would be taken from the apartment complex. It was noted that there was the possibility for future minimization, via use of retaining walls at Sta. 73+00 to 80+00 along the east side of the alignment.

Following the discussion it was determined that no changes to the Alternative 2 mainline would be needed and that the development of the Market Street interchanges could begin.

Alternative 7

The Alternative 7 alignment was reviewed and everyone felt it was a good alignment from a minimization of impacts standpoint. It was noted that there was the possibility for future minimization, via use of retaining walls at Sta. 70+00 to 81+00 along the east side of the alignment. It was also decided that for the bridge over Princess Place and the CSX railroad that the right-of-way line would be drawn to connect the proposed right-of-way lines outside the toe of fill for each bridge abutment, thus taking the daycare center that would be immediately adjacent to the proposed bridge.

Following the discussion it was determined that no changes to the Alternative 7 mainline would be needed and that the development of the Market Street interchanges could begin.

Alternative 8

The Alternative 8 alignment was reviewed and generally everyone agreed it had merit from an impact standpoint. It was decided that the curve north of Market Street should be flattened and the tangent shifted slightly such that the alignment would not take any structures within the Creekwood South housing complex operated by the Wilmington Housing Authority. The connection from

Darlington Street to Independence Boulevard was discussed and it was agreed at the meeting that the design would include the same connection from Darlington Avenue that is shown on Alternatives 2 and 7.

Following the discussion it was determined that the alignment for the Alternative 8 mainline would be shifted to eliminate any takes from Creekwood South and that once revised the development of the Market Street interchanges could begin.

Martin Luther King Jr. Parkway Interchange

The interchange designs for MLK Jr. Parkway were discussed and the connection for each of the alternatives was very similar. NCDOT agreed to the layout of the interchange and noted that the design for Alternative 2 and 7 clip a corner of the park property. It was agreed that the designs would be modified as appropriate (via slopestakes or retaining wall, but without altering centerline if possible) to avoid impacting any park property – thus pulling back the R/W line for a short distance at this location. There was also a discussion on the best methods for adding the auxiliary lanes and the merge/diverges along MLK Jr. Parkway and it was agreed that a future meeting would be held to discuss these once the new traffic was approved and the capacity analysis was completed.

Kornegay Avenue Closure

The closure of Kornegay Avenue was discussed and it was determined that NCDOT should review the previous decisions for the closure with Karen Fussell. NCDOT will provide guidance to URS on how to proceed once they discuss this location with Division 3 staff.

Bridge Span Lengths

The span lengths for bridges were discussed and URS noted that several of the locations would require either vertical abutments to maintain a single span or that multi-span bridges would be required for span lengths greater than 140 feet. NCDOT agreed with the use of vertical abutments and noted that the structure depths included in the design manual provided flexibility in design during the later stages. Gary also agreed that it would be acceptable to use steel bridge spans as long as the structure depth was adequate to be flexible in final design.

ACTION ITEMS

- URS will revise the centerline alignment for Alternative 8 as discussed above.
- URS will provide a right-in/right-out connection from Darlington Street to Independence Boulevard, at the same location, for all alternatives.
- URS will continue with the design of the Market Street interchanges once the traffic forecast is approved with the design work potentially beginning prior to the CIW#2 being held in late September.

- URS will modify designs as appropriate to avoid impacting Maides Park.
- URS will request a meeting to discuss the design of the auxiliary lanes and interchange at MLK Jr. Parkway once the updated traffic forecast and capacity analysis are complete.
- NCDOT will provide guidance on how to proceed with the Kornegay Avenue closure.

CC: Attendees
File

URS

M E M O R A N D U M

September 4, 2012

TO: Attendees

FROM: Peter Trencansky

DATE: August 28, 2012

SUBJECT **Record of Briefing with Wilmington City Council**
August 27-28, 2012
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Bill Saffo	Wilmington Mayor
Earl Sheridan	Wilmington Mayor Pro-Tem
Margaret Haynes	Wilmington City Council Member
Neil Anderson	Wilmington City Council Member
Kevin O'Grady	Wilmington City Council Member
Laura Padgett	Wilmington City Council Member
Charlie Rivenbark	Wilmington City Council Member
Mike Kozlosky	Wilmington MPO
Ted Devens	NCDOT PDEA
Brian Yamamoto	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Karen Fussell	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to brief the Wilmington City Council Members in advance of the citizens informational workshop that is anticipated to be held in early October 2012. The goal of the briefings was to present the current Detailed Study Alternatives and describe the process of alternative development. NCDOT wanted to provide an opportunity for the City Council to review the materials for the workshop, ask questions and provide insight into the best methods for outreach to the community. The meetings were held in smaller groups with Council Members

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Padgett and Rivenbark attending the August 27th briefing, Council Members Sheridan, Anderson and O'Grady attending a 10:30 briefing on August 28th and Council Member Haynes and Mayor Saffo attending an 11:30 briefing on August 28th.

MEETING NOTES

Each of the briefings included a cursory review of the Alternatives Selection Meeting PowerPoint, the Citizen's Informational Workshop #2 PowerPoint and the workshop maps for each alternative. The briefings were informal in nature and had a question and answer style format with each group sharing information with the others. The following items were discussed throughout the course of the briefings:

- Nearly all of the City Council Members stated that the scale of the proposed project being an elevated expressway was a surprise to them, but they understood why.
- City Council did state that they frequently heard from constituents that the transportation system in Wilmington was inadequate. It was also noted that making transportation network improvements was one of the highest priorities in the 2012 Community Survey.
- It was noted that minority and low income populations were abundant within the study area and that additional measures should be used to engage the community. It was also noted that the study area included a large number of renters and additional measures to alert them to the project may be needed.
- In principal the City Council understood the need for improved north-south traffic flow and the rationale behind the alternatives development process. Conversely, they noted concerns due to the scale of the project and how it would affect the local community.
- Concerns were relayed regarding the potential for the project to split the city and the visual and psychological effect of an elevated expressway with noise walls within an urban portion of the city.
- City council was supportive of the idea of providing a greenway along the corridor and felt it would be a beneficial result of the project construction.
- City Council also noted that NCDOT should be prepared to present why other options will not be able to provide adequate north-south traffic flow within Wilmington, especially an improved Kerr Avenue and Randall Parkway.

CC: Attendees
File

URS

M E M O R A N D U M

September 4, 2012

TO: Attendees

FROM: Peter Trencansky

DATE: July 17, 2012

SUBJECT **Record of Briefing with City of Wilmington Staff**
July 17, 2012
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Don Bennett	City of Wilmington
Denys Vielkanowitz	City of Wilmington
Mike Kozlosky	Wilmington MPO
Suraiya Rashid	Wilmington MPO
Ted Devens	NCDOT PDEA
Brian Yamamoto	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
BenJetta Johnson	NCDOT Congestion Management
Anthony Law	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Patrick Riddle	NCDOT Division 3
Katie Hite	NCDOT Division 3
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to brief the Wilmington City Staff in advance of the citizens informational workshop that is anticipated to be held in early October 2012. The goal of the meeting was to present the current Detailed Study Alternatives and describe the process of alternative development. NCDOT wanted to provide an opportunity for the City Staff to review the materials for the workshop, ask questions and provide insight into the best methods for outreach to the community.

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MEETING NOTES

The meeting included a review of the Alternatives Selection Meeting PowerPoint, the conceptual design traffic capacity analysis summary and the workshop maps for each alternative. The meeting was informal in nature and had a question and answer style format with each group sharing information with the others. The following items were discussed throughout the course of the meeting:

- It was requested that the multi-use path be added to the visualizations prior to the workshop.
- It was noted that lighting of the overpasses would be important and it was recommended that a commitment be made that NCDOT would investigate lighting at the appropriate time.
- It was noted that providing structures that were not inhabitable (ie: vertical abutments) would be beneficial.
- A one-way pair with northbound traffic along Covil Avenue and southbound traffic along Mercer Avenue was discussed and the reasons for eliminating the alternative were presented.
- Following the presentation of the alternatives development the group was in agreement that an at-grade option at Market Street would not be able to provide adequate traffic operations.

CC: Attendees
File

URS

M E M O R A N D U M

TO: Attendees

FROM: Peter Trencansky

DATE: February 8, 2013

SUBJECT **Record of Meeting for Railroad Coordination**
January 17, 2013
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Roberto Canales	NCDOT Secretary's Coordinator of Strategic Initiatives
Ted Devens	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Jim Harris	NCDOT Rail Division
Nancy Horne	NCDOT Rail Division
Omar Azizi	NCDOT Structures Management
Stephanie Ayers	North Carolina State Ports Authority (by telephone)
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to continue coordination on the railroad aspects of the Independence Boulevard Extension project. The goal of the meeting was to determine the design criteria for the railroad crossings that will be included in the preliminary design plans that are currently being developed by URS.

MEETING NOTES

The meeting included a review of the project vicinity, study area and the conceptual alternatives that were developed. In addition to the project specific graphics (attached), two additional maps were presented. One map showed the overall railroad network within the Wilmington region while the second map was a zoomed-in map that showed the Wilmington center-city area, the project study area, and existing at-grade railroad crossings. The meeting was informal in nature and had a question and answer style format with each group sharing information with the others. The following items were discussed throughout the course of the meeting:

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- The North Carolina State Ports Authority (NCSPA) appreciated the opportunity to provide input into the project and stated that there were several initiatives that may increase train traffic in the future, including a growing demand for the shipment of wood pellets. NCSPA felt that it was likely that the existing single track would be adequate to meet the future demand from the port, but that CSX would ultimately need to make the decision on the need for any additional tracks.
- It was noted that CSX had not provided an input and that because of how the crossing affects the design (due to the required reconstruction of the Randall Parkway intersection) that early coordination may be needed. Roberto Canales said that he could reach out to CSX if it was necessary in the future. Given his new position at NCDOT, Allen Pope was identified as the person who should initiate and maintain coordination of port planning needs with NCDOT Rail Division.
- The ability to develop a preliminary design that would allow for the future expansion of the railroad to two tracks was discussed. Recognizing geometric constraints for U-4434 railroad grade separations, it was determined that the preliminary design would be developed to provide a 50-foot horizontal clearance, symmetrical about the existing centerline. The vertical clearance will be 23'-0" minimum over the existing track in its current location or over either track with the two track layout, whichever layout governs. This would allow for the expansion to two tracks in the future with crash walls being provided. During final design a determination will be made on whether the crash walls will be included in the initial construction or added later if the railroad is expanded.
- A brief discussion on the multi-modal accommodations took place, including the planned incorporation of a multi-use path along the west side of Independence Boulevard throughout the project length, including two at-grade pedestrian crossings of the railroad. Nancy Horne stated that she would include this in an upcoming meeting with CSX to gage their feelings about the crossings.

CC: Attendees
File

URS

M E M O R A N D U M

TO: Attendees

FROM: Joanna Rocco

DATE: June 6, 2013

SUBJECT **Record of Meeting for Division 3 and WMPO Project Status Meeting**
May 30, 2013
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Karen Eason Fussell	NCDOT Division 3
Katie Hite	NCDOT Division 3
Anthony Law	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Patrick Riddle	NCDOT Division 3
Gary Lovering	NCDOT Roadway Design
Ted Devens	NCDOT PDEA
Brian Yamamoto	NCDOT PDEA
Mike Kozlosky	Wilmington MPO
Ed Edens	URS Corporation
Joanna Rocco	URS Corporation

PURPOSE

The purpose of the meeting was to review with the Wilmington MPO and NCDOT Division 3 staff the project status, studies recently completed/currently underway, and to discuss upcoming next steps for the project.

MEETING NOTES

The meeting included a brief review of the project history, including what has happened since the project team last met with the WMPO and NCDOT Division 3 staff. The main areas of focus the project team have been studying include the raised railroad study (due to request from Laura Padgett, TAC), project visualizations, Citizens Informational Workshop #2 preparation, a depressed

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freeway concept, and preliminary designs. The following items were discussed throughout the course of the meeting:

- The purpose of the raised railroad study was discussed. The study came about because it was anticipated that the elevated nature of the proposed project would not be what the public is expecting and it will be perceived as dividing neighborhoods. Laura Padgett wants to know whether alternatively raising the RR will cause less disruption than a raised highway. It was determined through the study that raising the CSX railroad would not be feasible from a cost, traffic, and impact perspective. These conclusions should be presented in a brief (one page is possible) bulleted list summary that includes a graphic of the design. The graphic will label roads that would be closed and where it would tie into the existing network.
- URS is scoped to identify examples of elevated type freeways that can be used to illustrate the visual impact of these types of facilities have on surrounding communities, in lieu of an at-grade boulevard type facility
- The draft public workshop visualization was shown to the meeting attendees. It was discussed that the visualization may seem to some that NCDOT has predetermined developing an elevated freeway alternative. Therefore, we will mostly likely want to add a short segment that shows our consideration of depressed freeway concept and the raised railroad option as well.
- Two modifications to the visualization were noted: 1) the Kerr Avenue widening project limits need to be revised to include just south of Randall Parkway to Martin Luther King Jr. Parkway, and 2) Market Street and Independence Boulevard street names need to be labeled during the at-grade traffic simulation portion.
- The group reviewed the depressed freeway concept option and was in general agreement with the profile. Significant construction cost and maintenance concerns persist; however we will continue to move forward with a functional design, cost estimates, and relocation report.
- The meeting attendees agreed that it is best to have a design with cost & relocation numbers for the depressed freeway concept prior to going back to City Council. This will delay the Citizens Informational Workshop for several months – most likely until this fall. The group consulted the TIP schedule which shows ROD in 2016, R/W in 2019, and unfunded construction. Thus the schedule has adequate "float" to delay the CIW for this work, without affecting the critical path.
- Re-connection options to Kornegay Avenue will continue to be developed. A westward extension of McClammy Street will need to be considered. It would be preferable to remain out of merger, therefore it will be important to avoid stream/wetland impacts to the extent practicable. Note that any of these designs should consider a dedicated right-

turn lane from NB 23rd St to Scientific Park Drive, since this is a striped-off area of pavement that could potentially be redesignated. This will need to be field-verified by URS.

- There was discussion regarding the connection to Darlington Avenue on the preliminary designs. It was decided that URS would run a traffic capacity analysis with the Darlington-Independence access point closed with a cul-de-sac. If traffic is manageable, then it can be shown this way at the public workshop. If not, then continue to show a right-in, right-out connection.
- Due to time restrictions, no meaningful discussion occurred about CIW materials or development of a Citizen Advisory Committee.

ACTION ITEMS

- URS to develop brief bulleted list summary and graphic of the raised railroad design. The graphic will label roads that would be closed and where it would tie into the existing network. A closed-roads list will be provided for the summary. As a comparison, URS will use the baseline relocations and cost of Alt 7 with TUDI, and then separately estimate the additional relocations and cost of a raised RR, and sum the two. This info will be included with the summary sheet for presentation to City Council.
- URS will continue coordination with NCDOT on the design of the depressed freeway concept with cost & relocation numbers. Once this has been completed, a meeting with the Wilmington City Council will be scheduled.
- URS to continue coordination with NCDOT on Kornegay Avenue re-connection options.
- URS will evaluate the impact of traffic operations on Market Street resulting from closing the right in/right out access from Darlington Avenue to the proposed Independence Boulevard Extension. If there is no significant reduction in level of service, then the connection to Independence Boulevard will be removed. URS to continue identifying and finding visual examples of elevated freeway examples to present to City Council, with preference to regional and then other NC examples.
- Visualization will be updated to reflect meeting comments, and will mention studies of the depressed freeway concept, as well as the Raising RR Study.
- URS to continue developing a Citizens Advisory Committee approach.

CC: Attendees
File

M E M O R A N D U M

TO: Attendees

FROM: Joanna Rocco

DATE: November 15, 2013

SUBJECT **Record of Meeting for Depressed Freeway Meeting**
September 24, 2013
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Dean Argenbright	NCDOT Geotechnical Unit
Ted Devens	NCDOT PDEA
Chris Lee	NCDOT Roadway Design Unit
Gary Lovering	NCDOT Roadway Design Unit
Jay Twisdale	NCDOT Hydraulic Unit
Brian Yamamoto	NCDOT PDEA
Richard Bird	URS Corporation (via phone)
Jennifer Byle	URS Corporation (via phone)
Leo Davies	URS Corporation (via phone)
Ed Edens	URS Corporation
Dennis Hoyle	URS Corporation
Burt Matteson	URS Corporation (via phone)
Joanna Rocco	URS Corporation
Christopher Werner	URS Corporation
Paul Zhang	URS Corporation

PURPOSE

The purpose of the meeting was to review the depressed freeway design concept with NCDOT and determine what additional information is needed to better understand construction costs to compare with other project alternatives.

MEETING NOTES

Ted Devens began the meeting with introductions and a brief overview of the project history and

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why a depressed roadway concept was developed. Due to the grade separation needed at the rail lines and the interchange needed at Market Street, the proposed project would include an elevated facility of approximately 25 feet. This is unfavorable to the Wilmington City Council because of the amount of impacts to residences, as well as visual impacts; therefore, NCDOT decided to evaluate a depressed freeway design.

Ed Edens noted that there are specific engineering challenges associated with a depressed roadway design, most notably with 1) constructability, 2) the design of a permanent facility and how to counteract the buoyancy due to groundwater, and 3) stormwater issues, e.g. isolating groundwater and pumping stormwater during flood events.

The following items were discussed throughout the course of the meeting:

- Dean Argenbright noted that the limestone layer for aquifer protection gets thicker once you cross the Cape Fear River east into the City of Wilmington, therefore, borings used in Brunswick County may not be indicative of the soil, rock and groundwater conditions at the proposed project.
- Jay Twisdale noted that a cut and cover approach could be evaluated, and this tunnel-type design could serve as a conduit for stormwater during flood events. Ed Edens noted that this type of construction has design constraints, most notably safety.
- A discussion was held regarding methods for dewatering during construction. Paul Zhang noted that the groundwater table at nearby projects varies from approximately elevation 15 to 25 feet. Ted Devens noted that we need to understand what the network of well points would be, the distance between them, and a dewatering cost estimate. Richard Bird stated that this would necessarily include a large contingency because we don't know enough about the subsurface conditions at this point. Paul Zhang noted that if we could eliminate some of the options such as concrete ballast (Option 1 on attached handout) and permanent dewatering (Option 4 on handout), two of the more difficult options, it would assist in developing a cost estimate. He also stated that deeper borings would be helpful in developing this cost estimate.
- Ted Devens noted that with whatever method for dewatering and construction is used, NCDOT Geotechnical Unit will likely be conservative in their estimate, therefore it could increase costs to the point of not making it competitive with other design options.
- URS recommended developing a cost estimate with the method of jet grouting (Option 3 on handout), using temporary shoring and dewatering. This method is the least dependent on subsurface conditions. URS cautioned that the effectiveness of this methodology is highly dependent on the skill and experience of the specialty contractor. From a planning perspective, this method would also reduce the amount of impacts.
- There was a discussion about potentially having a constructability review with Rodger

Rochelle of NCDOT Transportation Program Management. Ideas about design of the depressed freeway could be discussed with specialty and other contractors. Constructors mentioned included Hayward Baker and Trevi Icos, as well as contractors in the area.

- The group agreed to preliminarily select jet grouting (using sheet pilings) as the construction method, so that URS could proceed with some conceptual design decisions on retaining wall width, location of drainage pipes, and cut slopes needed to place tie-backs. This in turn generates quantities for construction estimates, and allows demarcation of an area of disturbance that could be used for right of way estimates.
- The group then discussed how far back from sheet piling & cut slopes to establish the limits of disturbance. Opinions ranged from 50-75 feet; URS recommended 50-feet for now; however, this will be further investigated.
- A discussion was held regarding constructability issues at Market Street.

ACTION ITEMS

- In approximately a month's time, URS will develop answers to conceptual design questions: stormwater concepts and a construction dewatering concept, retaining wall thickness, approach to installing tie-backs (with cut slopes), detailed typical section parameters, etc.
- Pending NCDOT coordination, URS will then develop revised functional designs and excavation scheme (most likely using a jet grouting, shoring and dewatering-combined with pump station). URS should give consideration to raising the railroad as much as feasible in order to raise the mainline profile to improve constructability - balancing this need against railroad impacts. URS will establish approximate limits of disturbance, and then generate a plan sheet template that shows relocated parcels (for right of way estimate). Pump costs will include upfront costs, maintenance and operation, and consideration of lifespan.
- NCDOT to send boring info in the vicinity of the proposed project to URS. *Update: Dean Argenbright sent borings from U-0092B on 09/24/13.*
- URS to confirm lane movements between Market Street ramp terminal and Randall Parkway on preliminary designs.

CC: Attendees
File

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

MINUTES FROM DEPRESSED FACILITY DESIGN CHECK-IN MEETING ON OCTOBER 31, 2013

To: Project File

From: Ted Devens, PE

Date: May 25, 2014

Subject: STIP Number U-4434, Depressed Facility Design Check-in Meeting, Independence Boulevard Extension, New Hanover County, North Carolina, WBS No. 37764.1.1

A meeting was held October 31, 2013 at 2:00 PM in the Roadway Design Conference Room at the NCDOT Century Center. Attendees of the meeting are below:

Ted Devens	NCDOT Project Development and Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Christopher Lee	NCDOT Roadway Design
Ed Edens	URS Corporation
Chris Werner	URS Corporation

Purpose of Meeting

The purpose of the meeting was to provide NCDOT with an update on the Depressed Facility Function Design preparations and to discuss upcoming next steps for the project.

Meeting Summary

The following items were discussed throughout the course of the meeting:

- URS reviewed with NCDOT the status of the Depressed Facility Function Designs and the issues which have been encountered and how they were resolved.
- Currently, the Depressed Facility Function Designs are on the critical path for the project schedule as the right of way cost estimates cannot be prepared until the designs are completed.

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- The Right of Way Cost Estimate Request will be submitted to NCDOT for all alternatives at the same time.

Action Items

- Within the next two weeks, URS will submit the Depressed Facility Draft Functional Designs for NCDOT review (with an approximate review duration of two business days).
- URS will simultaneously prepare the Right of Way Cost Estimate Request information while the Depressed Facility Draft Functional Designs are being prepared.
- Based upon the above mention timeframe, NCDOT will pre-schedule a field meeting with NCDOT Right of Way staff to assist in preparing the Right of Way Cost Estimates.
- URS will confirm the Depressed Facility Memorandum will document the number of pumps required for each pump station.

Minutes Prepared by Chris Werner, URS. If there are any questions or edits, please contact Chris Werner, URS Project Manager, at (919) 461-1470 or christopher.werner@urs.com.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

MINUTES FROM THE NCDOT DIVISION 3 / WMPO MEETING ON MARCH 25, 2014

To: Project File

From: Ted Devens, PE

Date: April 25, 2014

Subject: STIP Number U-4434, NCDOT Division 3 / WMPO Meeting, Independence Boulevard Extension, New Hanover County, North Carolina, WBS No. 37764.1.1

A meeting was held March 25, 2014 at 10:00 AM at the North Carolina Department of Transportation (NCDOT) Division 3 office. Attendees of the meeting are below:

Ted Devens	NCDOT Project Development and Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT PDEA
Karen Eason Fussell	NCDOT Division 3
Anthony Law	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Patrick Riddle	NCDOT Division 3
Gary Lovering	NCDOT Roadway Design
Christopher Lee	NCDOT Roadway Design
Jamille Robbins	NCDOT – Public Involvement
Jay Twisdale	NCDOT Hydraulics
Ron Lucas	FHWA
Mike Kozlosky	Wilmington MPO
Chris Werner	URS Corporation
Joanna Rocco	URS Corporation

Purpose of Meeting

The purpose of the meeting was to review with the Wilmington Urban Area Metropolitan Planning Organization (WMPO) and the NCDOT Division 3 staff the project status, studies recently completed/currently underway since the last meeting on 5/30/13, and to discuss upcoming next steps for the project.

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Meeting Summary

Ted Devens began the meeting with introductions and a brief review of the project history, including what has happened since the project team last met with the WMPO and NCDOT Division 3 staff on 5/30/13. The main areas of focus the project team have been studying include the raised railroad study, project visualizations, Public Meeting #2 preparation, and Depressed Facility functional designs. The following items were discussed throughout the course of the meeting:

- Ted Devens reviewed the alignments and interchange configurations for Alternative 2, 7, and 8. It was noted from past meetings with the City Council, they had general concern with elevated alternatives and the impact to the adjacent neighborhoods and businesses. URS reviewed photograph examples of elevated type freeways that could be used to illustrate the visual impact of these types of facilities have on surrounding communities in lieu of an at-grade boulevard type facility. It was discussed that photos closer to the berm from a neighborhood perspective would be helpful.
- Karen Fussell asked if the project team had considered a Single Point Urban Interchange (SPUI) configuration for the project crossing of Market Street. Gary Lovering stated that a SPUI had been analyzed during alternative development, and it was determined that the high cost and need for traffic control made this an unfeasible interchange alternative.
- Ted Devens stated that the Kornegay realignment to 23rd Street had been analyzed with several concepts, and a concept with the least amount of residential impact was chosen (Alignment C). He noted that the project team will need to decide how to present this data at the next public meeting; however, initial thoughts included showing the alternatives considered with a corresponding qualitative analysis table.
- Mike Kozlosky asked if the control of access (C/A) along Market Street could be reduced. Gary Lovering stated that there is a possibility C/A can be reduced, but we won't know until we have updated traffic. However, upon review of the preliminary designs, the C/A does not appear to extend very far along Market Street. The closure analysis of Darlington Avenue was discussed. Previous coordination with the WMPO and NCDOT Division 3 suggested that removing the Darlington Avenue connection with the Independence Boulevard Extension should be evaluated. Resulting analysis suggested that the connection should remain for all alternatives, even if it is only a right-in right-out configuration as proposed. Mike Kozlosky asked if an extension of Darlington Avenue over/under the Independence Boulevard Extension to Mercer Avenue had been considered. It was explained that an extension of Darlington Avenue over the Independence Boulevard Extension was only analyzed for the Depressed Facility due to the elevation of the mainline profile would prevent an at-grade connection. It was requested traffic operations and design evaluations be performed to see if Darlington Avenue could be extended to Mercer Avenue, with a full movement intersection, for elevated alternatives.
- The raised rail study was discussed. Chris Werner went over the raised rail graphic and design assumptions. Ted Devens pointed out that this alternative was actually higher in elevation than Alternatives 2, 7, and 8. Chris Werner noted that the Independence Boulevard portion of the raised rail alternative would be at-grade, yet the elevation would still need to be high enough to get over Market Street and Martin Luther King, Jr. Parkway. There would also be substantial visual effects from the raised rail corridor.
- Chris Werner briefly reviewed the Depressed Facility functional designs, and showed a draft visualization prepared by URS which could be used for the upcoming public meeting if the

alternative is carried forward. It was determined a more high-level review of the Depressed Facility would be more appropriate for future public meetings.

- Updated right of way, utility, and construction costs were handed out and reviewed. At the time of the meeting, the complete costs were only available for Alternatives 4, 7 and the Depressed Facility. Comparison of the initial construction cost estimates show the Raised Railroad Alternative is approximately $40,000,000 and the Depressed Facility is approximately $90,000,000 more expensive than other project alternatives. It was decided that the cost table (with complete updated costs) will be given at the next scheduled meeting with City Council. Noise walls were discussed. A video was shown of a noise wall used on the Woodrow Wilson Bridge in Virginia (http://www.youtube.com/watch?v=XxHhw2ykUJU). Jamille Robbins noted that there may be a need to have an aesthetic screening for noise walls if required. Ted Devens stated that noise walls are anticipated, but whether or not aesthetics would be added such as different colors or textures, would be up to the City of Wilmington since they will likely need to fund these additions.
- Review of the project next steps was then discussed, which includes meeting with the City Council.
    - The NCDOT STARS schedule needs to be revised. Ron Lucas noted that with the latest transportation bill, MAP-21, we may be able to combine the FEIS and ROD, therefore condensing the schedule by at least six months.
    - It was noted that at the last City Council meeting, it was asked why NCDOT couldn't build a boulevard facility. Ron Lucas confirmed that this would not be possible because FHWA will not fund a facility that will have a failing level of service.
    - Mike Kozlosky will coordinate with members of the City Council to find a date suitable for the next meeting with the project team.
    - It was suggested that the City Council needs to be presented with three options:
      1) the U-4434 project needs to be an elevated facility (Alternative 2, 7 or 8), or
      2) the City of Wilmington will need to provide additional funding for the Depressed Facility, or
      3) the U-4434 project will not be built.
    - Scheduling of the next Public Meeting will be discussed following feedback received from meeting with the City Council; however, initial thoughts are to meet with the TAC on a Wednesday and hold the Public Meeting on a Thursday.
    - The City Council meeting presentation should be detailed enough to provide an adequate understanding of the issues, complexities, and results.

Action Items

- NCDOT Division offices will be contacted to see if they can provide photos of any local examples of elevated facility for presentation to City Council.
- NCDOT/URS will perform traffic operations and design evaluations of a Darlington Avenue extension to Mercer Avenue, with a full movement intersection, for all elevated alternatives.
- NCDOT/URS to update alternative costs once available for presentation to City Council.
- For future reference, NCDOT Division 3 requests costs associated with preparing Raised Railroad and Depressed Facility studies.
- Mike Kozlosky to coordinate with members of the City Council to find a date suitable for the next meeting with the project team.

Minutes Prepared by Joanna Rocco, URS. If there are any questions or edits, please contact Chris Werner, URS Project Manager, at (919) 461-1470 or christopher.werner@urs.com.

MEETING SUMMARY

To: Project File

From: Celia Foushee
AECOM

Date: June 10, 2016

RE: **U-4434 City of Wilmington Project Update**
NCDOT STIP Project U-4434(Independence Boulevard)

The project team met with the Mike Kozlosky at 9:00 AM on June 9, 2016 at the City of Wilmington office complex in Wilmington, North Carolina. The purpose of the meeting was to discuss the project status, schedule, and any new information regarding the project. Attendees included Mike Kozlosky, City of Wilmington; John Conforti, NCDOT PDEA; Chris Werner, AECOM; Joanna Rocco, AECOM; and Celia Foushee, AECOM.

Discussion points are summarized below:

- Chris Werner began the meeting by providing Mike Kozlosky an update of the contract status. The contract supplement is expected to be approved early July. Once this is approved, the next Task Order will be scoped and negotiated. It is anticipated this Task Order will include updating the remaining technical reports and preparation of the Preliminary DEIS.
- Chris discussed the remaining technical reports to be completed before compiling the Preliminary DEIS, which include the Air and Noise Analysis, Community Impact Statement, and Land Use Scenario Assessment. It is anticipated it will take approximately six to nine months to complete the remaining technical reports and the Preliminary DEIS.
- Mike Kozlosky state the City of Wilmington is in the process of purchasing piece of property owned by the housing authority, which is located in the northern portion of the project study area. This property is currently vacant and wooded and the City would like to use part of the property for an indoor firing range. The City is currently developing conceptual plans for both Alternatives 7 and 8 for the firing range facility; however, the City would prefer Alternative 8 with regard to the amount of developable land available; however, this alternative would have more residential and environmental impacts for the Independence Boulevard extension.
- Mike Kozlosky stated the City of Wilmington and NCDOT are working together to develop Scientific Park Drive to connect to 26th Street using Economic Development funds. Calyx Engineers is the consulting firm.
- Mike Kozlosky stated Moffat and Nickel is the consulting firm selected for the CSX Rail Realignment Feasibility Study. The study is estimated to be completed in nine months. Some members of the Wilmington MPO would like the project to move forward as soon as the study is complete. Mike stated there will be many challenges associated with this study. This study will likely have effects on the designs of the Independence Boulevard project; however it should not affect selecting a preferred corridor alignment.

- Chris Werner asked if the City of Wilmington has completed (or would complete) a system level analysis. Mike Kozlosky responded the City has not initiated a system level analysis for this project as of yet.
- Mike Kozlosky stated the project was broken up in the current STIP in the hopes that it would score better for funding at the division level. It was broken at Market Street. Mike confirmed the TAC is still interested in the project.
- Mike Kozlosky stated the City would like to see a Recommended Preferred Alternative named in the Preliminary DEIS so they have only one alternative to plan around, as opposed to several. This will also simplify the project for the public.
- The project team will move forward writing the Preliminary DEIS without a Recommended Preferred Alternative identified and will wait to see how the project scores at the Division level in SPOT 4.0 and how the CSX Feasibility study may affect the project. Once additional information is provided, the project team will coordinate to determine if a Recommended Preferred Alternative should be included in the Preliminary DEIS.

Action Items

- Mike Kozlosky will confirm if the City of Wilmington has taken ownership of the property owned by the housing authority.
- The City of Wilmington will provide the project team the conceptual designs for the indoor firing range facility when available.
- Mike Kozlosky will provide the project team the economic development package submitted for the expansion of Scientific Park Drive.
- In August more information will be available regarding funding at the regional level in the current SPOT 4.0. In October more information will be available regarding funding at the division level.
- The project team will coordinate with Mike Kozlosky as the project progresses to determine when a TAC update may need to be provided.
- The project team will coordinate with Mike Kozlosky to provide information on a new multifamily residential development under construction at Darlington Avenue and Covil Avenue.
- The project team will coordinate with Mike Kozlosky to determine if the Port South Village has been closed down and if there are any plans for the property.

MEETING SUMMARY



To: Project File

From: Celia Foushee
AECOM

Date: March 14, 2017

RE: **Project Update Meeting with NCDOT Division 3 and WMPO**
NCDOT STIP Project U-4434 (Independence Boulevard)

Meeting Attendees:

Mike Kozlosky – WMPO
Chad Kimes – NCDOT Division 3
Katie Hite – NCDOT Division 3
David Leonard – NCDOT Division 3
Alan Pytcher – NCDOT Division 3
John Conforti – NCDOT PDEA
Chris Werner – AECOM
Joanna Rocco – AECOM
Celia Foushee - AECOM

The project team met with NCDOT Division 3 and the WMPO at 9:00 AM on March 10, 2017 at the NCDOT Division 3 office complex in Castle Hayne, North Carolina. The purpose of the meeting was to discuss the project status, schedule, and any new information regarding the Independence Boulevard Extension project.

Chris Werner began the meeting with a summary of the project status. The proposed project has been screened out of the Merger Process. The traffic forecast is currently being updated which could alter the designs. With the current designs, the majority of the impacts associated with the project would be to the human environment. The biggest constraints of the project are the railroad crossings and the required elevation. In previous meetings with the City Council, consensus was not met regarding the proposed elevated roadway for the Independence Boulevard project. It was noted additional discussion will be needed to determine the level of agreement towards the project now.

Environmental Justice was noted as an issue associated with the proposed project, due to the lack of comparable affordable housing within the City of Wilmington.

It was noted the Market Street median project limits extend from approximately 29th Street to Martin Luther King Jr. Parkway. A portion of this project is within the Independence Boulevard project limits. The preliminary designs and technical documents have been completed for the Market Street median project, however the traffic forecast will be updated. It was noted the original forecast did not include the Independence Boulevard project in the scenarios since the project was not funded. HNTB is completing the traffic forecast. It was noted the updated traffic forecast for Independence Boulevard would also include scenarios with and without the Cape Fear Crossing project.

It was noted the Independence Boulevard project could potentially delay the Market Street median project. The Market Street project is scheduled for let in December of 2020. The Independence Boulevard Draft EIS is tentatively scheduled to be complete in fall/winter 2019, the Final EIS completed in summer/fall 2021, and the Record of Decision completed in Winter 2021/2022. It was noted this is a draft worst case scenario schedule.

It was noted the modifications to Kornegay Avenue and Scientific Drive can be removed from the Independence Boulevard project designs; these modifications will be made as a part of improvements to Scientific Drive.

The CSX rail realignment feasibility study being developed by the City of Wilmington, NCDOT, and the WMPO was discussed. It was agreed the study will not likely have any bearing on this project, as it is in the feasibility stage only, and if found feasible the rail would not likely be realigned within the next 20 years.

It was noted the Independence Boulevard project would become a Division-led project in the future, and that Katie Hite would be the Division 3 point of contact for the project until she has assigned it to additional staff. She requested that she and Chad Kimes be copied on all major correspondence regarding the project from this point forward.

The potential of having the project changed to a state-funded project, and therefore making the US Army Corps of Engineers the lead agency, was also discussed. The project team will continue coordination with NCDOT to determine how the project will be funded.

<u>Action Items</u>

- AECOM will send copies of the Independence Boulevard project designs to Carla Schoonmaker at Division 3. Copy Jamie Byrd with HNTB.
- Division 3 will send AECOM the typical section information for the Market Street median project.
- The City of Wilmington will provide the project team the conceptual designs for the indoor firing range facility when available. *Update: Conceptual designs were provided via email on 3/13/2017.*
- AECOM will send Division 3 an updated best case scenario draft schedule.

MEETING SUMMARY



To: Project File

From: Joanna Rocco
AECOM

Date: May 28, 2017

RE: **Project Scoping Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Don Bennett – City of Wilmington
Mike Kozlosky – WMPO
Brad Shaver – US Army Corps of Engineers
Mason Herndon – NCDOT Division 3
Katie Hite – NCDOT Division 3
Chad Kimes – NCDOT Division 3
David Leonard – NCDOT Division 3
Carla Schoonmaker – NCDOT Division 3
G. M. Taylor - NCDOT Division 3 Maintenance
Max Radford - NCDOT Division 3 Right of Way
Eric Ray - NCDOT Division 3 Right of Way
Lonny Sleeper - NCDOT Division 3 Utilities
Rick Neal – NCDOT Location & Surveys
Jessi Leonard - NCDOT Division 3 Traffic
Anthony Law - NCDOT Division 3 Construction
Kevin Bowen - NCDOT Division 3 Construction
James Harris – NCDOT Rail Division*
Meredith McLamb – NCDOT Rail Division*
Neil Perry – NCDOT Rail Division*
Richard Mullinax – NCDOT Rail Division*
Jahmal Pullen – NCDOT Rail Division*
Jamille Robbins – NCDOT Public Involvement*
Stephanie Ayers – NC Ports Authority
Phillip Rogers – HDR
Josh Massrock – HDR
Chris Werner – AECOM
Joanna Rocco – AECOM
Celia Foushee – AECOM
Morgan Foster – AECOM

**joined via telephone*

NCDOT Division 3 held a project scoping meeting for the U-4434 Independence Boulevard Extension project on May 23, 2017 at the at the NCDOT Division 3 office complex in Castle Hayne, North Carolina. The most current version of the project scoping data sheet is appended to these minutes. Discussion regarding items on the scoping sheet and other topics are summarized below.

<u>Railroad Involvement</u>

- NCDOT provided an update to the recent rail studies being prepared:
    - The traffic separation study by the City of Wilmington and NCDOT was prepared due to the projected increase in freight traffic within the City of Wilmington. It provided data on the near-term, mid-term, and long-term improvements for the CSX rail line and was completed in February 2017. The study did not address the subject project. It was noted

that in order to provide a new at-grade crossing, CSX requires other crossings to close and a panel must review these requests.

- The rail realignment feasibility study is currently being prepared by the WMPO, the City of Wilmington, and the NCDOT and is almost completed. The study includes the feasibility and cost of the rail realignment as well as the repurposing of the current rail line within the City of Wilmington as a multimodal facility. It was noted AECOM prepared a letter on behalf of CSX in 2013 responding to the NCDOT's request for scoping comments from CSX (see attached).

- It was noted the City of Wilmington and the WMPO endorsed resolutions opposing an elevated facility and supported preparing the environmental document for the project. It was also noted that the index rate justified grade separations and were therefore included in the preliminary designs for the project.
- Any additional contact with CSX moving forward should be coordinated through Carla Schoonmaker.

Planning

- The STIP indicates project cost to be approximately $155million. It was noted the utilities costs may be underestimated.
- A discussion was held regarding the type of environmental document anticipated for the project. Due to the high number of relocations and environmental justice issues, the document will need to be an Environmental Impact Statement/Record of Decision.
- While the project was screened out of the NEPA/Section 404 Merger process, the project team agreed to have Concurrence Point (CP) 2 and 2A meetings with the agencies.
- NCDOT noted the wetland and stream delineations will likely need to be reverified.
- It was determined the project should remain a federally-funded project with FHWA as the lead agency. NCDOT will set up a meeting with Ron Lucas of the FHWA to determine steps moving forward.

Public Involvement

- An open house public meeting will need to be held in order to inform the public of the project status and alternative concepts. It has been several years since the project team has met with the public.
- A corridor public hearing will be required after the Draft Environmental Impact Statement (DEIS) has been issued. A design public hearing is not required after the Final Environmental Impact Statement (FEIS), but NCDOT noted it is in the project team's best interest to provide one for the public to review final designs and provide comments.
- NCDOT noted that there is an environmental justice community within the project study area, therefore there should be targeted outreach to these populations. This may be accomplished by distributing door hangers to neighborhoods notifying residents of public meetings being held, as well as potentially providing additional public meetings in these areas.
- NCDOT requested the project team provide a copy of the Public Involvement Plan.
- It was noted AECOM has prepared a project visualization and will provide a link of the video to NCDOT.

Traffic and Design

- AECOM is currently preparing an updated traffic forecast, which is estimated to be finalized in July 2017. One completed, a traffic capacity analysis will be completed and designs updated.
- It was noted the updated traffic studies will determine if there is still justification for an interchange at Market Street as currently designed, or if an at-grade intersection is acceptable.
- The design at Martin Luther King, Jr. Parkway will need to focus on how to best fit within the context of the natural systems in the area. Design refinement in this area will focus on design speeds and how that could potentially reduce the footprint in this area.
- Discussion was held regarding concern expressed from the local government about the Independence Boulevard Extension project being elevated for the length of the project. It was noted the current designs show this due to having to elevate the roadway over the two rail crossings, Princess Place Drive, and the interchange at Market Street.
- An updated forecast was prepared for U-4902B (Market Street improvements from Colonial Drive to SR 1272), and will be provided to AECOM. A portion of the U-4902B project will become part of the U-4434 project (Colonial Drive to the railroad track) and should be included as part of the design refinements.
- It was noted the modifications to Kornegay Avenue and Scientific Drive can be removed from the Independence Boulevard project designs; these modifications will be made as a part of improvements to Scientific Drive.
- Updated surveys may wait until 2018, approximately one year prior to HDR developing final designs.

Miscellaneous

- It was noted the WMPO requested a multi-use path on the east side of the facility. This is included in the current preliminary designs.
- It was noted there is a police and fire range facility being built within the project study area. The City of Wilmington is using Alternative 7 with a Tight Urban Diamond Interchange in their plans.
- The accelerated ROW date for the project is 2022, and must be met so the project will not need to go through the prioritization process again. It was noted this was realistic and AECOM will provide an updated schedule. It was also noted coordination with the Wilmington City Council would be necessary to determine if there are any major issues.
- AECOM will continue planning and design studies for the project. HDR will assume final design development once AECOM has begun preparation of the FEIS.
- AECOM's contract with NCDOT for the project is a stand-alone contract. Future invoices may be sent to the division. AECOM will send NCDOT a contract summary with amounts of the original contract and supplementals.
- AECOM currently has an open task order and will send the scope of work to NCDOT in order to determine how the task order may be used moving forward.

Action Items

- AECOM to provide a copy of the Public Involvement Plan to Jamille Robbins.
- AECOM to provide a link to the project visualization to NCDOT. *Update: AECOM sent link of project visualization to NCDOT on May 24, 2017.*
- AECOM to send NCDOT a contract summary with amounts of the original contract and supplementals.
- AECOM to send all email correspondence to Carla Schoonmaker, and she will disseminate to other NCDOT staff as necessary.
- AECOM to send NCDOT an updated schedule; the schedule must be approved by July 5, 2017.

- AECOM to send NCDOT a monthly update by the fifth day of each month.
- AECOM to send NCDOT a copy of latest task order scope of work for use in discussions of project scope moving forward.
- AECOM and NCDOT to set up a standing weekly coordination call. It was suggested Friday mornings may be the best time. *Update: Carla Schoonmaker set up a conference call with AECOM for Friday mornings at 9am beginning June 2, 2017.*
- NCDOT to provide updated forecast for U-4902B (Market Street improvements from Colonial Drive to SR 1272) to AECOM.
- NCDOT will set up a meeting with Ron Lucas of the FHWA. *Update: A meeting has been set up for May 31, 2017 at 11am at the NCDOT Division 3 office.*

U-4434 – Scoping Data Sheet
May 23, 2017

TIP:	U-4434	County:	New Hanover
WBS:	37764.1.1	F.A.:	STPDA-1209(5)
NCDOT PM:	Carla Schoonmaker	Design PEF:	AECOM / HDR

Project Description

- Length: 1.8 mi.
- Project Limits: Independence Boulevard Extension from Randall Parkway to US 74 (Martin Luther King, Jr. Parkway)
- Right of Way Date: FY 2022
- Let Date: FY 2025
- MPO / RPO: Wilmington MPO
- Municipality: City of Wilmington, New Hanover County
- General Description of Project: Independence Boulevard Extension on new location from Randall Parkway to Martin Luther King, Jr. Parkway

Design Data

- Functional Classification: Other Principal Arterial
- Type of Access Control: Partial
- Typical Section: Four Lane Divided w/C&G
- Right of Way: 100'-150'
- Design Speed: 40, 50
- Posted Speed: 35, 45
- AADT:

	MLK Jr. Pkwy (West of Ind. Blvd. Ext.)	MLK Jr. Pkwy (East of Ind. Blvd. Ext.)	Fut. Ind. Blvd. (from Randall to Market)	Future Ind. Blvd. (from Market to MLK Jr. Pkwy)	Market Street (West of N. 30th St.)	Market Street (East of Henry St.)	Randall Pkwy
Current Year 2012 (No Build)	33,900	33,900	n/a	n/a	30,300	34,900	16,800
Design Year 2040 (Build)	79,600	81,500	49,000	52,300	37,100	32,100	27,700

Note: Traffic data shown is from the 2012 Traffic Forecast. Given the WMPO Travel Demand Model has since been updated. An updated traffic forecast is currently being prepared.

- Railroad Involvement: ☒ Yes ☐ No
- Design Exception: ☐ Yes ☐ No ☒ To be determined

Other TIP Project(s) in the Area:

- U-5869 US 17 Business (Market Street)
- U-4902 B, C, & D US 17 Business (Market Street)
- U-3338 B&C SR 1175 (Kerr Avenue)
- U-5880 US 74 (Martin Luther King Jr. Boulevard)
- U-5702A NC 132 (College Road)
- U-5792 US 74 (Martin Luther King Jr. Boulevard)
- U-4751 (SR 1409 Military Cutoff Road)
- B-4590 NC 133 Bridge replacement over Smith Creek

Cost Estimates (per STIP unless otherwise noted)

- Utilities: $600,000
- Right of Way: $74,300,000
- Construction: $80,726,000
- Total: $155,626,000

Discussion Topics

Planning

- Type of Document: ☐ MCDC ☐ CE ☐ EA/FONSI ☒ FEIS/ROD
- NEPA / 404 Merger Candidate? ☐ Yes ☒ No ☐ Screening meeting needed

Public Involvement

- Study Area Public Workshop? ☒ Yes ☐ No
- 25% Plan Public Workshop? ☒ Yes ☐ No
- 65% Plan Public Workshop? ☐ Yes ☒ No
- Public Hearing Required? ☒ Yes ☐ No ☐ Unknown
- Visualization? ☒ Yes ☐ No

Design

- Field Inspections? ☒ FDFI/PLFI ☐ CFI
- Bicycle and Pedestrian Facilities: ☒ Yes ☐ No
- Traffic Management Plans: ☒ Yes ☐ No
- ITS: ☒ Yes ☐ No
- Aesthetic Enhancements: ☒ Yes ☐ No
- Landscaping: ☒ Yes ☐ No

Disciplines for PEF to provide:

- Planning
- Traffic Forecasting
- Traffic Capacity Analysis
- Public Involvement (Coordinate with Division Staff)
- Roadway Design
- Hydraulic Design
- Structure Design
- Traffic Design (Signs, Signals, Pavement Markings, Traffic Control, ITS)
- Erosion Control
- Utility Design
- Utility Coordination
- GeoEnvironmental
- Right of Way Acquisition
- Landscaping

Disciplines for NCDOT to provide:

- Surveying
- Pavement Design
- Geotechnical Design

Important Upcoming Submittal Dates:

- May 30, 2017 – Meeting Minutes Due
- May 30, 2017 – Scope of Services Due (Task Order #1)
- June 6, 2017 – Provide Survey Limits to Rick Neal, Division 3 Locating Engineer (jrneal1@ncdot.gov)
- June 13, 2017 – Manday Estimate Due (Task Order #1)
- June 20, 2017 – Anticipated Notice to Proceed (Task Order #1)
- July 5, 2017 – Approved Project Schedule Due
- Fifth day of each month – Monthly Update Due

General Notes:

- **Submittals shall be in accordance with the "Guidelines to Be Used by Consultants for Producing Roadway Plans" unless otherwise directed. Guidelines can be found at: https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Roadway%20Design%20Consultant%20Coordination%20Guidelines.pdf**
- **Manday estimates shall be generated using approved salary rates by PSMU for the Eastern On-Call Limited Services Contract. Failure to do so will likely result in delay of Notice to Proceed.**
- **All submittals shall be sent directly to NCDOT PM for distribution and review.**
- **Please submit 10 full-size plan sets for preliminary plan and field inspection reviews.**
- **Right of way and construction estimates shall be submitted with each plan submittal, excluding 15% plans.**

AECOM
1700 Market Street
Suite 1600
Philadelphia, PA 19103
www.aecom.com

215 735 0832 tel
215 735 0883 fax

February 26, 2013

TRANSMITTED VIA EMAIL

Mr. R. Allen Raynor, Jr., PE
Assistant State Structures Engineer - Program and Policy
NCDOT - Structures Management Unit
1581 Mail Service Center
Raleigh, NC 27699

SUBJECT: Wilmington, New Hanover County, North Carolina - Proposed Independence Boulevard extension, including two (2) new bridges over CSXT; Mileposts ACB-245.91 and ACB-247.28, Florence Division, Wilmington Subdivision, Wilmington Belt Line, CSXT OP# NC0700; NCDOT Project No. 37764.1.1 (U-4434)
Project Scoping Letter Response

Dear Mr. Raynor:

Reference is made to the North Carolina Department of Transportation (NCDOT) Project Scoping letter dated November 1, 2011 requesting information regarding the CSXT right of way and track in the vicinity of the subject project. AECOM, on behalf of CSXT, has reviewed the request and provides the following information:

1. Per the above subject project description, the proposed project impacts the CSXT Florence Division, Wilmington Subdivision's Wilmington Belt Line at two (2) separate locations at approximate Milepost ACB-245.91 and ACB-247.28. The CSXT tracks are east west through the northern limits of the subject project as well as through the southern limits of the project. The CSXT Mileposts increase from West to East through the northern portion of the subject project (ACB-245.91) until a wye is reached in the vicinity of Westig Road. From that wye, the CSXT Mileposts continue to increase from East to West through the southern portion of the subject project (ACB-247.28).

2. Please note that generally 2 freight trains per day pass through the two (2) separate project areas operating at a maximum timetable speed of 20 MPH. It is anticipated that freight rail traffic through this area may increase in the future depending on the economic development and freight transportation demands associated with the Port of Wilmington.

3. At this time, CSXT will require at least 25'-0" minimum horizontal clearance from the centerline of the existing track to the proposed NCDOT piers/abutments provided that crashwalls will be designed in order that CSXT maintain the ability to construct an additional track at the subject project location and have the ability to operate double stack trains through this project location. The standard 23'-0" minimum vertical clearance shall be provided, measured from top of high rail to lowest point of the proposed structure in the horizontal clearance envelope which extends 6'-0" either side of the centerline of the existing track. Please note that CSXT's future plans regarding this area are subject to change based upon future Port and economic development.

When NCDOT determines which of the alternative proposed alignments for the Independence Boulevard extension is to be used and the subject project plans are available, please provide two (2) sets of the plans of the preferred alignment to this AECOM office for our review.

Please do not hesitate to contact me at (215) 789-2158 with any questions or comments.

Sincerely yours,

Patrick J. DesMarais
Project Manager

U-4434 Division 3 Scoping Meeting (05/23/2017)			
Name	**Company**	**Phone**	**Email Address**
Carla Schoonmaker	NCDOT Div. 3 PDC	910-341-2000	cschoonmaker@ncdot.gov
PHILLIP ROGERS	HDR	(919)-232-6670	Phillip.Rogers@hdrinc.com
Josh Massrock	HDR	(919)-232-6631	Joshua.Massrock@hdrinc.com
RICK NEAL	L&S Unit	910-341-2280	JRNEAL1@NCDOT.GOV
Mason Herndon	Div 3 Environmental	910-341-2000	tmherndon@ncdot.gov
C.M. TAYLOR	NCDOT D3 MAINT.	910.341-2000	CMTAYLOR@NCDOT.GOV
MAX RADFORD	NCDOT DIV3 RIGHT OF WAY	910-341-2100	maxradford@ncdot.gov
Lenny Sleeper	NCDOT DIV 3 UTILITIES	910-341-2000	lasleeper@ncdot.gov
ERIC RAY	NCDOT DN3 R/W	910-341-2100	eray@ncdot.gov
David Leonard	NCDOT	910-341-2000	dbleonard@ncdot.gov
Jessi Leonard	NCDOT-Traffic	910-341-0800	jleonardle@ncdot.gov
Anthony Law	NCDOT-Const	910-341-2000	alaw@ncdot.gov
Celia Foushee	AECOM	919-854-6255	celia.foushee@aecom.com
Chris Werner	AECOM	919-239-7168	christopher.m.werner@aecom.com
Joanna Rocco	AECOM	919.239.7179	joanna.rocco@aecom.com
Mike Kozlosky	WMPO	910 342-2781	mike.kozlosky@wilmingtonnc.gov
DON BENNETT	CITY OF WILMINGTON	910-341-0089	don.bennett@wilmingtonnc.gov
Kevin Bowen	NCDOT - Div. 3 Const.	910-341-2000	Kdbowen@ncdot.gov
Katie Hite	NCDOT	910-341-2000	Kehite@ncdot.gov
Morgan Foster	AECOM	919-854-6205	Morgan.foster@aecom.com
James Harris	NCDOT Rail Division	919-707-4707	jbharris@ncdot.gov
Meredith McLamb	" "	919-707-4132	hmclamb@ncdot.gov
Neil Perry	" "	919-707-4711	nlperry@ncdot.gov
Richard Mullinax	" "	919-707-4123	remullinax@ncdot.gov
Jahmal Pullen	" "	919-707-4102	jmpullen@ncdot.gov
Stephanie Ayers	NC Ports	910-251-7073	Stephanie.Ayers@ncports.com
Jamille Robbins	Human Environment Unit	919-707-6085	jarobbins@ncdot.gov

Call in

Brad Shaver USACE-Wilmington 910-251-4611 brad.e.shaver@usace.army.mil

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 22, 2017

Memorandum

To: Ms. Carla M. Schoonmaker
Assistant DDC Engineer
NCDOT Division 3 Division Design Construct

From: James B. Harris, PE
State Railroad Coordination Engineer
NCDOT Rail Division

State Project: U-4434
F/A Project: STPDA-1209(5)
WBS No: 37764.1.1
Counties: New Hanover
Description: Independence Blvd Extension on new location from Randall Parkway to Martin Luther King, Jr. Parkway

Subject: Start of Study Scoping Meeting

The NCDOT Rail Division is in receipt of the Start of Study scoping information on the above subject project. After review of the project scoping information and location of the project in relation to nearby railroad tracks it has been determined that significant rail interaction has and will occur in the future on this project and involve a number of staff in the Rail Division.

The NCDOT Rail Division has the following comments in regard to rail impacts and issues on this project:

- Independence Blvd Ext will twice cross an existing CSX rail line that provides access to the NC Port. This rail line is part of a network of rail lines in the Wilmington area (please see attached maps).
- The CSX ACB-line and the "CSX track to State Port' are the two tracks involved. Both are single track and a total of 5.5 miles long.
- There are two existing at-grade railroad crossings in the near vicinity of where Independence Blvd will cross these tracks. They are:

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
1553 MAIL SERVICE CENTER
RALEIGH, NC 27699-1553

Telephone: (919) 707-4700
Fax: (919) 715-6580
Customer Service: 1-877-368-4968

Website: www.ncdot.gov
www.ncbytrain.org

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

1. Princess Place Drive (CSX ACB-line), milepost ACB 245.91, crossing #629288B, two lanes protected by signals/gates with sidewalks on both sides of the street.
2. Covil Street, (CSX track to State Port), milepost ACB 247.28, crossing #629426M, two thru lanes and right turn lane (northbound) protected by signals/gates.
3. Both of these crossings will be significantly changed vs their existing conditions/purpose with the Independence Blvd Ext project.

- Two to four freight trains per day currently operate over the rail line at 10 mph, no passenger trains.
- Railroad right-of-way (r/w) width on the ACB-line is 130 feet wide (65 feet each side the centerline of track). R/W width on the CSX track to the State Port varies from 50 to 100 feet wide depending on location. Railroad valuation (or r/w) maps are attached.

Preliminary/advance rail coordination on U-4434 back in 2011-2013 led to considerable discussions on the following:

- History of the project and discussion up to end of November 2012 is attached for your information. Please use whatever portions you need to familiarize yourself with the project and past rail coordination.
- Major issue was in regard to the number of tracks that would be required to serve the port. In coordination with the NC Port, it was determined that the existing one track is all that is needed and CSX concurred.
- There was also discussion in regard to additional and slow-moving trains (related to expanding NC Port operations/business) moving through this area. There had already been previous concerns expressed several years prior about trains blocking vehicular traffic at the numerous existing at-grade railroad crossings along the line as well as concerns by the Rail Division and CSX about the number of at-grade crossings. This would have been a more critical concern had there been a need to add additional tracks (sidings) to store rail cars or to allow one train to pass another train. In that regard, a Traffic Separation Study (TSS) was initiated between the City of Wilmington and Rail Division to investigate improvements to traffic and safety associated with the **existing** at-grade railroad crossings and whether or not the number of crossings could be reduced. That study has been completed and approved by the City of Wilmington and is available for reference at the following link: http://wdc.wmpo.s3.amazonaws.com/wp-content/uploads/2017/03/Final-Wilmington-TSS_3-6-17noappendixRS.pdf. The study recommends approximately $11 million in improvements to the **existing** crossings but no grade separations at the request of the City of Wilmington. The extension of Independence Blvd (U-4434) and two new crossings of CSX by this project were **not** included in the study since that project was inactive at the time. Mr. Kumar Trivedi, PE, 919-707-4109, is the Rail Division contact if you need more information on the TSS and results.
- There was also discussion during the advance railroad coordination about whether Independence Blvd Extension should be at-grade with the track or grade separated but no decision was made in 2013.

- Concerns over increased rail traffic on the rail line and impacts on the neighborhood also led to a study to re-investigate a previous suggestion to study a new rail crossing over the Cape Fear River to provide access to the NC Port vs the existing circuitous route and eliminate it. The City of Wilmington, the Wilmington Urban Area Metropolitan Planning Organization and the NCDOT agreed that a study be performed to investigate the engineering and economic feasibility of relocating the existing CSXT railroad line that traverses in a "V" shape through the City of Wilmington to the CSXT Davis Yard west of town. The "Wilmington Rail Relocation Feasibility Study" is looking at providing a new rail crossing over the Cape Fear River from the Port to the CSXT Davis Yard in Navassa and offer the potential of repurposing the existing CSXT railroad corridor for transit use. The final draft of the Study is being revised with anticipated completion and availability for reference in early July. Arthur Petteway, PE, 919-707-4717, is the Rail Division contact if you need more information on the study.
- There has also been discussion about a congestion reduction goal by upgrading the rail line to allow train speeds to increase from 10 mph to 20-25 mph to reduce the amount of time required for trains to traverse the line as well as the time the crossings are blocked. This study also works in conjunction to provide some of the improvements identified in the TSS. The feasibility study for this project is due around August 2017 but is dependent on coordination with CSX and addressing some bridge issues. Mr. Matthew Simmons, PE, 919-707-4117, in the Rail Division can be contacted about the details of that study.

The rail impacts associated with the Independence Blvd Extension project (U-4434), particularly in regard to the type of crossing (at-grade or grade separated) will have to be evaluated in the U-4434 project since that was not part of the TSS or earlier work. The Independence Blvd Extension crossing in the vicinity of the Princess Place Drive crossing (milepost ACB 245.91) would be an entirely new crossing. The Independence Blvd Extension crossing at the existing Covil Street crossing (milepost ACB 247.28) would essentially be a widened crossing. It is understood that the Independence Blvd Extension is projected to have 50,000 ADT.

It will be extremely difficult to get CSX to agree to a new at-grade crossing, particularly considering the number of vehicles involved. They do have a process that must be followed to pursue such an alternative. Mr. Jahmal Pullen, PE, 919-707-4102 and staff in his unit would be the best contact to discuss the issues associated with obtaining new at-grade crossings.

In conjunction with widened crossings, Railroads desire that any highways with at-grade crossings that are widened to multiple lanes (due to increased traffic) be considered for grade separation from the railroad. As noted above, there is also the possibility that railroad traffic can increase depending on rail business demands such as at the NC Port. By grade-separating the crossing, safety and travel efficiency for both vehicles (including school buses, emergency services,

etc) and trains can be improved as a direct result of removing the train-car conflict.

In consideration of such, NCDOT has developed general guidelines to establish the desirable conditions for highway/railroad grade separations that should be implemented with sound engineering judgement, reasonableness, and attention to costs. The “Rail Grade Separation Guidelines” (see attached) are based on the use of an exposure index, which is a product of the number of trains per day and the projected average daily highway traffic. A grade separation needs to be considered/investigated on any project where the exposure index exceeds the established limits. The 50,000 ADT projected for Independence Blvd Extension far exceeds the exposure index.

The most appropriate place to investigate and document the effects of a grade separation is in the project environmental document. The following should be performed:

- Determine if a grade separation is even possible from an engineering standpoint. At a minimum, a functional design consisting of horizontal alignment and vertical profile should be developed for road-over-RR or road-under-RR to identify the approximate grades required and which option is most feasible and minimizes impacts. Embankment and cut slope limits can be developed which provide the project footprint.
- If engineering is acceptable, the environmental impacts to wetlands, historic properties, subdivisions, commercial districts, R/W needs, etc need to be determined.

If a grade separation is acceptable and required by the railroad, Mr. Kevin Fischer, 919-707-6514, NCDOT Structures Management Unit, would coordinate all designs and agreements with CSX for the grade separations.

There are times when engineering and environmental issues eliminate a grade separation from consideration even if the exposure index is exceeded. The above results provide good support documentation that a grade separation was considered (as recommended by NCDOT policy), for why a grade separation was not pursued, and for future discussion with the railroad.

If for some reason a grade separation is possible from an engineering and environmental standpoint but a decision is made to only pursue it in the future, it may be desired to at least identify the R/W needed for a grade separation in the future and preserve it now as part of the project.

If a widened crossing is pursued instead of a grade separation, it will have to be approved by CSX and railroad encroachment/construction agreements obtained from the owner/operator. If at-grade crossings are allowed by CSX, the following Rail Division staff would be involved:

1. Meredith McLamb, 919-707-4132, is the Rail Division manager who handles encroachment agreements with CSX for new or revised at-grade crossings or other encroachments on railroad property.

2. Richard Mullinax, PE, 919-707-4123, is the Rail Division manager who provides information and handles the designs for any new crossing signals and gates associated with at-grade crossings.

The data provided in this letter is for information only and should be verified, or any additional information obtained, during the environmental and preliminary design process. The Rail Division staff noted above should be kept informed and involved as the project progresses.

Thank you for keeping the Rail Division involved in the early project planning stages. Please call me at 707-4707 if you have any additional questions or need any additional information.

Cc: Sandra Stepney, PE, NCDOT Rail Division
Neil Perry, PE, NCDOT Rail Division
Cheryl Collins, NCDOT Rail Division
Arthur Petteway, PE, NCDOT Rail Division
Jason Orthner, PE, NCDOT Rail Division
Matthew Simmons, PE, NCDOT Rail Division
Brad Smythe, PE NCDOT Rail Division
Richard Mullinax, PE, NCDOT Rail Division
Jahmal Pullen, PE, NCDOT Rail Division
Kumar Trivedi, PE, NCDOT Rail Division
Nancy Horne, PE, NCDOT Rail Division
Mr. Kevin Fischer, PE, NCDOT Structures Management Unit

MEETING SUMMARY

To: Project File

From: Celia Foushee
AECOM

Date: June 8, 2017

RE: **NCDOT & FHWA Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Ron Lucas - FHWA
Mason Herndon – NCDOT Division 3
Katie Hite – NCDOT Division 3
Carla Schoonmaker – NCDOT Division 3
Joanna Rocco – AECOM
Celia Foushee – AECOM
Morgan Foster – AECOM

NCDOT Division 3 and the project team met with FHWA on May 31, 2017 at the NCDOT Division 3 office complex in Castle Hayne, North Carolina. At the project scoping meeting, held May 24, 2017, it was determined the project should remain a federally-funded project with FHWA as the lead agency. The purpose of the meeting held on May 31, 2017 was to meet with FHWA and determine project steps moving forward. Discussion points of the meeting are summarized below.

- FHWA noted due to the controversy of the project and the extent of the potential residential, business, and environmental justice impacts an Environmental Impact Statement (EIS) is necessary for the project.
- The traffic forecast is currently being updated and is expected to be finalized in July. The capacity analysis will follow and will determine the appropriate interchange options at Market Street. There are currently three interchange options for each alternative at Market Street. If the updated traffic analyses indicate a smaller interchange footprint, such as an at-grade facility, impacts to the surrounding environmental justice communities could decrease. Furthermore, if a smaller footprint is proposed and controversy surrounding the project is lessened, FHWA noted that a combined Final EIS and Record of Decision (ROD) could be considered. In this instance, a Preferred Alternative would be identified in the Draft EIS.
- It was noted that while an at-grade intersection at Market could potentially be an option with lower traffic volumes, elevated crossings would still be needed when crossing the CSX rail lines.
- Holding an open house public meeting was suggested at the project scoping meeting to inform the public of the project status and alternative concepts. A corridor public hearing will be held after the Draft EIS has been issued and a design public hearing will be held after the Final EIS has been issued.

- FHWA advised the project team to document all outreach and avoidance measures for environmental justice communities. The project team will need to work with the communities and FHWA to determine appropriate mitigation opportunities.
- The project is currently scheduled for right of way acquisition to begin in 2022 and construction to begin in 2025. The Draft EIS is currently scheduled to be signed in the spring of 2019 and the Final EIS in the winter of 2019/2020. Once the traffic analyses are completed the project team will revisit the schedule and determine an appropriate time to begin public involvement.

Action Items

- AECOM to update project schedule once the traffic forecast and capacity analysis have been completed.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

MEMORANDUM

To: Attendees

From: Jahmal Pullen, PE
NCDOT Rail Division

Subject: U-4434 Independence Blvd Extension
Railroad Coordination Meeting

Date: July 20, 2017

A meeting was held on July 12, 2017 at the Division 3 office in Castle Hayne to discuss the railroad interaction on the proposed project U-4434 (Independence Boulevard Extension).

Attendees:

Katie Hite, NCDOT
Michael Bass, NCDOT
David Leonard, NCDOT
Anthony Law, NCDOT
Mike Kozlosky, WMPO
Brian Gackstetter, NCDOT
Kumar Trivedi, NCDOT
Carla Schoonmaker, NCDOT
Joanna Rocco, AECOM (by phone)
Celia Foushee, AECOM (by phone)
Tony Bellamy, CSXT
Troy Creasy, CSXT
Jahmal Pullen, NCDOT

Meeting Minutes:

- Talked about project history
- Talked about project schedule

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556

Telephone: (919) 707-4100
Fax: (919) 707-4154
Customer Service: 1-877-368-4968

Website: www.ncdot.gov
www.ncbytrain.org

Location:
862 CAPITAL BLVD
RALEIGH, NC 27603

- Discussed the current and future rail traffic. Currently 2 trains per day use the track and with the new intermodal service to Charlotte, there is an opportunity in the near future for an additional 4 trains per week to be added to the line.
- Discussed a proposed project to be inputted into STI P5.0 for scoring, which will look at upgrading the rail line and implementing the Wilmington Traffic Separation Study.
- Talked about project description and interaction with the railroad
- CSX described need for a 25 foot distance from a potential second track and that the clearance was still 23'3". A link to the Public Projects Manual was going to be provided. Here is a link as well: https://www.csx.com/index.cfm/library/files/about-us/property/public-project-manual/
- Talked about the at-grade crossing versus grade separated crossing of the railroad
- It was noted that Alternate 8 will need to be taken off, due to the City building a new police and fire training facility in the path of that alignment. This location is near the North crossing of the rail line. Mike was going to follow up with the City regarding design plans for the facility and if they are available, they would be sent to DOT.
- Wilmington MPO mentioned that they did look at taking Independence Boulevard under the CSX line, but the cost was high.
- Wilmington MPO asked that CSX provide written response regarding at-grade crossing of the railroad
- NCDOT will send letter, and since has sent the letter, to CSX requesting a written response regarding at-grade crossing

If there are any revisions or additional items that have not been included in the minutes please let me know and I will send out a revised summary. I can be reached at jmpullen@ncdot.gov or by phone at 919-707-4102.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

July 14, 2017

Mr. Tony C. Bellamy, PE
Director Project Management-Public Projects
500 Water St., J-301
Jacksonville, FL 32202

Dear Mr. Bellamy:

The North Carolina Department of Transportation (NCDOT) and the Wilmington Urban Area Metropolitan Planning Organization are currently in the planning phase for project U-4434. This project proposes the extension of Independence Boulevard. The project would cross the CSX ACB line in two locations. The current schedule for the project is right of way in fiscal year 2022 and a let date in fiscal year 2025. The railroad interaction on this project was discussed at a July 12th meeting held at the NCDOT Division Three office. At that meeting we had representation from the Wilmington Urban Area MPO, CSX Transportation, NCDOT Division Three, NCDOT Rail Division and AECOM.

There are several different alternatives that are being evaluated. The City and MPO have passed resolutions supporting the completion of the draft environmental impact statement, preservation of the preferred corridor, opposing the design of an elevated facility and encouraging the MPO, NCDOT and CSX to develop an at-grade option for Independence Boulevard extension. The purpose of this letter is to request feedback from CSX on the proposal to include two at-grade crossings of the CSX line in the U-4434 plans.

Sincerely,

Jahmal Pullen, PE
NCDOT Rail Division
Engineering Coordination & Safety Manager

cc:

Mike Kozlosky, Wilmington MPO
Troy Creasy, CSX Transportation
Katie Hite, PE, NCDOT
Carla Schoonmaker, NCDOT
Michael Bass, NCDOT
Kumar Trivedi, PE, NCDOT
Brian Gackstetter, NCDOT

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556

Telephone: (919) 707-4100
Fax: (919) 707-4154
Customer Service: 1-877-368-4968

Website: www.ncdot.gov
www.ncbytrain.org

Location:
862 CAPITAL BLVD
RALEIGH, NC 27603

From:	Bass, Michael L
To:	Rocco, Joanna
Cc:	Foushee, Celia
Subject:	FW: U-4434 Independence Blvd Extension
Date:	Wednesday, July 26, 2017 9:01:57 AM
Attachments:	image003.png image001.png image002.png

FYI…

Michael L. Bass, Jr.
Engineering Technician Advanced
Division 3 Division Design Construct
North Carolina Department of Transportation

910 341 2000 office
910 675 0143 fax
mlbass@ncdot.gov

5501 Barbados Boulevard
Castle Hayne, NC 28429



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From: Pullen, Jahmal M
Sent: Tuesday, July 25, 2017 3:28 PM
To: Creasy, Troy <Troy_Creasy@csx.com>
Cc: Trivedi, Kumar A <katrivedi@ncdot.gov>; Law, Anthony W <alaw@ncdot.gov>; Leonard, David <dbleonard@ncdot.gov>; Stepney, Sandra A <sastepney@ncdot.gov>; Gackstetter, Brian E <begackstetter@ncdot.gov>; Schoonmaker, Carla M <cschoonmaker@ncdot.gov>; Bellamy, Tony <Tony_Bellamy@csx.com>; mike.kozlosky@wilmingtonnc.gov; Hite, Katie E <kehite@ncdot.gov>; Dillard, John <John_Dillard@CSX.com>; Bass, Michael L <mlbass@ncdot.gov>; Cramme, Katherine (External) <Katherine_Cramme@CSX.com>
Subject: RE: U-4434 Independence Blvd Extension

Troy –

Thank you for the CSX response.

Jahmal

Jahmal Pullen, PE
Engineering Coordination and Safety Manager
Rail Division
North Carolina Department of Transportation

919 707 4102 office
jmpullen@ncdot.gov

862 Capital Blvd.
1556 Mail Service Center
Raleigh, NC 27699-1556



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From: Creasy, Troy [mailto:Troy_Creasy@csx.com]
Sent: Tuesday, July 25, 2017 3:17 PM
To: Pullen, Jahmal M <jmpullen@ncdot.gov>
Cc: Trivedi, Kumar A <katrivedi@ncdot.gov>; Law, Anthony W <alaw@ncdot.gov>; Leonard, David <dbleonard@ncdot.gov>; Stepney, Sandra A <sastepney@ncdot.gov>; Gackstetter, Brian E <begackstetter@ncdot.gov>; Schoonmaker, Carla M <cschoonmaker@ncdot.gov>; Bellamy, Tony <Tony_Bellamy@csx.com>; mike.kozlosky@wilmingtonnc.gov; Hite, Katie E <kehite@ncdot.gov>; Dillard, John <John_Dillard@CSX.com>; Bass, Michael L <mlbass@ncdot.gov>; Cramme, Katherine (External) <Katherine_Cramme@CSX.com>
Subject: RE: U-4434 Independence Blvd Extension

Jahmal,

From an operational and safety standpoint, any at-grade option for the Independence Boulevard extension project is unacceptable.

Best regards,

Troy J Creasy
Project Manager II
CSX Capital & Public Projects
(O) 804-226-7718 | (F) 904-245-4412
1610 Forest Ave, Suite 120, Richmond VA 23229
Click to view CSX's Public Projects Manual

From: Pullen, Jahmal M [mailto:jmpullen@ncdot.gov]
Sent: Friday, July 14, 2017 4:46 PM

To: Bellamy, Tony <Tony_Bellamy@csx.com>; Creasy, Troy <Troy_Creasy@csx.com>
Cc: Trivedi, Kumar A <katrivedi@ncdot.gov>; Law, Anthony W <alaw@ncdot.gov>; Leonard, David <dbleonard@ncdot.gov>; Stepney, Sandra A <sastepney@ncdot.gov>; Gackstetter, Brian E <begackstetter@ncdot.gov>; Schoonmaker, Carla M <cschoonmaker@ncdot.gov>; mike.kozlosky@wilmingtonnc.gov; Hite, Katie E <kehite@ncdot.gov>; Bass, Michael L <mlbass@ncdot.gov>
Subject: U-4434 Independence Blvd Extension

Tony, Troy –

We wanted to follow up with you from our Wednesday meeting regarding the U-4434. We have a letter attached requesting your feedback. Thanks again for meeting with us.

Jahmal

Jahmal Pullen, PE
Engineering Coordination and Safety Manager
Rail Division
North Carolina Department of Transportation

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jmpullen@ncdot.gov

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MEETING SUMMARY

To: Project File

From: Celia Foushee
AECOM

Date: February 14, 2018

RE: **NCDOT Status Update Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Chad Kimes – NCDOT Division 3
Krista Kimmel – NCDOT Division 3
David Leonard – NCDOT Division 3
Mason Herndon – NCDOT Division 3
Andrew Bell – AECOM
Ed Edens – AECOM
Celia Foushee – AECOM
Joanna Rocco – AECOM

NCDOT Division 3 and the project team met on February 6, 2018 at the NCDOT Division 3 office complex in Castle Hayne, North Carolina to discuss the project status and design changes to the Independence Boulevard Extension project. Discussion points of the meeting are summarized below.

- Schedule
  - Agency check-in meetings were removed from the schedule.
  - The Capacity Analysis was put on hold to analyze conceptual designs to elevate the facility. A draft is anticipated to be submitted to NCDOT Division 3 by the end of February.
  - The Draft Environmental Impact Statement (EIS) is scheduled to be signed in summer 2019, the Final EIS is scheduled for 2021, the record of decision is schedule to be completed in summer/fall 2021, and right-of-way acquisition is schedule for 2022.
  - It was noted HDR could begin final designs before the record of decision is finalized.
  - The project team will begin updating technical studies once designs are finalized. The Natural Resources Technical Report was completed in 2012 and will likely need an addendum to identify any species that have been added to the threatened/endangered list. NCDOT will verify with the USACE if the wetland delineation is still valid.
  - AECOM will send the project schedule to Krista and Tim Banta for review.
- Design Revisions
  - AECOM developed five conceptual designs to reduce impacts and costs of the project. These included bridging the proposed roadway from the Market Street interchange to Hurst Street (Option 5). NCDOT noted this is their preferred option for preparing additional design refinements and cost estimates.
  - NCDOT provided a draft typical section to incorporate into the Option 5 design to reduce right-of-way impacts and costs. AECOM will confirm the typical section meets design standards and can be incorporated as proposed.

  - The Wilmington City Council is concerned about the design speed of the project (60 mph – posted at 55 mph). Immediately following the meeting, NCDOT presented to Mike Kozlosky (WMPO) the option of lowering the design speed from 60 mph to 55 mph, allowing the posted speed to be either 50 mph or 45 mph. Mike agreed with this change.
  - It was suggested a single point urban interchange (SPUI) at Market Street could further reduce impacts to the surrounding communities. AECOM will complete a comparison of the current tight urban diamond interchange (TUDI) and SPUI at this location.
    - *Follow-up: A SPUI configuration has been analyzed and conceptually drawn, and has merit in being included in the alternatives analysis.*
- The following three designs will be presented at the next WMPO TAC meeting (February 28, 2018):
  - Alternative 7 TUDI (Option 2) with original typical and original right-of-way width.
  - Alternative 7 TUDI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
  - Alternative 7 SPUI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
  - Revised construction and right-of-way cost estimates for the three options above.
  - Impact comparison between the three options above.
- AECOM will coordinate with FHWA to discuss the revised design options, potentially presenting a preferred alternative in the Draft EIS and completing a combined Final EIS/Record of Decision environmental document, and eliminating the Market Street Quadrant ramp configurations due to increased impacts to the surrounding community.

<u>Action Items</u>

- NCDOT will verify with the USACE if the 2012 wetland delineation is still valid.
- AECOM will send the project schedule to Krista and Tim Banta for review.
- AECOM will confirm the draft typical section provided by NCDOT meets design standards and can be incorporated as proposed.
- AECOM will revise the design speed of the proposed Independence Boulevard Extension from 60 mph to 55 mph.
- AECOM will complete a traffic and geometric comparison of the current tight urban diamond interchange (TUDI) and SPUI at the Market Street interchange.
- AECOM and NCDOT will present the following three designs at the next WMPO TAC meeting (February 28, 2018):
  - Alternative 7 TUDI (Option 2) with original typical and original right-of-way width.
  - Alternative 7 TUDI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
  - Alternative 7 SPUI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
  - Revised construction and right-of-way cost estimates for the three options above.
  - Impact comparison between the three options above.
- AECOM will coordinate with FHWA to discuss the revised design options, potentially presenting a preferred alternative in the Draft EIS and completing a combined Final EIS/Record of Decision environmental document, and eliminating the Market Street Quadrant ramp configurations due to increased impacts to the surrounding community.

MEETING SUMMARY

To: Project File

From: Celia Miars
AECOM

Date: June 19, 2018

RE: **NCDOT Status Update Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Chad Kimes – NCDOT Division 3
Krista Kimmel – NCDOT Division 3
David Leonard – NCDOT Division 3
Mason Herndon – NCDOT Division 3
Katie Hite – NCDOT Division 3
Kevin Bowen – NCDOT Division 3
Mike Kozlosky – Wilmington MPO
Ed Edens – AECOM
Celia Miars – AECOM
Joanna Rocco – AECOM

NCDOT Division 3, the Wilmington MPO, and AECOM held a conference call on June 11, 2018 to discuss a preferred alternative for the Independence Boulevard Extension project and the next steps for public involvement. Previously, NCDOT and AECOM developed concepts for the proposed project, which included three alternatives (Alternatives 2, 7, and 8), each with three interchange options at Market Street (Quad AC, Quad BC, and a Tight Urban Diamond Interchange (TUDI)). Additional discussions with NCDOT and the WMPO led to dropping Alternative 8 due to the potential impacts to the newly developed City of Wilmington firing range facility. Alternatives 2 and 7 were carried forward with design revisions to the mainline, which included a bridging option to lessen the impact to the surrounding communities. Additional interchange options were also proposed: Option 5 (TUDI) and Option 6 (single point urban interchange (SPUI)). Quad AC and Quad BC were eliminated from further study due to relocations. A preliminary impact matrix was created comparing Alternatives 2 and 7 with the original design, Option 5 (TUDI), and Option 6 (SPUI) (six alternatives total).

NCDOT held an internal meeting in April to discuss the preliminary impacts matrix and decided to eliminate Alternative 2 due to the number of relocations. It was also decided to wait until the Traffic Capacity Analysis was complete to determine which option to move forward with, the TUDI or the SPUI.

Discussion points from this meeting are summarized below.

- The TUDI and the SPUI operate very similar, however, the SPUI operates slightly better.
- The SPUI has less business and residential relocations with a tighter design.
- Pedestrian accommodations with the SPUI could be complicated. AECOM should develop conceptual ideas regarding single timing for pedestrian movements.

- The WMPO noted pedestrian access would need to be accommodated along the roadway.
- It was decided NCDOT and AECOM would present both options to the public and local officials prior to selecting a preferred alternative. The Draft Environmental Impact Statement (DEIS) will analyze Alternative 7, Options 5 and 6 as detailed study alternatives and provide discussion of the previous conceptual alternatives and why they were eliminated from further study.
- AECOM will coordinate with Ron Lucas, FHWA, to verify the proposed methodology for the public meeting and the DEIS.

The meeting concluded at 11:45 am.

Action Items

- AECOM will provide further traffic analyses on the pedestrian movements for the TUDI and SPUI options.
- AECOM will send examples of a SPUI with bicycle and pedestrian accommodations for use in preparing a concept and traffic analyses for U-4434.
- AECOM will coordinate with Ron Lucas to verify the proposed methodology for the public meeting and the DEIS. *Update: AECOM and NCDOT held a conference call with FHWA on June 12, 2018. FHWA concurred on the proposed next steps to present Alternative 7, Options 5 and 6 to the local officials and to the public. AECOM will coordinate with NCDOT to determine a date for the public meeting.*

MEETING SUMMARY

To: Project File

From: Celia Miars
AECOM

Date: January 15, 2019

RE: **Greenway Rail Crossings Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Troy Creasy – CSX
Brian Gackstetter – NCDOT Rail Division
Jahmal Pullen – NCDOT Rail Divison
Krista Kimmel – NCDOT Division 3
Katie Hite – NCDOT Division 3
Mike Kozlosky – Wilmington MPO
Chase Anderson – City of Wilmington

Ed Edens – AECOM*
Tom Hepler – AECOM*
Celia Miars – AECOM
Joanna Rocco – AECOM *
Dan Scheel – AECOM
Susan Westberry – AECOM

*attended meeting via phone

The project team met with NCDOT Division 3, NCDOT Rail Division, CSX, and the Wilmington MPO on December 19, 2018 to discuss proposed designs for the Independence Boulevard Extension project at existing rail crossings. Krista Kimmel began the meeting by providing details about the project status and the proposed designs. The Independence Boulevard Extension project begins at Randall Parkway and extends on new location to Martin Luther King Jr. Parkway. The Wilmington MPO (WMPO) has requested a multi-use path to the east of the proposed facility. Currently, the functional designs for the proposed facility include bridges over both rail crossings.

Mike Kozlosky noted the area is low-income and minority with low car ownership. The WMPO adopted a Greenway Plan in 2013 which includes the 'Independence Boulevard Trail', described as connecting McCrary Park to Maides Park and its proposed connector trail to Downtown. This trail would provide additional access to other greenways (including the Cross City Trail), park facilities, and transit routes within Wilmington. It was noted the Division and WMPO's preferred alignment for the proposed multi-use facility would include modifications to the existing at-grade rail crossings.

CSX noted that new at-grade rail crossings would not be approved by CSX and existing at-grade crossings should be utilized where possible. Modifications to existing at-grade crossings are permissible.

The southern crossing, referred to as "Covil Crossing" would modify the existing at-grade vehicular crossing and unprotected, unpaved pedestrian path with a singular pedestrian crossing in the form of a "Z" which

offers added safety to the multi-use path users by requiring them to slow or stop before crossing. The current functional designs include a "Z" pedestrian crossing perpendicular to the railway. It was noted the "Z" crossing is preferred and much safer for pedestrians. CSX and NCDOT Rail Division noted that a sidewalk and fencing should be provided to funnel traffic to the greenway facility in order to discourage movement behind the adjacent buildings and along the rail corridor.

The northern crossing, referred to as "Princess Place Crossing" would modify the existing crossing for pedestrian use for the crossing on the northern side of Princess Place Drive. A "Z" crossing is proposed which would cross the railroad tracks at 90 degrees and continue the multi-use path parallel to the proposed roadway. The existing sidewalk crossing on the north side of Princess Place would be removed and a connecting sidewalk would be constructed along the north side of the railroad right-of-way to tie to the multi-use path to Evans Street. Fencing along the rail ROW would be provided to funnel pedestrian traffic along the sidewalk and to the greenway. The existing sidewalk on the south side of Princess Place Drive would remain in place.

There was discussion regarding the 5% cost-share that is provided to NCDOT by CSX when NCDOT eliminates at-grade crossings. The 5% is federally mandated and applies only if at-grade facilities, with flashers, are eliminated. Division 3 noted that the 5% has not been factored into any existing cost estimates. Since the 5% has not been included, it was decided to forgo the 5% cost-share and proceed with modifying the existing at-grade crossing to pedestrian at-grade crossings.

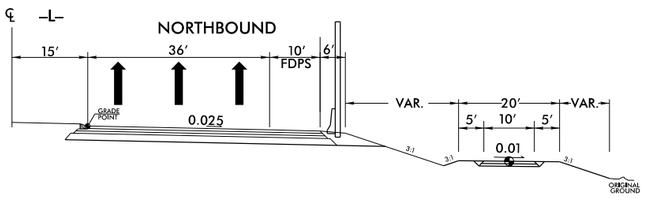
AECOM will revise the functional designs to include modifications discussed during the meeting and described above. The designs will be submitted to CSX for review feedback. The project team will hold off on coordinating with the public until CSX has provided their feedback on the crossing modifications.

OPTION 1 - AT GRADE RAIL CROSSING (ZEE CROSSING)

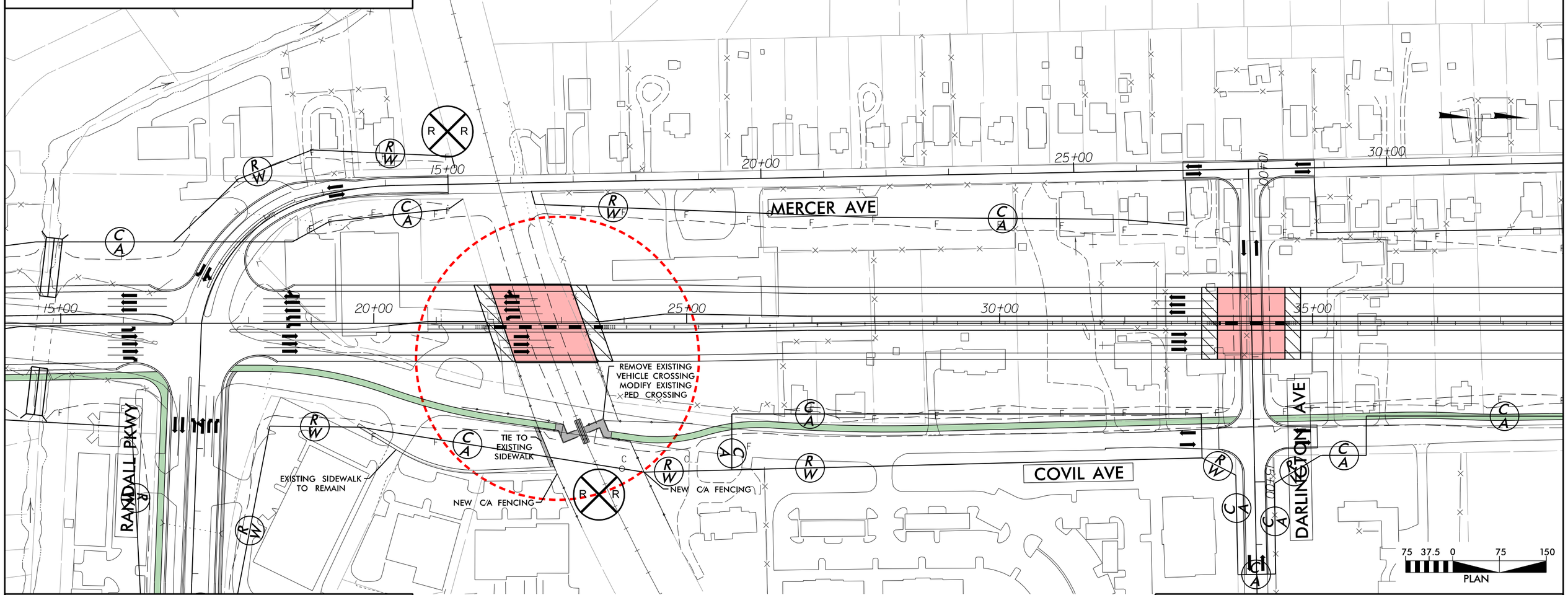
PROJECT REFERENCE NO.	SHEET NO.
U-4434	

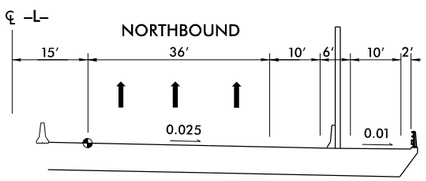
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

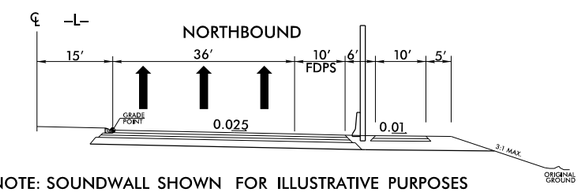


NOTE: SOUNDWALL SHOWN FOR ILLUSTRATIVE PURPOSES
FINAL WALL LOCATION/DIMENSIONS TO BE DETERMINED





NOTE: SOUNDWALL SHOWN FOR ILLUSTRATIVE PURPOSES
FINAL WALL LOCATION/DIMENSIONS TO BE DETERMINED

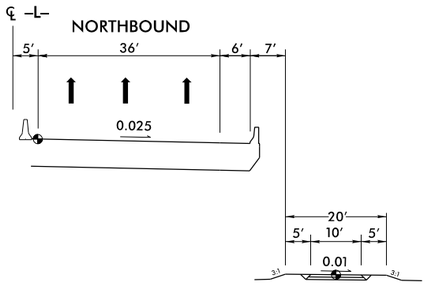


NOTE: SOUNDWALL SHOWN FOR ILLUSTRATIVE PURPOSES
FINAL WALL LOCATION/DIMENSIONS TO BE DETERMINED

PROJECT REFERENCE NO.	SHEET NO.
U-4434	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



OPTION 1 - AT GRADE RAIL CROSSING (ZEE CROSSING) - TUDI

MONTGOMERY AVE

PRINCESS PL

EVANS ST

MARKET ST

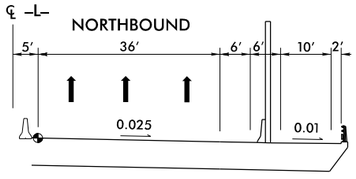
EXISTING SIDEWALK TO REBUILT AS NEEDED

NEW C/A FENCING

MODIFY EXISTING PED CROSSING

EXISTING SIDEWALK TO REBUILT AS NEEDED

EXISTING SIDEWALK TO REMAIN



NOTE: SOUNDWALL SHOWN FOR ILLUSTRATIVE PURPOSES
FINAL WALL LOCATION/DIMENSIONS TO BE DETERMINED

OPTION 1 - AT GRADE RAIL CROSSING (ZEE CROSSING) - SPUI

MONTGOMERY AVE

PRINCESS PL

EVANS ST

MARKET ST

RETAINING WALL

EXISTING SIDEWALK TO REBUILT AS NEEDED

NEW C/A FENCING

MODIFY EXISTING PED CROSSING

EXISTING SIDEWALK TO REBUILT AS NEEDED

EXISTING SIDEWALK TO REMAIN

75 37.5 0 75 150
PLAN

AECOM
701 Corporate Center Drive
Raleigh, NC 27607

T: 919.854.6200
F: 919.854.6259
aecom.com

Project name:
U-4434 Independence Boulevard

Project ref:

To:
Krista Kimmel, PE
NCDOT Div. 3

CC:
Mason Herndon, NCDOT Div. 3
Jamille Robbins, NCDOT Central

From:
Susan Westberry

Date:
April 15, 2020

Memo

Subject: FHWA Review Comments on DEIS and Need for Enhanced EJ Outreach

On April 15, AECOM held a teleconference call with Felix Davila, Clarence Coleman, and Lynise DeVance of the Federal Highway Administration (FHWA) to discuss their comments on the Draft Environmental Impact Statement (DEIS) for the Independence Boulevard Extension project. Krista Kimmel and Mason Herndon from NCDOT Division 3 were also in attendance.

The group discussed outreach efforts for the project to date, including recent efforts ahead of the July 2019 public meeting that included targeted fliers and door hangers in low income and minority portions of the study area.

FHWA suggested that some of the following measures be taken to enhance outreach and identify mitigation:

- ✓ A comprehensive and thorough Public Involvement Plan must be developed for the project
- ✓ Reaching out to leaders of the community, or local pastors (noted Hispanic church in study area)
- ✓ Plan meetings with church congregations
- ✓ Plan a meeting with Wilmington Housing Authority
- ✓ Need for a more detailed relocation plan that includes minority and low income aspects of project relocations
- ✓ Acknowledge the affordable housing shortage in Wilmington – what happens after the 3.5 years of rental assistance?
- ✓ Develop mitigation strategies with the community and identify them in the DEIS

FHWA offered to provide examples of some mitigation strategies identified for other projects. Housing relocation is a major concern for this project.

The NCDOT team explained some mitigative measures that have already been incorporated into the project – including the multiuse path, added connectivity, and pedestrian crossings.

Meeting name
Independence Boulevard Extension – Project Restart Meeting

Meeting date
March 15, 2021

Location
Microsoft Teams

Project
Independence Boulevard Extension
STIP U-4434

Attendees
Krista Kimmel – NCDOT Division 3
David Leonard – NCDOT Division 3
Mason Herndon – NCDOT Division 3
Eric Ray – NCDOT Division 3
Lonny Sleeper – NCDOT Division 3
Monica Duval – NCDOT Division 3
Ben Hughes – NCDOT Division 3
Trevor Carroll – NCDOT Division 3
Jon Roan – NCDOT Division 3
Jessie Leonard – NCDOT Division 3
Alex Stewart – NCDOT Division 3
Jason Rivenbark – NCDOT Division 3
Mike Kozlosky – WMPO
Susan Westberry – AECOM
Celia Miars – AECOM
Ed Edens – AECOM

The Independence Boulevard Extension Project (STIP U-4434) was reinitiated on March 3, 2021. NCDOT Division 3, the Wilmington MPO, and AECOM held a virtual meeting on March 15, 2021 to "restart" the project and provide a status update on various tasks remaining. Discussion points from this meeting are summarized below:

- Right of way is now scheduled for 2024 and construction in 2028.
- Project Status for tasks completed prior to May 2020 include:
    - Several technical memorandums were updated in 2018 and 2019 for the Draft Environmental Impact Statement (DEIS). These include traffic forecasts and traffic analyses, natural resources, community resources, cultural resources, noise and air analyses, and utility estimates.
    - Preliminary designs were submitted in February 2020 and comments have not been received.
    - Prior to the Project being put on hold, the DEIS had undergone reviews by the Division and Central offices as well as FHWA. Comments were received from FWHA in April 2020.
- Remaining project tasks that have been scoped include:
    - Task Order 19 includes providing updating quantities for estimates

    - Task Order 15 includes preparation for the Public Hearing and selecting a Preferred Alternative
    - Task Orders 12, 15, and 19 include efforts for publication of the DEIS.
- Remaining project tasks that have not been scoped include:
    - Completing enhanced Environmental Justice (EJ) outreach/analysis per comments received from FHWA
    - Preparing a new relocation report
    - Updating threatened and endangered species habitat assessments and surveys for plant species and black rail
    - Completing DEIS updates based on the time passed between technical studies completed prior to May 2020 and inclusion of enhanced EJ outreach and mitigation determinations
    - FHWA's review of the enhanced EJ outreach/analysis
    - Transferring files into ATLAS.
- Other general items that were discussed include:
    - AECOM will populate and maintain ATLAS.
    - AECOM will provide quarterly monthly expense projects
    - AECOM will update the project schedule and monthly projections.
    - WMPO noted the current aerials shown on the preliminary engineering plans do not show the City of Wilmington's new shooting range. AECOM noted the shooting range was taken into consideration during development of designs and is not anticipated to be impacted.

The meeting concluded at 9:30 am.

This is a summary of the meeting; however, if an error is found or item is missing in these meeting notes please contact Krista Kimmel, khkimmel@ncdot.gov, or Susan Westberry, susan.westberry@aecom.com, with updated information.

APPENDIX H

NOTICE OF INTENT

eligibility of countries for the benefits of the ATPA, as amended.

In a **Federal Register** notice dated August 17, 2004, USTR initiated the 2004 ATPA Annual Review and announced a deadline of September 15, 2004 for the filing of petitions (69 FR 51138). Several of these petitions requested the review of certain practices in certain beneficiary developing countries regarding compliance with the eligibility criteria set forth in sections 203(c) and (d) and section 204(b)(6)(B) of the ATPA, as amended (19 U.S.C. 3203 (c) and (d); 19 U.S.C. 3203(b)(6)(B)).

In a **Federal Register** notice dated November 15, 2004, USTR published a list of the responsive petitions filed pursuant to the announcement of the annual review (69 FR 65674). The Trade Policy Staff Committee (TPSC) has conducted a preliminary review of these petitions. It has determined that the petition filed by the American Cast Iron Pipe Company concerning Ecuador does not require action and terminates its review.

With respect to the remaining 2004 petitions, the TPSC is modifying the schedule for this review, in accordance with 15 CFR 2016.2(b). The results will be announced on or about May 31, 2005. The TPSC is similarly modifying the date of the announcement of the results of preliminary review for the remaining 2003 petitions to May 31, 2005. Following is the list of all petitions that remain under review:

Peru: Engelhard;
Peru: Princeton Dover;
Peru: LeTourneau;
Peru: Duke Energy;
Ecuador: AFL–CIO; Human Rights Watch; and US/LEAP;
Ecuador: Chevron Texaco;
Ecuador: Electrolux Home Products, Inc.;
Peru: Parsons Corporation.

Carmen Suro-Bredie,

Chairman, Trade Policy Staff Committee.

[FR Doc. 05–865 Filed 1–14–05; 8:45 am]

BILLING CODE 3190–W5–P

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement: Addison and Rutland Counties, VT

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of intent.

SUMMARY: The FHWA is issuing this notice to advise the public that an environmental impact statement will be prepared for proposed improvements to freight transportation to and from Middlebury, Vermont.

FOR FURTHER INFORMATION CONTACT: Rob Sikora, Environmental Program Manager, Federal Highway Administration, P.O. Box 568, Montpelier, Vermont 05601. Telephone: 802–828–4573.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the Vermont Agency of Transportation (VTrans), will prepare an Environmental Impact Statement (EIS) for a proposal to improve the transportation of large amounts of industrial materials to and from Middlebury along the U.S. Route 7 corridor.

Improvements in the corridor are considered necessary to provide for existing and projected movement of freight to and from Middlebury via U.S. Route 7. Alternatives under consideration include (1) taking no action; (2) improving existing U.S. Route 7; and (3) adding a new rail line with associated connector tracks and access roads. Incorporated into and studied with the various build alternatives will be design variations of grade and alignment.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to private organizations and citizens who have previously expressed or are known to have an interest in this proposal. A series of public meetings will be held in Middlebury and other communities along Route 7. In addition, a public hearing will be held. Public notice will be given of the time and place of the meetings and hearing. The draft EIS will be available for public and agency review and comment prior to the public hearing. No formal scoping meeting is planned at this time.

To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to the FHWA at the address provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program)

Issued on: January 11, 2005.

Kenneth R. Sikora, Jr.,

Environmental Program Manager, Montpelier, Vermont.

[FR Doc. 05–899 Filed 1–14–05; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement: New Hanover County, NC

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of intent.

SUMMARY: The FHWA is issuing this notice to advise the public that an environmental impact statement will be prepared for the proposed extension of Independence Boulevard in New Hanover County, North Carolina.

FOR FURTHER INFORMATION CONTACT: John F. Sullivan, III, PE, Division Administrator, Federal Highway Administration, 310 New Bern Avenue, Ste 410, Raleigh, North Carolina 27601–1418, Telephone: (919) 856–4346.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the North Carolina Department of Transportation, will prepare an environmental impact statement (EIS) on a proposal to provide an extension to Independence Boulevard in New Hanover County, North Carolina. The proposed improvement would involve the extension of Independence Boulevard as an urban boulevard with a grass median and partially controlled access between Randall Parkway and Martin Luther King Jr. Parkway for a distance of about 2 miles.

Improvements to the corridor are considered necessary to provide for the existing and projected traffic demand. Also, included in this proposal is the potential construction of a partial cloverleaf interchange at Princess Place (with ramps and loops in the southwest and northeast quadrants, and spanning the CSX Railroad crossing). A trumpet interchange at Martin Luther King, Jr. Parkway may also be necessary. Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to private organizations and citizens who have previously expressed or are known to have interest in this proposal. Public meetings will be held in Wilmington, North Carolina throughout the development of the EIS. In addition, a public hearing will be held. Public notice will be given of the time and place of the meetings and

hearing. The draft EIS will be available for public and agency review and comment prior to the public hearing.

To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to the FHWA at the address provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program)

Issued on: January 4, 2005.

John F. Sullivan, III,

Division Administrator, Raleigh, North Carolina.

[FR Doc. 05–914 Filed 1–14–05; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Surface Transportation Board

[Ex Parte No. 333]

Sunshine Act Meeting

TIME AND DATE: 10 a.m., January 19, 2005.

PLACE: The Board's Hearing Room, Surface Transportation Board, 1925 K Street, NW., Washington, DC 20423.

STATUS: The Board will meet to discuss among themselves the following agenda items. Although the conference is open for public observation, no public participation is permitted.

MATTERS TO BE CONSIDERED:

STB Docket No. 42057, *Public Service Company of Colorado d/b/a Xcel Energy v. The Burlington Northern and Santa Fe Railway Company.*

STB Docket No. AB–156 (Sub-No. 25X), *Delaware and Hudson Railway Company, Inc.—Discontinuance of Trackage Rights Exemption—in Susquehanna County, PA, and Broome, Tioga, Chemung, Steuben, Allegany, Livingston, Wyoming, Erie, and Genesee Counties, NY.*

Embraced case: STB Finance Docket No. 34561, *Canadian Pacific Railway Company—Trackage Rights Exemption—Norfolk Southern Railway Company.*

Embraced case: STB Finance Docket No. 34562, *Norfolk Southern Railway Company—Trackage Rights Exemption—Delaware and Hudson Railway Company, Inc.*

STB Finance Docket No. 33388 (Sub-No. 95), *CSX Corporation and CSX Transportation, Inc., Norfolk Southern Corporation and Norfolk Southern Railway Company—Control and Operating Leases/Agreements—Conrail Inc. and Consolidated Rail Corporation [Petition to Approve Settlement Agreement and Exempt Embraced Transactions].*

Embraced case: STB Finance Docket No. 33388 (Sub-No. 96), *Wheeling & Lake Erie Railway Co.—Trackage Rights Exemption—Norfolk Southern Railway Co. Between Bellevue and Toledo, OH.*

Embraced case: STB Finance Docket No. 33388 (Sub-No. 97), *Wheeling & Lake Erie Railway Co.—Trackage Rights Exemption—Norfolk Southern Railway Co. in Cleveland, OH.*

Embraced case: STB Finance Docket No. 33388 (Sub-No. 98), *Norfolk Southern Railway Co.—Trackage Rights Exemption—Wheeling & Lake Erie Railway Co. Between Clairton, PA and Bellevue, OH.*

Embraced case: STB Finance Docket No. 33388 (Sub-No. 99), *Wheeling & Lake Erie Railway Co.—Petition for Exemption—Purchase of the Toledo Pivot Bridge—Norfolk Southern Railway Co.*

Embraced case: STB Finance Docket No. 32516 (Sub-No. 1), *Wheeling & Lake Erie Railway Co.—Lease and Operation Exemption—Norfolk and Western Railway Co.'s Dock at Huron, OH.*

Embraced case: STB Finance Docket No. 32525 (Sub-No. 1), *Wheeling & Erie Railway Co.-Trackage Rights Exemption-Norfolk and Western Railway.*

STB Finance Docket No. 34483, *SMS Rail Service, Inc.—Petition for Declaratory Order.*

STB Finance Docket No. 32760 (Sub-No. 43), *Union Pacific Corporation, Union Pacific Railroad Company, and Missouri Pacific Railroad Company-Control and Merger—Southern Pacific Rail Corporation, Southern Pacific Transportation Company, St. Louis Southwestern Railway Company, SPCSL Corp., and The Denver and Rio Grande Western Railroad Company (Arbitration Review).*

STB Finance Docket No. 34633, *Wisconsin & Southern Railroad Co.—Acquisition Exemption—Union Pacific Railroad Company.*

STB Docket No. AB–444 (Sub-No. 1X), *Lamoille Valley Railroad Company—Abandonment and Discontinuance of Trackage Rights Exemption—in Caledonia, Washington, Orleans, Lamoille, and Franklin Counties, VT.*

STB Docket No. AB–68 (Sub-No. 4X), *Lake Superior & Ishpeming Railroad Company—Abandonment Exemption—in Marquette County, MI.*

STB Docket No. AB–882, *Minnesota Commercial Railway Company—Adverse Discontinuance—in Ramsey County, MN.*

Embraced case: STB Docket No. AB–884, *MT Properties, Inc.—Adverse Abandonment—in Ramsey County, MN.*

STB Ex Parte No. 656, *Motor Carrier Bureaus—Periodic Review Proceeding.*

FOR MORE INFORMATION CONTACT: A. Dennis Watson, Office of Congressional and Public Services, Telephone: (202) 565–1596, FIRS: 1–800–877–8339.

Dated: January 12, 2005.

Vernon A. Williams,

Secretary.

[FR Doc. 05–1003 Filed 1–13–05; 11:12 am]

BILLING CODE 4915–01–P

DEPARTMENT OF TRANSPORTATION

Surface Transportation Board

[STB Docket No. AB–290 (Sub-No. 242X)]

Norfolk Southern Railway Company—Discontinuance of Service Exemption—Between Newark and Kearny, NJ, in Essex and Hudson Counties, NJ

Norfolk Southern Railway Company (NSR) has filed a notice of exemption under 49 CFR part 1152 subpart F—*Exempt Abandonments and Discontinuances of Service* to discontinue service over a 10.0-mile line of railroad between milepost WD–2.2 in Newark, NJ, and milepost WD–8.4 in Kearny, NJ (which is a segment of a branch line known as the Boonton line), and between milepost NK–4.3 and milepost NK–8.1 on the adjacent Newark Industrial Track in Essex and Hudson Counties, NJ. The line traverses United States Postal Service Zip Codes 07029, 07032, 07094, 07099, 07102–07108, 07112 and 07114.

NSR has certified that: (1) No local traffic has moved over the line for at least 2 years; (2) any overhead traffic can be rerouted over other lines; (3) no formal complaint filed by a user of rail service on the line (or by a State or local government entity acting on behalf of such user) regarding cessation of service over the line either is pending with the Surface Transportation Board (Board) or with any U.S. District Court or has been decided in favor of complainant within the 2-year period; and (4) the requirements at 49 CFR 1105.12 (newspaper publication) and 49 CFR 1152.50(d)(1) (notice to governmental agencies) have been met.

As a condition to this exemption, any employee adversely affected by the discontinuance shall be protected under

APPENDIX E

PUBLIC INVOLVEMENT

Appendix E1

Citizen's Informational Workshop

M E M O R A N D U M

To: Citizen's Informational Workshop Participants

From: Peter Trencansky, PE, PTOE
Project Manager

Date: August 1, 2011

Subject: **Summary of Comments for Citizen's Informational Workshop #1**
Independence Boulevard Extension STIP U-4434

A public workshop was held on June 13, 2011 at the following location:

Date: June 13, 2011
Time: 4:00 – 7:00 PM
Location: Rachel Freeman School of Engineering

The intent of the workshop was to solicit public input prior to establishing Purpose and Need and developing project designs. The public was provided the opportunity to listen to a short presentation describing the project, the draft Purpose and Need. The public was also provided the opportunity to review maps showing the study area. Participants were encouraged to talk to NCDOT staff and project team members and provide comments. All attendees received a project handout with a comment form.

Sixty seven participants signed in at the workshop (and 3 did not) representing a total of 70 attendees. The project team received seven comment sheets at the workshop and four comment sheets after the workshop.

The following project team members participated in the workshop:

Ron Lucas	Federal Highway Administration
Ted Devens	NCDOT Project Development and Environmental Analysis
Brian Yamamoto	NCDOT Project Development and Environmental Analysis
Nadia Aboulhosn	NCDOT Project Development and Environmental Analysis
Ron McCollum	NCDOT Roadway Design
Jeffrey Teague	NCDOT Roadway Design
Jamille Robbins	NCDOT Public Involvement and Community Studies
Martha Hodge	NCDOT Public Involvement and Community Studies
Megan Cogburn	NCDOT Public Involvement and Community Studies
Allen Pope	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Patrick Riddle	NCDOT Division 3
Peter Trencansky	URS Corporation
David Griffin	URS Corporation
Mike Lindgren	URS Corporation
Kory Wilmot	URS Corporation
Sarah Wicklund	URS Corporation

Overview of Major Themes from Workshop Participants

The following general themes were discussed between the project team and members of the public during the informal session:

- Many of the attendees confirmed that there are transportation problems in the study area and that traveling in the north-south direction is difficult, especially between Oleander Drive and Market Street.
- There were extensive discussions relating to the grade separation of the two existing railroad crossings. A majority of the public agreed that a grade separated crossing would be preferable to an at-grade crossing.
- Some members of the public noted that many of the residents in the area may not be aware that the project would include grade separated railroad crossings and that many of the people in the area assumed that the project would just add a lane in each direction along Covil Avenue.
- Many individuals noted the need for other projects in the vicinity of the proposed project, especially the widening of Randall Parkway and Kerr Avenue. Several individuals felt that the Kerr Avenue interchange should be completed before Independence is extended because it would cause a major bottleneck if it remained an at-grade intersection with Martin Luther King Jr. Parkway.
- The need for an interchange at Market Street was a frequent subject of conversion with a majority of the public feeling that an at-grade intersection would not work and an interchange would be the better option. Additionally, a slight majority of individuals felt that a roadway with a greater level of control of access would be preferable to a non-controlled access roadway with driveways.
- The scale and magnitude of the project were noteworthy items to the public. Several individuals were concerned with the elevation of the proposed project due to the grade separations and potential interchanges. The associated noise, aesthetics and potential for large retaining walls were also concerns noted by the public in regard to an elevated roadway.
- Several citizens felt that the design of the Randall Parkway intersection would create problems in the future due to the heavy turn volumes from Randall Parkway to Independence Boulevard. Several individuals said that an interchange or grade separation would be beneficial at this location, but also stressed that the connection to Mercer Avenue was also important.

Summary of Comment Sheet Questions

- Nine of the eleven commenters say they encounter traffic congestion within the project study area, seven of which say the congestion occurs at the intersection of Market Street and Covil Avenue.
- Ten of the eleven commenters say they use other north-south (College Road and Kerr Avenue) and east-west routes (Market Street, Randall Parkway, and Wrightsville Avenue) to travel in the north-south direction.
- Ten of the eleven commenters offered additional ideas for Independence Boulevard, two of which think there needs to be a grade separated interchange at Market Street and two feel that widening Randall Parkway will benefit the traffic congestion.
- Nine of the eleven commenters provided specific locations within the study area that have a transportation related problem that needs to be improved.
- Five of the eleven commenters provided additional needs for the Independence Boulevard Extension.
- Eight of the eleven commenters provided other comments on the project.

Detailed Summary of Comments

The following people submitted written comments at the June 13 Public Workshop Meeting:

Polly Shaver – Ms. Shaver stated that she uses College Road, 17th and 16th Streets, and occasionally 3rd Street through downtown, as well as east-west routes to travel north and south in Wilmington. She suggested an elevated road to lessen the impact and insure parkway travel (few stops). Ms. Shaver thanked us for listening to the public so early in the planning stages.

Thomas J. Oaks – Mr. Oaks stated that he encounters traffic congestion at the intersection of Market Street and Covil Avenue. He thinks the congestion is caused by poor planning with the intersections of Randall Parkway at Kerr Avenue and at College Road. Mr. Oaks stated that he uses Randall Parkway to College Road or Kerr Avenue as well as the east-west routes Market Street and Wrightsville Avenue to travel north and south. He stated when the Independence Boulevard was proposed in 1972, Randall Pkwy was nonexistent. He suggested widening Randall Pkwy as originally intended, the right of way is already existent. Mr. Oaks stated that S. Kerr Avenue to MLK Pkwy should also be widened; it's an easy route to accomplish without displacing and dividing neighborhoods. Mr. Oaks stated when the plan was conceived nearly 40 years ago, the traffic patterns were different. He suggested that Independence Blvd. could be routed along Randall Pkwy to Kerr Avenue, eliminating a need to cross the railroad tracks. He also stated the right or ways already exist, so there would be no need for eminent domain on Covil Avenue, Montgomery Street, and 31st Street. Mr. Oaks suggested the completion of the widening of Kerr Avenue from Randall Pkwy to MLK Pkwy, which is already 3 lanes wide, will accomplish the same effect with a much lower budget and have a better overall traffic flow.

Rev. Gary & Rev. Cecie Blazer – Revs. Gary and Cecie Blazer stated they encounter traffic congestion at the intersection of MLK Pkwy and Kerr Avenue. They think the congestion is unreasonable and the cause of the congestion is due to the road needing to be 4 lanes all the way to Randall Pkwy or an overpass need to be put in over MLK Pwky. The Reverends stated they use College Road as well as Randall Pkwy, Market Street, and MLK Pkwy to travel north and south. They suggested not beginning this project until the bottle neck at MLK Pkwy and Kerr Avenue are dealt with or this project will just be defeating the purpose of moving traffic from south to north. Revs. Gary and Cecie Blazer stated at 1217 Kerr Avenue the ditches on the west side are at least 8 to 10 feet deep and are extremely hazardous and an accident waiting to happen.

Adam Oaks – Mr. Oaks stated he encounters traffic at the intersection of Market Street and Covil Avenue. He does not think the congestion is unreasonable but thinks the cause of the congestion is due to a poor traffic route on Randall and a poorly designed intersection at Randall Pkwy and Kerr Avenue. Mr. Oaks stated that he uses College Road and Kerr Avenue, as well as Market Street and Wrightsville Avenue to travel north and south. He suggested widening Randall Pkwy and Kerr Avenue which have much larger right of ways and less residential disturbed. He stated that Kerr Avenue already connects to MLK Pkwy and this option would eliminate railroad overpasses and additional interchanges, as well as allow for opportunities for more aesthetically pleasing views (sound barriers are not pleasing!!) Mr. Oaks stated that if the Randall Pkwy/Kerr Avenue option was used, it would fix false data shown on Covil Avenue. He also stated that we need to think more about the community and less about engineering and development. He stated coming from an urban planning background this city is on a one way street to one poorly designed city. Mr. Oaks also stated that no effort has been made to think about the community and the image of the city. He thinks the existing extension from Oleander Drive to Randall Pkwy is one of the most horrible looking streetscapes he's seen and thinks he might as well live in Cary, NC and just use berms!

Hal Kitchin – Mr. Kitchin stated he encounters traffic congestion at the intersection of Market Street and Covil Avenue. He thinks the congestion is relatively unreasonable and thinks the congestion is caused by the need for north-south movements but no real infrastructure apart from College Road. Mr. Kitchin stated he uses College Road and Randall Pkwy to travel north and south. He stated that for the project to be effective,

the intersection of Independence Boulevard and Market Street will need to be an interchange. Mr. Kitchin stated that ideally, Randall Pkwy would be extended to Eastwood Road in order to maximize cross-city connectivity; however, such a connection may now be impossible as a result of the College's historical opposition.

Bill McDow – Mr. McDow stated that he encounters traffic congestion where Independence merges at Covil Avenue and at the signal for Market Street [and Covil Avenue] where left turns sometimes take multiple cycles to clear the one. He does not think the congestion is unreasonable and thinks the congestion is caused by traffic conflicts with southbound through traffic. He suggested changing the signal phasing to help with the afternoon early rush hour. Mr. McDow stated he uses College Road, Carolina Beach Road, and Kerr Avenue, as well as Oleander Drive, Randall Pkwy, Market Street, and MLK Pkwy to travel north and south. Mr. Mcdow suggested not having an at grade intersection at Market Street and using a flyover or allow traffic to turn prior to the signal for Market Street. He suggested that Market Street could use Mercer Street to access Independence Boulevard. He cited a possible problem with CSX crossing at Princess Place Drive and near Creekwood neighborhood, and a possible wetlands issue at MLK Pkwy. Mr. McDow thinks this is a great project, but it needs expedited funding.

Jessie C. Robertson – Mr. Robertson stated that he does not encounter traffic congestion and that he does not use any other roads to travel north and south. He suggested to not bother doing this project because it is a waste of time, money, and gives incompetents in DOT something to do. Mr. Robertson stated that speed limit signs are needed on Wrightsville Avenue especially in the area recently reconstructed. He also stated that the "No U-Turn" signs failed to happen on the new median and that the lanes don't line up with the lights at the intersection of Wrightsville Avenue and Independence Boulevard. Mr. Robertson suggested fixing the pot holes and finishing the unfinished projects already underway. He stated that he thinks this is a true waste of time and money.

Dave Mayes – Mr. Mayes stated that he encounters traffic congestion during rush hour and that the congestion is not unreasonable and is caused by a lack of capacity. He stated that he uses Kerr Avenue and 16th and 17th Streets as well as several east-west routes to travel north and south. Mr. Mayes suggested to accommodate cyclists and to eliminate the at-grade railroad crossing at Mercer Avenue and Covil Avenue. He also stated that the drainage outfall near the intersection of Broad Street and Covil Avenue needs to be fixed and this would also be a good opportunity to extend a leg of the Cross City Trail over to Maides Park. Mr. Mayes expressed concern about the access to Wayne Drive, and the proximity to his rear yard property line.

Jonathon and Sara Babin – Mr. and Mrs. Babin stated they encounter traffic congestion on Market Street mostly in the afternoons due to folks traveling home from work. They stated that they use 3rd Street, College Road, 17th Street, Kerr Avenue, and Independence Boulevard to travel north and south, as well as Oleander Drive, Wrightsville Avenue, and Market St. They are not convinced the project is necessary, but think it should be biker friendly and think DOT should put more money into making Wilmington safer for bicycles. They think Market St is too narrow and not bicycle friendly. They think the DOT needs to be sensitive to the homeowners in the neighborhood, and should encourage alternate forms of transportation, public and bicycle. They question if we need another big road. Stated they think Market Street has more need for improvement because traffic is worse there. They suggested using Covil Avenue since it is directly connected to Independence Boulevard.

Nancy Haddock (Child Development Center, Inc.) – Ms. Haddock stated she encounters congestion on Market Street and that the lights stay green for Market Street for way too long and cause the wait time to cross Market St to be excessive. She stated she uses Princess Place Drive to 16th, 17th, and 23rd Streets to travel north and south. Ms. Haddock suggested making Kerr Avenue four lanes across MLK Parkway and replacing the stoplight with an overpass. She thinks there should be more signs and enforcement of speed

limits on side streets crossing Independence Boulevard. She stated Independence Boulevard is 45[mph], Wrightsville Avenue should be 35[mph], along with Oleander Drive and Market Street, but EVERYBODY speeds. She stated the speed limit on Princess Place Drive needs to remain 35[mph] and be enforced. Ms. Haddock suggested considering roundabouts for the project if an overpass at Market Street is not affordable. She stated that every major artery in New Hanover County is clogged by stoplights and the only overpass in town is College Road over Market Street, which is pitiful!

Rosalie Williams Eldridge – Ms. Eldridge stated that she encounters congestion at Market Street and Montgomery and thinks it is due to the wrong placement of the traffic signal. She stated that she thinks this is unreasonable, especially if you try to make a turn off of Market Street onto Evans Street or Clay Street. She stated that she uses Kerr Ave and 23rd Street, as well as Oleander Drive, Randal Parkway, Market Street and MLK Parkway to travel north and south. Ms. Eldridge thinks Independence Boulevard should be built as soon as possible. Ms. Eldridge suggested making lanes wider and creating separate turn lanes on Market Street between 17th Street and 29th Street. She inquired about when people will find out if they have to move and when the relocations will take place. She also inquired if these people will get a fair price for their homes and if they will have enough time to find affordable and comfortable housing. Ms. Eldridge expressed concern for those being displaced since many people have put a lot into their homes and worked hard for it, especially senior citizens.

If you have questions or comments regarding this information, please contact Peter Trencansky (URS) at (919) 461-1332.

NCDOT TO HOLD PUBLIC MEETING FOR THE PROPOSED EXTENSION OF INDEPENDENCE BOULEVARD IN WILMINGTON

Wednesday, June 01, 2011

RALEIGH — The N.C. Department of Transportation will hold a public meeting on Monday, June 13 regarding the proposed extension of Independence Boulevard in Wilmington.

The meeting will be held from 4 to 7 p.m. in the cafeteria of the Rachel Freeman School of Engineering, 2601 Princess Place Drive in Wilmington. NCDOT representatives will be available to answer questions and receive comments about the proposed project. There will not be a formal presentation.

The department proposes extending Independence Boulevard 1.7 miles from Randall Parkway to Martin Luther King Jr. Parkway (U.S. 74), with overpasses and interchanges being considered at multiple locations along the project. Additional lanes along Martin Luther King Jr. Parkway also may be needed for continuous connection with nearby interchanges at Kerr Avenue and 23rd Street. Additional right-of-way acquisition and the relocation homes and businesses will be required for this project.

For more information, contact Ted Devens at (919) 707-6018, or email at tedevens@ncdot.gov.

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who want to participate in this hearing. Anyone requiring special services should contact Devens as soon as possible so that arrangements can be made.

*****NCDOT*****

NOTICE OF A CITIZENS' INFORMATIONAL WORKSHOP FOR THE PROPOSED EXTENSION OF INDEPENDENCE BOULEVARD (STATE ROAD 1209) FROM RANDALL PARKWAY TO MARTIN LUTHER KING, JR. PARKWAY (US 74) IN WILMINGTON

TIP Project No. U-4434 **New Hanover County**

The North Carolina Department of Transportation (NCDOT) will hold a citizens' informational workshop for the above project on Monday, June 13, 2011 from 4 p.m. until 7 p.m. in the cafeteria of the Rachel Freeman School of Engineering, located at 2601 Princess Place Drive in Wilmington.

NCDOT proposes to extend Independence Boulevard (State Road 1209) 1.7 miles from Randall Parkway to Martin Luther King, Jr. Parkway (US 74). Overpasses and interchanges will be considered at multiple locations along the project. Additional lanes along Martin Luther King, Jr. Parkway may be needed for continuous connection with nearby interchanges at Kerr Avenue (S.R. 1175) and 23rd Street (S.R. 1302). Additional right-of-way acquisition and the relocation of homes and businesses will be required for this project.

Citizens are invited to speak individually with NCDOT officials and to review the project area map. Aerial mapping denoting the project area will be displayed. The opportunity to submit written comments or questions will also be provided. Comments and suggestions received will be considered during the planning process. Interested citizens may attend at any time during the workshop. There will not be a formal presentation.

For more information, contact NCDOT manager Ted Devens of the Project Development and Environmental Analysis Branch at 1548 Mail Service Center, Raleigh, N.C. 27699-1548, by phone at (919) 707-6018, or by email at tedevens@ncdot.gov. Citizens can also contact project manager Peter Trencansky with URS Corporation at 1600 Perimeter Park Drive, Suite 400, Morrisville, N.C. 27560, by phone at (800) 233-6315, or by email at peter_trencansky@urscorp.com.

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who want to participate in this workshop. Anyone requiring special services should contact Jamille Robbins of NCDOT at (919) 707-6085 as early as possible so that arrangements can be made.

Independence Boulevard Extension
ATTN: Peter Trencansky
URS Corporation
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560

Don't Forget the Citizens Informational Workshop...



JUNE 13, 2011 FROM 4:00 PM TO 7:00 PM
RACHEL FREEMAN SCHOOL OF ENGINEERING
2601 PRINCESS PLACE DRIVE, WILMINGTON, NC 28405

PROJECT CONTACT INFORMATION

Project Hotline: 1-800-233-6315

For more information about the project, please contact the project hotline or Mr. Peter Trencansky (URS).

Project Manager—URS Corporation
Mr. Peter Trencansky, PE, PTOE
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560
Phone: 1-800-233-6315
peter_trencansky@urscorp.com

NCDOT
Mr. Ted Devens, PE
Project Manager
1548 Mail Service Center
Raleigh, NC 27699-1548
tedevens@ncdot.gov

1500 copies of this public document were printed at a cost of $1470 or approximately $0.98 each. 05/19/2011

Issue 1 | New Hanover County | May 2011

Independence Boulevard Extension

Transportation Improvement Program Project No. U-4434



THIS ISSUE
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NCDOT Seeks Input From Citizens

The North Carolina Department of Transportation (NCDOT) is proposing to construct a new road in Wilmington, North Carolina. Located within the central portion of the City of Wilmington, the proposed 1.7-mile long roadway would be an extension of existing Independence Boulevard (in the vicinity of the Covil Avenue corridor) from the intersection with Randall Parkway to US 74 (Martin Luther King Jr. Parkway). Overpasses and interchanges will be considered at multiple locations along the project. Additional lanes along Martin Luther King Jr. Parkway may be needed for continuous connection with nearby interchanges at Kerr Avenue and 23rd Street.

The purpose of this newsletter is to provide information about the project start-up, including current project status, proposed schedule, and to announce an upcoming public involvement opportunity.

Why Is This Project Needed?

- Deficient North-South Regional Roadway Connecı vity.
- Deficient North-South System Capacity.
- Deficient Linkage Within and Through New Hanover County.

Project Assistance Hotline!

For Project U-4434
Call 1-800-233-6315

Citizens Information Workshop Scheduled

The NCDOT has scheduled a Citizens Informational Workshop on Monday, June 13th from 4:00 PM to 7:00 PM at the Rachel Freeman School of Engineering, 2601 Princess Place Drive, Wilmington, NC 28405.

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act (ADA) for disabled persons who wish to participate in this workshop. Anyone requiring special services should contact Mr. Jamille Robbins (NCDOT) at 919-707-6085 as early as possible so arrangements can be made.

The purpose of the workshop will be to present the new project to the public, introduce the NCDOT team members, and receive input on the purpose of the project. The workshop will consist of an informal open house format. Interested individuals may attend this informal workshop at their convenience during the above stated hours. NCDOT representatives will display maps and will be available to answer questions and receive comments from the public.

If you are unable to attend, comments may be submitted to:

Mr. Peter Trencansky, PE, PTOE
Project Manager—URS Corporation
1600 Perimeter Park Drive
Suite 400
Morrisville, NC 27616
Email: peter_trencansky@urscorp.com

Connecting people and places in North Carolina — safely and efficiently, with accountability and environmental sensitivity.

Project History and Status

The Independence Boulevard Extension project has been included in local transportation plans since 1972, and is currently included in the *Cape Fear Commutes 2035 Transportation Plan.* The extension of Independence Boulevard is also a component of the Wilmington Urban Loop (which is one of the urban highway loops created and funded by the North Carolina General Assembly in the 1989 Highway Trust Fund legislation). NCDOT conducted a feasibility study of the proposed project in July 2002. The project was first included in NCDOT's 2004-2010 State Transportation Improvement Program (STIP) and is currently included in the Draft 2012-2018 STIP as project number U-4434.

Project Schedule

Project Planning and Design Studies……Currently Starting
Citizens Informational Workshop #1……...June 13, 2011
- *to seek public input before starting any design work*

Prepare Design Alternatives…….... Fall 2011
Citizens Informational Workshop #2……..……Spring 2012
- *to seek public input on design alternatives*

Draft Environmental Impact Statement……..…….... Summer 2014
- *presents analysis of detailed alternatives and their impacts*

Public Hearing…… Fall 2014
- *provides more information on each alternative and seeks public input*

Final Environmental Impact Statement…….... Spring 2016
- *presents NCDOT's recommended alternative*

Record of Decision…… Summer 2016
- *presents NCDOT's final decision*

Right-of-Way Acquisition Begins…….. 2020
Construction Begins…….... Currently Unfunded

Project Purpose and Need

Needs identified for the Independence Boulevard Extension include the following:

- Deficient North-South Regional Roadway Connectivity
  - only one major north-south road (College Road) connects all of the major east-west roads
- Deficient North-South System Capacity
  - inability of all north-south roads (combined) to meet the traffic needs in central Wilmington
- Deficient Linkage Within and Through New Hanover County
  - Wilmington has poor connections to other transportation facilities (airports, railroad hubs, ports)

The primary purpose of the project is to improve regional mobility, system traffic capacity, north-south connectivity, and transportation system (intrastate/intermodal) linkage from Randall Parkway, in the vicinity of Independence Boulevard, to Martin Luther King Jr. Parkway that is consistent with local and state transportation plans.

What Happens Next?

YOUR COMMENTS ARE IMPORTANT TO NCDOT …

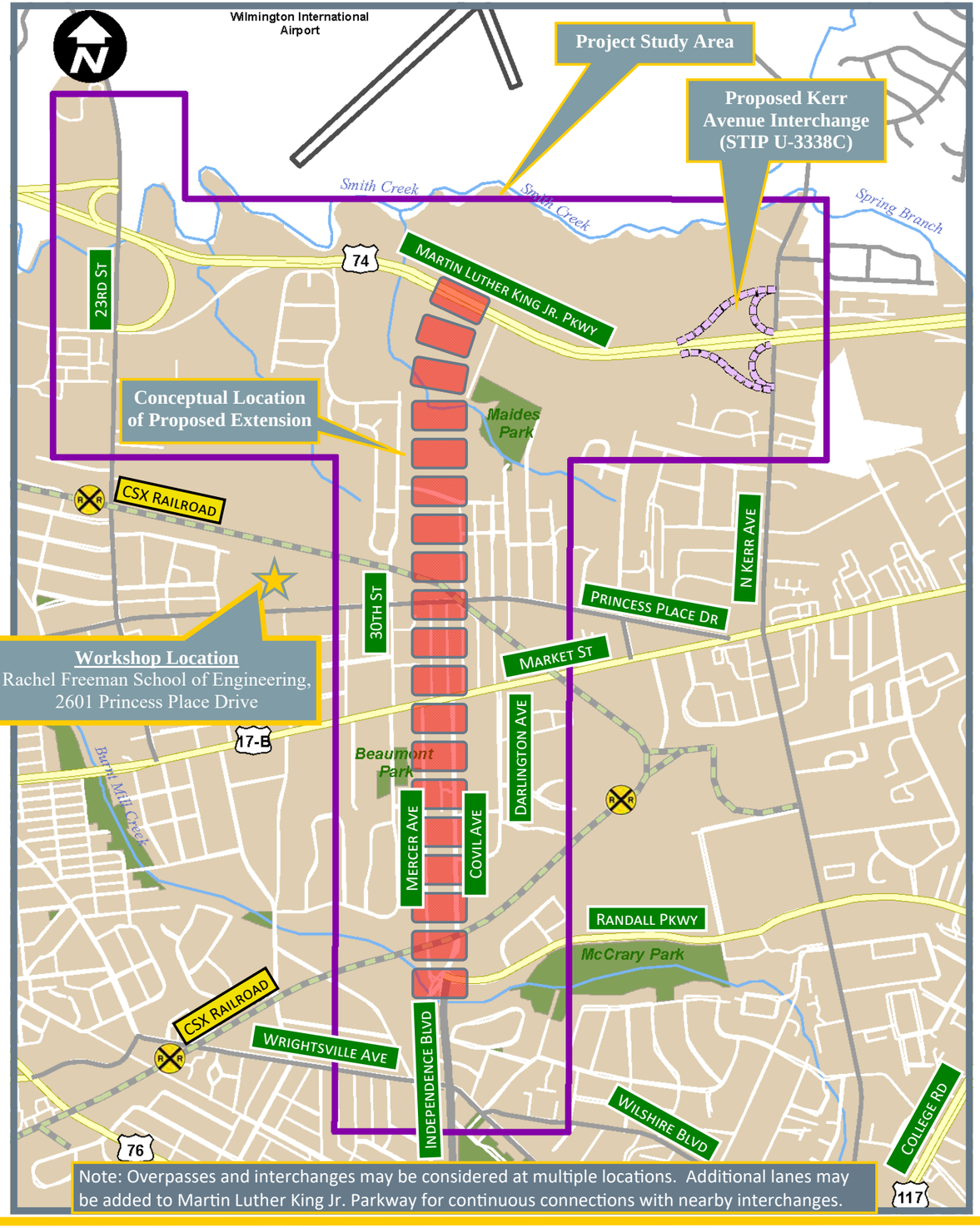
The next step in the planning process will be to summarize comments made at this workshop, consider these comments, and then begin to prepare and analyze design solutions for the improvements.

There will be opportunities during 2012 to review and comment on design alternatives for the Independence Boulevard Extension project.

Please feel free to ask questions and submit comments throughout the project planning and design process by contacting one of the project representatives listed on this newsletter.

Thanks for Your Participation!

Project Study Area



North Carolina Department of Transportation
Independence Boulevard Extension Project

Comment Sheet June 2011

Contact Information (Please Print)

Name: _____

Mailing Address (including zip code): _____

_____

E-mail Address: _____

Please check if you would like to be added to the project mailing list. ☐ Yes ☐ No

How did you hear about the meeting? *(Please check all of the following which apply)*

☐ Newsletter ☐ Newspaper ☐ Radio ☐ Friend/Family ☐ Other: _____

Are you a member of a civic or business group, home owners association or non-profit agency? If so, please list your affiliation: _____

General Need for the project:

The North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program has programmed an extension of existing Independence Boulevard (in the vicinity of the Covil and Montgomery Avenue corridor) from the intersection with Randall Parkway to US 74 (Martin Luther King Jr. Parkway). General needs for the Independence Boulevard Extension identified thus far include:

Deficient North-South Regional Roadway Connectivity

- only one major north-south road (College Road) connects all of the major east-west roads

Deficient North-South System Capacity

- inability of all north-south roads (combined) to meet the traffic needs in central Wilmington

Deficient Linkage Within and Through New Hanover County

- Wilmington has poor connections to other transportation facilities (airports, railroad hubs, ports)

Your comments on the Independence Boulevard Extension project are important. Please provide responses to the following questions:

1) Do you encounter traffic congestion when driving around the project study area?
   ☐ Yes ☐ No If yes, please answer the following:
   1a) where and when does the congestion occur?_____
   _____
   _____
   1b) what do you think causes the congestion?_____
   _____
   _____
   1c) in your opinion, is the congestion unreasonable?_____
   _____
   _____

1) Do you use other roads to travel in the north-south direction?
   ☐ Yes ☐ No If yes, please answer the following:

   2a) which roads do you use to travel north and south?_____
   _____
   _____

2b) do you use east-west routes such as Oleander Drive, Randall Parkway, Market Street or Martin Luther King Jr. Parkway as part of your trip to get north and south in Wilmington?

3) In regard to accommodating local and regional traffic, do you have any ideas to offer for Independence Boulevard and the proposed extension?

4) Are there any transportation related problems within the study area which you feel need to be fixed/improved? If so, please list them below and identify the location.

5) General needs for the Independence Blvd. Extension project have been identified above. Do you feel there are other needs for the Independence Blvd. Extension project? If so, please describe them.

6) Other comments, questions or concerns.

Please submit your comments tonight or mail them to the address below July 15, 2011. Thank you for your input!

North Carolina Department of Transportation
C/o URS Corporation
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560

Project Schedule

NCDOT has started the planning and engineering studies in order to document existing conditions within the project study area and determine the need for the project. The findings of these initial studies and comments received at the workshop, as well as those that are mailed in, will help NCDOT to develop project alternatives that will be evaluated in the Draft Environmental Impact Statement. To obtain more citizen input on the next phase of the project, NCDOT anticipates holding a second Citizens Informational Workshop to present design concepts for the project in the Spring of 2012. Dates for major milestones are shown below.

Project Planning and Design Studies……Currently Starting
Citizens Informational Workshop #1……..June 13, 2011
- *to seek public input before starting any design work*

Prepare Design Alternatives…….... Fall 2011
Citizens Informational Workshop #2……..……Spring 2012
- *to seek public input on design alternatives*

Draft Environmental Impact Statement……..…….... Summer 2014
- *presents analysis of detailed alternatives and their impacts*

Public Hearing…… Fall 2014
- *provides more information on each alternative and seeks public input*

Final Environmental Impact Statement…….. Spring 2016
- *presents NCDOT's recommended alternative*

Record of Decision…….. Summer 2016
- *presents NCDOT's final decision*

Right-of-Way Acquisition Begins…….. 2020
Construction Begins…….. Currently Unfunded

Comments, Questions or Concerns

The NCDOT realizes individuals and businesses close to a proposed project want to be informed of the potential impacts the project might have on their homes and businesses. However, exact information is not available at this stage of the planning process. Additional environmental and design studies will be performed before any right of way limits for the proposed project can be established. More detailed information will be available and presented to the public after preliminary study corridors have been developed.

To obtain the most up to date information on the Independence Boulevard Extension Project, please visit the project website, call the project hotline, or contact Peter Trencansky (URS).

Need more information?
Have concerns or comments?
Visit the project web site at
http://www.ncdot.gov/projects/IndependenceBlvd/
or call the Project Hotline at 1-800-233-6315

Project Manager—URS Corporation
Mr. Peter Trencansky, PE, PTOE
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560
Phone: 1-800-233-6315
peter_trencansky@urscorp.com

NCDOT
Mr. Ted Devens, PE
Project Manager
1548 Mail Service Center
Raleigh, NC 27699-1548
tedevens@ncdot.gov

Independence Boulevard Extension Project

CITIZENS INFORMATIONAL WORKSHOP
JUNE 13, 2011

Welcome to this evening's meeting for the Independence Boulevard Extension Project.

The purpose of this meeting is to provide you with information and obtain your input regarding the proposed project. You will have an opportunity to review study area maps and displays, talk with the project team members, and offer your input.

Tonight's Workshop Stations

- **Show us Where you Live and Work**
- **Project Presentation**
- **Project Background**
- **Study Area and General Needs for the Project**
- **Study Process and Project Schedule**
- **Citizens Comments**

Participating in Tonight's Meeting

1. **Sign In and Collect Handouts**
   Sign in at the registration table, pick up a set of handouts and provide your contact information to receive future mailings. Please let us know if you would want to receive project updates.

2. **Learn About the Study and Ask Questions**
   Project displays and other materials are available to help you learn more about the project. Project team members are also present to answer your questions and discuss the project; team members are identified by nametags.

3. **Provide Your Input**
   This information packet includes a comment sheet which includes questions corresponding to this evening's workshop stations. Please feel free to write any additional comments on the maps and displays presented at the stations. We appreciate you taking the time to provide input. The information you provide will help the North Carolina Department of Transportation (NCDOT) develop the project by including input from all stakeholders prior to project decisions being made. Please submit your comments tonight or mail your comments to the address on the comment sheet by **July 15, 2011**.

Project History and Status

The Independence Boulevard Extension project has been included in local transportation plans since the first plan was created in 1972, and is currently included in the *Cape Fear Commutes 2035 Transportation Plan.* The extension of Independence Boulevard is also a component of the Wilmington Urban Loop (which is one of the urban highway loops created and funded by the North Carolina General Assembly in the 1989 Highway Trust Fund legislation). NCDOT conducted a feasibility study of the proposed project in July 2002. The project was then included in the NCDOT's 2004-2010 Transportation Improvement Program (TIP) and is currently included in the 2009-2015 TIP as project number U-4434

Description of the Project

The North Carolina Department of Transportation (NCDOT) is proposing to construct a new road in Wilmington, North Carolina. Located within the central portion of the City of Wilmington, the proposed 1.7-mile long roadway would be an extension of existing Independence Boulevard (in the vicinity of the Covil Avenue and Montgomery Avenue corridor) from the intersection with Randall Parkway to US 74 (Martin Luther King Jr. Parkway). Overpasses and interchanges will be considered at multiple locations along the project. Additional lanes along Martin Luther King Jr. Parkway may be needed for continuous connection with nearby interchanges at Kerr Avenue and 23rd Street. NCDOT will also consider improvements at two CSX railroad crossings.

General Need for Project

Needs identified for the Independence Boulevard Extension include the following:

- Deficient North-South Regional Roadway Connectivity
  - only one major north-south road (College Road) connects all of the major east-west roads
- Deficient North-South System Capacity
  - inability of all north-south roads (combined) to meet the traffic needs in central Wilmington
- Deficient Linkage Within and Through New Hanover County
  - Wilmington has poor connections to other transportation facilities (airports, railroad hubs, ports)

Local, Regional and State Plans

The Independence Boulevard Extension is included in the following local, regional and state plans:

Wilmington Thoroughfare Plan



The Independence Boulevard Extension project has been included in the Wilmington Thoroughfare Plan since the first plan was created in 1972, and is included in the most recent plan developed in 2005. The Wilmington Thoroughfare plan was created to serve as a basis for transportation improvements in the Wilmington area due to changes in the population and travel patterns. The project would provide relief to College Road and reduce traffic pressure on residential streets that are being used for cut-through traffic.

Wilmington Urban Area MPO—Cape Fear Commutes 2035 Transportation Plan



The Independence Boulevard Extension is included in the recently adopted Cape Fear Commutes 2035 Transportation as one of five designated highest-priority congestion mitigation projects. The project is also noted as an important freight connection and a portion of a larger regional roadway network that combined with other projects would create a comprehensive transportation network connecting Brunswick and New Hanover Counties.

NCDOT Strategic Highway Corridors

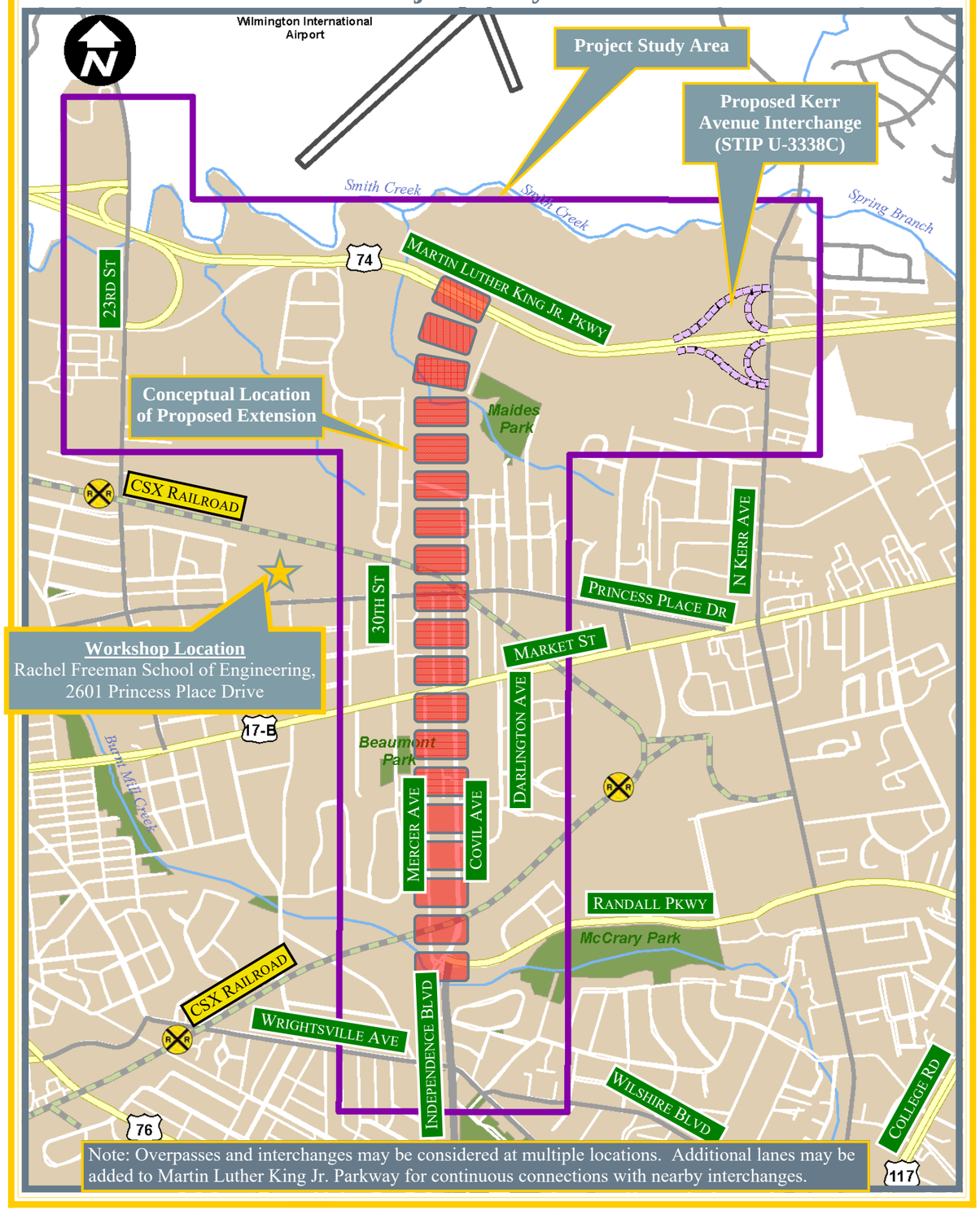


NCDOT has established a vision for North Carolina that includes developing a network of safe and reliable high-speed facilities to accommodate statewide and regional travel. The NC Board of Transportation adopted the Strategic Highway Corridor Vision Plan in 2004 which identifies Independence Boulevard as a connection serving I-40, Wilmington International Airport and the Port of Wilmington. For more information on NCDOT Strategic Highway Corridors, please visit: http://www.ncdot.org/doh/preconstruct/tpb/shc/

Project Cost

Funding for right of way acquisition is scheduled to begin in 2020 and construction of the proposed project is not currently funded in the State Transportation Improvement Program. The total estimated cost for the project is approximately $58 million, which includes roughly $26 million for construction and $30 million to purchase the right of way for the project.

Project Study Area



WELCOME TO A CITIZENS INFORMATIONAL WORKSHOP



FOR THE INDEPENDENCE BOULEVARD EXTENSION PROJECT

4:00PM – 7:00PM

WELCOME TO A CITIZENS INFORMATIONAL WORKSHOP



FOR THE INDEPENDENCE BOULEVARD EXTENSION PROJECT

4:00PM – 7:00PM

WORKSHOP SIGN-IN

- ✓ Let Us Know You Attended Tonight
- ✓ Pickup Handouts
- ✓ Review Workshop Stations
- ✓ Provide Your Comments
- ✓ Sign Up To Receive Updates

WORKSHOP STATIONS

1. Show Us Where You Live/Work
2. Project Presentation
3. Project Background
4. Study Area and General Needs for the Project
5. Study Process and Project Schedule
6. Citizen Comments
7. Title VI Public Involvement Form

Activities for Children are Available at the Kid's Corner

STATION 1

WHERE DO YOU LIVE AND WORK?

STATION 2

PROJECT PRESENTATION

- ✓ Please Watch the 5 Minute Presentation to Learn About the Project
- ✓ Note this Presentation Will Repeat Automatically

STATION 3

PROJECT BACKGROUND

- ✓ NCDOT State Transportation Improvement Program
- ✓ NCDOT Strategic Highway Corridor
- ✓ Wilmington Metropolitan Planning Organization (WMPO) Cape Fear Commutes 2035 Transportation Plan
- ✓ WMPO 2005 Greater Wilmington Urban Area Thoroughfare Plan

NCDOT State Transportation Improvement Program (STIP)

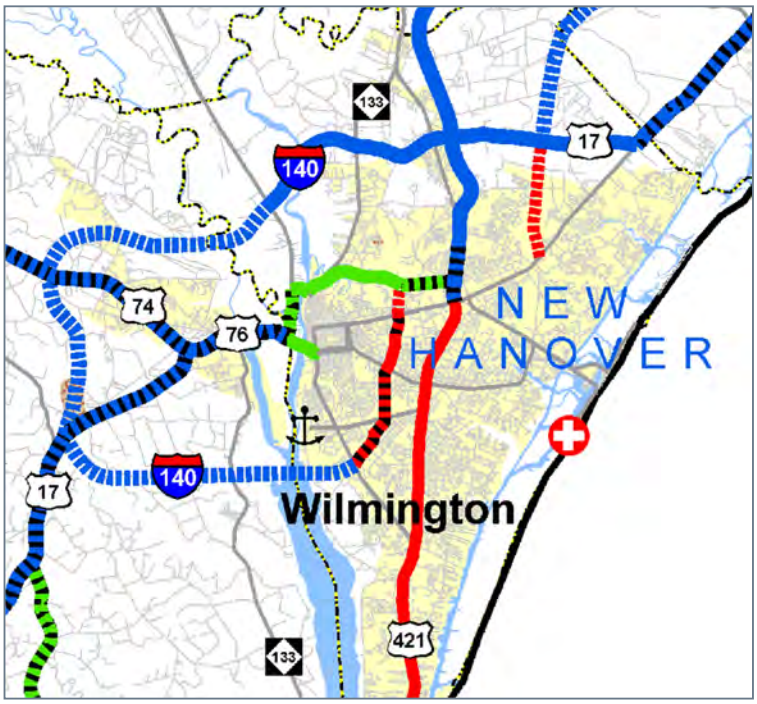
- The proposed 1.7-mile long project would extend the existing Independence Boulevard as a multi-lane facility from the intersection with Randall Parkway and Mercer Avenue to US 74/Martin Luther King Jr. Parkway.

- Overpasses and interchanges will be considered at multiple locations along the project. Additional lanes along Martin Luther King, Jr. Parkway may be needed for continuous connection with nearby interchanges at Kerr Avenue and 23rd Street.

- The proposed action is designated in the Draft 2012-2018 NCDOT State Transportation Improvement Program (STIP) as Project Number U-4434.

NCDOT Strategic Highway Corridor Initiative

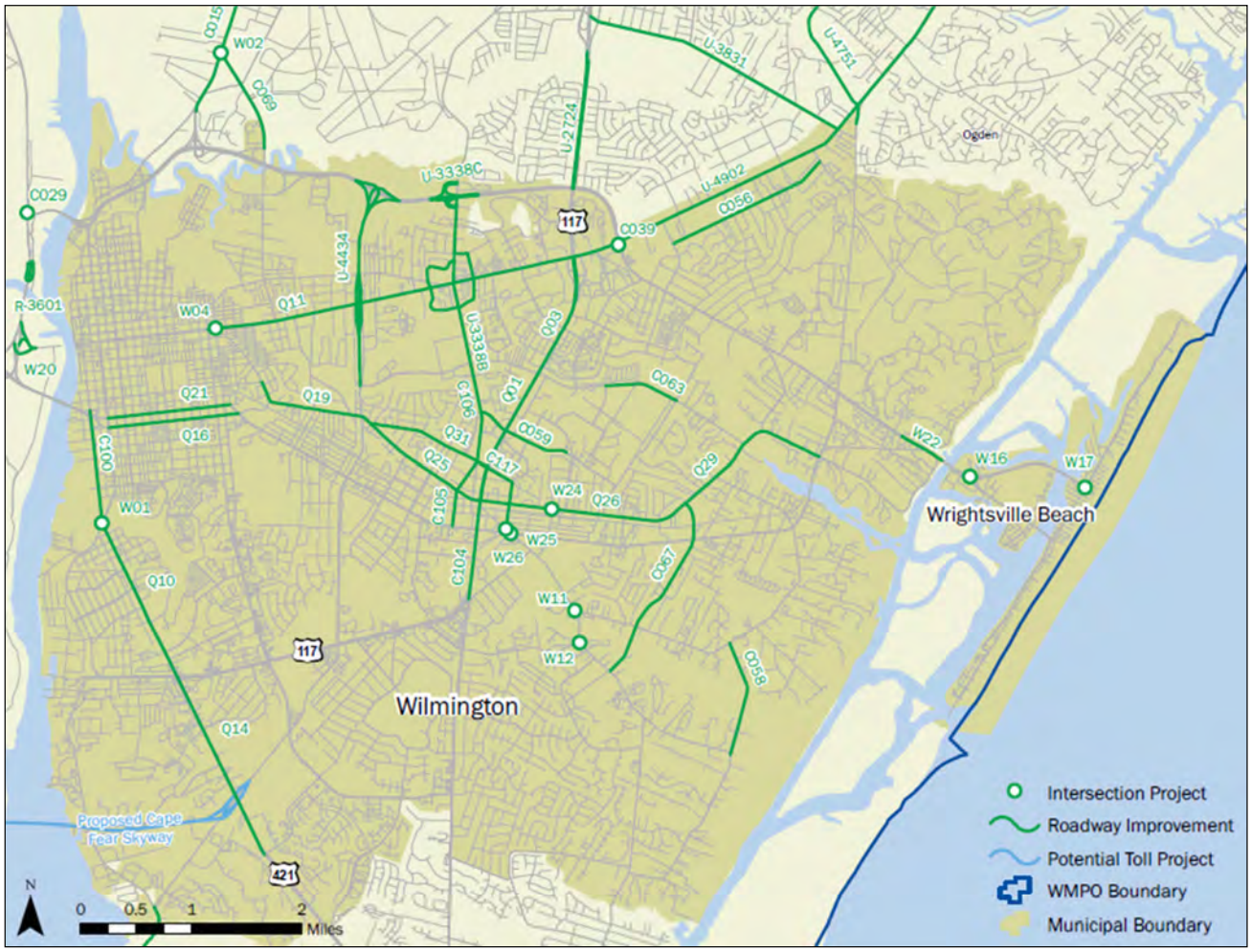
The North Carolina Department of Transportation, in cooperation with the North Carolina Department of Commerce and the North Carolina Department of Environment and Natural Resources established the Strategic Highway Corridor (SHC) initiative in 2004. The initiative seeks to identify, protect and maximize the use of highway corridors that play a critical role in regional or statewide mobility in an ongoing effort to enhance transportation, economic development and environmental stewardship throughout North Carolina. Independence Boulevard is designated as a "Boulevard" in the SHC Vision Plan as a connection serving I-40, Wilmington International Airport and the Port of Wilmington.



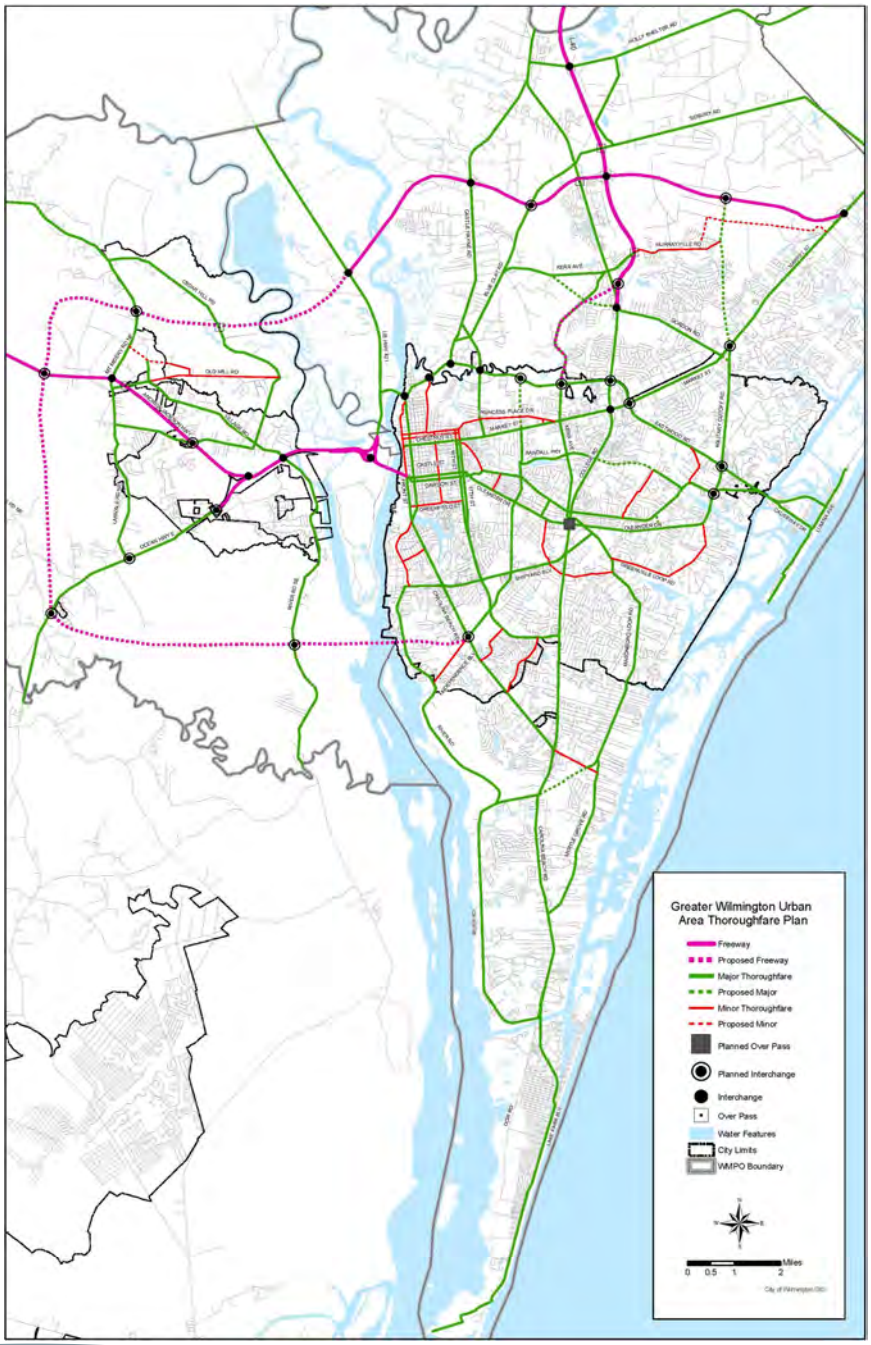


Independence Boulevard Extension

Wilmington Metropolitan Planning Organization Cape Fear Commutes 2035 Transportation Plan



Wilmington Metropolitan Planning Organization 2005 Greater Wilmington Area Thoroughfare Plan



STATION 4

STUDY AREA AND GENERAL NEEDS FOR THE PROJECT

General Needs for the Project

- ✓ Deficient north-south regional connectivity
  - ✓Only one major north-south road (College Road) connects all of the major east-west roads
- ✓ Deficient north-south system capacity
  - ✓Inability of all north-south roads (combined) to meet the traffic needs in Central Wilmington
- ✓ Deficient linkage within and through New Hanover County
  - ✓Wilmington has poor connections to other transportation facilities (airports, railroad hubs, ports)

If you feel there are Additional Reasons for Extending Independence Boulevard, Please write them on the Notepad to the Right

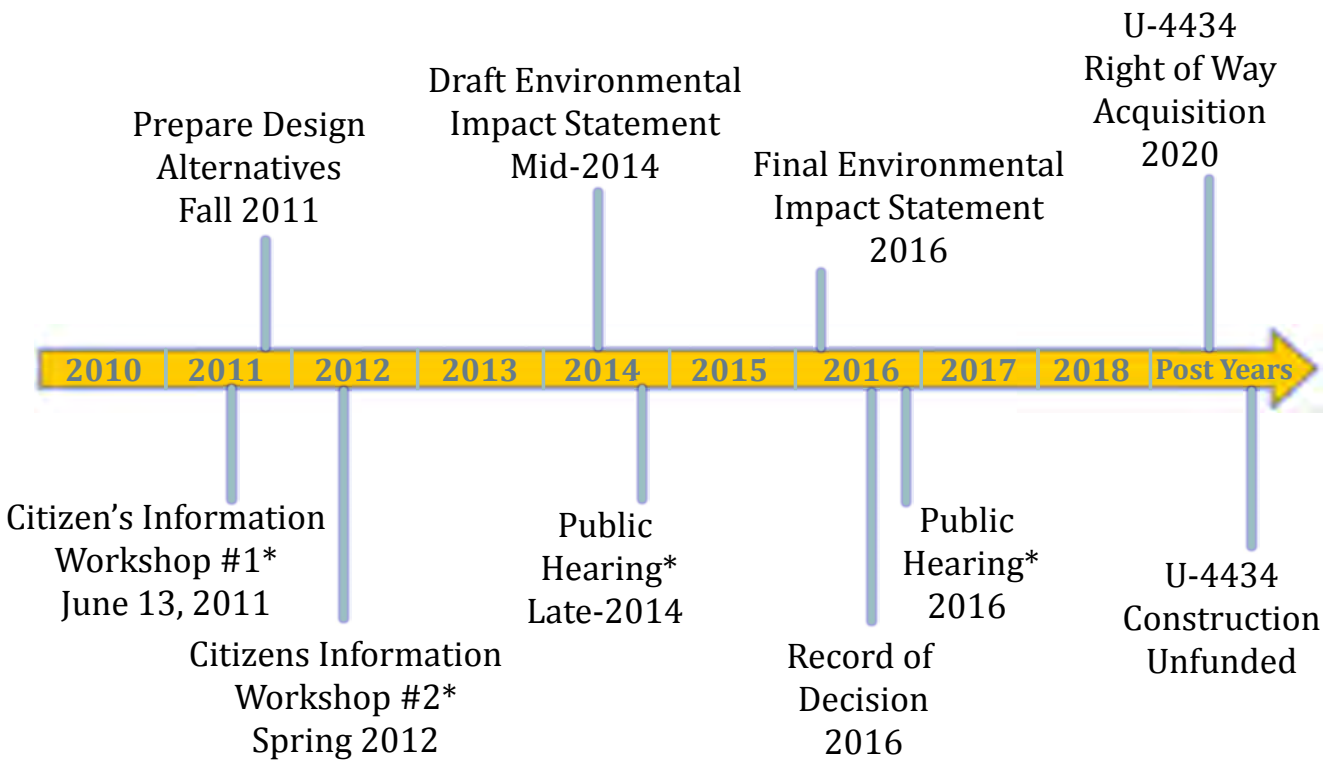
STATION 5

STUDY PROCESS AND PROJECT SCHEDULE

Project Study Process

Date	Project Development Activities	Public Involvement Opportunities
2010	Initiate Project Study Initial Data Collection Develop Project Team	
2011	Develop Draft Purpose and Need Finalize Purpose and Need	Citizen's Informational Workshop #1
2012	Develop and Analyze Functional Design Plans Determine Detailed Study Alternatives	Citizen's Informational Workshop #2
2013	Develop Preliminary Design Plans Perform Environmental Analysis	
2014	Prepare Draft Environmental Impact Statement (DEIS)	Public and Agency Review of DEIS Public Hearing
2015	Resolve Public/Agency Comments on DEIS Select Preferred Alternative Develop Avoidance/Minimization of Impacts	
2016	Prepare Final Environmental Impact Statement (FEIS) Resolve Public/Agency Comments on FEIS Issue Record of Decision (ROD) for the Project	Public and Agency Review of FEIS Possible Public Hearing Possible Public Hearing
2017	Begin Final Design Phase	

Study Schedule



* Indicates opportunities for citizens input

STATION 6

COMMENTS COLLECTED HERE

YOUR INPUT IS IMPORTANT!

Please take a moment to fill out a comment form and let us know if you would like to receive project updates

To Review the Project Information, Visit the Following Website:
www.ncdot.gov/projects/IndependenceBlvd/

STATION 7

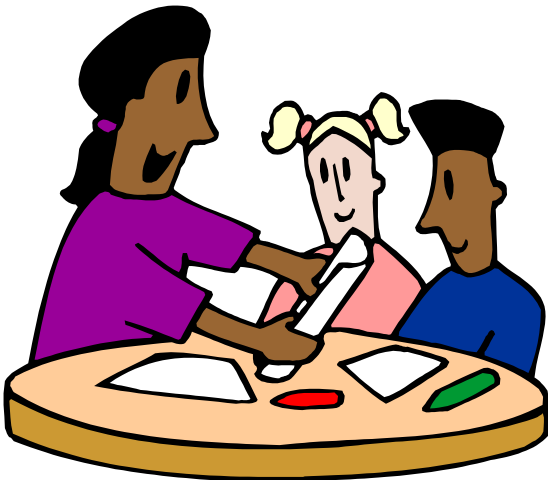
Title VI Voluntary Public Involvement Form

In accordance with Title VI of the Civil Rights Act of 1964 and other civil rights provisions of Federal statutory law, the North Carolina Department of Transportation (NCDOT) assures that no person(s) affected by its programs, policies, or activities, shall be excluded from participation in, denied the benefits of, or subjected to discrimination on the grounds of race, color, national origin, disability, age, income, or gender.

This form helps the State DOT meet its statutory obligations for data collection and public involvement under Title VI and NEPA. Please place completed forms in the designated box on the registration table or mail it to the NCDOT Office of Civil Rights, Title VI Section at 1511 Mail Service Center, Raleigh, NC 27699-1511.

Completed forms will be held on file at the NCDOT as part of the public record.

KIDS CORNER







STIP PROJECT U-4434
INDEPENDENCE BOULEVARD EXTENSION

STUDY AREA MAP

LEGEND

- FIRE STATION
- POLICE STATION
- COMMUNITY CENTER
- SCHOOL
- CHURCH / WORSHIP CENTER
- CEMETERY
- CELL PHONE TOWER / RADIO TOWER
- RAILROAD
- AIRPORT
- MEDICAL CENTER
- WETLANDS
- HAZARDOUS MATERIALS SITE
- LANDS MANAGED CONSERVATION
- PARK
- WILMINGTON HOUSING AUTHORITY
- CONCEPTUAL LOCATION OF EXTENSION
- MUNICIPAL BOUNDARY
- STUDY AREA BOUNDARY
- PROPERTY LINE
- STREAM / RIVER
- BICYCLE ROUTE

AERIAL PHOTOGRAPHY DATE: SUMMER 2006

SHEET 1 OF 2

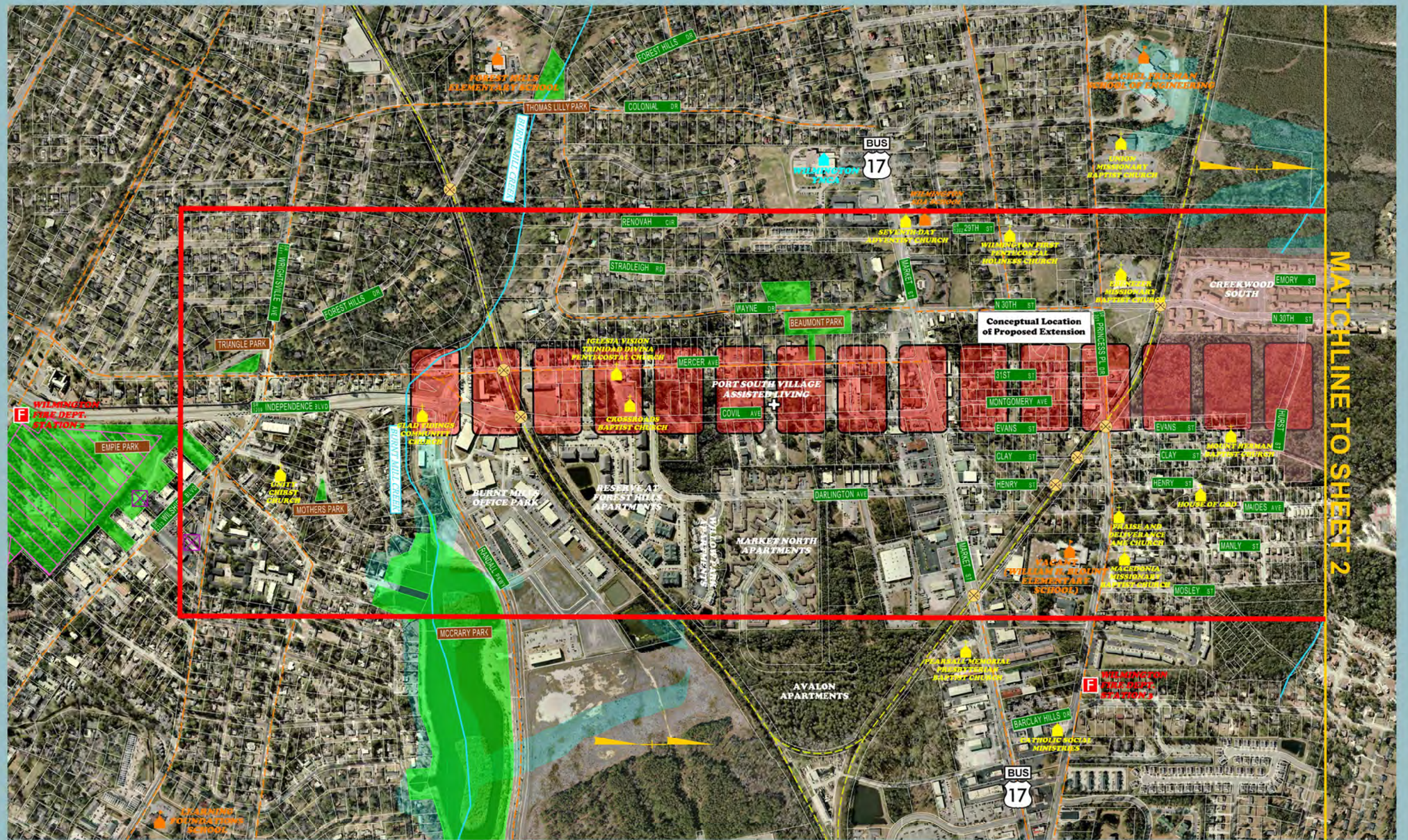
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PREPARED FOR
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, NORTH CAROLINA

Prepared by:
URS
URS CORPORATION-NORTH CAROLINA

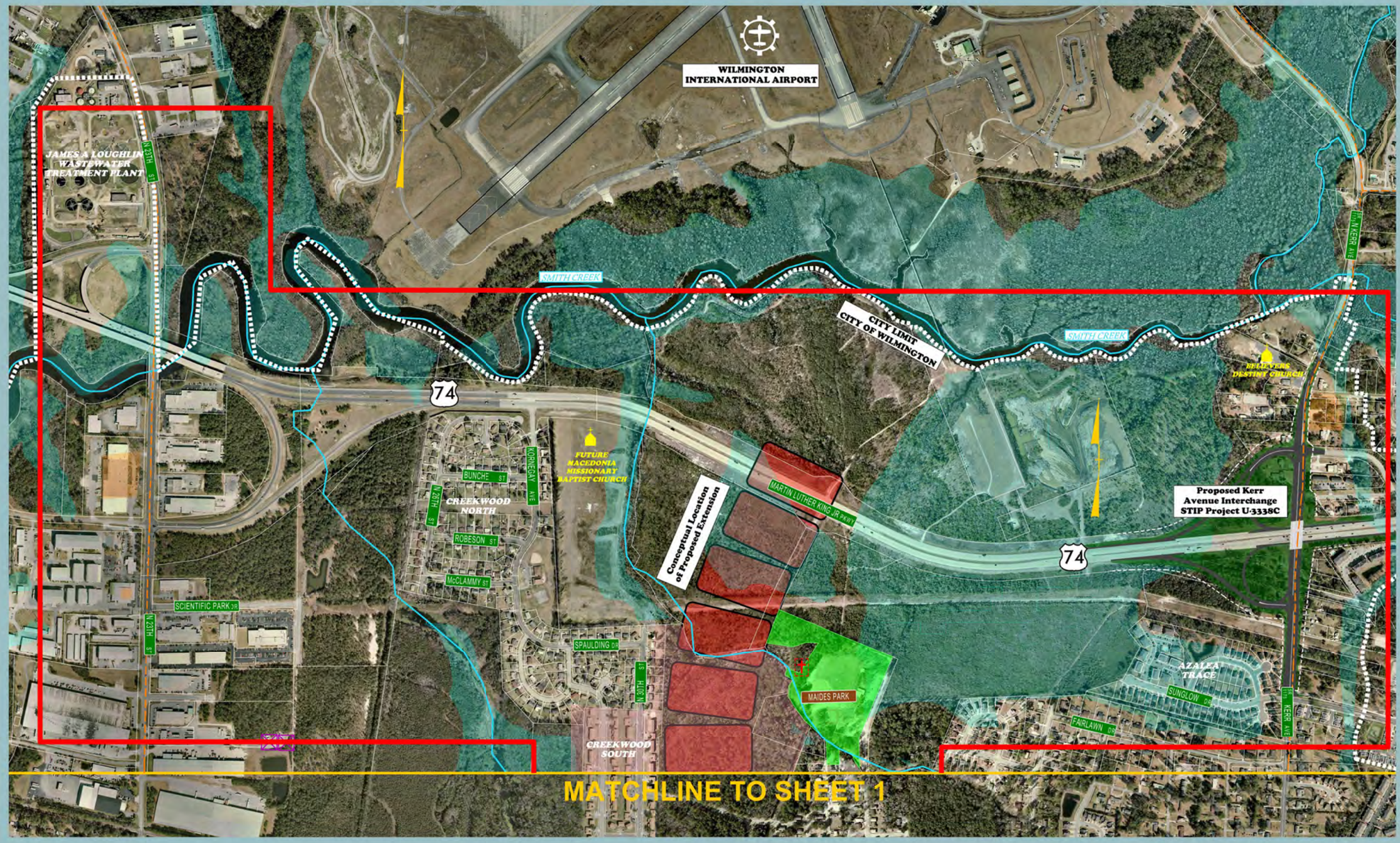
JUNE 2011

DATA FOR THIS MAP WAS RECEIVED FROM:
- NEW HANOVER COUNTY, NORTH CAROLINA
- WILMINGTON, NORTH CAROLINA



STIP PROJECT U-4434
INDEPENDENCE BOULEVARD EXTENSION

STUDY AREA MAP



LEGEND

- FIRE STATION
- POLICE STATION
- COMMUNITY CENTER
- SCHOOL
- CHURCH / WORSHIP CENTER
- CEMETERY
- CELL PHONE TOWER / RADIO TOWER
- RAILROAD
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- PROPERTY LINE
- STREAM / RIVER
- BICYCLE ROUTE

AERIAL PHOTOGRAPHY DATE: SUMMER 2006

SHEET 2 OF 2

200' 0 200' 400' 800'

PREPARED FOR
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, NORTH CAROLINA

Prepared by
URS
URS CORPORATION NORTH CAROLINA

JUNE 2011

DATA FOR THIS MAP WAS RECEIVED FROM:
- NEW HANOVER COUNTY, NORTH CAROLINA
- WILMINGTON, NORTH CAROLINA

Appendix E2

Public Meeting – 2019

M E M O R A N D U M

To: Krista Kimmel, PE – NCDOT Division 3

From: Susan Westberry, AICP - AECOM

Date: August 29, 2019

Subject: **Summary of Comments for Public Meeting**
Independence Boulevard Extension STIP U-4434

The Public Meeting was held on July 22, 2019 at the following location:

Date: July 22, 2019
Time: 5:00 to 7:00 PM
Location: Rachel Freeman School of Engineering Multipurpose Room

The intent of the Public Meeting was to solicit public input and receive feedback on the proposed project alignment and two interchange options, Single Point Urban Interchange (SPUI) and Tight Urban Diamond Interchange (TUDI). The public was provided the opportunity to review maps showing the two alternative route options being considered for the DEIS. Participants were encouraged to talk to NCDOT staff and project team members and provide comments. All attendees received a project handout with a comment form.

One hundred fifty-seven participants signed in at the public meeting. The project team received twenty comment sheets at the workshop and forty-one comments after the meeting. A total of 62 comments were received during the Public Meeting's comment period (July 22nd through August 19th, 2019).

Overview of Comments Received

Comment Type:

Sixty-two comments were received during the Public Meeting Comment Period (July 22nd, 2019 through August 19th, 2019) in the following forms:

- 28 Comment Forms (Includes comments written on the Title VI Public Involvement Forms)
- 11 Emails/Letters
- 10 NCDOT Contact Us Site Comments
- 6 Public Input Site Comments
- 7 Hotline Comments

Comment Subjects:

Comments expressed opinions pertaining to multiple subjects. The number of comments representing each subject matter are included below.

- **Design/Traffic Elements: 27**
    - Comment discussed a concern about how a person may enter/exit a residence or business and expressed concern regarding changes in access to existing streets in the area. Multiple comments noted a concern of the increased speed limits, project impacts to existing cul-de-sacs, traffic concerns and concerns regarding the extensive right-of-way required to complete this project. Multiple comments suggested new alignments for this project along with improvements of other existing roadways in the area. Some comments noted they would prefer an "Urban Boulevard" instead of a "freeway" through the area and wish to see the road be "at-grade" instead of an elevated roadway. The City of Wilmington provided comments regarding the proposed Wilmington Rail Realignment Project, which seeks to repurpose the use of the existing freight rail corridor that travels through New Hanover County. It was noted, should the Wilmington Rail Realignment project receive environmental permitting prior to construction of the Independence Boulevard project, the NCDOT should commit resources to redesigning the Independence Boulevard project.
- **Residential Impacts: 24**
    - Comments discussed concerns to residences being acquired for the project and the impact to neighboring residences property values. Many comments noted that they were long-term residents that will be displaced by the project.
- **Community Impacts/Quality of life: 23**
    - Majority of the comments noted that this project will "divide" or "destroy" the community/neighborhoods in this area. Other comments included concerns about impacts community resources including churches and parks.
- **Aesthetics/Noise/Air Quality: 16**
    - Comments expressed concerns to the aesthetics of the area and multiple comments were concerned with noise and the location of potential noise walls. Comments also requested that aesthetics be improved with this project.

- **Other: 13**
    - The subject of the comment is either irrelevant to the project or does not address any other item on this list, such as a DEIS not being completed prior to the meeting and the format of the public meeting.
- **Business Impacts: 12**
    - Multiple comments expressed concerns about the acquisition of their businesses in this area and one comment noted the lack of suitable relocation properties in the area for their business.
- **Bike/Pedestrian Facilities & Safety: 12**
    - Multiple comments requested bike and pedestrian crossing be added/improved as part of this proposed project. Comments also noted concerns for potential negative impacts to these existing facilities and the safety associated with them.
- **Vehicular Safety: 8**
    - The comment discussed a concern for how vehicular safety may be affected due to project.
- **Environmental Impacts: 6**
    - The comment noted a concern for impacts to the natural environment. Majority of these comments expressed concerns with flooding and impacts to vegetation.
- **Historic/Cultural Sites: 5**
    - Comment discussed a general concern for impacts to historic properties or archaeological resources. One comment noted a concern for impacts to Maides Park Cemetery.
- **Environmental Justice: 5**
    - Comments discussed impacts to minority and low-income populations. One comment noted a concern for lack of available low-income housing in the area for potential relocations.
- **Bus Transit: 4**
    - Comments discussed a general concern for impacts to or lack of bus transit services.
- **Project Costs: 3**
    - Comments discussed the cost of the project or suggested more cost-effective alternatives.
- **Construction Impacts: 2**
    - Comments discussed impacts such as detours and noise during the construction process.
- **Schedule: 1**
    - One comment noted a general concern about the acquisition schedule for the project.

Alternative Preference:

The comment form and NCDOT Public Input Site requested the public to pick their preferred interchange of the two proposed options. Approximately 50% of the comments received do not identify a preference between the two interchange options. The statistics below represent the preferred interchange option identified:

- SPUI: 8
- TUDI: 10

- None*: 13

* Comment noted that the commentator does not like the two interchange options provided, is against the project entirely, and/or suggested a new alternative alignment.

Special Interest Groups:

- Alamosa Place HOA
- Alliance for Cape Fear Trees
- Precinct W15
- Outdoor Creations Landscaping
- Cape Fear Habitat for Humanity
- Housing Coalition
- NAACP
- CPCLT
- Murray Construction Co. of Wilmington
- YMCA
- Dr. Stylz

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

June 28, 2019

RE: **Invitation to Public Meeting**
STIP Project No. U-4434 – Proposed Independence Boulevard Extension in New Hanover County.

Dear Sir or Madam:

The N.C. Department of Transportation invites you to attend a public meeting to be held for the above-referenced project. The meeting is scheduled for:

Date: **Monday, July 22, 2019**
Time: **5 – 7 p.m.**
Location: **Rachel Freeman School of Engineering, Multipurpose Room**
2601 Princess Place Drive, Wilmington

This project proposes to extend Independence Boulevard (S.R. 1209) by 1.7 miles from Randall Parkway to U.S. 74 (Martin Luther King Jr. Parkway) in Wilmington. The purpose of the project is to improve connectivity and capacity by providing an additional 4-lane, north-south corridor that would provide an increase in the overall traffic capacity within Central Wilmington.

The purpose of this meeting is to provide you with information on the project and to gather your comments. NCDOT representatives will be available to answer questions and listen to comments regarding the project. The opportunity to submit comments will also be provided at the meeting or via phone, email, or mail by August 19, 2019. Comments received will be taken into consideration as the project develops. Please note that no formal presentation will be made.

Project information and materials can be viewed as they become available online at www.ncdot.gov/projects/independence-boulevard.

For additional information, contact Krista Kimmel, NCDOT Division 3, at 910-341-2000 or khkimmel@ncdot.gov.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH, NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 250-4224
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

NCDOT TO HOLD PUBLIC MEETING
FOR THE PROPOSED INDEPENDENCE BOULEVARD EXTENSION
NEW HANOVER COUNTY

STIP PROJECT NO. U-4434

The N.C. Department of Transportation will hold a public meeting regarding the proposed project to extend Independence Boulevard (S.R. 1209) by 1.7 miles from Randall Parkway to U.S. 74 (Martin Luther King Jr. Parkway) in Wilmington. The purpose of the project is to improve connectivity and capacity by providing an additional 4-lane, north-south corridor that would provide an increase in the overall traffic capacity within Central Wilmington.

The meeting will take place on **July 22 from 5 p.m. to 7 p.m. in the Rachel Freeman School of Engineering Multipurpose Room** located at 2601 Princess Place Drive in Wilmington. The public may drop in at any time during the meeting hours. Please note that no formal presentation will be made.

NCDOT representatives will be available to answer questions and listen to comments regarding the project. The opportunity to submit comments will also be provided at the meeting or via phone, email, or mail by August 19, 2019. Comments received will be taken into consideration as the project develops.

Project information and materials can be viewed as they become available online at www.ncdot.gov/projects/independence-boulevard.

For additional information, please contact Krista Kimmel, NCDOT Division 3, at 5501 Barbados Boulevard, Castle Hayne, NC 28429. You may also contact the project team through our toll-free hotline at 1-800-233-6315.

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who wish to participate in this meeting. Anyone requiring special services should contact Samantha Borges, Environmental Analysis Unit at smborges@ncdot.gov or 919-707-6115 as early as possible so that arrangements can be made.

Persons who do not speak English, or have a limited ability to read, speak or understand English, may receive interpretive services upon request prior to the meeting by calling 1-800-481-6494.

Aquellas personas que no hablan inglés o tienen limitaciones para leer, hablar o entender inglés, podrían recibir servicios de interpretación si los solicitan antes de la reunión llamando al 1-800-481-6494.

Please contact Samantha Borges, Environmental Analysis Unit Public Involvement Officer, at smborges@ncdot.gov or 919-707-6115 to inform her if you or your representative will attend this meeting.

Thank you and we look forward to meeting with you.

Sincerely,

Samantha Borges
Public Involvement Officer

STIP Project No. U-4434 Independence Boulevard Extension
Samantha Borges
N.C. Department of Transportation
Environmental Analysis Unit
1598 Mail Service Center
Raleigh, NC 27699-1598

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INDEPENDENCE BOULEVARD EXTENSION PROJECT

New Hanover County

N.C. Department of Transporta

State Transporta n Improvement Program (STIP) Project No. U-4434

Public Meeting
5 p.m.– 7 p.m.

New Hanover County

July 22

Rachel Freeman School of Engineering Multipurpose Room

2601 Princess Place Drive Wilmington

The N.C. Department of Transport on is in the process of comp g the environmental studies for the Independence Boulevard Extension. An open-house public me g will be held to gather public input and receive feedback on the proposed project alignment and two interchange op The maps are available for public review and are located on the project website noted below.

NCDOT represen ves will be available between the hours of 5 p.m. and 7 p.m. to answer qu ons and receive comments about the proposed project. The public may end at any e during these hours. There will be no formal presen on. en comments will be collected at the mee g and can also be subm ed un August 19, 2019.

For more inform on, please call the project hotline at 1-800-233-6315 or visit the project website at www.ncdot.gov/projects/independence-boulevard. Project maps are also available for public review on the project website.

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Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

Independence Boulevard Extension

N.C. Department of Transportation
State Transportation Improvement Program (STIP)
Project No. U-4434

Public Meeting

Monday, July 22
5 p.m.- 7 p.m.

Rachel Freeman School of Engineering
Multipurpose Room

2601 Princess Place Drive
Wilmington

We Want Your Input

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NCDOT representatives will be available to answer questions and receive comments about the proposed project. The public may attend at any time during these hours. Written comments will be collected at the meeting and can also be submitted via mail, email, or online until August 19, 2019.

Contact Us

For more information, visit
www.ncdot.gov/projects/independence-boulevard
or contact Krista Kimmel, NCDOT Division 3 at
khkimmel@ncdot.gov | 1-800-233-6315

Available on Project Website

- Maps of the proposed project
- Link to submit written comments

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Independence Boulevard Extension

N.C. Department of Transportation
State Transportation Improvement Program (STIP)
Project No. U-4434

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Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue to
Martin Luther King Jr. Parkway (U.S. 74)
NCDOT State Transportation Improvement Program
Project No: U-4434

July 22, 2019

Your Input is Important

The N.C. Department of Transportation is seeking comments from the public, businesses, local officials, and regulatory agencies about the proposed alternatives for the project. Today's meeting is an important step in NCDOT's efforts to involve the public in the planning and development process. This is an informal public meeting held to obtain your input on the proposed alternatives and discuss the project with project representatives. A formal presentation will not be held.

Questions? Comments? Please Contact Us!

Please visit our website for the latest project information:

www.ncdot.gov/projects/independence-boulevard

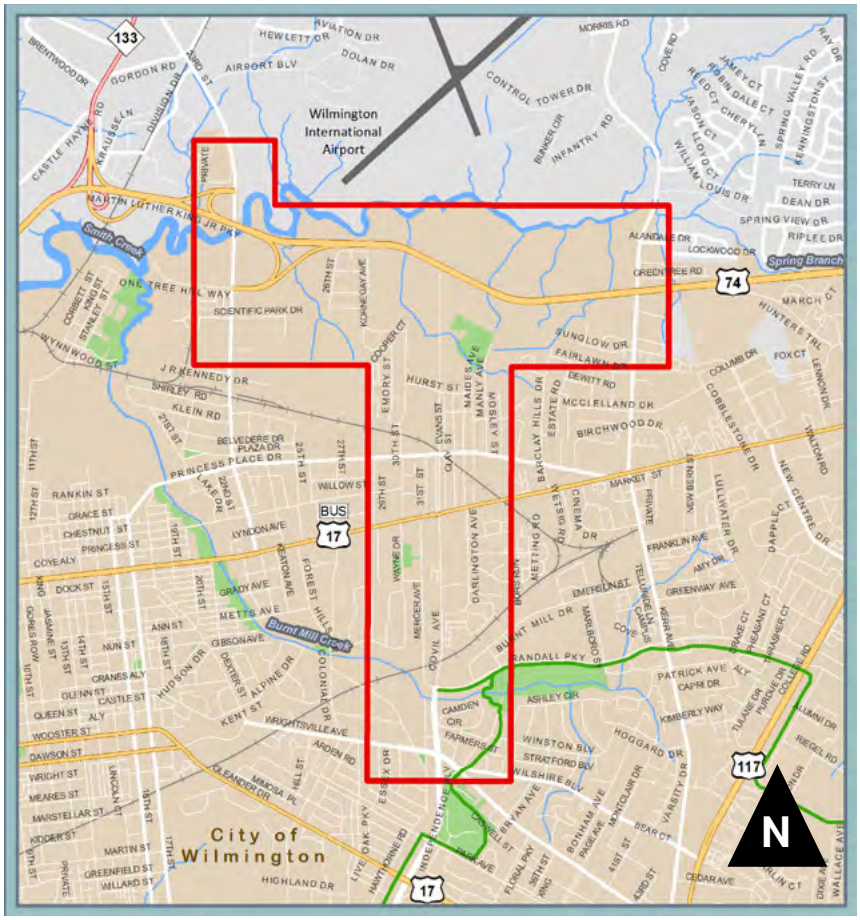
Krista Kimmel, P.E. - NCDOT
5501 Barbados Boulevard
Castle Hayne, N.C. 28429
khkimmel@ncdot.gov

Susan Westberry, AICP
AECOM North Carolina
201 N. Front Street, Suite 509
Wilmington, N.C. 28401

Comments may be returned tonight or mailed or emailed to khkimmel@ncdot.gov

Comments can also be submitted online at:
https://publicinput.com/IndependenceBlvd

Please submit comments by August 19, 2019.



Project Overview

The N.C. Department of Transportation (NCDOT) is proposing to construct a multi-lane boulevard on new location in New Hanover County, North Carolina. Located within the urban core of the City of Wilmington, the proposed 1.7-mile long Independence Boulevard Extension would be an extension of existing Independence Boulevard (S.R. 1209) on new location from the intersection with Randall Parkway and Mercer Avenue to Martin Luther King Jr. Parkway (U.S. 74). The proposed project is designated for funding in the 2018-2027 NCDOT State Transportation Improvement Program (STIP) as STIP Number U-4434.

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

Why is the project needed?

The need for the proposed Independence Boulevard Extension is demonstrated by the following:

- Deficient north-south regional roadway connectivity
- Deficient north-south system capacity
- Deficient linkage within and through New Hanover County

What is the purpose of the project?

The purpose of the project is to improve regional mobility, system traffic capacity, north-south connectivity, and transportation system linkage from Randall Parkway, in the vicinity of Independence Boulevard, to Martin Luther King Jr. Parkway that is consistent with local and state transportation plans.

North-South Connectivity

Currently, the City of Wilmington has only two north-south routes that allow a driver to travel continuously between Shipyard Boulevard and Martin Luther King Jr. Parkway. These are College Road and 3rd Street. No continuous north-south route exists in central Wilmington.

Due to this lack of connectivity, drivers seek the path of least resistance. Many use large and small streets to weave their way north or south, in a "stair-step" pattern. One example of this is traffic taking Independence Boulevard to Randall Parkway to Kerr Avenue. These zig-zag movements put extra traffic onto east-west routes, and put more pressure on local streets and intersections.

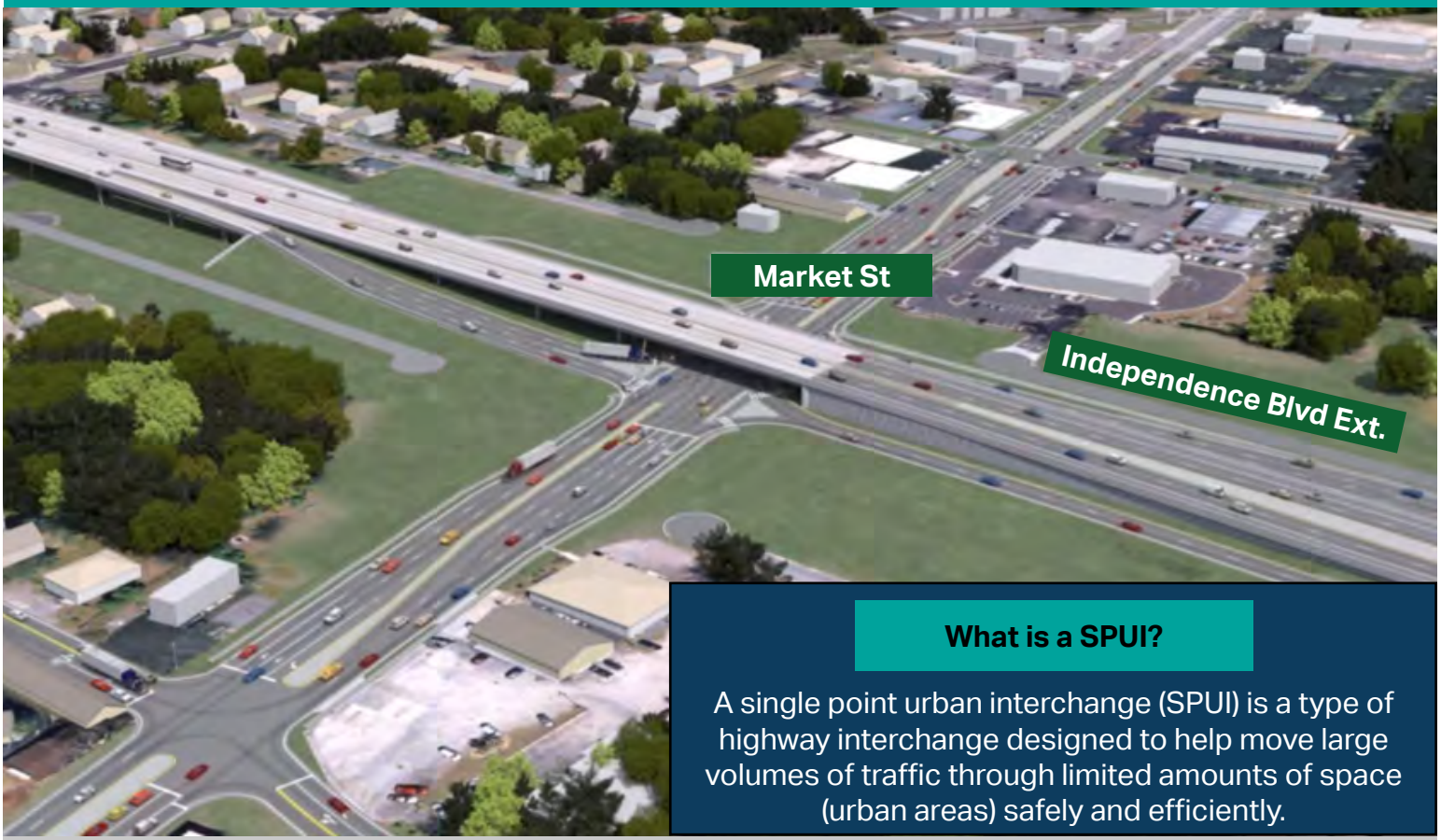


Project Alternatives

There is currently one alignment with two interchange options at Market Street being considered. The two interchange options are a tight urban diamond interchange (TUDI) and a single point urban interchange (SPUI). Both interchange options would require less right-of-way than a traditional interchange.

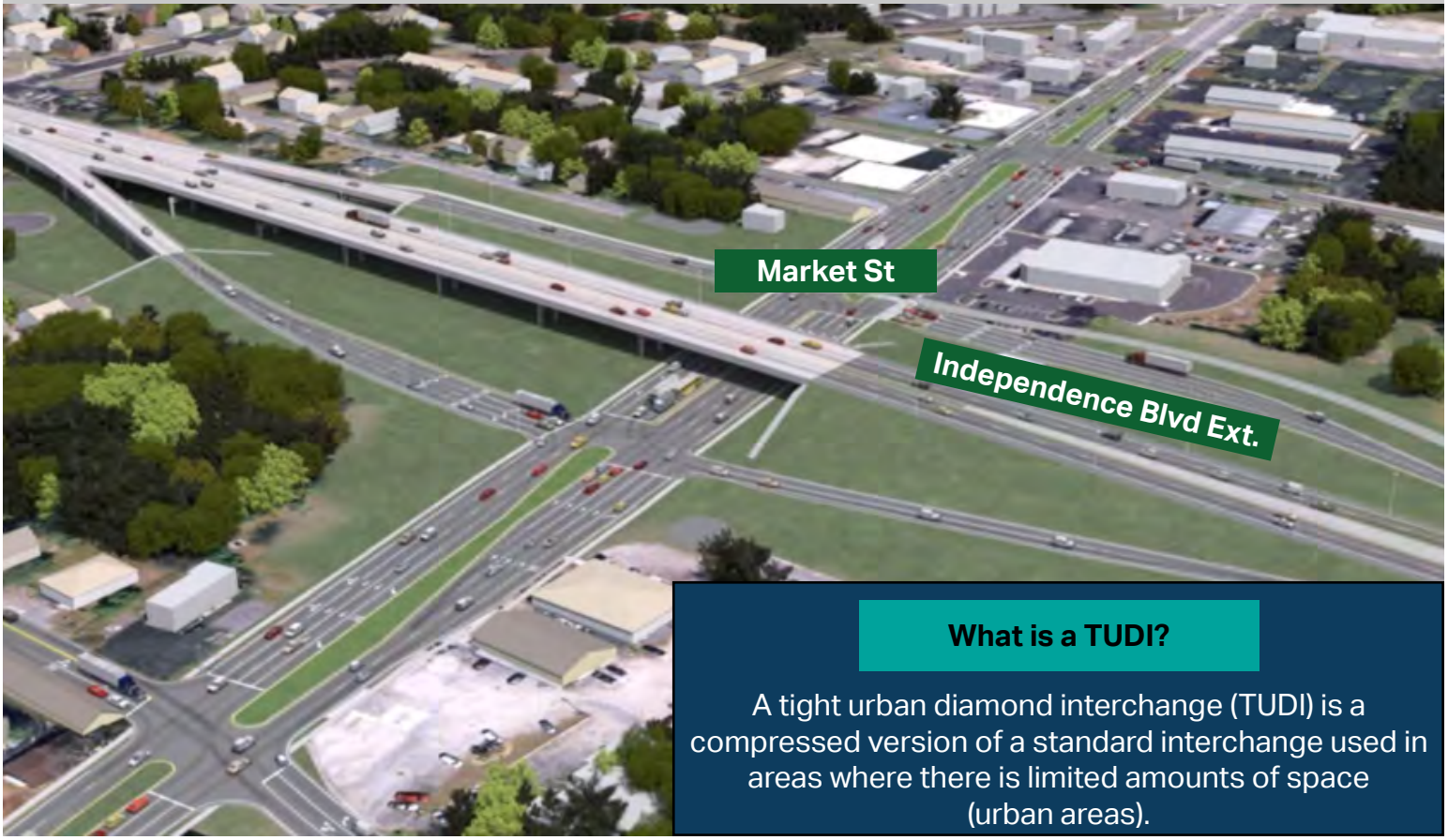
The typical section is proposed as a four-lane elevated roadway. The roadway would begin just south of the intersection with Randall Parkway and Mercer Avenue and travel north, between Covil Avenue and Mercer Avenue to Market Street. It would then continue north, just west of Evans Street on new location and end at Martin Luther King Jr. Parkway. South of Market Street, the roadway would be elevated crossing over the CSX Railroad and Darlington Avenue. Darlington Avenue would be extended from Covil Avenue to Mercer Avenue to allow for connectivity. North of Market Street, the roadway would be an elevated structure from Market Street to Hurst Avenue.

A greenway is proposed along the east side of the roadway from Randall Parkway to Maides Park. The greenway would not be elevated.



What is a SPUI?

A single point urban interchange (SPUI) is a type of highway interchange designed to help move large volumes of traffic through limited amounts of space (urban areas) safely and efficiently.



What is a TUDI?

A tight urban diamond interchange (TUDI) is a compressed version of a standard interchange used in areas where there is limited amounts of space (urban areas).

Planning and Environmental Process

The proposed project is following a process outlined by the National Environmental Policy Act (NEPA).

In accordance with the NEPA, an Environmental Impact Statement (EIS) will be prepared, which is a federally required document that describes the purpose and need for the project, identifies project alternatives, and evaluates them for potential environmental effects.

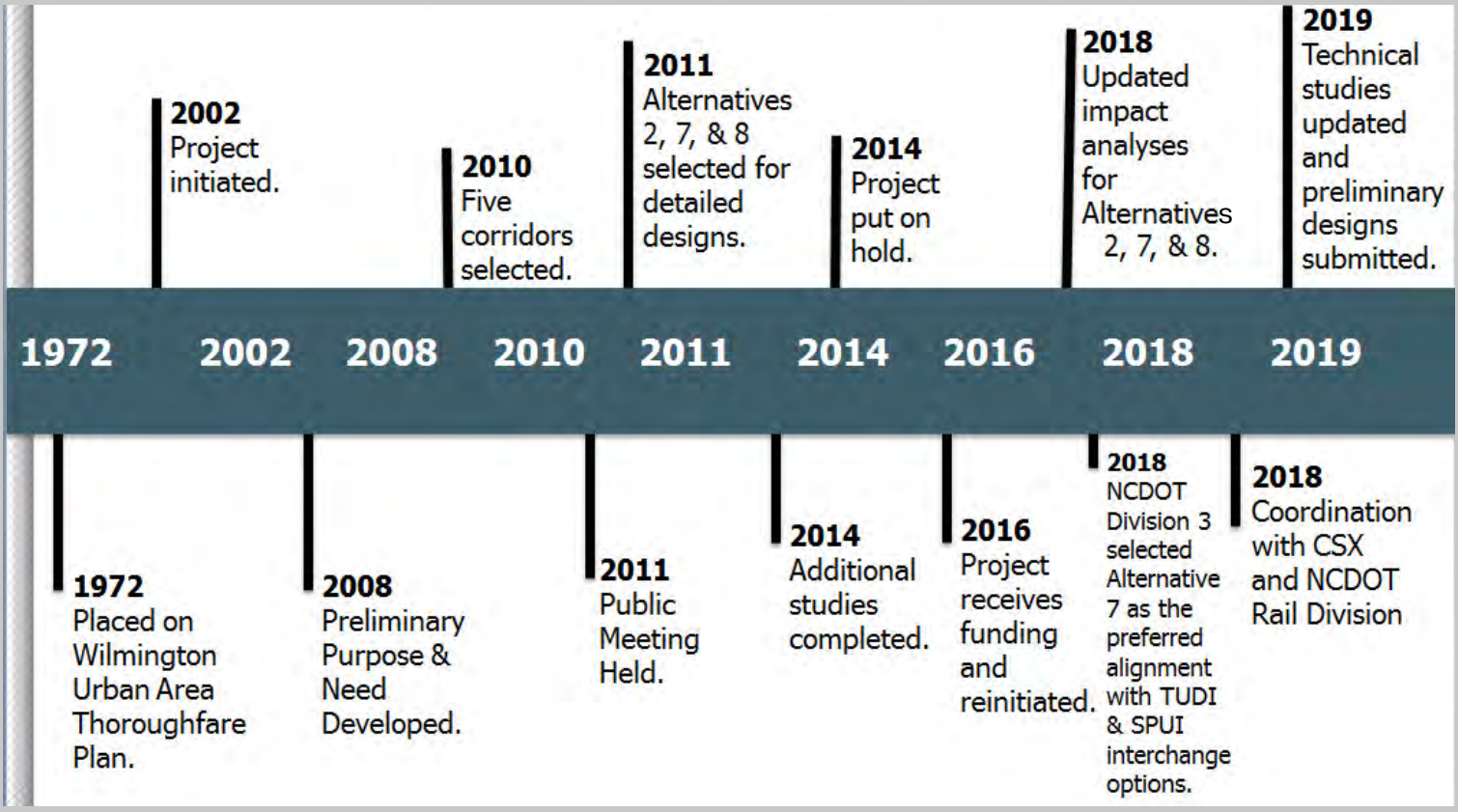
Project Schedule

Project Planning Studies	Underway
Draft Environmental Impact Statement	2019
Public Hearing	2020
Final Environmental Impact Statement	2021
Record of Decision	2021
Right-of-Way Acquisition	2022
Construction	2025

2018-2027 STIP U-4434 Funding:

Right of Way: $74,900,000.00
Construction: $76,399,000.00

Project History



What's Next?

The next step in the planning process will be to publish the Draft Environmental Impact Statement for public review, hold a public hearing and receive feedback on the project designs, and select a preferred alternative. Once a preferred alternative has been selected, the designs will be refined and additional technical studies will be evaluated.

Visualizations



Independence Boulevard Extension south of Market Street



Independence Boulevard Extension north of Market Street



Martin Luther King Jr. Parkway interchange

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Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue
to Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program Project No: U-4434

☐ **PLEASE CHECK HERE IF YOU WISH TO BE ADDED TO THE PROJECT MAILING LIST**

PLEASE PRINT:

NAME: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

PHONE NUMBER: _____

E-MAIL: _____

YOUR COMMENTS ARE IMPORTANT TO US! PLEASE RETURN BY AUGUST 19, 2019

1. How did you hear about us? (Please circle one)
   Newsletter Newspaper TV/Radio Friend/Relative Doorhanger/Flyer

2. Are you a member of a civic or business group such as a homeowners association, nonprofit group, etc? If so, which one? _____

3. Are you a business owner?
   ☐ Yes ☐ No

4. Do you ☐ own or ☐ rent the property?

5. What are the major issues within the study area that you think are important to include in the upcoming studies? Please circle all that apply: aesthetics, business, bus transit, historic and cultural sites, neighborhood connectivity, access, pedestrian facilities and safety, and vehicular safety. Any other concerns? _____

_____

6. This project proposes two interchange options at Market Street, a single point urban interchange and a tight urban diamond interchange. Images of these interchanges are provided in the handout or by request. Please circle your preferred option. SPUI, TUDI

7. Additional comments? _____

_____

_____

_____

Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue
to Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program Project No: U-4434

Please
Place
Stamp
Here

Susan Westberry, AICP
AECOM North Carolina
201 N. Front Street, Suite 509
Wilmington, NC 28401

Independence Boulevard Extension
From the intersection with Randall Parkway and Mercer Avenue to
Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program
Project No. U-4434

Welcome!

Open House for the Independence Boulevard Extension Project

NCDOT STIP Project No. U-4434

Please Sign In Here

- Let Us Know You Attended
- Pick Up Handouts
- Review Information
- Ask Questions
- Provide Comments

Project Purpose and Need

Why is the project needed?

The need for the proposed Independence Boulevard Extension is demonstrated by the following:

- Deficient north-south regional roadway connectivity
- Deficient north-south system capacity
- Deficient linkage within and through New Hanover County

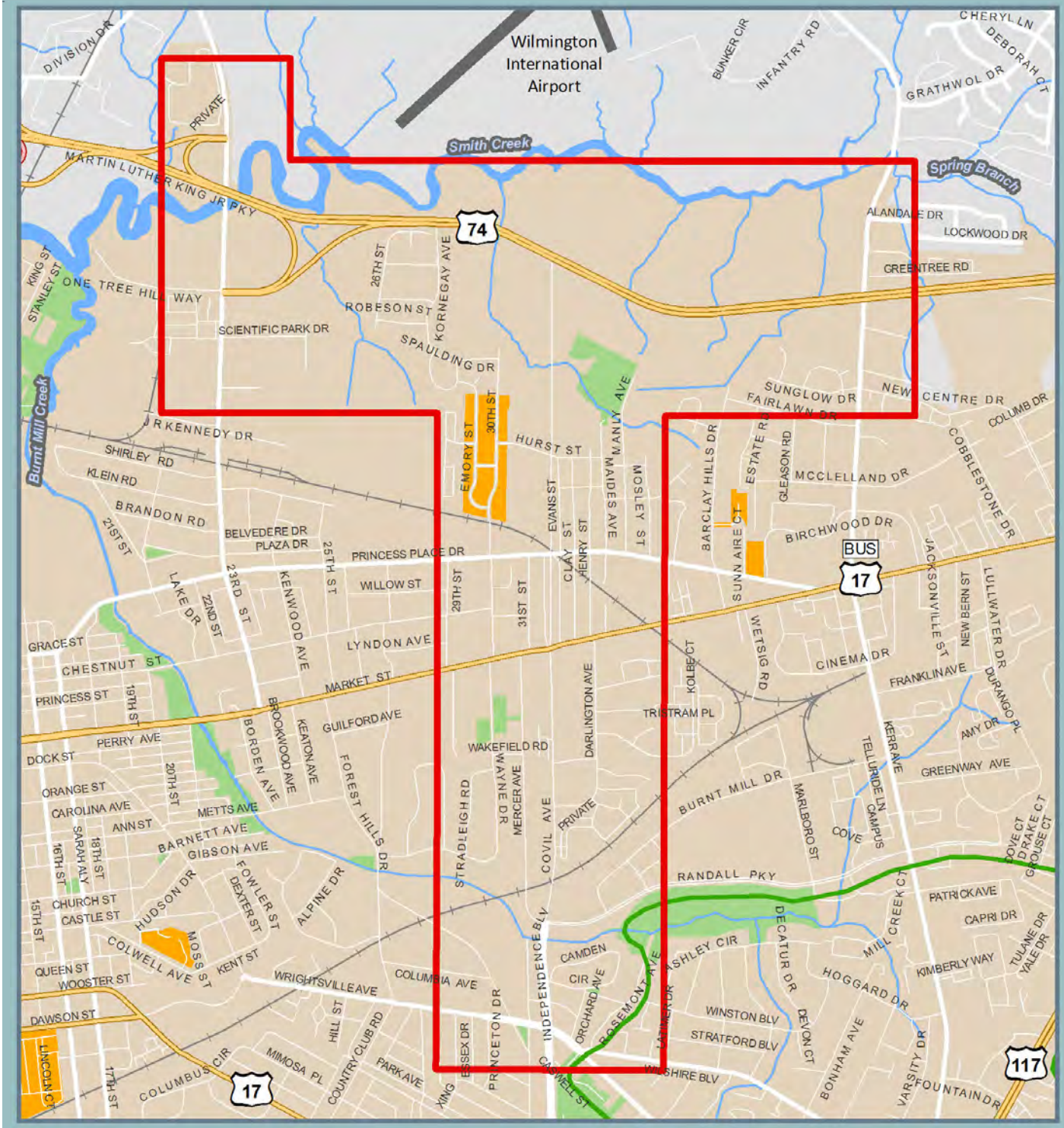
What is the purpose of the project?

The purpose of the project is to improve:

- Regional mobility,
- System traffic capacity,
- North-south connectivity between Shipyard Boulevard and Martin Luther King Jr. Parkway, and
- Transportation system linkage

from Randall Parkway in the vicinity of Independence Boulevard to Martin Luther King Jr. Parkway that is consistent with local and state transportation plans.

Project Vicinity



North Carolina Department of Transportation

Independence Boulevard Extension Project
New Hanover County, NC

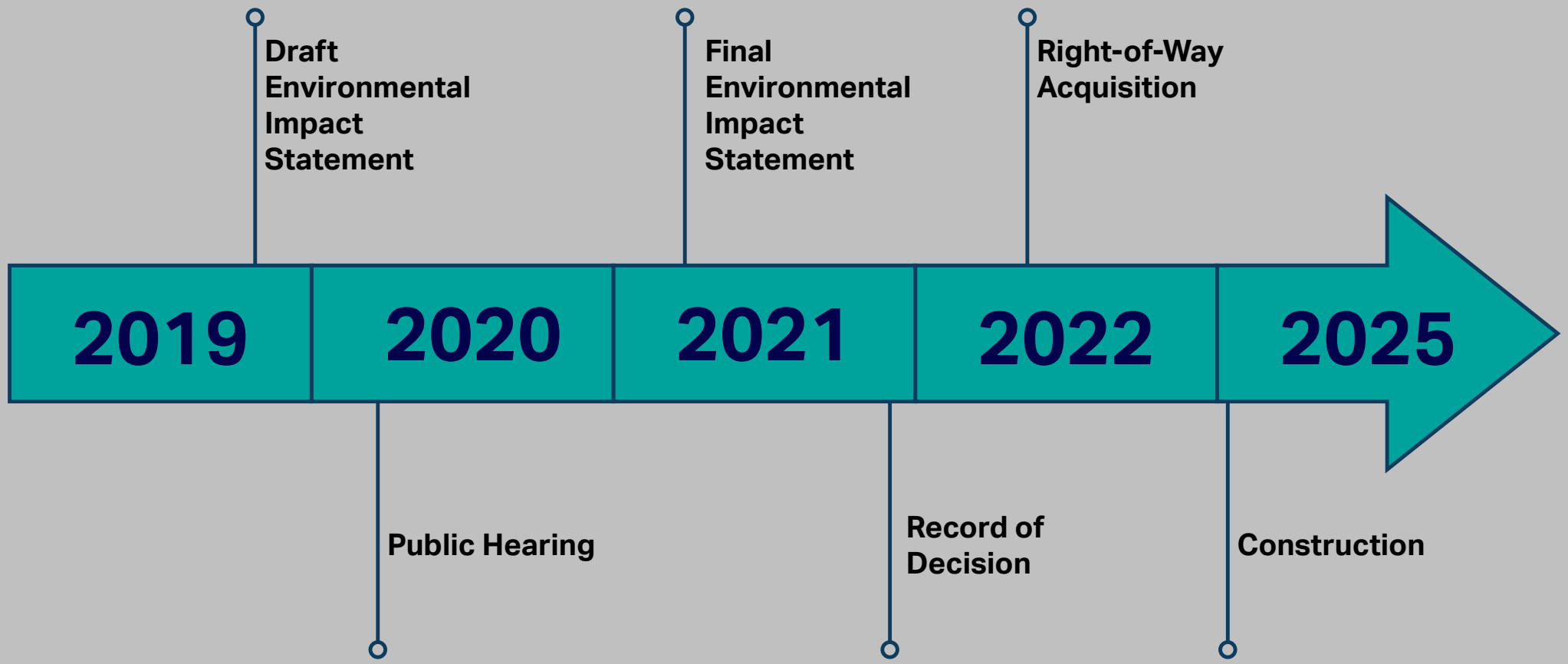
STIP U-4434

Legend

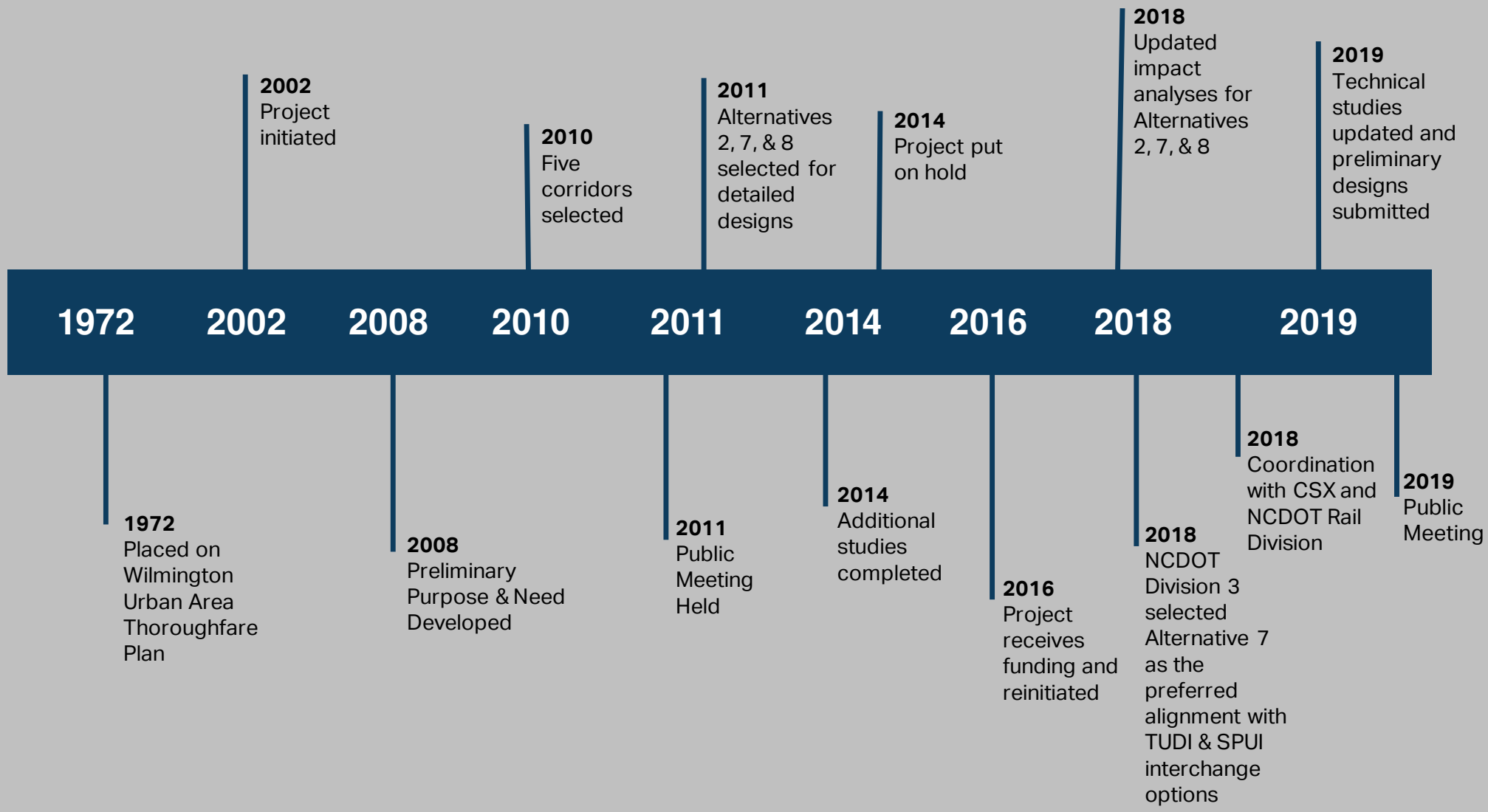
- Study Area
- Municipal Boundary
- Park
- Wilmington Housing Authority Property
- Cross-City Trail

0 1,000 2,000
Feet

Project Timeline



Project Planning to Date



Independence Boulevard Extension
From the intersection with Randall Parkway and Mercer Avenue to
Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program
Project No. U-4434

Right-of-Way and Relocation Assistance Information

Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue to
Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program
Project No. U-4434

Please leave your comments here.

Comments can also be submitted
on the online comment portal:

https://publicinput.com/IndependenceBlvd

Or mailed to:

Krista Kimmel
NCDOT Highway Division 3
5501 Barbados Boulevard
Castle Hayne, N.C. 28429

Susan Westberry, AICP
AECOM North Carolina
201 N. Front Street,
Suite 509
Wilmington, N.C. 28401

Or emailed to: khkimmel@ncdot.gov

Please submit
comments by
August 19, 2019



Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue to
Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program
Project No. U-4434

Kids Activity Area



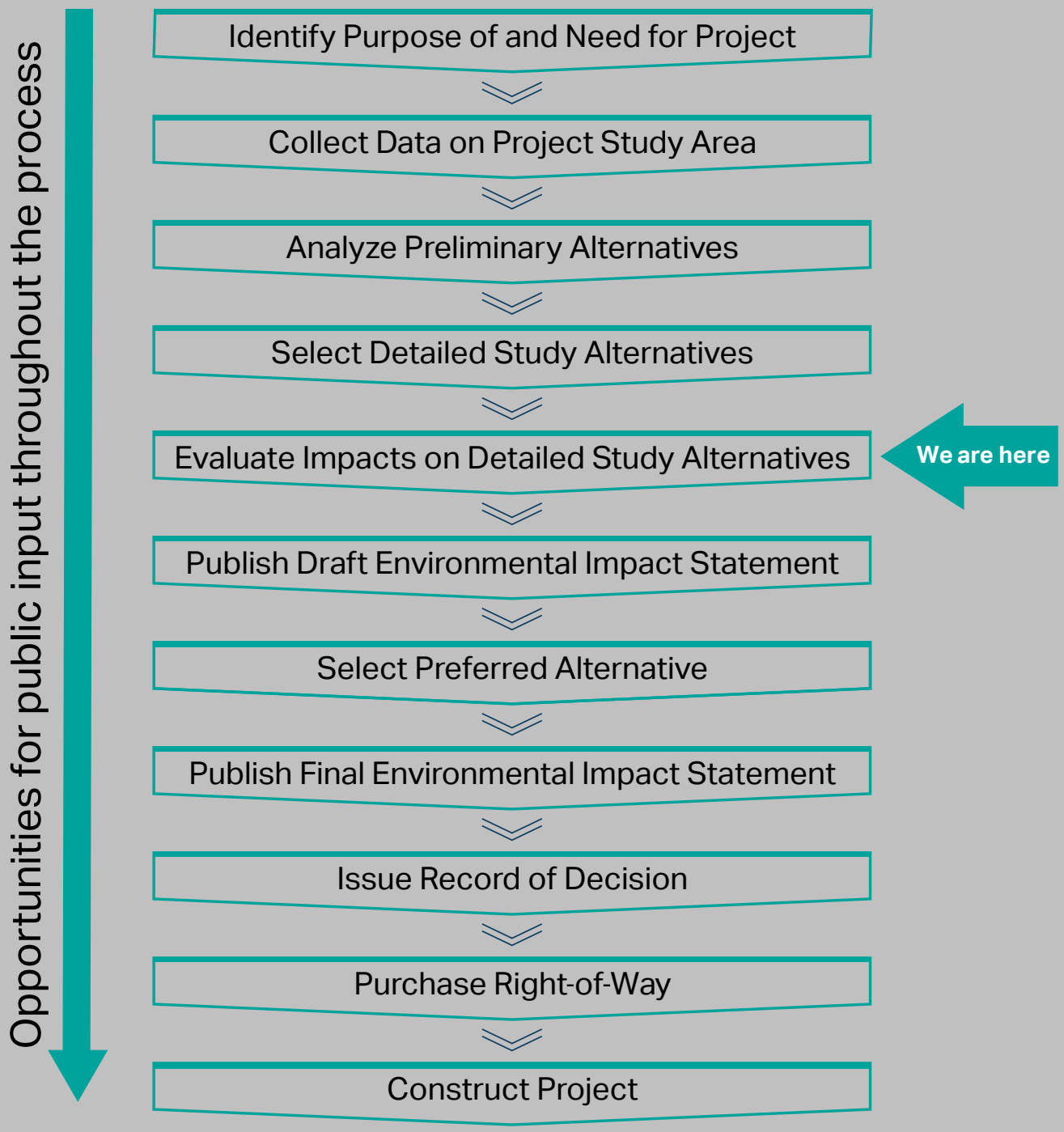
Alternative Comparisons

Resource	Alternative 7	
	SPUI	TUDI
Project Features		
Length of Corridor (miles)	1.7	1.7
Cons t (millions $)	TBD	TBD
ROW Cost (millions $)	TBD	TBD
Number of Interchanges	TBD	TBD
Number of Railroad Crossings	2	2
Number of Major Power Easement Crossings	1	1
Socioeconomic Features		
Parks	1	1
Places of Worship	4	4
Cemeteries	0	0
Schools	2	2
Daycares	1	1
Libraries	0	0
Community Centers	0	0
Greenways	1	1
Fire Sta	0	0
Hospitals	0	0
Minority and/or Low-Income Popula esent	Yes	Yes
Relocations[1]		
Business Reloca	45	53
Residen eloca	88	106
Total	**133**	**159**
Physical Environment		
Poten oise Impacts	TBD	TBD
Farmland Soils (acres)[2, 3]	97.84	100.89
Hazardous Materials Sites	7	7
Floodplains – 100-year including Floodway (acres)[3]	4.92	4.96
Floodplains – 500-year (acres)[3]	1.25	1.26
Floodway (acres)[3]	0.39	0.39
Preserva eas[4]	1	1
Cultural Resources and 4(f)/6(f)		
Archaeological Probability	TBD	TBD
Historic Prope	0	0
Se) Resources	2	2
Se) Resources	0	0
Natural Environment		
Forested Land (acres)[5, 6]	76.75	77.67
Stream Crossings	5	5
Streams (linear feet)[3]	891.3	892.1
Wetlands (acres)[3]	3.80	3.85
Ponds	0	0
Federally-Protected Species Habitat Present	Yes	Yes
Biotic Resources: (acres)[6]		
Coastal Plai omland Hardwoods	1.44	1.44
Cypress Gum Swamp	1.31	1.32
Maintained Disturbed	93.24	100.72
Mesic Mixed Hardwood Forest	0.31	0.87
Pine Flatwoods	67.77	68.14
Pine Scrub Oak Sandhill	3.94	3.93
Tidal Cypress Gum Swamp	1.98	1.98
Total	**170.00**	**178.39**

Notes:
1 Relocations are preliminary and have not been field verified
2 Farmland soil impacts include prime farmland, farmland of statewide importance and farmland of unique importance.
3 Impacts calculated using slope stake limits plus a 25-foot buffer.
4 Maides Park – NC NHP Managed Area
5 Includes Coastal Plain Bottomland Hardwoods, Cypress Gum Swamp, Mesic Mixed Hardwood Forest, Pine Flatwoods, Pine Scrub Oak Sandhill and Tidal Cypress Gum Swamp.
6 Impacts calculated using Right-of-Way limits.

The 2018-2027 State Transportation Improvement Program estimates project costs for U-4434, Independence Boulevard Extension Project to be approximately $74,900,000.00 for right of way and $76,399,000.00 for construction. Cost estimates will be prepared for each alternative and included in the Draft Environmental Impact Statement.

NEPA Process



Visualizations

Darlington Avenue Existing



Hurst Street Existing



Darlington Avenue Proposed



Hurst Street Proposed



Visualizations

Independence Boulevard Extension south of Market Street



Martin Luther King Jr. Parkway interchange





Independence Boulevard Extension north of Market Street

Interchange Alternatives

Tight Urban Diamond Interchange

Alternative 1



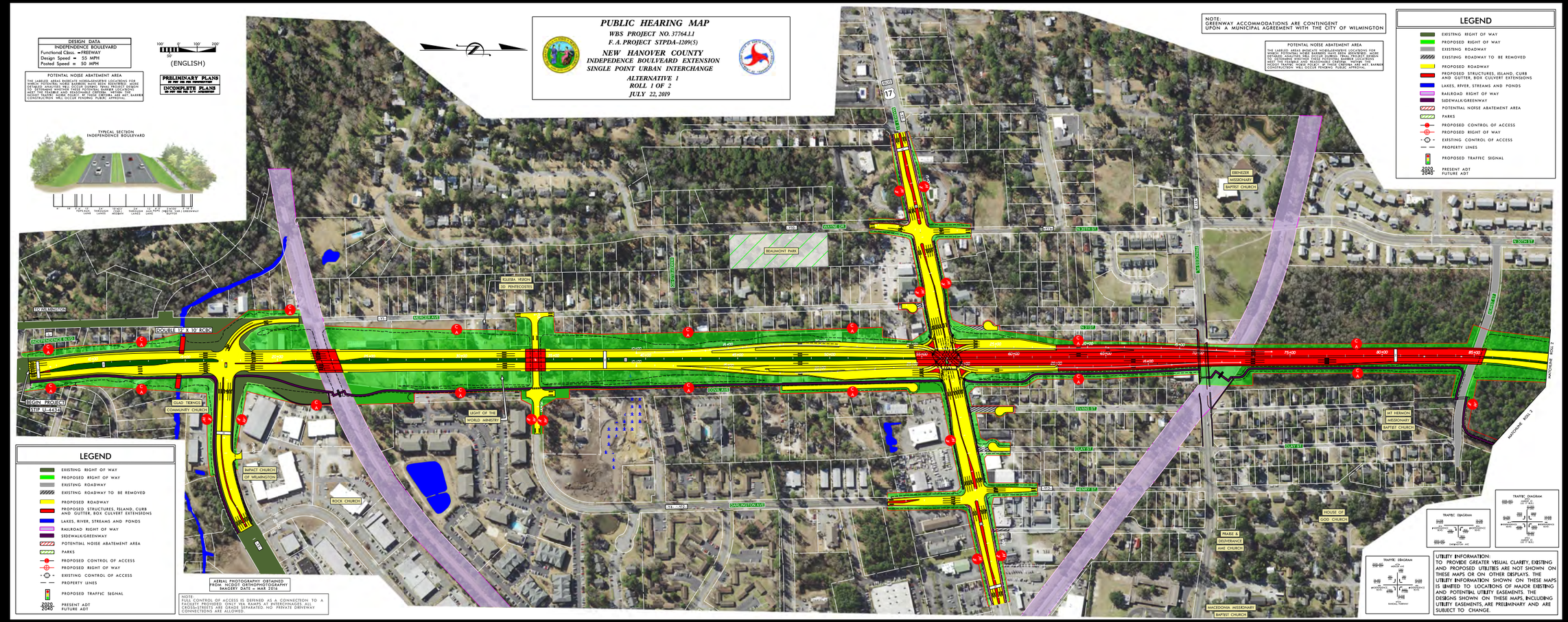
Single Point Urban Interchange

Alternative 2



PUBLIC HEARING MAP

WBS PROJECT NO. 37764.1.1
F.A. PROJECT STPDA-1209(5)
NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
SINGLE POINT URBAN INTERCHANGE
ALTERNATIVE 1
ROLL 1 OF 2
JULY 22, 2019



PUBLIC HEARING MAP
WBS PROJECT NO. 37764.1.1
F. A. PROJECT NO. STPDA-1209(5)
NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
SINGLE POINT URBAN INTERCHANGE
ALTERNATIVE 1
ROLL 1 OF 2
JULY 22, 2019

PUBLIC HEARING MAP

WBS PROJECT NO. 37764.1.1
F. A. PROJECT STPDA-1209(5)

NEW HANOVER COUNTY

INDEPENDENCE BOULEVARD EXTENSION
SINGLE POINT URBAN INTERCHANGE
ALTERNATIVE 1
ROLL 2 OF 2
JULY 22, 2019

NOTE:
GREENWAY ACCOMMODATIONS ARE CONTINGENT UPON A MUNICIPAL AGREEMENT WITH THE CITY OF WILMINGTON

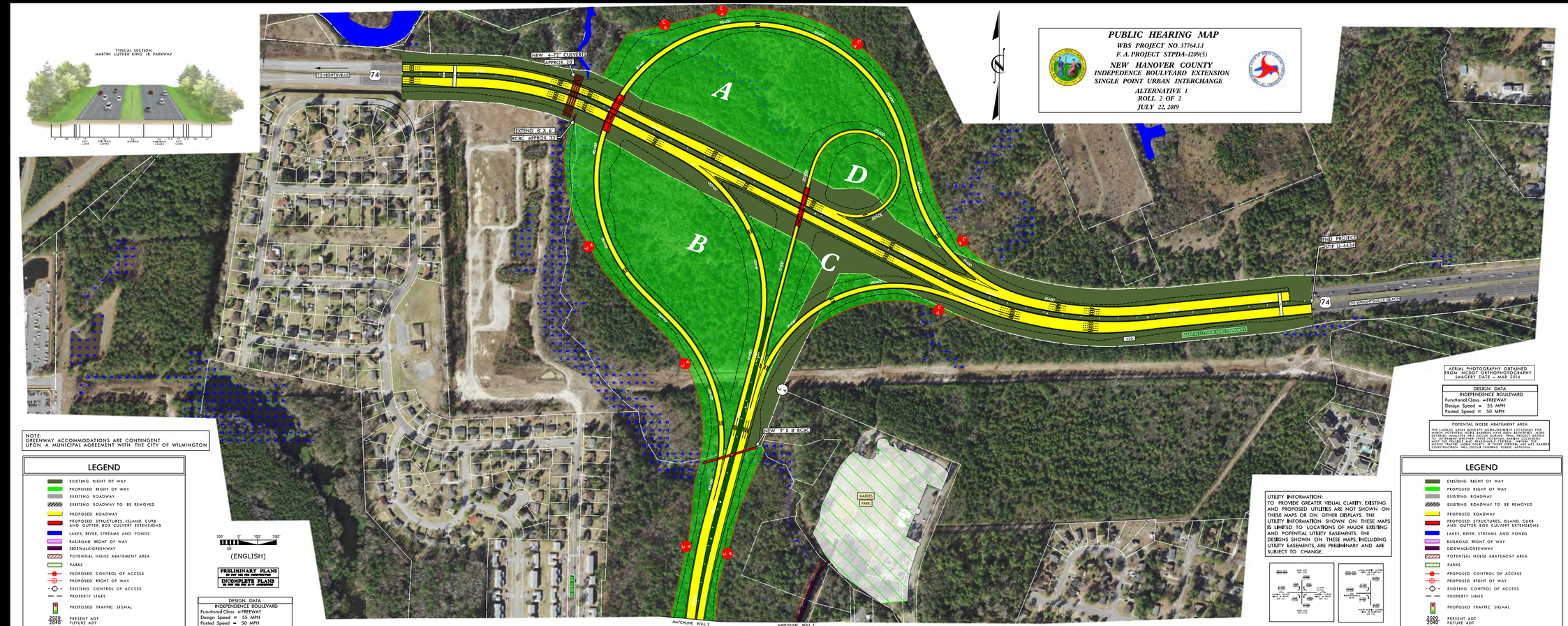
LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER, BOX CULVERT EXTENSIONS
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- SIDEWALK/GREENWAY
- POTENTIAL NOISE ABATEMENT AREA
- PARKS
- PROPOSED CONTROL OF ACCESS
- PROPOSED RIGHT OF WAY
- EXISTING CONTROL OF ACCESS
- PROPERTY LINES
- PROPOSED TRAFFIC SIGNAL
- 2020 / 2040 PRESENT ADT / FUTURE ADT

100 0 100' 200'
50'
(ENGLISH)

PRELIMINARY PLANS
NOT FOR CONSTRUCTION
INCOMPLETE PLANS
NOT FOR BIDDING OR CONSTRUCTION

DESIGN DATA
INDEPENDENCE BOULEVARD
Functional Class. = FREEWAY
Design Speed = 55 MPH
Posted Speed = 50 MPH



AERIAL PHOTOGRAPHY OBTAINED FROM NCDOT ORTHOPHOTOGRAPHY
IMAGERY DATE – MAR 2016

DESIGN DATA
INDEPENDENCE BOULEVARD
Functional Class. = FREEWAY
Design Speed = 55 MPH
Posted Speed = 50 MPH

POTENTIAL NOISE ABATEMENT AREA
THE LABELED AREAS INDICATE NOISE-SENSITIVE LOCATIONS FOR WHICH POTENTIAL NOISE BARRIERS HAVE BEEN ASSESSED. NOISE DETAILED ANALYSES WILL OCCUR DURING FINAL PROJECT DESIGN TO DETERMINE WHETHER NOISE BARRIERS ARE WARRANTED, WHETHER THEY MEET THE FEASIBLE AND REASONABLE CRITERIA, WHETHER THEY WILL BE INCORPORATED INTO THE PROJECT, AND WHETHER CONSTRUCTION WILL OCCUR PENDING PUBLIC APPROVAL.

UTILITY INFORMATION:
TO PROVIDE GREATER VISUAL CLARITY, EXISTING AND PROPOSED UTILITIES ARE NOT SHOWN ON THESE MAPS OR ON OTHER DISPLAYS. THE UTILITY INFORMATION SHOWN ON THESE MAPS IS LIMITED TO LOCATIONS OF MAJOR EXISTING AND POTENTIAL UTILITY EASEMENTS. THE DESIGNS SHOWN ON THESE MAPS, INCLUDING UTILITY EASEMENTS, ARE PRELIMINARY AND ARE SUBJECT TO CHANGE.

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER, BOX CULVERT EXTENSIONS
- LAKES, RIVER, STREAMS AND PONDS
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- 2020 / 2040 PRESENT ADT / FUTURE ADT

PUBLIC HEARING MAP
WBS PROJECT NO. 37764.1.1
F. A. PROJECT STPDA-1209(5)
NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
SINGLE POINT URBAN INTERCHANGE
ALTERNATIVE 1
ROLL 2 OF 2
JULY 22, 2019

PUBLIC HEARING MAP

WBS PROJECT NO. 37764.1.1
F. A. PROJECT STPDA-1209(5)
NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
TIGHT URBAN DIAMOND INTERCHANGE
ALTERNATIVE 2
ROLL 1 OF 2
JULY 22, 2019

DESIGN DATA
INDEPENDENCE BOULEVARD
Functional Class. = FREEWAY
Design Speed = 55 MPH
Posted Speed = 50 MPH

100' 0' 100' 200'
50'
(ENGLISH)

POTENTIAL NOISE ABATEMENT AREA

THE LABELED AREAS INDICATE NOISE-SENSITIVE LOCATIONS FOR WHICH POTENTIAL NOISE BARRIERS HAVE BEEN EVALUATED. MORE DETAILED STUDIES WILL BE CONDUCTED DURING FINAL DESIGN TO DETERMINE WHETHER THESE POTENTIAL BARRIER LOCATIONS MEET THE FEASIBLE AND REASONABLE CRITERIA NECESSARY TO RECOMMEND NOISE BARRIERS FOR CONSTRUCTION. THE BARRIER CONSTRUCTION WILL OCCUR PENDING PUBLIC APPROVAL

PRELIMINARY PLANS
NOT APPROVED FOR CONSTRUCTION

INCOMPLETE PLANS
NOT APPROVED FOR RIGHT OF WAY ACQUISITION

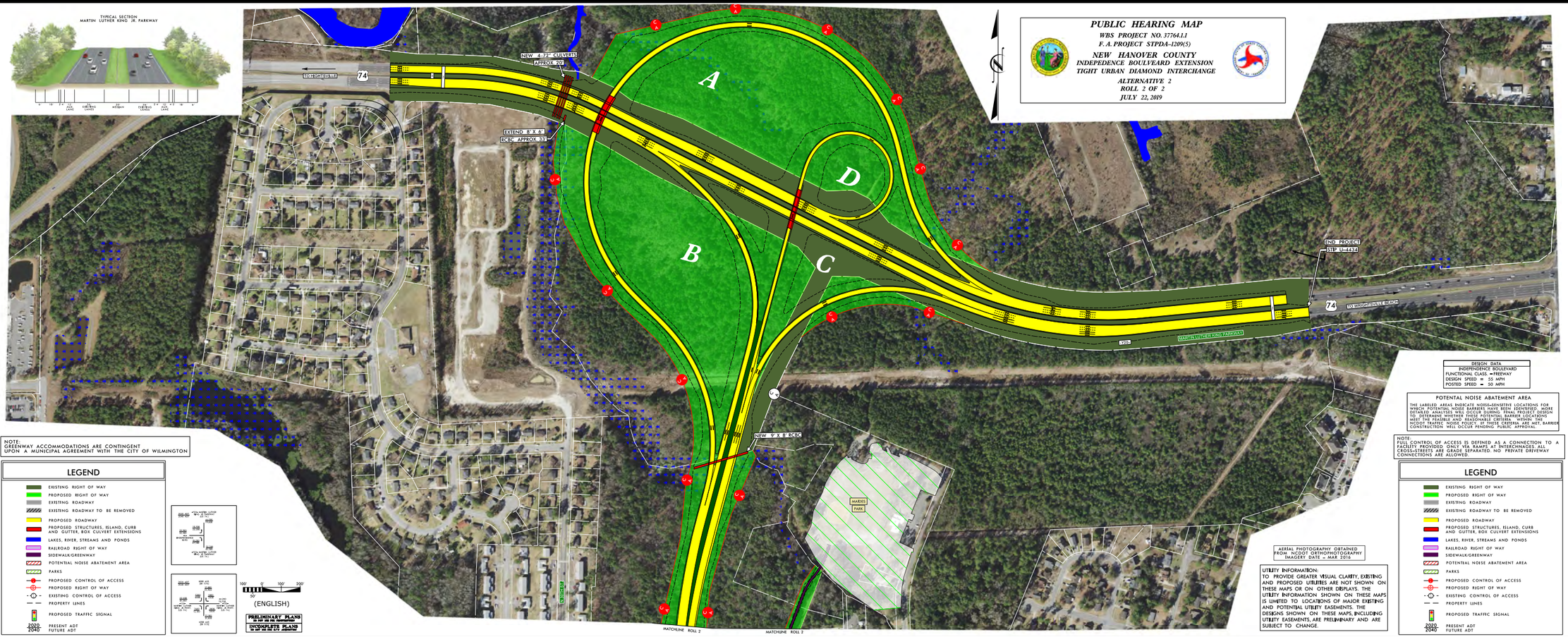
TYPICAL SECTION
INDEPENDENCE BOULEVARD

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- PROPOSED ROADWAY
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- 2020 / 2040 PRESENT ADT / FUTURE ADT

NOTE:
GREENWAY ACCOMMODATIONS ARE CONTINGENT UPON A MUNICIPAL AGREEMENT WITH THE CITY OF WILMINGTON

PUBLIC HEARING MAP
WBS PROJECT NO. 37764.1.1
F. A. PROJECT STPDA-1209(5)
NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
TIGHT URBAN DIAMOND INTERCHANGE
ROLL 2 OF 2
JULY 22, 2019



PUBLIC HEARING MAP
WBS PROJECT NO. 37764.1.1
F. A. PROJECT STPDA-1209(5)
NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
TIGHT URBAN DIAMOND INTERCHANGE
ALTERNATIVE 2
ROLL 2 OF 2
JULY 22, 2019

NOTE:
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LEGEND

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- PROPOSED RIGHT OF WAY
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER, BOX CULVERT EXTENSIONS
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100' 0' 100' 200'
50'
(ENGLISH)

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PUBLIC HEARING MAP
WBS PROJECT NO. 37764.1.1
F. A. PROJECT STPDA-1209(5)
NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
TIGHT URBAN DIAMOND INTERCHANGE
ALTERNATIVE 2
ROLL 2 OF 2
JULY 22, 2019

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POSTED SPEED = 50 MPH

POTENTIAL NOISE ABATEMENT AREA

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NOTE:
FULL CONTROL OF ACCESS IS DEFINED AS A CONNECTION TO A FACILITY PROVIDED ONLY VIA RAMPS AT INTERCHANGES. ALL CROSS-STREETS ARE GRADE SEPARATED; NO PRIVATE DRIVEWAY CONNECTIONS ARE ALLOWED.

AERIAL PHOTOGRAPHY OBTAINED FROM NCDOT ORTHOPHOTOGRAPHY IMAGERY DATE = MAR 2016

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- 2020 / 2040 PRESENT ADT / FUTURE ADT

Appendix E3

Targeted EJ Outreach – 2022

AECOM
5438 Wade Park Boulevard
Raleigh, NC 27607

T: 919.854.6200
F: 919.854.6259
aecom.com

Project name:
U-4434 Independence Boulevard Extension- EJ Outreach

Date:
March 31, 2022

To:
Krista Kimmel, PE
Design Engineer
5501 Barbados Boulevard
Castle Hayne, NC 28429

Memo

The purpose of this memorandum is to summarize the context, planning, execution, and outcome of the Environmental Justice (EJ) Outreach for U-4434 Independence Boulevard Extension project that took place February 22nd through 26th, 2022.

Project Summary

The U-4434 Independence Boulevard Extension project proposes a multi-lane facility on new location in New Hanover County. Located within the urban core of the City of Wilmington, the 1.7-mile long project would be an extension of existing Independence Boulevard from the intersection with Randall Parkway and Mercer Avenue to Martin Luther King, Jr. Parkway (US 74).

The proposed project would cross two existing CSX railroad rail lines that provide access to the Port of Wilmington. The NCDOT Board of Transportation has set forth guidelines for the treatment of highway-railroad intersections on new construction projects. The Rail Grade Separation Guidelines are based on the use of an exposure index which is the product of the number of trains per day and the projected average daily highway traffic at the end of the design period. Grade separations are justified in urban areas when the exposure index is 30,000 or more.

The two existing rail lines carry two to four trains per day. The projected average daily traffic for the project ranges from 47,500 vehicles per day to 52,000 vehicles per day. Therefore, the exposure indices (assuming only two trains per day) would range from 95,000 to 104,000. These indices are 3.17 times to 3.47 times the exposure threshold for at-grade crossings, thus requiring both rail crossings be grade-separated with a minimum clearance of 23 feet over the railroad line.

Planning the Outreach

A Draft Environmental Impact Statement (DEIS) for the project was submitted to Federal Highway Administration (FHWA) in March of 2020. Within their April 2020 comments on the DEIS, FHWA felt additional outreach was needed for the EJ communities that would be impacted by the project since it was clear that the impacts would be disproportionate in nature. The project was placed on hold shortly after FHWA's April 2020 comments.

Once the project became active again in late 2021, AECOM, NCDOT, and FHWA held a meeting to discuss next steps and appropriate outreach efforts for the EJ communities in the study area. To ensure that individuals being directly affected by, or directly adjacent to the project had ample opportunity to comment, it was decided that door-to-door surveys would be the most meaningful and effective method of outreach.

A mailing list was developed using the approved 2019 preliminary design plans and 2020 US Census data to identify the EJ parcels that would be directly impacted by the project. From that list and map, a plan was devised to identify households to visit during each day of the outreach (Attachment 1). The mailing list included approximately 434 addresses, and the

outreach list included approximately 326 parcels. A handout (Attachment 2) was mailed to each addressee on the mailing list on February 12, 2022. The handout alerted recipients that NCDOT would be doing door-to-door outreach and also offer an open house for residents to learn more about the project, ask questions, and provide comments. The handout also provided a link to a PublicInput.com site for the project where a comment form could be completed electronically. Door-to-door outreach was conducted February 22nd through 25th, 2022 and the open house was held February 26th, 2022 at the Davis Center in Maides Park.

Outreach Execution

Door-to-Door

The door-to-door outreach team included Ashley Bush Ervin and Christian Lanier from AECOM and D'André Corniffe, a member of the community. Each outreach team member had a safety vest, clip board, a copy of the mailed handout, and a map of the outreach area.

The outreach team would walk a street and within line of sight of the outreach team members, knock on the door of each home. With permission of the occupant, the outreach team would ask the ten questions on the comment form (included in the mailed handout on Attachment 2) and fill in the answers. The outreach team also reminded occupants, especially those who did not want to speak, there would be an open house Saturday, February 26th at Maides Park.

The door-to-door outreach schedule was as follows:

Date Time Period	Locations Completed
Tuesday, February 22nd **4PM – 7PM**	- Montgomery Ave - ¼ 31st St
Wednesday, February 23rd **9AM – 12PM**	- 31st St - Evans St and businesses along Market St
Wednesday, February 23rd **4PM – 7PM**	- ½ Mercer Ave
Thursday, February 24th **9AM – 12PM**	- ½ Mercer St - Independence Blvd - Covil Ave
Thursday, February 24th **4PM – 7PM**	- Evans St

Open House at the Davis Center in Maides Park

The open house schedule and location were as follows:

Date Time Period	Location
Saturday, February 26th **12PM – 3PM**	Davis Center at Maides Park 1101 Manly Ave Wilmington, NC 28405

The open house took place in one of the meeting rooms of the Davis Center in Maides Park which is just north of the project area. In the room there were full-sized maps of each alternative, project visualizations on foam boards, and the project KMZ files uploaded on a laptop in case participants wanted to zoom into their property to better see how they could be affected by each alternative. The outreach team provided right of way process brochures, relocation assistance brochures, extra copies of the mailed handout, extra comment forms, and extra Title VI forms. Thirty-four individuals signed into the open house.

Comments Received

Number of Comments Received by Outreach Type	
Door-to-Door	31
PublicInput.com	9
Open House	6
Mailed	7
Total number of Comments	**53**

A total of 53 comments were received as a result of this outreach effort. When asked which alternative is preferred, many of the commenters said they preferred neither or were affected by both. For those who did chose one over the other, the tight urban diamond interchange (TUDI) was their preferred alternative. When asked about their primary concern in regard to the project, the most popular topics were relocation, noise/raised highway, safety, and property value impacts. All comments are attached to this memo (Attachment 3), but a few notable comments from each category are outlined below:

Notable Relocation Comments

- Upset about the loss of family history and concern about not being able to find replacement housing/affordable housing options in Wilmington. Would've appreciated a heads up of exactly when we were coming.
- Prefer neither one, but it seems logical that the less homes and businesses destroyed would be the way to go.
- Way too big to affect the desired purpose which supposedly "traffic flow" north and south. Appears that "land acquisition" is the over-riding the desired outcome.
- Drainage concerns. Worried about stormwater runoff increasing and affecting property.
- When talking about pricing what would those prices be and will they be fair. Uprooting people on fixed incomes with no other affordable options.

Notable Noise-Raised Highway Comments

- Preference for the project be kept at ground level to prevent potential homeless from gathering underneath it. We just got rid of some homeless who were breaking into homes.
- Preference for a 3rd option, at grade, potential homeless problem concerns me, and a sound barrier.

Notable Safety Comments

- What manner of lighting will this project provide? With the increased amount of traffic that will be in our area, we would like to have a huge amount of lighting; few shrubs; and some sort of partition/barrier/wall to keep folks (homeless individuals who may camp out under the ramp/bridge) on the ground and under the ramp away from our homes.
- Preference for a third alternative, that has less openings left under the overpasses. We have concerns about crime increasing in our neighborhood with the growth of overpasses so close to our homes.
- Preference for the pedestrian safety measures that are predominantly included in the TUDI alternative. I also can see a better flow of traffic in the TUDI for the inevitable vehicle collisions and delays.
- Safety concerns about the cul-de-sac and the bridge and the kind of folks that will bring.

Notable Property Values Comments

- Requests for NCDOT to provide financial compensation to those who will be affected by home and property values decreasing.
- Losing access at the rear of my home. Noise making my property less valuable. Losing existing street plantings that help shield view of stop light and noise, etc.

Notable observations and comments heard by the Outreach Team:

Observations

- There was much frustration around the length of time the project has been going. Residents just want to know when it will happen and want the project to start moving. They feel as if they are in limbo.
- Approximately 50% of the individuals the outreach team spoke with were renters and of those, few knew about the project at all.
- There may be a larger Spanish speaking population than indicated by the census data and items should be translated.
- Business owners should be reached out to separately.

Notable Comments

- Homeowners concerned about not being able to stay in the city due to rising home prices, lack of space, and no other affordable housing available. Worried market value won't be enough to keep them in Wilmington.
- Concerns for property values being decreased due to the proximity to the highway.
- Major concern for neighborhood continuity/community cohesion because this neighborhood is well established and many folks that live there grew up there. If the neighborhood will no longer exist, their history will be lost.
- One of the homeowners suggested the project go down Randall because it is mostly industrial and would disturb less people.
- Worried about the road being above grade and increasing traffic noise.
- Residents south of Market Street and Mercer Avenue were concerned about how much of their backyards would be taken.
- Fear of cul-de-sacs and overpasses increasing criminal activity and homeless populations.
- Accessibility concerns for school busses and emergency service vehicles due to reduced connectivity and ease of access.
- Several community members felt disenfranchised about the whole ordeal, stating they have no power to change the course of the project - "DOT is going to do this anyway".
- Concerns for the elderly population having to move and who would assist them.

Follow-up

This information will be added to the DEIS and the project’s Public Involvement Plan. Additional coordination with the community will continue throughout the project planning phase and through design. EJ concerns identified during outreach efforts and potential mitigation strategies are located in Attachment 4.

Attachment 1: EJ Outreach Map

Population: 80.1%

Low Income
Population: 55.0%

Minority
Population: 39.7%

Low Income
Population: 44.9%

Legend

- Survey Parcels
- Survey Area
- Atlernative 01-SPUI ROW
- Alternative 02-TUDI ROW
- Block Groups above the minority and low-income thresholds *

Based on 2015-2019 ACS data.

New Hanover EJ Thresholds:

Minority Population: 32.9%

0 500 1,000 2,000 Fe

Attachment 2: Handout

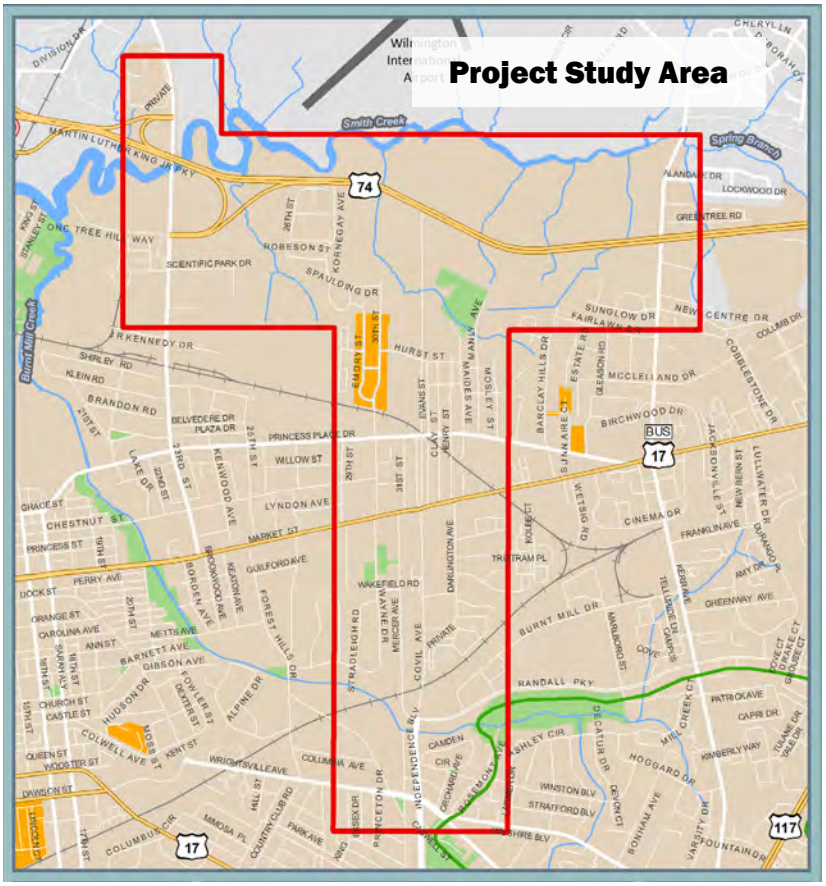
Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue to
Martin Luther King Jr. Parkway (U.S. 74)
NCDOT State Transportation Improvement Program (STIP) Project No: U-4434

February 2022

Door-to-Door Surveys: February 22 - 25
Open House: February 26th at Maides Park Davis Center from 12pm - 3pm

Representatives from the N.C. Department of Transportation will be coming door-to-door during the week of February 21, 2022. In case you miss the representatives, there will be an open house at the Maides Park Davis Center on Saturday, February 26th from 12pm - 3pm. NCDOT would like to hear your answers to the questions included at the end of this mailing and will also be able to answer questions you may have about the project.



Project Overview

The N.C. Department of Transportation is proposing to build a new road in Wilmington. The proposed 1.7-mile long Independence Boulevard Extension would be an extension of the existing Independence Boulevard (S.R. 1209) on new location from the intersection with Randall Parkway and Mercer Avenue to Martin Luther King Jr. Parkway (U.S. 74).

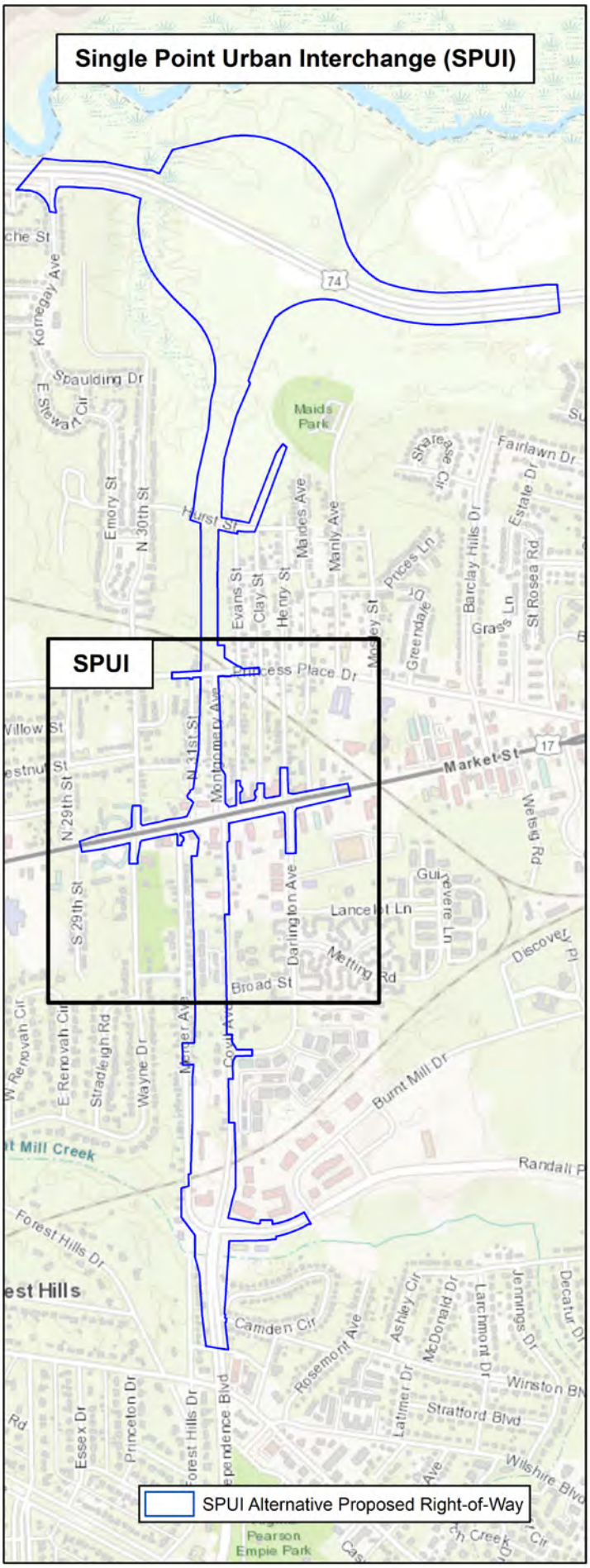
The purpose of the project is to improve traffic movement in the City by creating a new north-south roadway. The proposed project is listed in the 2020-2029 NCDOT State Transportation Improvement Program (STIP) as Project Number U-4434.

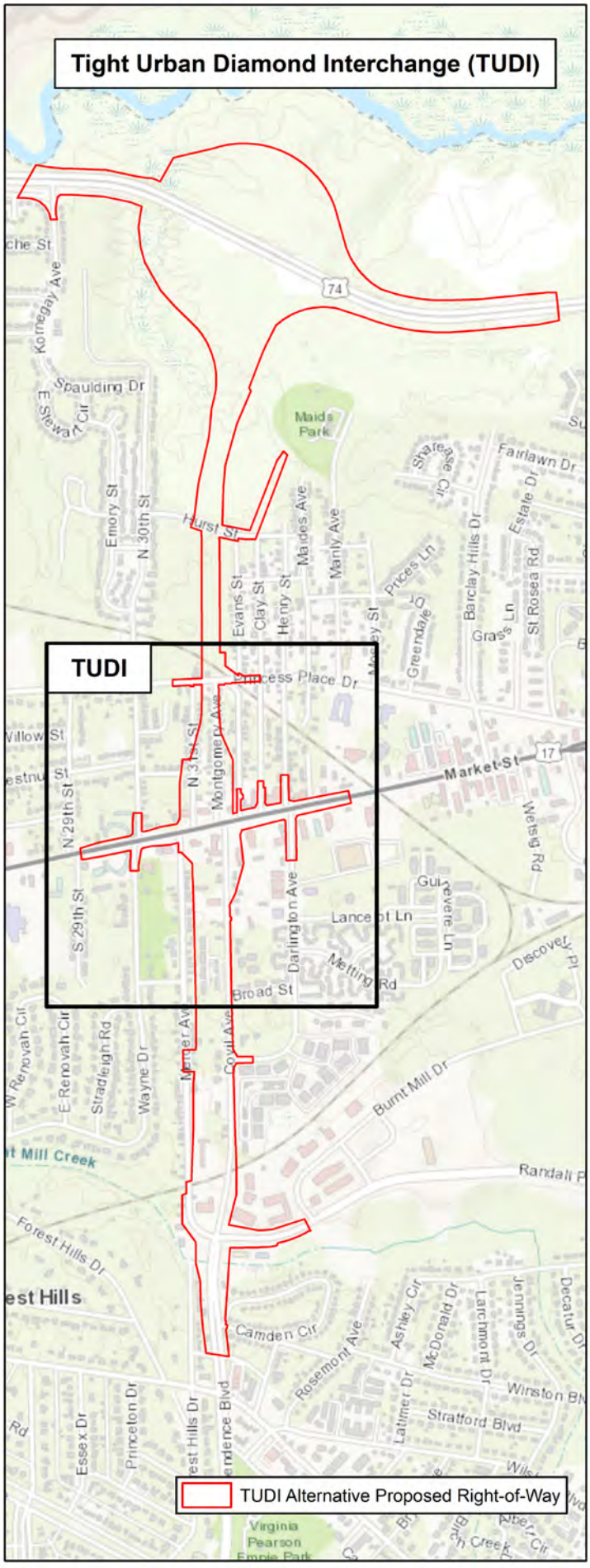
Project Alternatives

The two alternatives being considered share the same alignment but have a different interchange option at Market Street. The two interchange options are a single point urban interchange (SPUI) and a tight urban diamond interchange (TUDI). Both interchange options would require less land area than a traditional interchange.

The roadway is proposed as an elevated, four-lane roadway. The roadway would begin just south of the intersection with Randall Parkway and Mercer Avenue and travel north, between Covil Avenue and Mercer Avenue to Market Street. It would then continue north, just west of Evans Street on new location and end at Martin Luther King Jr. Parkway. South of Market Street, the roadway would be elevated crossing over the CSX Railroad and Darlington Avenue. Darlington Avenue would be extended from Covil Avenue to Mercer Avenue to allow for cars and pedestrians to cross under the new roadway. North of Market Street, the roadway would be an elevated structure from Market Street to Hurst Street.

A greenway is proposed along the east side of the roadway from Randall Parkway to Maides Park. The greenway would not be elevated.


Single Point Urban Interchange (SPUI)
SPUI
SPUI Alternative Proposed Right-of-Way
74
Market St
17
Maids Park
Hurst St
Fairlawn Dr
Spaulding Dr
Emory St
N 30th St
Evans St
Clay St
Henry St
Maides Ave
Manly Ave
Prices Ln
Barclay Hills Dr
Estate Dr
St Rosea Rd
Grass Ln
Princess Place Dr
N 31st St
Montgomery Ave
N 29th St
S 29th St
Darlington Ave
Lancelot Ln
Melting Rd
Broad St
Burnt Mill Dr
Forest Hills Dr
Camden Cir
Rosemont Ave
Ashley Cir
McDonald Dr
Latimer Dr
Stratford Blvd
Wilshire Blvd
Winston Blvd
Princeton Dr
Essex Dr
Wayne Dr
Stradleigh Rd
Pearson Empie Park


Tight Urban Diamond Interchange (TUDI)
TUDI
TUDI Alternative Proposed Right-of-Way
74
Market St
17
Maids Park
Hurst St
Fairlawn Dr
Spaulding Dr
Emory St
N 30th St
Evans St
Clay St
Henry St
Maides Ave
Manly Ave
Prices Ln
Barclay Hills Dr
Estate Dr
St Rosea Rd
Grass Ln
Princess Place Dr
N 31st St
Montgomery Ave
N 29th St
S 29th St
Darlington Ave
Melting Rd
Broad St
Burnt Mill Dr
Forest Hills Dr
Camden Cir
Rosemont Ave
Ashley Cir
McDonald Dr
Latimer Dr
Stratford Blvd
Wilshire Blvd
Winston Blvd
Princeton Dr
Essex Dr
Wayne Dr
Stradleigh Rd
Virginia Pearson Empie Park

What is a SPUI?

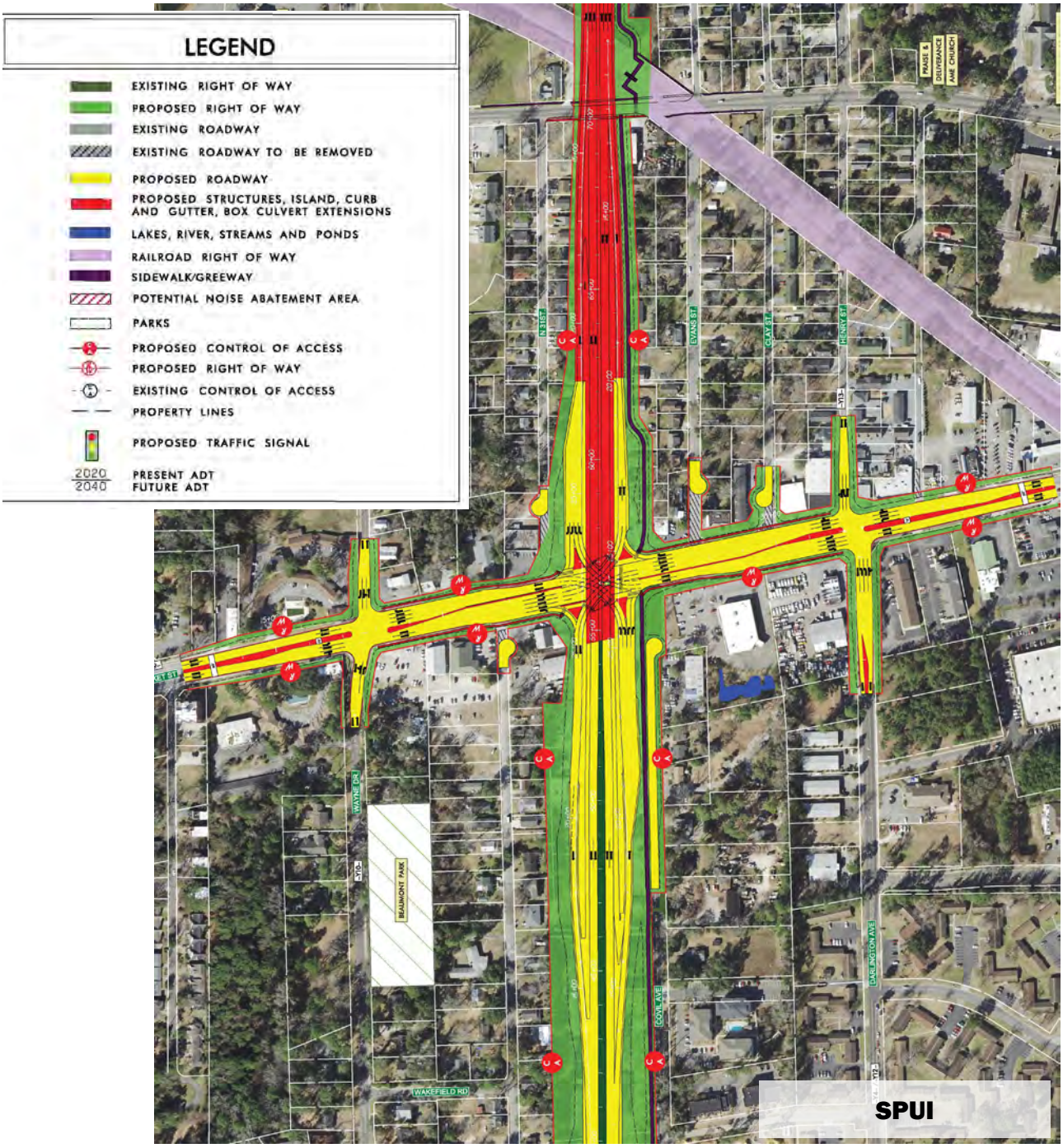
A single point urban interchange (SPUI) is a type of highway interchange designed to help move large volumes of traffic through limited amounts of space (urban areas) safely.



What is a TUDI?

A tight urban diamond interchange (TUDI) is a smaller version of a standard interchange used in areas where there is a limited amount of space (urban areas).



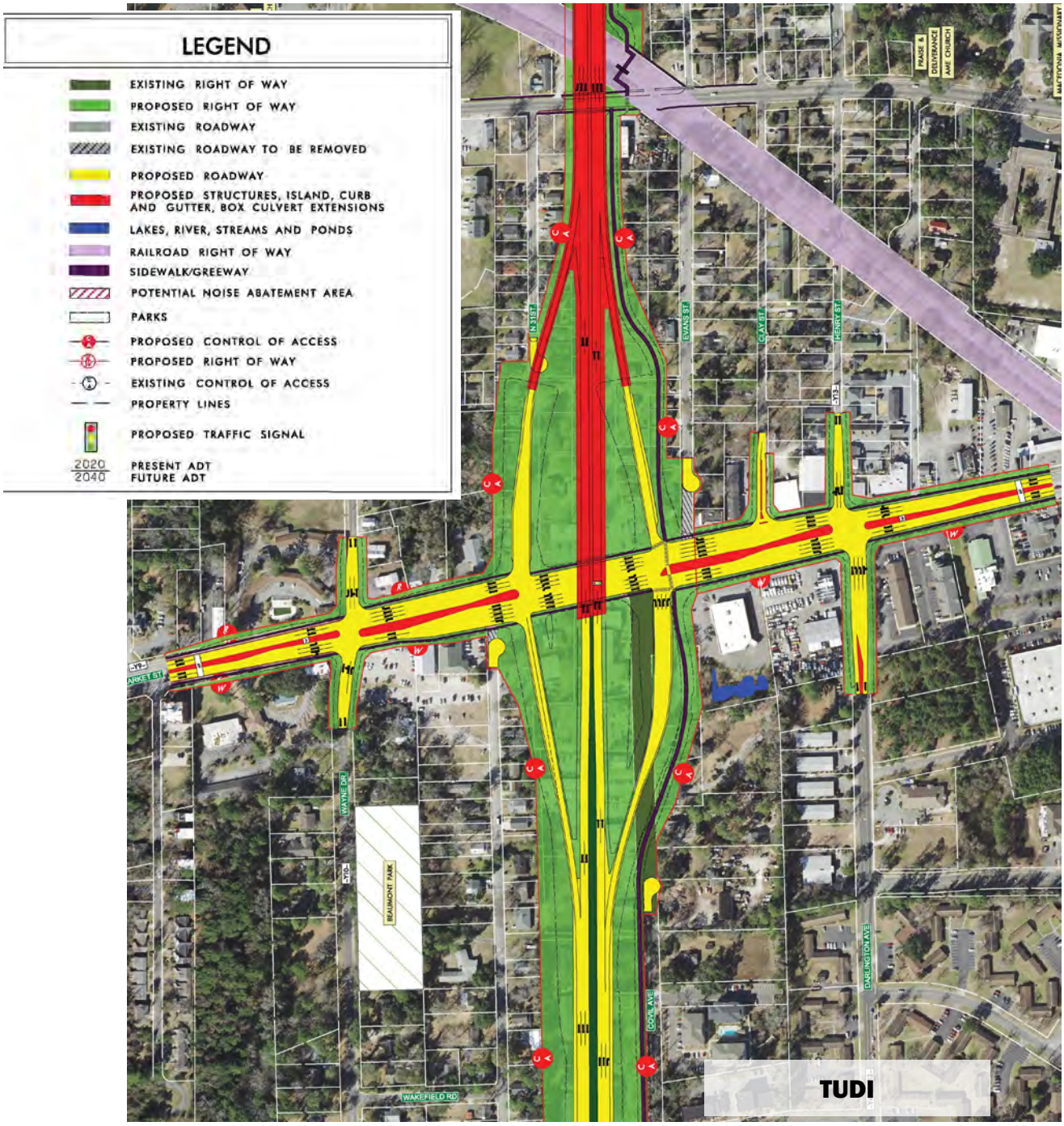


SPUI PROS

- Provides better traffic operation. Both left turn lanes at the Market Street intersection can move at the same time.
- Requires less residential and business relocations than the TUDI alternative.

SPUI CONS

- Pedestrian crossings at Market Street provided by the SPUI alternative require pedestrians to cross the right turns to and from the ramps without a separate pedestrian signal.
- Pedestrian crossings are located under a bridge and may require the addition of lighting for safety.
- Requires 58 homes and 29 businesses to relocate.



TUDI PROS	TUDI CONS
• Provides pedestrians a crosswalk that is timed with traffic signals. • Pedestrian crossings would occur away from the bridge structure and would not require extra lighting.	• Requires more residential and business relocations than the SPUI alternative (69 residential and 37 business).

More Project Information

Overall Project Benefits

- Additional bicycle and pedestrian connections in the area through the addition of sidewalks.
- A greenway path will be located along the east side of the project from Randall Parkway to Maides Park.
- The project will provide a greenway connection from McCrary Park to Maides Park.

Overall Project Cons

- The new roadway is elevated on a raised bank from Randall Parkway to Market Street.
- The project would cut through existing residential neighborhoods both north and south of Market Street.
- The project would introduce additional traffic noise in residential areas.



What's Next?

The next step in the planning process will be to publish the Draft Environmental Impact Statement for public review. Following the publication of the document, a public hearing will be held to receive feedback on the project designs and select a preferred alternative.

Once a preferred alternative has been selected, the designs will be refined and additional technical studies will be evaluated.

Project Schedule

Project Planning Studies	Underway
Draft Environmental Impact Statement	2022
Public Hearing	2022
Final Environmental Impact Statement	2023
Record of Decision	2023
Right-of-Way Acquisition	2024
Construction	2028

Latest Verified Cost Estimate:
Right of Way: $67,093,000.00
Utilities: $3,632,000.00
Construction: $122,350,000.00

YOUR COMMENTS ARE IMPORTANT TO US! PLEASE RETURN BY MARCH 12, 2022.

If you are unavailable for an in-person survey, you are welcome to fill out the survey online at:
https://publicinput.com/U4434
or scan the following QR code with your smart phone camera:

☐ **PLEASE CHECK HERE IF YOU WISH TO BE ADDED TO THE PROJECT MAILING LIST**

PLEASE PRINT:

NAME: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

1. Have you had the opportunity to review the project materials?
☐ Yes ☐ No

2. What aspects of this project and/or the proposed alternatives do you like?

_____

_____

_____

3. Do you prefer one of the proposed alternatives over the other? If so, why?

_____

_____

_____

4. Does the project directly affect you? If so, how? _____

_____

_____

_____

5. What concerns do you have about the project? _____

_____

_____

_____

6. Based on the community changes that may occur, what improvements or benefits would you like to see included with this project? (e.g. for you or your family, your neighborhood, or community)

_____

_____

_____

_____

7. Additional comments? _____

_____

_____

_____

_____

Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue
to Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program Project No: U-4434

Susan Westberry, AICP
AECOM North Carolina
201 N. Front Street, Suite 509
Wilmington, NC 28401

Please
Place
Stamp
Here

TITLE VI PUBLIC INVOLVEMENT FORM

*Completing this form is **completely** voluntary. You are not required to provide the information requested in order to participate in this meeting.*

Meeting Type: Door-to-Door Surveys **Location:**	**Date:**
STIP No.: U-4434 **Project Description:** Independence Boulevard Extension	

In accordance with Title VI of the Civil Rights Act of 1964 and related authorities, the North Carolina Department of Transportation (NCDOT) assures that no person(s) shall be excluded from participation in, denied the benefits of, or subjected to discrimination under any of the Department's programs, policies, or activities, based on their race, color, national origin, disability, age, income, or gender.

Completing this form helps meet our data collection and public involvement obligations under Title VI and NEPA, and will improve how we serve the public. Please place the completed form in the designated box on the sign-in table, hand it to an NCDOT official or mail it to the PDEA-Human Environment Section, 1598 Mail Service Center, Raleigh, NC 27699-1598.

All forms will remain on file at the NCDOT as part of the public record.

Zip Code: _____

Street Name:
(i.e. Main Street) _____

Total Household Income:

- ☐ Less than $12,000
- ☐ $12,000 – $19,999
- ☐ $20,000 – $30,999
- ☐ $31,000 – $46,999
- ☐ $47,000 – $69,999
- ☐ $70,000 – $93,999
- ☐ $94,000 – $117,999
- ☐ $118,000 or greater

Gender: ☐ Male ☐ Female

Age:

- ☐ Less than 18
- ☐ 18-29
- ☐ 30-44
- ☐ 45-64
- ☐ 65 and older

Have a Disability: ☐ **Yes** ☐ **No**

Race/Ethnicity:

- ☐ White
- ☐ Black/African American
- ☐ Asian
- ☐ American Indian/Alaskan Native
- ☐ Native Hawaiian/Pacific Islander
- ☐ Hispanic/Latino
- ☐ Other (please specify): _____

National Origin: (if born outside the U.S.)

- ☐ Mexican
- ☐ Central American: _____
- ☐ South American: _____
- ☐ Puerto Rican
- ☐ Chinese
- ☐ Vietnamese
- ☐ Korean
- ☐ Other (please specify): _____

How did you hear about this meeting? (newspaper advertisement, flyer, and/or mailing) _____

_____

For more information regarding Title VI or this request, please contact the NCDOT Title VI Section at (919) 508-1808 or toll free at 1-800-522-0453, or by email at slipscomb@ncdot.gov.

Thank you for your participation!

Independence Boulevard Extension

From the intersection with Randall Parkway and Mercer Avenue
to Martin Luther King Jr. Parkway (U.S. 74)
State Transportation Improvement Program Project No: U-4434

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Your Input is Important

The N.C. Department of Transportation is seeking comments and ideas from the residents neighboring the Independence Boulevard Extension Project about the types of improvements or benefits that could be included with the project. Since the project would cause changes to your community, your input is very important to shaping the project moving forward.

Need Language Assistance?

Persons who do not speak English, or have a limited ability to speak or understand English, may receive interpretive services upon request. NCDOT will provide auxillary aids and services under the Americans with Disabilities Act for disabled persons who wish to participate and require special services. Call 1-800-481-6494 to request interpretive or other special services.

Aquellas personas que no hablan inglés, o tienen limitaciones para leer, hablar o entender inglés, podrían recibir servicios de interpretación si los solicitan antes de la reunión llamando al 1-800-481-6494.

Questions? Comments? Please Contact Us!

Please visit our website for the latest project information:

www.ncdot.gov/projects/independence-boulevard

Krista Kimmel, P.E. - NCDOT
5501 Barbados Boulevard
Castle Hayne, N.C. 28429
khkimmel@ncdot.gov

Susan Westberry, AICP
AECOM North Carolina
201 N. Front Street, Suite 509
Wilmington, N.C. 28401

Project Hotline
1-800-233-6315

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Attachment 3: EJ Outreach Comments

Name	Survey Question: What aspects of this project and/or the proposed alternatives do you like?
Jim Ratcliff	I am concerned about my business at 3501 & 3601 Market Street; North State Acceptance being affected negatively. We have been in that location since 1999.
Willidean Wilkerson	Need additional information to decide.
	We would like to see a third alternative, that has less openings left under the overpasses. We have concerns about crime increasing in our neighborhood with the growth of overpasses so close to our homes.
Bertha Boykin Todd	I prefer the SPUI Alternative. It seems to be designed to move larger volumes of traffic than the TUDI Alternative.
Michael Bochey	Prefer TUD1; Prefer TUDI
Michael Bochey	Prefer TUDI
Linda Goodman	No opinion
Adam Spartes	
Rhonda Bentley LaMarsh	I enter my property from the back only. I want NO CA on the back of my property.
Thomas Bazemore	Dislike. Just way too big, costly, with many options not needed. If the DOT/Wilmington City is going to do this, which I know they are, then do it purposely, effectively without so much glitter and waste.
Rosalie Williams Eldridge	N/A
Charles Ogiba	Don't like house getting torn down.
Deborah Davis	Nothing
Ashija Jones	N/A
Valeria Hale	Nothing
Adam Sparks	I would like a 3rd option, at grade, potential homeless problem concerns me, and a sound barrier.
Ryan Bartsch	Non-elevated
Gerardo Feregrino	@ Grade
Raymond Fowler	Prefer at grade
Lola Fleming	Want project to be at grade
Daryl Drayton	Want 3rd option. Would like project to be at ground level.
Lesley Rosdez	N/A
Chester and Anita	
Albert Gaines	None
Virginia Sneed	N/A
Larry Milles	N/A
Robert Kearns	N/A
Adriana Shannon	N/A
Alfreda Grady	None
Otha Swepson	None
Danita Gaines	None. I would like for the project to be at grade level.
Nikki Toney	Want project at grade level
Carlos Mack	N/A
Tom Donaldson	Don't like any
Frank Hendrickson	N/A
Barbara Simmons	In favor as long as home is not impacted and land is not taken
Alkira Graham	All options seem good
Pauline Miller	The alternative that takes less of the yard (SPUI)
N. Toodle	Dislikes mostly

Name	Survey Question: Do you prefer one of the proposed alternatives over the other? If so, why?
Jim Ratcliff	No
Willidean Wilkerson	No
	I prefer the pedestrians safety measures that are predominantly included in the TUDI alternative. I also can see a better flow of traffic in the TUDI for the inevitable vehicle collisions and delays,
Bertha Boykin Todd	See above.
Michael Bochey	Prefer TUD1
Michael Bochey	Prefer TUDI
Linda Goodman	TUDI - pedestrian safety
Adam Spartes	Both affect me the same
Rhonda Bentley LaMarsh	The first because of less impact than the second.
Thomas Bazemore	Prefer neither one, but it seems logical that the less homes and businesses destroyed would be the way to go.
Rosalie Williams Eldridge	No
Charles Ogiba	No
Deborah Davis	None
Ashija Jones	N/A
Valeria Hale	N/A
Adam Sparks	
Ryan Bartsch	Non-elevated
Gerardo Feregrino	No
Raymond Fowler	
Lola Fleming	Don't like either
Daryl Drayton	No
Lesley Rosdez	N/A
Chester and Anita	
Albert Gaines	None - prefer at grade
Virginia Sneed	
Larry Milles	N/A
Robert Kearns	N/A
Adriana Shannon	N/A
Alfreda Grady	None
Otha Swepson	No
Danita Gaines	None
Nikki Toney	None
Carlos Mack	None
Tom Donaldson	No
Frank Hendrickson	N/A
Barbara Simmons	
Alkira Graham	N/A
Pauline Miller	Smaller
N. Toodle	N/A

Name	Survey Question: Does the project directly affect you? If so, how?
Jim Ratcliff	Yes, I have a business at 3501 and 3601 market Street; North State Acceptance and have conducted business there since 1999. I am greatly concerned it will affect my business or I may even have to move it.
Willidean Wilkerson	Yes, home ownership on Evans Street.
	With plans of an elevated roadway, we will have increased noise pollution, storm water runoff pollution and flooding if the drainage is not planned well enough for the neighborhoods at the lower land. The proposed control of access empty out near our home, so the increased traffic along our street concerns us as our house sits very close to Mercer Ave.
Bertha Boykin Todd	Yes. Both options will effect the value of our home. Our property's value will greatly decrease.
Michael Bochey	TUDI - My property need to be purchased SPUI - My property may not be purchased
Michael Bochey	TUDI - My property need to be purchased SPUI - My property may not be purchased
Linda Goodman	Yes, property impacted totally on both
Adam Spartes	Yes, I will potentially be losing some of my backyard.
Rhonda Bentley LaMarsh	Yes, My property is at the beginning of the project from the Wrightsville Ave. end. As it stands now my driveway entry is on right of way property.
Thomas Bazemore	Yes, it takes part of my back yard, storage unit, trees and shrubs.
Rosalie Williams Eldridge	
Charles Ogiba	Yes, in the middle of project
Deborah Davis	Yes, own home. Concern about price of home.
Ashija Jones	Yes, concern about moving, how renters will be helped
Valeria Hale	Yes, renter. Will renter be provided for moving
Adam Sparks	
Ryan Bartsch	Yes, we own the home
Gerardo Feregrino	Yes
Raymond Fowler	
Lola Fleming	Yes, renter
Daryl Drayton	Yes, rent
Lesley Rosdez	Rent effects
Chester and Anita	
Albert Gaines	Raised highway right behind house
Virginia Sneed	
Larry Milles	Yes, renter
Robert Kearns	Yes, rent. Rent Subsidies, moving expenses.
Adriana Shannon	Yes, rent
Alfreda Grady	Yes
Otha Swepson	Yes, own home
Danita Gaines	Yes
Nikki Toney	Yes, moving expense. Rent subsidy, will Sec 8 be available
Carlos Mack	Project will ____ home, noise and trash
Tom Donaldson	Property value
Frank Hendrickson	Will run behind home
Barbara Simmons	N/A
Alkira Graham	Doesn't directly affect her
Pauline Miller	Possibly takes some of _____
N. Toodle	Will have to move far

Name	Survey Question: What concerns do you have about the project?
Jim Ratcliff	I am concerned that the project will negatively affect my business at 3501 and 3601 Market St.: North State Acceptance. Or I may even have to move it and I have been there since 1999.
Willidean Wilkerson	Relocation of residence.
	The overpasses being left open underneath can and will bring crime to the neighborhood. The empty dark spaces under the overpass could greatly decrease our safety near our homes.
Bertha Boykin Todd	What manner of lighting will this project provide? With the increased amount of traffic that will be in our area, we would like to have an huge amount of lighting; few shrubs; and some sort of partition/barrier/wall to keep folks (homeless individuals who may camp out under the ramp/bridge) on the ground and under the ramp away from our homes.
Michael Bochey	
Michael Bochey	SPUI has C/A on my property. Needs to be changed to R/W. Need drive way for 29 Covil and 33
Linda Goodman	None
Adam Spartes	I am not fond of the idea of making my street a cul de sac. I really think there should be some sort of sound wall.
Rhonda Bentley LaMarsh	Losing access at the rear of my home. Noise making my property less valuable. Losing existing street plantings that help shield view of stop light and noise, etc.
Thomas Bazemore	Way too big to effect the desired purpose which supposedly "traffic flow" north and south. Appears that "land acquistion" is the over-riding the desired outcome.
Rosalie Williams Eldridge	None
Charles Ogiba	Have to move. Price for move and home.
Deborah Davis	Time frame, pedestrian traffic.
Ashija Jones	Moving expenses, pedestrian traffic
Valeria Hale	Destroying neighborhood
Adam Sparks	
Ryan Bartsch	None
Gerardo Feregrino	Lack of information, timing
Raymond Fowler	
Lola Fleming	Get tossed out, need moving expenses, rent subsidy or Sec 8
Daryl Drayton	Homeless under overpass, trash thrown over side
Lesley Rosdez	Concerns about housing
Chester and Anita	Interested in them buying the property - don't want the noise
Albert Gaines	
Virginia Sneed	Concerned about how access for transportation will be - how to get in and out. She would need transportation at 93.
Larry Milles	Moving expenses, rent subsidy
Robert Kearns	Construction zones
Adriana Shannon	Provision for moving, rental assistance
Alfreda Grady	
Otha Swepson	Noise, property value
Danita Gaines	Homeless living underneath the over pass
Nikki Toney	
Carlos Mack	Noise, trash, homeless people, ____ close
Tom Donaldson	Noise and light problem, vehicle exhaust. Construction and diverted traffic
Frank Hendrickson	Closing Mercer and Market as construction happens
Barbara Simmons	
Alkira Graham	No concerns
Pauline Miller	Sound wall being built
N. Toodle	None

Name	Survey Question: Based on the community changes that may occur, what improvements or benefits would you like to see included with this project? (e.g. for you or your family, your neighborhood, or community)
Jim Ratcliff	
Willidean Wilkerson	Additional walk trails and beautification of existing neighborhoods.
	I would like to see the pollution (noise, water runoff and road debris) addressed in the planning. Also the safety of our neighborhood with the addition of many overpasses so close to our home.
Bertha Boykin Todd	If the proposed plan is to make the intersection at Mercer and Market a cul de sac, that SHOULD eliminate traffic on Mercer. It would helpful if a traffic light be placed at the intersection of Wayne and Market to allow for an exit from Mercer (down Wakefield to Wayne). OR Place a traffic light at the intersection of Darlington and Market to provide an exit from Mercer since Darlington Avenue will be used as a way to get to Market.
Michael Bochey	
Michael Bochey	
Linda Goodman	Be sure safety of people is maintained
Adam Spartes	
Rhonda Bentley LaMarsh	Can only think of how this will impact me right now.
Thomas Bazemore	No overpass on either market or over CSX railroad. I've been coming/visiting/living at 702 Mercer Ave for over 12 years and neither my wife or I have ever seen a train crossing Covil Ave. I've heard the train at night but never seen one during the day. Why in the world would one put an overpass that is certainly not needed?
Rosalie Williams Eldridge	N/A
Charles Ogiba	The greenway idea.
Deborah Davis	
Ashija Jones	
Valeria Hale	
Adam Sparks	
Ryan Bartsch	Landscaping
Gerardo Feregrino	Don't know at this time
Raymond Fowler	
Lola Fleming	
Daryl Drayton	
Lesley Rosdez	
Chester and Anita	Safety concerns about the cul de sac and the bridge and the kind of folks that will bring
Albert Gaines	If you can provide bike trails. Please provide speed bumps along
Virginia Sneed	
Larry Milles	pedestrian traffic

Robert Kearns	Sad that this would not be residential upgrade to homes
Adriana Shannon	
Alfreda Grady	
Otha Swepson	Noise from over pass, property value
Danita Gaines	
Nikki Toney	
Carlos Mack	Pedestrian pathway sounds good
Tom Donaldson	Planting trees to replace ones lost in development
Frank Hendrickson	Greenway looks cool
Barbara Simmons	Pedestrian walkway should be good
Alkira Graham	Seems to be a benefit. May increase property value. No personal _____
Pauline Miller	Nothing if it takes more land
N. Toodle	None

Name	Survey Question: Additional comments?
Jim Ratcliff	
Willidean Wilkerson	What are the plans for relocating businesses and residences?
	Additionally we would be interested in knowing about the future detours once construction will begin, knowing what will be done to safely manage the pollution and contaminates of a large roadway as we will be faced with all of it coming down the hill to our front door due to the elevation. The safety of pedestrians so we can walk around our city with ease.
Bertha Boykin Todd	Since our home and property values will decrease, will you provide financial compensation to those of us who will be affected?
Michael Bochey	
Michael Bochey	Need to changed controlled access on SPUI to right of way so 29 and 33 Covil houses can have driveways
Linda Goodman	
Adam Spartes	I would prefer the project be kept at ground level to prevent potential homeless from gathering underneath it. We just got rid of some homeless who were breaking into homes.
Rhonda Bentley LaMarsh	None
Thomas Bazemore	
Rosalie Williams Eldridge	N/A
Charles Ogiba	
Deborah Davis	None
Ashija Jones	
Valeria Hale	
Adam Sparks	
Ryan Bartsch	
Gerardo Feregrino	
Raymond Fowler	
Lola Fleming	
Daryl Drayton	
Lesley Rosdez	
	Does not think project is a bad idea - hopes to not be in the neighborhood much longer
Chester and Anita	Upset about the loss of family history and concern about not being able to find affordable housing option. Would've appreciated a heads up of exactly when we were coming.
Albert Gaines	Drainage concerns. Worried about any water. When talking about pricing what would those prices be and will they be fair. Uprooting people on fixed incomes with no other affordable options.
Virginia Sneed	
Larry Milles	
Robert Kearns	
Adriana Shannon	
Alfreda Grady	

Otha Swepson	Alternative timings/ option needs to be set up for families and individuals who work during Saturdays. Right of way concerns and noise and safety
Danita Gaines	Concern about noise level
Nikki Toney	
Carlos Mack	
Tom Donaldson	Thinks Kendall and Carr would be better alternative. No issues, just industrial area and a 4 lane road.
Frank Hendrickson	
Barbara Simmons	Would like freeway at ground level
Alkira Graham	
Pauline Miller	
N. Toodle	

Attachment 4: Identified EJ Concerns and Potential Mitigation Strategies

U-4434 INDEPENDENCE BOULEVARD

IDENTIFIED EJ CONCERNS AND POTENTIAL MITIGATION STRATEGIES

Identified Concern

Safety – citizens fear cul-de-sacs and overpasses will increase criminal activity and homeless populations. There was concern that the cul-de-sacs would result in increased crime since there would be no through traffic and law enforcement do not typically patrol dead end streets. There were requests for lighting and fencing to deter homeless from camping out beneath the bridges and accessing private property adjacent to the bridges. There was a preference noted for an alternative that had less openings beneath the bridge (bridge from Market to Hurst); citizens fear that crime would increase with the overpasses being so close to homes. Also are concerns from property owners adjacent to the multi-use path. Would like to see some fencing or other amenity to keep people away from their property.

Potential Mitigation Strategies

- Connect cul-de-sac streets
- Incorporation of lighting
- Addition of emergency phones
- Tall, controlled access (CA) measures along end bents of bridges

Identified Concern

Connectivity – citizens are concerned that accessibility will be an issue for school buses and emergency service vehicles due to reduced connectivity and ease of access. Citizens feel the road bisects the community and want to ensure that it will remain walkable. Prefer the TUDI option due to pedestrian accommodations at the intersection with Market Street.

Potential Mitigation Strategies

- Connect cul-de-sac streets
- Add extra sidewalk connections

Identified Concern

Bridging from Market to Hurst – citizens are opposed to the long bridge from Market to Hurst. Are concerned that the large overpass area will be a safety issue and also will be visually unappealing. Concerns were also raised about the noise of vehicles on the bridge. If the road were at-grade, noise walls could be used to block some of the roadway noise.

Potential Mitigation Strategies

- Tall, controlled access (CA) measures along end bents
- Use of Mechanically Stabilized Earth (MSE) retaining wall
- Addition of a park area or other amenities

Identified Concern

Relocation and Property Values – citizens are very concerned with finding comparable housing in Wilmington. The neighborhood is one of the only affordable areas remaining in the city. Moving out of the city to find affordable housing would be an undue burden and decrease their quality of life. Those not being displaced are concerned their property values will drop significantly.

Potential Mitigation Strategies

North Carolina has a ROW process in place that follows Federal Code. The state understands that this project presents a unique circumstance with the cost and availability of housing in the Wilmington market and will work with FHWA, the City of Wilmington, and the community to identify adequate compensation. This may include opportunities for advanced ROW acquisition.

Identified Concern

Community Cohesion – citizens are concerned about neighborhood continuity/community cohesion because the neighborhood is well established and many that live there grew up there. If the neighborhood is destroyed, their history is lost.

Potential Mitigation Strategies

- Development of working groups
- Development of a neighborhood plan

MSE Wall Visualizations

Overview



Princess Place Drive



Hurst Street

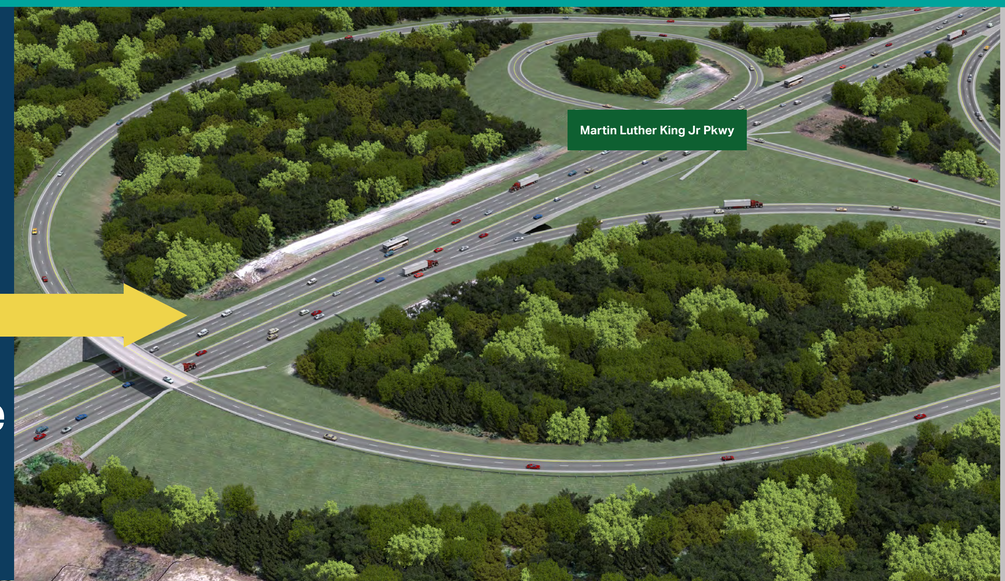


Visualizations

Independence Boulevard Extension south of Market Street



Martin Luther King Jr. Parkway interchange





Independence Boulevard Extension north of Market Street

Visualizations

Darlington Avenue Existing



Hurst Street Existing



Darlington Avenue Proposed



Hurst Street Proposed



Interchange Alternatives

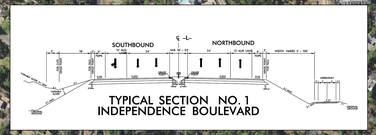
Tight Urban Diamond Interchange



Single Point Urban Interchange



CORRIDOR PUBLIC HEARING MAP
STIP PROJECT U-4434
F.A. PROJECT NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
SIGNAL POINT URBAN INTERCHANGE



TYPICAL SECTION NO. 1
INDEPENDENCE BOULEVARD

BUSINESS 17
74
MERCER AVE
WAYNE DR
N 30TH ST
N 31ST ST
INDEPENDENCE BLVD
COVIL AVE
EVANS ST
CLAY ST
HENRY ST
DARLINGTON AVE
MARKET ST
HURST ST
PRINCESS PL DR
MARKFIELD RD
CAMDEN EXPRESSWAY
MARTIN LUTHER KING BLVD

IGLESIA VISION 3D PENTECOSTES
BEAUMONT PARK
EBENEZER MISSIONARY BAPTIST CHURCH
GLAD TIDINGS COMMUNITY CHURCH
IMPACT CHURCH OF WILMINGTON
ROCK CHURCH
LIGHT OF THE WORLD MINISTRY
MT HERMON MISSIONARY BAPTIST CHURCH
PRAISE & DELIVERANCE AME CHURCH
HOUSE OF GOD CHURCH
MACEDONIA MISSIONARY BAPTIST CHURCH
MAIDES PARK

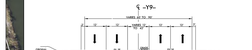
200' 0' 200' 400'
100'
(ENGLISH)

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

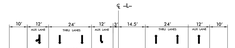
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NOTE:
FULL CONTROL OF ACCESS IS DEFINED AS A CONNECTION TO A FACILITY PROVIDED ONLY VIA RAMPS AT INTERCHANGES.ALL CROSS-STREETS ARE GRADE SEPARATED.NO PRIVATE DR.IVEWAY CONNECTIONS RE ALLOWED.

LEGEND
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- PROPOSED ROADWAY
- PROPOSED RIGHT OF WAY
- PROPOSED CONTROL OF ACCESS
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING PROPERTY LINES
- WETLAND
- WETLAND LIMITS BOUNDARY
- PROPOSED CONCRETE STRUCTURES



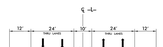
TYPICAL SECTION NO. 4
MARKET STREET



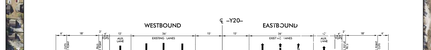
STRUCTURE NO. 1
–L– OVER EXIST. CSX RR



STRUCTURE NO. 2
–L– OVER DARLINGTON AVE



STRUCTURE NO. 3
–L– FROM MARKET ST TO HURST ST

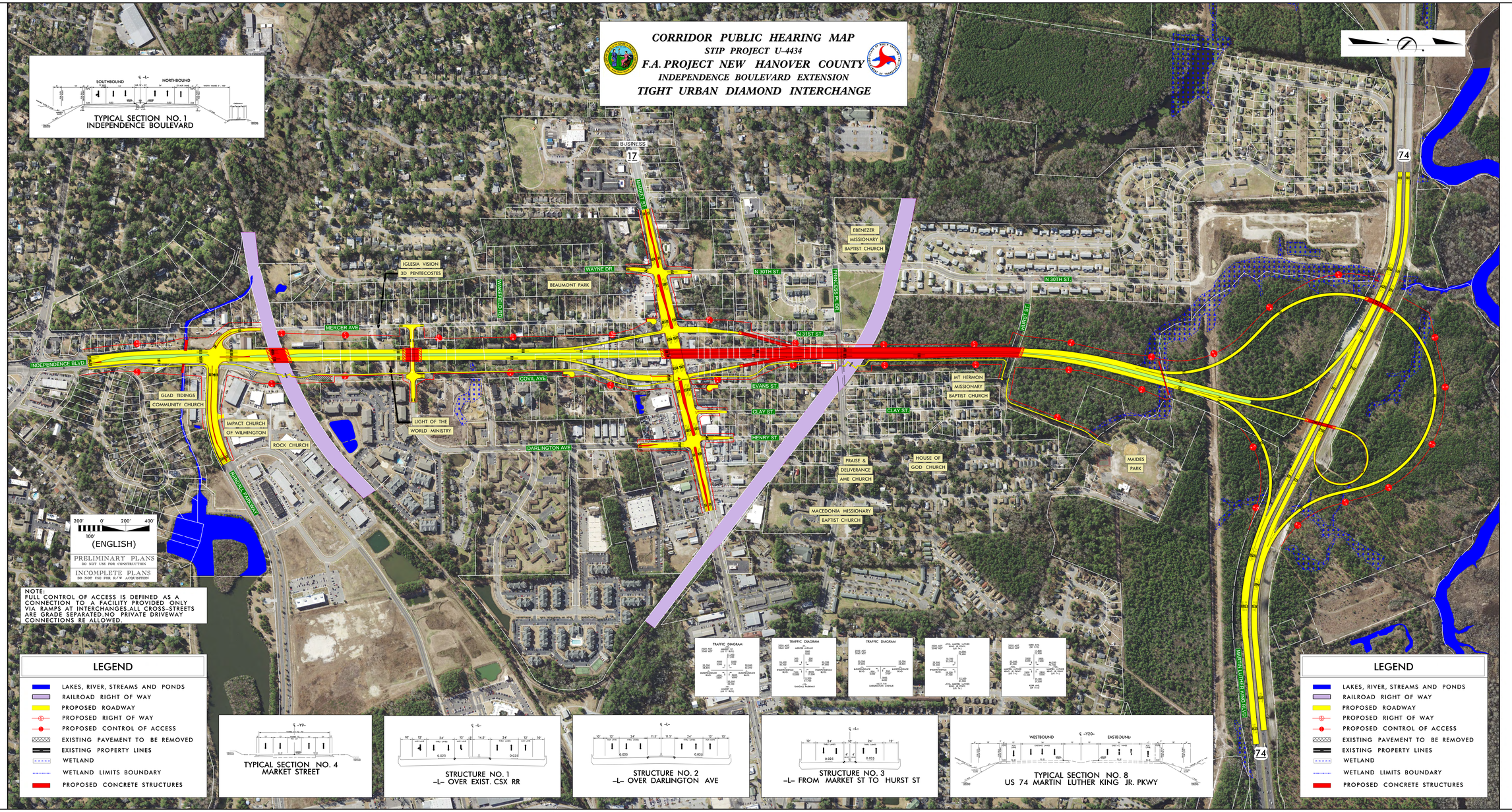


TYPICAL SECTION NO. 8
US 74 MARTIN LUTHER KING JR. PKWY

CORRIDOR PUBLIC HEARING MAP
STIP PROJECT U-4434
F.A. PROJECT NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
SINGLE POINT DIAMOND INTERCHANGE

LEGEND
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- PROPOSED ROADWAY
- PROPOSED RIGHT OF WAY
- PROPOSED CONTROL OF ACCESS
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING PROPERTY LINES
- WETLAND
- WETLAND LIMITS BOUNDARY
- PROPOSED CONCRETE STRUCTURES

CORRIDOR PUBLIC HEARING MAP
STIP PROJECT U-4434
F.A. PROJECT NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
TIGHT URBAN DIAMOND INTERCHANGE



TYPICAL SECTION NO. 1
INDEPENDENCE BOULEVARD

200' 0' 200' 400'
100'
(ENGLISH)

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NOTE:
FULL CONTROL OF ACCESS IS DEFINED AS A CONNECTION TO A FACILITY PROVIDED ONLY VIA RAMPS AT INTERCHANGES.ALL CROSS-STREETS ARE GRADE SEPARATED.NO PRIVATE DRIVEWAY CONNECTIONS RE ALLOWED.

LEGEND

- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- PROPOSED ROADWAY
- PROPOSED RIGHT OF WAY
- PROPOSED CONTROL OF ACCESS
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING PROPERTY LINES
- WETLAND
- WETLAND LIMITS BOUNDARY
- PROPOSED CONCRETE STRUCTURES

TRAFFIC DIAGRAM

TRAFFIC DIAGRAM

TRAFFIC DIAGRAM

TYPICAL SECTION NO. 4
MARKET STREET

STRUCTURE NO. 1
–L– OVER EXIST. CSX RR

STRUCTURE NO. 2
–L– OVER DARLINGTON AVE

STRUCTURE NO. 3
–L– FROM MARKET ST TO HURST ST

TYPICAL SECTION NO. 8
US 74 MARTIN LUTHER KING JR. PKWY

LEGEND

- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- PROPOSED ROADWAY
- PROPOSED RIGHT OF WAY
- PROPOSED CONTROL OF ACCESS
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING PROPERTY LINES
- WETLAND
- WETLAND LIMITS BOUNDARY
- PROPOSED CONCRETE STRUCTURES

CORRIDOR PUBLIC HEARING MAP
STIP PROJECT U-4434
F.A. PROJECT NEW HANOVER COUNTY
INDEPENDENCE BOULEVARD EXTENSION
TIGHT URBAN DIAMOND INTERCHANGE

M E M O R A N D U M

To: Krista Kimmel, PE – NCDOT Division 3

From: Susan Draper, AICP - AECOM

Date: June 22, 2023

Subject: **Summary of Outreach and Engagement with Iglesia Vision 3D Pentecostes and Vino Nuevo Ministry for the U-4434 Independence Boulevard Project**

The Iglesia Vision 3D Pentecostes and Universidad Teologica Internacional (UTI) are located on a single parcel (1.93 acres) owned by New Covenant Holiness Church. The mailing address for the owner is 1020 Dawson Street. The physical property address is 359 Mercer Avenue. Iglesia Vision 3D Pentecostes fronts Mercer Avenue and UTI fronts Covil Avenue. It appears that UTI is an affiliation of Iglesia Vision 3D Pentecostes and uses their offices for classes. Vino Nuevo Ministry is located at 3021 Market Street. The mailing address for the owner is 3019 Market Street and is an address within the same strip mall as Vino Nuevo Ministry.

The most recent public engagement associated with the proposed project was conducted in February 2022. This outreach consisted of targeted Environmental Justice (EJ) engagement activities including door-to-door surveys and an open house style meeting. The outreach was advertised within a newsletter that was mailed approximately 2 weeks ahead of the door-to-door surveys. The door-to door surveys took place from February 22-25 and were followed by the open house style meeting on February 26. There were no interpretive services offered at the open house style meeting as none were requested ahead of the meeting, nor were those services required by any individuals attending the open house on February 26.

The newsletter contained the following instructions for anyone needing language assistance:

Persons who do not speak English, or have a limited ability to speak or understand English, may receive interpretive services upon request. NCDOT will provide auxillary aids and services under the Americans with Disabilities Act for disabled persons who wish to participate and require special services. Call 1-800-481-6494 to request interpretive or other special services. Aquellas personas que no hablan inglés, o tienen limitaciones para leer, hablar o entender inglés, podrían recibir servicios de interpretación si los solicitan antes de la reunión llamando al 1-800-481-6494.

Both church properties were included in the survey area for the targeted EJ outreach. A flier was hung on both buildings ahead of the outreach and a newsletter was mailed to the owner's address at 1020 Dawson Street as well as the physical building address at 359 Mercer Avenue for Iglesia Vision 3D Pentecostes. A mailer was also mailed to the owner of the strip mall containing Vino Nuevo Ministry at 3019 Market Street. AECOM has no record of comments from these addresses resulting from the targeted EJ outreach.

Prior to the 2022 EJ outreach, a public meeting was held on July 22, 2019 at the Rachel Freeman School of Engineering. A Spanish-speaking interpreter was available at the meeting. Project postcards for the

meeting were mailed on July 10, 2019. The project postcards included the same statement listed above regarding the need for interpretive services. Flyers and doorhangers were distributed within the study area (including at 359 Mercer Avenue and 3021 Market Street) on July 9, 2019. The door hangers also included the same statement regarding the need for interpretive services. Additionally, a news release was sent to more than 300 entities on July 2, 2019.

AECOM has record of a Linwood Nesbitt attending that meeting and listing 359 Mercer as his address on the sign-in sheet, but has no record of comment from Mr. Nesbitt or anyone else associated with the Iglesia Vision 3D Pentecostes property.

It appears that Vino Nuevo Ministry is a new congregation that has moved into the space since the 2019 public meeting. Prior to that date, the space was occupied by House of Integrity Ministries.

AECOM has record of the following Special Interest Groups at the Public Meeting:

- Alamosa Place HOA
- Alliance for Cape Fear Trees
- Precinct W15
- Outdoor Creations Landscaping
- Cape Fear Habitat for Humanity
- Housing Coalition
- NAACP
- CPCLT
- Murray Construction Co. of Wilmington
- YMCA
- Dr. Stylz