

# Chapter 5

## Summary of Analysis

---

### 5.1 PROPOSED ACTION

This project is identified in the 2012-2018 STIP as Project I-5133, and is identified for a corridor planning and financing study. The NCDOT is proposing to implement improvements along I-95 through the state, from the South Carolina state line to the Virginia state line, through an improvement program that will include tolling as a component of the funding strategy. Tolling has been identified as the most feasible financing option to fund the proposed improvements within a reasonable timeframe. The authority for tolling the existing interstate is being pursued by NCDOT under the provisions of the Interstate System Reconstruction and Rehabilitation Pilot Program (ISRRPP), as authorized by Congress in the Safe, Accountable, Flexible, Efficient Transportation Act: a Legacy for Users (SAFETEA-LU) in 2005. The design concept and scope used to evaluate the feasibility of financing options includes widening I-95 to six or eight lanes. The design concept also includes replacing the existing pavement and many of the existing bridges.

It is anticipated from the findings of this EA that a Finding of No Significant Impact (FONSI) would be appropriate for this project. However, the determination on the format for the final NEPA documentation for this project will be based on the comments received at the public meetings and the comments received on this document.

### 5.2 PROJECT PURPOSE AND NEED

The project's needs along the I-95 corridor and the project purpose are identified below. Details are included in **Chapter 1**.

#### Project Needs:

- Capacity deficiencies
- Structural deficiencies
- Geometric deficiencies
- Higher than statewide average fatal crash rate for Interstates
- Funding deficiencies

#### Project Purpose:

- Improve capacity
- Improve infrastructure
- Reduce fatal crash rate along I-95 corridor
- Develop a feasible funding strategy

The goals and objectives of the project are listed below. These goals and objectives were used to evaluate the ability of project alternatives to meet the project's purpose.

- Upgrade interstate to meet current design standards.
- Provide additional capacity for predicted future traffic volumes at a Level of Service (LOS) C or better for the entire corridor, with the possible exception of limited spot locations with urbanized areas where LOS D may be considered acceptable.
- Identify a plan for realistic and reliable funding options that will meet the long-term funding needs of the corridor.
- Utilize existing roadway right of way to the extent possible.
- Minimize environmental impacts.
- Ensure consistency with local transportation plans.
- Obtain informed consent from study participants (federal, state and local agencies, members of the public) on project Purpose and Need and Alternatives to be Considered.
- Incorporate the NCDOT Complete Streets Policy on overpasses, where appropriate.
- Maintain evacuation routes.

### **5.3 ALTERNATIVES**

**Alternatives Evaluation Process.** A three step alternatives screening process was used to develop and evaluate a range of alternatives and ultimately determine the refined preferred design concept and scope evaluated in this Environmental Assessment. Details of the alternatives screening process are included in **Appendix B**. In the Level 1 screening, a broad range of alternatives were evaluated based on their ability to meet the project's purpose and need and to determine if they had a fatal flaw. In Level 2, alternatives that appeared to be able to meet the project's purpose and need were qualitatively assessed in more detail to eliminate flawed alternatives and alternatives were then compared to identify the preferred design concept and scope. In Level 3, the preferred design concept and scope was refined.

**Alternatives Evaluated.** The initial conceptual alternatives are listed below and described in **Appendix B, Section B.2**.

- No Action Alternative
- Preservation and Modernization Alternative
- Demand Management and System Management Measures Alternative
- Multimodal Alternative – Freight to Rail
- Multimodal Alternative – Passengers to Bus and Rail
- Add General Use Lanes on Existing Alignment Alternative
- Add Managed Lanes on Existing Alignment Alternative
- Add Truck Lanes on Existing Alignment Alternative
- New Alignment Freeway Alternative
- Widen US 301 to Four Lanes Alternative

**Alternatives Evaluation Results.** The Level 1 screening process eliminated the Preservation and Modernization Alternative, Demand Management and Systems Management Measures Alternative, Multimodal Alternative – Freight to Rail, Multimodal Alternative – Passengers to Bus and Rail, New Alignment Freeway Alternative, and Widen US 301 to Four Lanes Alternative.

The Level 2 screening eliminated the Managed Lanes Alternative and the Truck Lanes Alternative. The Add General Use Lanes on Existing Alignment Alternative was carried forward to the Level 3 screening to develop a preferred design concept and scope and to evaluate funding options.

Under the refined preferred design concept and scope, the mainline of I-95 would be widened throughout the corridor. The mainline was recommended to be widened to eight-lanes along 50 miles of I-95, and to six-lanes throughout the rest of the corridor. Seventeen interchanges were recommended for interchange form modification. All other interchanges were recommended for minor improvements, including ramp and service road modifications.

This preferred design concept and scope was used to evaluate funding options. The refinement process determined that using only traditional funding was not a feasible funding strategy, and identified tolling as the preferred funding strategy. Details of the toll finance and phasing plan are included in **Chapter 2**.

## 5.4 TRAFFIC OPERATIONS

Traffic forecasts were developed for the design year 2040 No Action Alternative and the preferred design concept and scope Build Non-Toll and Build Toll Scenarios using the methodology described in the *I-95 Corridor Planning and Finance Study TIP No. I-5133 – Draft Model Design Memo* (Revised January 2010). Design year traffic volumes were developed from these forecasts using traffic factors and methodology described in the *Design Year Traffic Operations Technical Memorandum* (December 2011).

Year 2040 traffic operations analysis of the No Action Alternative and Build Non-Toll and Build Toll Scenarios was performed for the I-95 mainline, ramp merge/diverge, and weave locations, along with the interchange crossroads and alternative route (US 301). The traffic operations analysis methodology is in accordance with the NCDOT Congestion Management’s Capacity Analysis Guidelines (February 2006) and the Highway Capacity Manual (HCM 2000). A summary of I-95 mainline traffic operations under the three scenarios is presented in **Table 5-1**.

Table 5-1: Year 2040 I-95 Mainline Traffic Operations

	Number (and Percent) of I-95 Mainline Segments					
	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
No Action Alternative	0 (0%)	1 (2%)	17 (29%)	10 (17%)	9 (15%)	22 (37%)
Build Non-Toll Scenario	0 (0%)	24 (40%)	33 (55%)	3 (5%)	0 (0%)	0 (0%)
Build Toll Scenario	3 (5%)	33 (55%)	24 (40%)	0 (0%)	0 (0%)	0 (0%)

Source: *Design Year Traffic Operations Technical Memorandum* (December 2011)

The design year 2040 No Action Alternative was analyzed to determine deficiencies and needs of the I-95 corridor. The No Action Alternative would include no capacity improvements to address current or future congestion, and would fund safety, maintenance, or modernization needs only to the level that can be

accomplished by current funding levels. Based on the LOS analysis for the I-95 mainline using 2040 AADTs, with no improvements to I-95, the majority of the basic freeway segments are projected to experience unacceptable traffic operations.

The design year 2040 Build Preferred Design Concept and Scope - Non-Toll Scenario would reconstruct the existing alignment of I-95, adding additional lanes to I-95 and evaluating interchange forms to improve traffic operations and safety conditions. I-95 would remain as a non-tolled facility. Based on the LOS analysis for the I-95 mainline using 2040 AADTs and an improved I-95, all of the basic freeway segments are projected to experience acceptable traffic operations. The three segments projected to operate at LOS D are located in urban areas and therefore have acceptable traffic operations. However, there is no feasible funding strategy to build this alternative within a reasonable timeframe, as discussed in **Chapter 2**.

The design year 2040 Build Preferred Design Concept and Scope – Toll Scenario would reconstruct the existing alignment of I-95, adding additional lanes to I-95 and modifying interchange forms to improve traffic operations and safety conditions. I-95 would become a tolled facility as part of this alternative to provide a feasible funding strategy for the improvements. Based on the LOS analysis for the I-95 mainline using 2040 AADTs and an improved I-95 toll facility, all of the basic freeway segments are projected to experience acceptable traffic operations.

#### **5.4.1 Comparison of Scenarios**

A comparison of the No Action Alternative, Build Non-Toll Scenario, and Build Toll Scenario LOS by VMT for the I-95 mainline and US 301 and US 301 Bypass alternative route was performed. The No Action Alternative shows that only 40 percent of the total VMT would be under acceptable LOS conditions, which is defined by LOS A to LOS D for US 301. For I-95 it is defined as LOS C or better in rural areas and LOS D or better in urban areas. In comparison, the Build Non-Toll Scenario and Build Toll Scenario show 97 percent and 89 percent, respectively, of the total VMT would be under acceptable LOS conditions.

#### **5.4.2 Toll Zone Diversion Route Analysis**

Tolling of I-95 would likely lead some traffic to divert in order to avoid paying a toll. The impact of this diversion was evaluated using a cutline diversion route analysis at each of the nine mainline toll zone locations, since it was assumed diversion would be the highest at these locations. Details of the diversion route analysis are presented in **Section 1.6.6**. A total of 44 diversion route segments were identified near the toll zone locations. Under the Build Non-Toll Scenario, six segments (13 percent) are projected to operate at an unacceptable LOS. Under the Build Toll Scenario, one additional segment is projected to operate at an unacceptable LOS for a total of seven segments (16 percent).

### **5.5 FUNDING AND FINANCE**

A cost estimate was developed for the refined preferred design concept and scope which would include widening and reconstruction of the pavement throughout the corridor, reconstruction of the majority of the bridge structures, and interchange and safety improvements to bring the corridor up to desired standards. The capital cost estimate for the project is approximately \$4.4 billion. In addition, operations and maintenance costs for the facility for a 40-year bond term would be approximately \$4.8 billion, and

renewal and replacement (capital maintenance) costs would total between \$1.1 and \$2.8 billion, resulting in total costs to construct the proposed project as a toll facility and operate/maintain it over a 40-year period of approximately \$10.3-\$12.0 billion.

To begin addressing those needs on I-95, NCDOT has programmed 33 projects at a cost of approximately \$455 million through its FY 2011-2020 Program and Resource Plan Project List within the *From Policies to Projects* document (NCDOT, July 2011). The NCDOT has no policy or programming commitment to fund needed I-95 improvements beyond projects identified in the Project List, which are only a portion of the total improvements needed along I-95 and include no highway widening. The \$455 million dollars currently programmed through 2020 represents just 10% of the \$4.4 billion in capital funds needed to implement the proposed I-95 improvements.

Since it is not possible to fund all the needs along the I-95 corridor with traditional funding sources, it is NCDOT's long term goal to fund the all reconstruction, expansion and ongoing life cycle costs of the project using alternative funding strategies. The most feasible funding strategy was determined to be a combination of 1) toll revenue debt and 2) toll equity, with little or no funding from non-toll sources. A tolling analysis was performed to determine financial feasibility of tolling to achieve these goals, and to develop a proposed tolling plan, as summarized in **Chapter 2**.

The tolled traffic, revenue and diversion analyses included in this document have been based upon a barrier system with mainline toll zones spaced at approximately 20-mile intervals and ramp toll zones placed at the adjacent interchanges along I-95. The interchange north of the mainline toll zone location would have the ramps to and from the north tolled and the interchange south of the mainline toll zone location would have the ramps to and from the south tolled. This type of toll plan is expected to greatly reduce the potential for traffic to divert off of I-95 and use local roads to re-enter I-95 at a point beyond the mainline toll zone.

The construction of the preferred design concept and scope was divided into phases for the financial analysis. An initial phase was identified that would provide for the capacity improvements that are the most critical within the entire I-95 corridor in North Carolina. This Phase 1 extends approximately 61 miles from south of the Fayetteville area, near MM 20 to I-40 north of Fayetteville at MM 81. Phase 2 would include the reconstruction of the remainder of the I-95 corridor.

The entire corridor would be tolled upon completion of Phase 1, with different rates assumed for Phase 1 and Phase 2. Two bonding scenarios were evaluated for the preliminary finance plan. The 'Gross Pledge' scenario assumes that Operations and Maintenance costs are pledged by an outside funding entity, in this case the NCDOT, and are taken out of the preliminary Finance Plan. The 'Gross Pledge' case has no upfront funding gap and generates residual revenue with a present value of \$3.30 billion. The 'Net Pledge' case includes the Operations and Maintenance costs as a project cost to be paid by toll equity. The 'Net Pledge' case has a \$180 million upfront funding gap and generates residual revenue with a net present value of \$3.24 billion. Both cases for Phase 1 would produce sufficient revenue to cover the estimated present day cost for the Phase 2 improvements of approximately \$2.63 billion.

## **5.6 POTENTIAL ENVIRONMENTAL EFFECTS**

**Chapter 3** describes resources along the I-95 corridor for the purpose of evaluating the nature and scale of the potential environmental effects of the proposed project. Specific impacts to resources within the project corridor were not analyzed because the information available at this stage of the project, both in

terms of the development of the design concepts and the location and quality of resources, does not allow for quantification of direct construction footprint impacts. This level of analysis correlates with the decisions being made regarding selection of the funding program to be used to implement improvements along I-95 and is at an appropriate level of detail for this stage of the project. More detailed quantification of environmental effects, along with identification of specific mitigation measures, will be completed in subsequent NEPA studies undertaken to implement the general preferred design concept and scope identified in this EA.

## **5.6.1 Consistency with Transportation Plans**

The project team identified planned roadway improvements in the study area, including improvements programmed in the STIP and local transportation programs and projects included in Comprehensive Transportation Plans (CTPs) and Long Range Transportation Plans (LRTPs) for municipalities and counties along the project corridor. The I-95 project improvements were reviewed to verify consistency with these plans. Details of this review are contained in **Section 3.1**. Planned improvements from study area CTPs and LRTPs are consistent with the refined preferred design concept and scope. Subsequent project-level design efforts will incorporate, where feasible and appropriate, other local plan elements not captured in the conceptual design.

## **5.6.2 Human Environment**

### **5.6.2.1 Environmental Justice and Limited English Proficiency**

Title VI of the Civil Rights Act of 1964 and related statutes require that federal agencies ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity that received federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion.

The need to identify low-income and minority populations and include them in the project's decision-making process gained greater emphasis as a result of Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994).

Environmental Justice refers to the equitable treatment of people of all races, cultures, and income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Implementation of environmental justice regulations for highway projects is governed by the 1997 USDOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2).

The socioeconomic/Environmental Justice (EJ) study area included areas within 10 miles of existing I-95 (Bladen, Cumberland, Edgecombe, Halifax, Harnett, Hoke, Johnston, Nash, Northampton, Robeson, Sampson, Wayne, and Wilson). Based on 2010 Census data, these counties had a combined population of over 1.3 million people, which is almost 14 percent of North Carolina's population. A screening was performed which identified tracts where the minority population or low-income population is 10 or more percentage points higher than the respective county average or where the minority or low-income population is at least 50 percent (regardless of the county average). Of the 158 census tracts in the socioeconomic/EJ study area, 67 met the environmental justice screening criteria to identify environmental justice populations. This included 21 of the 49 census tracts in Cumberland County, six of

the eight in Edgecombe County, seven of the ten in Halifax County, four of the nine in Harnett County, both of those in Hoke County, three of the 15 in Johnston County, five of the 17 in Nash County, both of those in Northampton County, 12 of the 20 in Robeson County, and six of the 17 in Wilson County. More detailed information on this screening process is included in the *Environmental Screening Findings Technical Memorandum* (March 2010).

Comments from the public via project workshops and other outreach (such as hotline calls and website responses) did not include any identification as representing low income and minority communities. However, some comments expressed concerns about the ability of daily I-95 travelers to pay tolls. The public involvement effort did not reveal any disproportionately high and adverse impacts to low income and minority communities at this time.

A commute pattern analysis was conducted to determine if stakeholders in those census tracts meeting the environmental justice screening criteria were more likely to be affected by changes to I-95 than those living in census tracts not meeting the screening criteria. In addition, the potential commute costs for individuals in census tracts that met environmental justice screening criteria were also evaluated. It was determined that tolling has the potential to impose a notable burden on lower-income individuals who use I-95 for their commute to work. With detailed origin-destination data, subsequent studies will be undertaken to determine the magnitude of these impacts in comparison to non-EJ commuters and evaluate the potential for disproportionately high and adverse effects and potential mitigation, as appropriate.

The existing road network surrounding I-95 provides ample opportunities for travelers to divert to a non-toll (i.e., “free”) alternative route. Due to the presence of low-income and minority populations along these routes, it is important to evaluate the potential effects of higher congestion and increased pollution in these communities resulting from vehicles diverting to avoid tolls. Traffic modeling completed for the I-95 project indicated that the majority of non-toll alternative routes would not experience substantial congestion as a result of traffic diverting from I-95 to avoid tolls. Future studies will address toll diversion in a more detailed manner and determine what, if any, impacts will require mitigation.

Council for Environmental Quality (CEQ) regulations require that mitigation measures be analyzed to address disproportionately high and adverse effects to low income and minority populations. In-depth evaluations of potential effects of tolling on low income and minority communities will be conducted as subsequent NEPA documents are prepared for construction projects along I-95. If disproportionately high and adverse effects are determined, various potential mitigation options will be investigated. Such mitigation measures could include new investments in transit or ride-sharing services along the toll corridor, toll exemptions (based on income, vehicle occupancy, etc.), toll discounts or reimbursement (based on location of residence, vehicle occupancy, etc.), and mitigation specific to toll diversion (to be developed in conjunction with the Federal Highway Administration).

The presence of Limited English Proficiency (LEP) populations was screened at the county level. Based on the US Department of Justice “Guidance to Federal Financial Assistance Recipients Regarding Title VI Prohibition against National Origin Discrimination Affecting Limited English Proficient Persons,” the analysis identified counties where the number of non-native English speakers who speak English less than “very well” reaches a threshold of either 5 percent of the county population or 1,000 individuals in any language group (Spanish, other Indo-European, Asian/Pacific, other). Nine counties met one or both of these thresholds for the Spanish language group, and one county met one or both thresholds for both the other Indo-European language group and the Asian/Pacific language group. In all counties, English is the

most common language spoken and Spanish/Spanish Creole is the second most common language spoken. In Cumberland County, there are also substantial populations that speak German, Korean, French, and Vietnamese. Efforts were made to include LEP communities in the public outreach for the I-95 project. Spanish translators were available at all public workshops and outreach materials were translated into Spanish for use by LEP communities. Additional outreach activities for subsequent projects along the I-95 corridor will be targeted to relevant LEP communities to ensure their input is obtained, and vital documents will be translated for their use.

#### **5.6.2.2 Community Resources**

A visual screening of community resources was performed to identify sites of potential community importance to stakeholders in the vicinity of proposed interchange/intersection improvements along the I-95 corridor. The screening used aerial photography (Google Maps, 2006-2011) to identify potential resources that might be impacted by proposed improvements. Chain restaurants and gas stations were excluded from this analysis. Fifteen interchanges with adjacent community resources were identified, as listed in **Section 3.2.2**. These include local businesses, cemeteries, and churches. No community resources such as libraries, hospitals, and schools were identified in these areas. It is anticipated the resources would be verified via ground-truthing and that projects addressing specific improvements to I-95 would ensure efforts are made to include these resources in evaluations of community effects.

#### **5.6.2.3 Recreational Resources**

Local officials in the project study area were contacted to determine potential Section 4(f) and Section 6(f) recreational resources within the recreational and cultural resource study area (within one-half mile of existing I-95). A total of 19 parks and recreational facilities were identified based on the information provided: 12 in Robeson County, three each in Johnston and Harnett Counties, and one in Halifax County. Based on a review of the Land and Water Conservation Fund (LWCF) database (<http://waso-lwcf.nrc.nps.gov/public/index.cfm>), Chockoyotte Park in Halifax County and CD Codrington Park in Harnett County have received LWCF funding and are Section 6(f) resources. Potential impacts to these resources will be evaluated during the development of subsequent environmental documents for specific improvements to I-95.

Five NCDOT bicycle routes, including the Mountains-To-Sea Trail, cross I-95, and several local and non-designated routes cross I-95 as well. Subsequent NEPA documentation for specific improvements to the I-95 corridor will assess whether proposed improvements accommodate state bicycle routes. It is anticipated that subsequent projects addressing specific improvements to I-95 will coordinate with local planning agencies to reach out to the cycling public and local planners on the need for bicycle accommodations on routes crossing over or under I-95.

#### **5.6.2.4 Voluntary Agricultural Districts**

In North Carolina, Voluntary Agricultural Districts (VADs) are established through county ordinances to promote the preservation and protection of farmland. Along the I-95 corridor, there are currently VAD ordinances in Cumberland, Harnett, Johnston, Nash, Wilson, and Northampton Counties. Based on input from county planning organizations and local agricultural extension offices, there are several VADs located within a half mile of existing I-95. This includes one district in Cumberland County, three each in



Harnett and Northampton Counties, four in Johnston County, nine in Nash County, and two in Wilson County. It is anticipated that prior to the development of environmental documents for construction of projects along I-95, a review of VAD regulations would be undertaken and the project team would ensure that any public hearing requirements are met prior to any acquisition of right of way.

### **5.6.3 Cultural Environment**

A cultural resources screening was performed to identify sites within the recreational and cultural resource study area that may be protected under Section 106 of the National Historic Preservation Act of 1966 (NHPA) and Section 4(f) of the Department of Transportation Act of 1966.

There are seven sites in the cultural resource study area currently listed in the National Register of Historic Places (NHRP). Of the listed sites, only the Garner Farm (near the junction of NC 125 and I-95 in Halifax County) and the Roanoke Canal are located within 1,000 feet of I-95.

In December 2009, NCDOT's Human Environment Unit (HEU) staff performed "windshield surveys" of potential additional cultural resources within one mile of the I-95 corridor (i.e., sites potentially eligible for, but not currently listed in, the NRHP). The determination of potential sites was based on visual observation and best professional judgment from experience working with the North Carolina Historic Preservation Office (NC-HPO). HEU staff located 102 sites within the recreational and cultural resource study area that warrant further investigation if they are located within or adjacent to any proposed improvements to the I-95 corridor. The results of the screening were used in the development of project alternatives. Cultural resources surveys as required under Section 106 of the NHPA, including evaluation of potential archaeological resources, will be undertaken during the development of subsequent environmental documents for individual projects along I-95. This approach is consistent with 36 CFR 800.4(b)(2), which permits a phased process to conduct cultural resource identification and evaluation efforts on projects where alternatives under consideration consist of corridors or large land areas.

### **5.6.4 Natural Environment**

The natural resource study area for the Environmental Assessment was established as one-half mile on either side of existing I-95. A natural resource screening was performed using available GIS data, supplemented with selected ground truthing of wetland and stream resources.

#### **5.6.4.1 Water Resources**

From south to north, the I-95 corridor passes through the Lumber, Cape Fear, Neuse, Tar-Pamlico, Roanoke, and Chowan River Basins. Based on North Carolina's 2010 Assessment Database (NCDENR, 2011), there are 115 assessed streams that pass within one-half mile of existing I-95. There are also numerous wetland areas throughout the corridor.

Based on the NCDENR Final 2010 Clean Water Act Section 303(d) list, there are four streams within one-half mile of existing I-95 that are listed as impaired and require the development of a total maximum daily load (TMDL) to address the impairment. In addition to these listed streams, three streams within one-half mile of existing I-95 are listed as impaired, but do not require a TMDL at this time.

The Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271-1287) mandates that “[i]n all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas.” Through the natural resource study area, the Lumber River is listed for its cultural, fish, historic, scenic, and wildlife resources and is described as a “secluded blackwater stream with heavily forested cypress swamps; abundance of flora and fauna” (US Department of Interior, 2009). It is anticipated that consideration to the Lumber River would be given during the development of environmental documents for potential improvements to I-95 in Robeson County.

Several additional data sets related to water quality were identified; additional reviews of water resources will be undertaken during the development of subsequent environmental documents for improvements to I-95.

#### **5.6.4.2 Protected Species**

As of September 22, 2010, the United States Fish and Wildlife Service (USFWS) lists ten federally protected species for the counties crossed by the natural resource study area (**Table 3-7 in Chapter 3**). Specific conclusions as to the effects of improvements to I-95 on federally-listed species will be documented during the development of subsequent environmental documents for improvements to I-95. As of September 22, 2010, the USFWS lists no Candidate species for the counties crossed by the natural resource study area.

### **5.6.5 Physical Environment**

#### **5.6.5.1 Air Quality**

A qualitative overview of air quality issues in the project area was performed. This included a review of National Ambient Air Quality Standards (NAAQS) and the attainment status and conformity status for each county, and discussion of future evaluations that will be required for subsequent NEPA documents undertaken for individual I-95 construction projects. Additionally, mobile source air toxics (MSATs) are discussed, as well as the potential need for localized hot-spot analyses for carbon monoxide (CO) or fine particulate matter (PM<sub>2.5</sub>) that might be required in future NEPA studies.

**NAAQS and Transportation Conformity.** None of the counties along the I-95 corridor are designated as being in nonattainment of the National Ambient Air Quality Standards (NAAQS). However, Johnston and Nash Counties are designated as being in 8-hour ozone maintenance areas (whole counties). Johnston County was formerly a subpart 1 nonattainment area from 2004-2007 and was redesignated to maintenance status on December 26, 2007. Nash County was also a former subpart 1 nonattainment area from 2004-2007, but was redesignated to maintenance status on January 5, 2007 (USEPA, 2011).

Any recommended improvements that evolve from this EA that are not currently on the North Carolina State Transportation Improvement Program (STIP), Transportation Improvement Program (TIP) or an applicable LRTP would have to be placed in those documents and run through the transportation conformity process to meet planning and air quality regulations. Transportation conformity would only apply to projects in Johnston and Nash counties, which have been designated as maintenance for the 8-hour ozone standard. It would also apply to any other attainment counties that might someday be in nonattainment of the standards set at that future time. Subsequent air quality transportation conformity

modeling would also have to consider the potential impact of tolling, which would take into account the regional dispersion of traffic potentially diverted from (or to) the proposed toll facility.

**Localized Hot-Spot Analyses.** All of the counties included in the I-95 corridor are designated as being in attainment of the PM 2.5 standard and the CO standard. In accordance with 40 CFR 93.116, all federally funded projects are required to address project-level, or “hot-spot”, considerations for CO where an area is designated as nonattainment or maintenance. Likewise, all federally-funded highway “projects of air quality concern” in PM2.5 nonattainment and maintenance areas also are required to address project-level, or “hot-spot” considerations.

All of the counties included in the I-95 corridor are designated as being in attainment of the PM 2.5 and CO standards. Therefore, a project-level conformity determination is not required for either pollutant. Overall, it is highly unlikely that there will be localized carbon monoxide or PM2.5 impacts from improvements to I-95 as various auto emissions controls through the past few decades have decreased vehicular emissions.

**Mobile Source Air Toxics.** If a proposed project does not create new or add significant capacity to highways where the average annual daily traffic (AADT) is projected to be in the range of 140,000-150,000 vehicles per day (vpd) (or greater) by the design year, then it is considered to be a project with low or no meaningful potential MSAT effects (FHWA, 2009). The I-95 corridor county volumes are currently well below half these AADT threshold volumes (NCDOT, 2007, 2008, 2009), and are forecast to remain below these thresholds for the 2040 design year, see **Table 1-5**. Future improvements along I-95 are, therefore, likely to fall into the “low” or “no meaningful” categories.

An MSAT analysis is not required other than documenting the basis for the determination for projects with no meaningful potential effects (i.e., projects qualifying as a categorical exclusion under 23 CFR 771.117(c); projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or other projects with no meaningful impacts on traffic volumes or vehicle mix). This discussion must include prototype language from FHWA’s September 2009 Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA specifically written for the “No analysis for projects with no potential for meaningful MSAT effects” scenario (FHWA, 2009).

If a project has a low risk impact (most highway projects, including proposed improvements to I-95, will fall into this category), a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic, and the associated changes in MSATs for the project alternatives, based on vehicle miles traveled (VMT), vehicle mix, and speed. It would also discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by the USEPA. Because the emission effects of potential improvements to I-95 are expected to be low, there would be no appreciable difference in overall MSAT emissions among the various alternatives, including the No Action condition.

In addition to the qualitative assessment, a NEPA document for this category of projects must include a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts, in compliance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information. This discussion must include prototype language from FHWA’s September 2009 Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA specifically written for the “Qualitative analysis for projects with low potential MSAT effects” scenario” (FHWA, 2009).

### **5.6.5.2 Noise**

A qualitative analysis was performed to identify noise sensitive areas. This included identifying the generalized noise sensitive land uses adjacent to I-95 and the number and type of potentially affected receptors. The analysis identified 91 areas that may potentially need to be modeled for noise impacts. Noise impacts and potential mitigation will be fully documented during the development of subsequent environmental documents for improvements to I-95. These evaluations will be conducted according to 23 CFR 772 [effective July 13, 2011, and NCDOT Traffic Noise Abatement Policy (NCDOT, 2011)].

### **5.6.5.3 Hazardous Waste Sites and Other Environmental Factors**

Hazardous waste disposal sites are found in the immediate vicinity of I-95 in three locations: north of the Neuse River in Smithfield, just south of US 70 Bypass in Smithfield, and just south of the Roanoke River in Roanoke Rapids. An animal operations facility is located in the immediate vicinity of I-95 north of the Tar River in Nash County off Boone Road.

## **5.7 INDIRECT AND CUMULATIVE EFFECTS**

### **5.7.1 Indirect Effects**

A preliminary study of indirect and cumulative effects (ICEs) was completed and documented in the *Socioeconomic and Indirect and Cumulative Effects (ICE) Technical Memorandum* (September 2011). A detailed study of ICEs associated with specific improvements to I-95 will be completed in subsequent environmental documentation. However, it can generally be noted that indirect effects are not anticipated to be substantial for improvements to I-95 because the preferred design concept and scope would require little additional right of way and significant indirect changes in land use are not expected. The reasoning for this assumption is multifold: (1) local, commuter traffic is not the driving force for the predicted future capacity needs along I-95; (2) the I-95 corridor has experienced low growth in recent years [*Study Area Needs Assessment* (September 2010)]; and (3) the addition of a toll would potentially offset some growth in commuter traffic.

### **5.7.2 Cumulative Effects and Recurring Effects**

For much of the project area, there is the potential to widen I-95 into the existing median, which would limit direct impacts to the human and natural environment. However, there are likely to be impacts in areas where widening will extend beyond the existing right of way. The greatest effects of these impacts are likely to be relocations (primarily around interchanges and along service roads) and wetland impacts (due to the presence of large amounts of wetlands in the project corridor). It is believed that these impacts can be fully mitigated.

Relocation impacts from all transportation projects must comply with state and federal regulations and NCDOT policies for right-of-way acquisition and relocation. The policies ensure that comparable replacement housing is available for relocatees prior to construction of state and/or federally assisted projects.

Wetlands can often experience multiple individual impacts from many projects over time, that when summed, may result in cumulative effects. However, because impacts to waters of the US (e.g. wetlands

and streams) are regulated under the Clean Water Act, it is not anticipated that cumulative wetlands impacts of the proposed project and other projects would be significant. Mitigation policy for jurisdictional wetlands has been established by USEPA and the USACE regulations in 33 CFR Part 332 and 40 CFR Part 230, Subpart J. Requirements related to wetlands mitigation are also contained in the Clean Water Act Section 404(b)(1) Guidelines (40 CFR 230, Subpart B). Both public projects and private development must comply with these regulations. The USEPA and USACE regulations governing wetlands mitigation embrace the policy of “no net loss of wetlands” and sequential consideration of avoidance, minimization, and mitigation. In addition, projects requiring a permit from the USACE under Section 404 of the Clean Water Act also must obtain a Section 401 Water Quality Certification from the NCDENR Division of Water Quality. To issue a Water Quality Certification, NCDWQ is required to determine that a project does not result in cumulative impacts, based upon past or reasonably anticipated future impacts that cause or will cause a violation of downstream water quality standards (*Cumulative Impacts and the 401 Water Quality Certification and Isolated Wetlands Program*, NCDENR, 2004).

Recurring community impacts occur when the quality of life of a community (e.g., community cohesion, emergency response, noise, business access, and travel patterns) has been affected more than once over time by past public and private actions. While a proposed action may have a relatively minor direct impact on communities, the impact of the action might be significant in the context of past actions. Recurring impacts typically occur if past impacts have not been adequately addressed or if past impacts were relatively minor on their own, but are important when considered in combination.

For this project, the past action most important in terms of recurring effects is the previous construction of existing I-95. This analysis focuses on recurring effects to low income and minority communities because I-95 was initially constructed in the 1950s prior to implementation of Title VI of the Civil Rights Act of 1964, and there are a large number of low income and minority communities within the I-95 corridor. An evaluation of known historic resources along the project corridor was undertaken with the hope of identifying historic minority communities. The Harnett County Training School, located in Dunn to the east of the project area, provided educational opportunities to African-American children beginning in the 1920s (Hairr, 2002). Currently, there are populations along US 301 and I-95 in Dunn that meet current EJ criteria. Therefore, possible recurring effects to low income and minority populations from the construction of US 301 and I-95 through Dunn will require investigation during subsequent NEPA documentation for proposed improvements to I-95.

Concerns regarding recurring effects of I-95 construction on low income and minority communities were not raised during the public involvement process for this project. It is anticipated that project-level NEPA documents for specific improvements to I-95 will provide additional review of the issue of recurring impacts to communities located along the project corridor.