CH. 1 DRAFT EIS SUMMARY & UPDATES

Chapter 1 provides a summary of information presented in the Draft Environmental Impact Statement (EIS) for the Gaston East-West Connector (April 2009). The information in this chapter is presented in the same order as in the Draft EIS. This chapter also contains, where indicated, clarification and updates such as changes in the existing environment or changes in guidance documents. Errata related to the Draft EIS is included in ***Appendix A****.*

1.1 PURPOSE AND NEED FOR ACTION

The purpose and need for the project are documented in detail in the *Final Updated Statement of Purpose and Need for the Gaston East-West Connector* (PBS&J, October 2008), incorporated by reference and available on the North Carolina Turnpike Authority (NCTA) Web site (www.ncturnpike.org/projects/gaston).

1.1.1 PROPOSED ACTION

The NCTA[1], in cooperation with the Federal Highway Administration (FHWA), proposes to construct a project known as the Gaston East-West Connector, which would be a controlled-access toll road extending from I-85 west of Gastonia in Gaston County to I-485 near the Charlotte-Douglas International Airport in Mecklenburg County. The purpose of the project is to improve east-west transportation mobility in the area around the City of Gastonia and other municipalities in southern Gaston County (between Gastonia and the Charlotte metropolitan area), with special emphasis on establishing direct access between the rapidly growing areas of southeast Gaston County and western Mecklenburg County.

The project is included in the North Carolina Department of Transportation (NCDOT) *2009-2015 State Transportation Improvement Program* (STIP) as STIP Project U-3321. The project is known as the "Gaston East-West Connector" and locally as the "Garden Parkway." This study refers to the project as the Gaston East-West Connector.

North Carolina roads traditionally have been built with taxpayer funds, either through the state transportation budget or federal-aid highway funds allocated to the state. There are many other priority projects statewide and, due to funding constraints, there is not enough funding available from traditional resources in the foreseeable future to construct all priority projects. The current NCDOT *2009-2015 STIP* includes the project as a toll facility, and traditional (non-toll) transportation funding for this project is not likely in the foreseeable future. The *2035 Long Range Transportation Plan* (LRTP) for the Gaston Urban Area Metropolitan Planning Organization (GUAMPO) and the *2035 LRTP* for the Mecklenburg-Union MPO (MUMPO) both include the project as a toll facility.

A series of Citizens Informational Workshops (CIWs) took place in August 2008 to give the public an opportunity to comment on the purpose and need for the project. Agency comments on the purpose and need for the project were solicited; beginning with the initial project scoping letter on April 9, 2003. Additional information on public involvement and agency coordination related to the purpose and need is presented in **Section 1.4**.

1 On July 27, 2009, NCTA became a division of NCDOT (NC Session Law 2009-343). Where applicable, references to NCDOT as a separate agency have been removed.

1.1.2 SUMMARY OF NEED FOR PROPOSED ACTION

The primary needs for the proposed action are summarized below, and have not changed since the Draft EIS was published. Detailed discussions of existing and projected conditions within the Project Study Area are presented in Sections 1.5 through 1.8 of the Draft EIS.

Poor Transportation Connectivity Between Gaston County and Mecklenburg County and Within Southern Gaston County

- Limited crossings of the Catawba River are constraining travel between Gaston and Mecklenburg Counties. The Catawba River separates Gaston and Mecklenburg Counties. Presently, there are only four crossings of the river between the two counties, with none of them located in the southern half of Gaston County (Section 1.5.1.3 of the Draft EIS).
- Projected growth in southern Gaston County and western Mecklenburg County will continue to increase demands for accessibility and connectivity between the two counties. A review of tax parcel data shows that from 2000 to 2008, the number of residences in southern Gaston County and western Mecklenburg County has increased approximately 24 percent (Sections 1.6.1 and 1.7.1 of the Draft EIS).
- South of I-85 in Gaston County, a lack of connecting east-west roadways makes travel circuitous and limits mobility for travel in southern Gaston County. Currently, there are no continuous east-west routes in southern Gaston County. The roads in southern Gaston County generally run north-south (Section 1.6.1 of the Draft EIS).
- Planned growth in southern Gaston County will result in an increased need for east-west mobility. Between 1990 and 2000, southeastern Gaston County was the fastest growing part of the county. This part of the county is expected to continue to experience high residential growth through 2020 (*Gaston County Comprehensive Plan,* Gaston County, adopted November 2002) (Sections 1.6.1, 1.7.1, and 1.8.3.1 of the Draft EIS).
- The GUAMPO and the MUMPO show in their plans a new location roadway running through southern Gaston County and connecting over the Catawba River to Mecklenburg County (Section 1.8.2 of the Draft EIS).
- The Gaston East-West Connector is a Strategic Highway Corridor (SHC). The Gaston East-West Connector is designated as a new freeway facility within the *Strategic Highway Corridors Vision Plan* (SHCVP) (Section 1.8.1.2 of the Draft EIS).

Existing and Projected Poor Levels of Service on the Project Area's Major Roadways

- Traffic volumes are projected to increase on I-85, I-485, US 29-74, and US 321 in the Project Study Area through 2030. On I-85, traffic volumes are projected to increase 29-50 percent between 2006 and 2030, to 105,000-198,400 vehicles per day (Section 1.6.2 of the Draft EIS).
- There are existing poor levels of service (LOS) on segments of I-85 in the Project Study Area. Based on 2006 traffic volumes, I-85 is operating at an LOS E or F from Exit 19 (NC 7 [Ozark Avenue] through Exit 27 (NC 273 [Park Street]) in Gaston County (Section 1.6.2.3 of the Draft EIS).
- Levels of service on I-85, US 29-74, and US 321 are projected to worsen in the future (Section 1.6.2 of the Draft EIS).

- Congestion and frequent incidents on I-85 inhibit regional travel and diminish the ability of I-85 to function as a Strategic Highway Corridor and Intrastate Corridor (Section 1.6.2.3 of the Draft EIS).

1.1.3 PROJECT PURPOSE

The purpose of the proposed action has not changed since the Draft EIS was circulated. The purpose of the proposed action is to improve east-west transportation mobility in the area around the City of Gastonia, between Gastonia and the Charlotte metropolitan area, and particularly to establish direct access between the rapidly growing area of southeast Gaston County and western Mecklenburg County.

To meet the purpose and need, an alternative must provide more than a minor improvement. An improvement would be considered minor it if is localized, temporary, and/or largely unnoticeable to the typical user of the transportation system. Alternatives that provide only a minor improvement do not meet the purpose and need, and therefore are not reasonable alternatives.

1.1.4 BACKGROUND INFORMATION

Project setting, the existing road network, and public and agency involvement in the development of the purpose and need are discussed in more detail in Section 1.4 of the Draft EIS. These sections are briefly summarized below.

Project Setting. The Project Study Area is located in southern Gaston County and western Mecklenburg County, consisting of the following general boundaries: I-85 to the north, the South Carolina state line to the south, Charlotte-Douglas International Airport to the east, and the I-85 and US 29-74 junction and Crowders Mountain State Park to the west. **Figure 1-1** shows the Project Study Area.

Local Project Planning Efforts. Plans to improve east-west mobility in southern Gaston County and western Mecklenburg County through construction of a new location roadway have been discussed by GUAMPO since the late 1980's, and MUMPO since the early 1990's. In 1991, the project concept was included in GUAMPO's Thoroughfare Plan. In 1994, MUMPO adopts a Thoroughfare Plan that includes the project.

NCTA selected the Gaston East-West Connector as a candidate toll facility in 2005.

Planning by NCDOT and NCTA. The NCDOT began planning for the Gaston East-West Connector in 2001, and NCTA's involvement began in 2005.

Public and Agency Involvement in Development of the Purpose and Need. The purpose and need for the project was first developed in 2002 when the project was being planned by NCDOT. In 2008, the purpose and need for the project was updated by NCTA to include the 2030 travel demand forecasts and recent updates to transportation and land use plans. The environmental resource and regulatory agencies concurred on the updated purpose and need in October 2008.

Public comment was solicited at the first series of Citizens Informational Workshops, held in September and December 2003. A majority of the citizens providing written comments supported a new location roadway and the purpose of the project. In January and February of 2006, a second series of workshops presented the recommended Detailed Study Alternatives (DSA) for input and comment. Most attendees were in support of the new location roadway. The updated purpose and need for the project was presented to the public at a third series of

workshops, held in August 2008. Written comments were submitted both supporting and disagreeing with the need for the project.

Traffic Forecasting for Purpose and Need. When the purpose and need for the project was initially developed in 2002, the planning horizon year was 2025. The 2002 version of the project's purpose and need was based on traffic forecasts for 2025. The travel demand model used for the 2008 update to the project's purpose and need (Metrolina regional model) has a planning horizon of 2030. Both the 2025 and 2030 forecasts predict increasing traffic volumes on the Project Study Area's major roadway network over existing conditions.

1.1.5 EXISTING TRANSPORTATION SYSTEM

Section 1.5 of the Draft EIS discusses the existing transportation system within the Project Study Area. There have been no changes to the information in this section since the Draft EIS was published, which is briefly summarized below, with an update to the status of projects at the Charlotte-Douglas International Airport (CDIA).

Existing Road Network and Connections. I-85 and US 29-74 are the primary east-west routes through Gaston County, including the Project Study Area. US 321 is the primary north-south route through Gaston County and intersects the I-85/US 29-74 corridor in the center of Gastonia. I-485 provides north-south travel in the Mecklenburg County portion of the Project Study Area.

Roadway Connections

I-85 is the only controlled access east-west highway through Gaston County. There are only four bridges over the Catawba River between Gaston and Mecklenburg Counties. None are in southern Gaston County.

Gaston County is separated from Mecklenburg County, the region's largest employment and destination generator, by the Catawba River. There are only four roadway connections between the two counties; NC 16 and NC 27 in the northern half of Gaston County, and I-85 and US 29-74 in the middle of Gaston County. Based on 2006 annual average daily traffic (AADT), the I-85/US 29-74 corridor carries approximately 82 percent of the traffic volume traveling between Gaston and Mecklenburg Counties.

Types of Travel on Existing Roadways. The predominant transportation type for the region is car, van, or truck (92.6 percent), followed by school bus (3.8 percent), and walking (2.2 percent). Transit bus, bicycle, and motorcycle are used for only 1 percent of the trips in the region, according to the *Greater Charlotte Region Household Travel Survey* (NCDOT, SCDOT, City of Charlotte DOT, September 2002). Based on 2000 Census data, Mecklenburg County attracts the majority of commuters in the region. Altogether, there are more than 27,000 workers community between Gaston and Mecklenburg Counties, demonstrating a need for connectivity.

Other Transportation Modes. The Project Study Area includes a broad system of available transportation modes, including rail service, air service, and public transportation. These various transportation modes are described in Section 1.5.2 of the Draft EIS.

The CDIA is located at the eastern end of the project, just east of I-485. The Draft EIS noted that the CDIA was constructing a third parallel runway, with a scheduled completion date of January 2010. The new runway opened January 11, 2010. The Draft EIS also stated that the CDIA has plans for an intermodal facility that would combine direct rail and truck access with incoming air cargo. The intermodal facility would be located between the new runway and the existing runways and is expected to have a 10-track rail yard and approximately 2,500 trailer parking

spaces. The intermodal facility is scheduled to open in late 2011 (Meeting with CDIA, November 4, 2009).

1.1.6 PERFORMANCE OF THE EXISTING ROADWAY SYSTEM

Section 1.6 of the Draft EIS describes the performance of the existing roadway system within the Project Study Area. There have been no changes to the information in this section since the Draft EIS was published, which is briefly summarized below.

Mobility and Connectivity Issues. Within southern Gaston County (south of the I-85 and US 29/74 corridor), a lack of connecting east-west roadways makes travel circuitous and limits mobility. In addition, mobility is inhibited between southern Gaston County and Mecklenburg County by the limited number of bridges over the Catawba River, which acts as a natural barrier between the two counties.

Traffic Volumes and Operations on Existing Roadways. The traffic forecasts prepared for the project using the Metrolina Regional Model project a substantial increase in traffic volumes from 2006 to 2030 on the Project Study Area's major roadways (*Gaston East-West Connector (U-3321) Traffic Forecast for Toll Alternatives* [Martin/Alexiou/Bryson, August 2008]).

By 2030, the level of service (LOS) on I-85 is projected to degrade to LOS E or F, indicating congestion on I-85 throughout the Project Study Area. In addition to high traffic volumes creating congestion, incidents such as vehicle breakdowns or accidents occur frequently on I-85. These incidents affect travel on I-85 by causing traffic slowdowns and occasional lane closures and temporary detours onto US 29-74.

Congestion on I-85

By 2030, the level of service (LOS) on I-85 is projected to degrade to LOS E or F, indicating congestion on I-85 throughout the Project Study Area.

Along US 29-74, year 2030 levels of service are projected to be LOS F east of McAdenville. US 321 is projected to operate at LOS D or better through 2030 in the Project Study Area.

1.1.7 SOCIAL AND ECONOMIC CONDITIONS

Section 1.7 of the Draft EIS discusses population characteristics, economic data, and major attractions in southern Gaston County. There are no changes or updates to these sections, which are briefly summarized below.

Population Characteristics. The populations of both Gaston and Mecklenburg Counties are expected to increase through 2030. According to the North Carolina Office of State Budget and Management, Gaston County is projected to grow 12.8 percent from 2006 to 2030, while Mecklenburg County is projected to have a much higher growth rate at 68.2 percent during the same period (NC State Demographics Web site: www.demog.state.nc.us).

Economic Data. The manufacturing sector currently employs the most workers in Gaston County, while the government sector employs the most workers in Mecklenburg County.

Major Attractions in Southern Gaston County. Daniel Stowe Botanical Garden is located in southeast Gaston County. In 2006, the 450-acre botanical garden attracted approximately 84,000 visitors (DSBG, Annual Report, 2006). Crowders Mountain State Park is on the western boundary of the Project Study Area. The 5,096-acre park attracted more than 400,000 visitors in 2007 (Telephone interview, Crowders Mountain State Park staff, April 11, 2008).

1.1.8 TRANSPORTATION PLANS AND LAND USE PLANS

Section 1.8 of the Draft EIS summarizes state and local transportation plans and local land use plans as they apply to the project. Several plans, as described below, have been updated since the Draft EIS was published.

Transportation and Land Use Plans

The project is consistent with state and local transportation and land use plans.

State Transportation Plans. The project is included in, and consistent with, the following state transportation plans: NCDOT *2009-2015 STIP* (Project U-3321), NCDOT Strategic Highway Corridors Vision Plan, and the North Carolina Intrastate System.

Local Transportation Plans. The project is included in, and consistent with, the *Gaston Urban Area Thoroughfare Plan*, the *GUAMPO 2030 LRTP*, the *Mecklenburg-Union Thoroughfare Plan*, and the *MUMPO 2030 LRTP*. Both the *GUAMPO 2030 LRTP* and the *MUMPO 2030 LRTP* have been updated to 2035 since the Draft EIS was published. **Figure 1-2** shows the projects included in the 2035 LRTPs. The Gaston East-West Connector project is included in the *GUAMPO 2035 LRTP* and *MUMPO 2035 LRTP* as a regionally significant project and a toll facility.

However, there were two inconsistencies between the Preferred Alternative and the project included in the GUAMPO *2035 LRTP*. The GUAMPO *2035 LRTP* included an interchange at Bud Wilson Road, and there were different assumptions for the year 2015 configuration (**Section 2.5.2.2**). The Bud Wilson Road interchange has been eliminated from the Preferred Alternative (**Section 2.3.1.6**). Current plans are for the Preferred Alternative in 2015 to be constructed as a four-lane facility from I-485 to US 321 and as an interim two-lane facility from US 321 to I-85. The remaining two lanes for the segment from US 321 to I-85 would be constructed by 2035. The GUAMPO prepared an amendment to the LRTP and air quality conformity determination (**Section 2.5.2.2**) to resolve these inconsistencies and the USDOT issued a conformity determination on October 5, 2010 (see letter in **Appendix K**).

Local Land Use Plans. The project is consistent with the various local land use planning documents covering the Project Study Area. These include the *Gaston County Comprehensive Plan* (July 2002), *Mecklenburg County Southwest District Future Land Use Map* (July 9, 2007 in Draft EIS, updated December 29, 2009), and the *Mecklenburg County Dixie-Berryhill Strategic Plan* (April 2003).

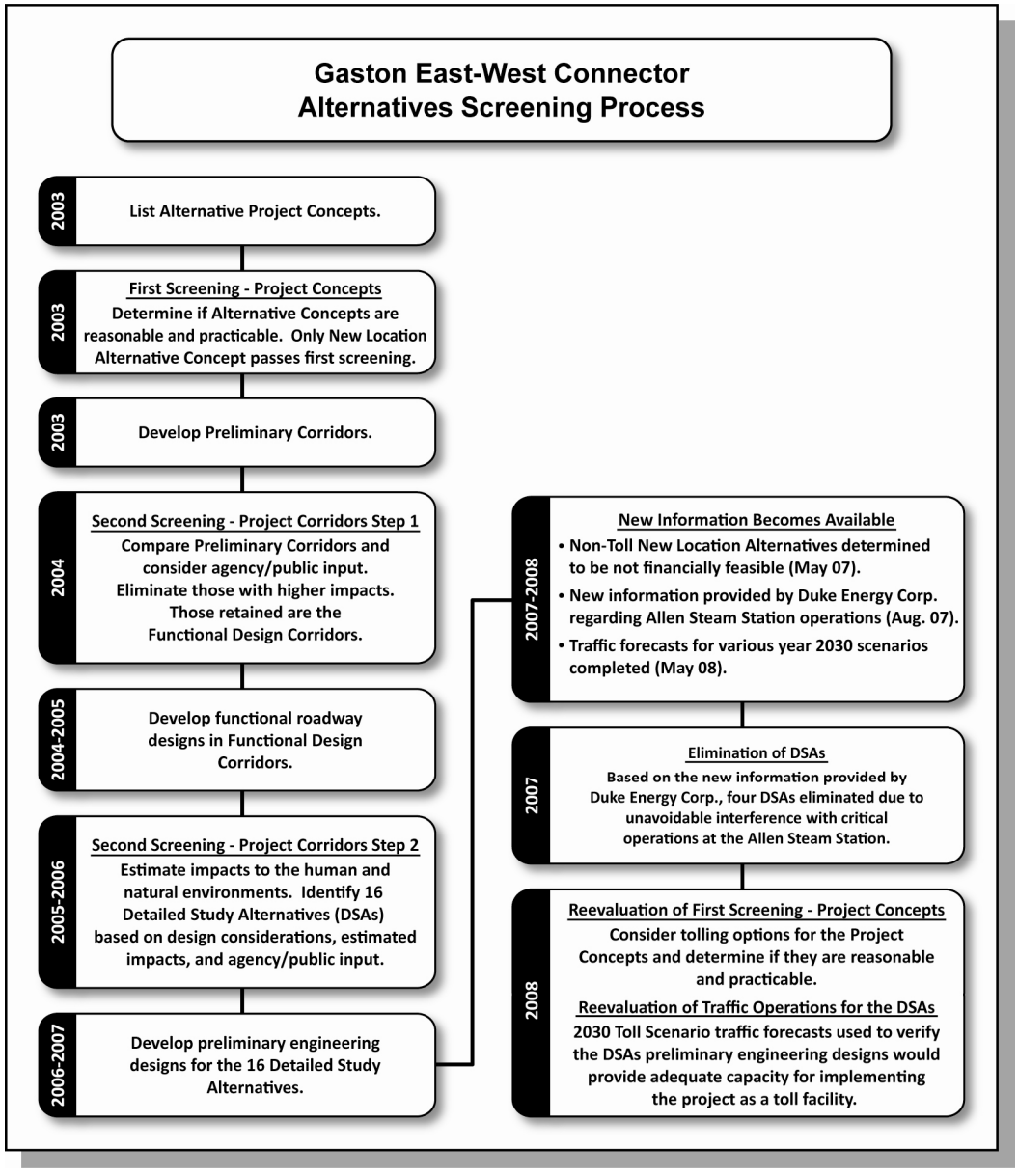
Figure 1-11 in the Draft EIS shows the *Gaston County Comprehensive Plan* Composite Initiatives Map (Gaston County Web site: www.co.gaston.nc.us/CompPlan/maps.htm). Figure 1-13 in the Draft EIS shows the *Dixie-Berryhill Strategic Plan* Proposed Land Use Map. **Figure 1-3** in this Final EIS shows the updated *Southwest District Future Land Use Map* adopted December 29, 2009. There are no substantial changes on the map in the vicinity of the Gaston East-West Connector.

1.2 ALTERNATIVES CONSIDERED

1.2.1 ALTERNATIVES DEVELOPMENT AND SCREENING

The development and evaluation of alternatives to determine the DSAs is described in Chapter 2 of the Draft EIS and documented in detail in the *Addendum to the Final Alternatives Development and Evaluation Report for the Gaston East-West Connector* (PBS&J, October 2008), incorporated by reference, and available on the NCTA Web site (www.ncturnpike.org/projects/gaston).

The Alternatives Screening Process flowchart presented below shows the alternatives evaluation process and general timeframes for when the different screenings occurred. The first screening evaluated general project concepts. The second screening refined the concepts retained from the first screening.



As summarized in Section 2.1.2 of the Draft EIS, the general public, in addition to local, state, and federal environmental resource and regulatory agencies, were provided opportunities for input and comment regarding the alternatives and the alternatives development and analysis process.

The first and second screenings of alternatives were originally discussed with the environmental resource and regulatory agencies through the NEPA/404 Merger 01 Process under the administration of the North Carolina Department of Transportation (NCDOT). A series of eight meetings regarding project alternatives were held from February 2004 through September 2005, resulting in concurrence on the DSAs on September 20, 2005. At that time, three agencies (US

Environmental Protection Agency [USEPA], US Fish and Wildlife Service [USFWS], and NC Wildlife Resources Commission [NCWRC]) elected to abstain, rather than expressing concurrence or non-concurrence in the DSAs.

Within the context of the NEPA/404 Merger process, "abstain" means that an agency representative participating in the merger process does not actively object to a concurrence point, but the agency representative does not sign the concurrence point form. The process may continue and the agency representative agrees not to revisit the concurrence point.

After the initial concurrence was achieved on the DSAs in September 2005, the FHWA and NCTA reevaluated the alternatives screening process in light of the project being determined a candidate toll facility and the receipt of updated travel demand forecasts. The FHWA and NCTA coordinated with the environmental resource and regulatory agencies on this reevaluation at several Turnpike Environmental Agency Coordination (TEAC) meetings held in January, June, and September 2007, and February, July, September and October 2008 (Draft EIS Section 9.2.3.3). The environmental resource and regulatory agencies confirmed concurrence on the DSAs at the October 2008 TEAC meeting. The three agencies that previously had abstained, the USEPA, USFWS and NCWRC, concurred at this stage along with all the other cooperating and participating agencies.

Public comment regarding alternatives was solicited at all three Citizens Informational Workshop series. Public comment on project concepts and preliminary alternatives was solicited at the first series of Citizens Informational Workshops held in September and December, 2003. The Detailed Study Alternatives were presented for public comment and input at the second series of Citizens Informational Workshops held in January and February 2006. The third series of Citizens Informational Workshops, held in August 2008 (**Section 9.1.1.3**), provided the public an opportunity to comment on the elimination of Corridor Segment K1D from detailed study (due to interference with critical operations at Duke Energy Corporation's Allen Steam Station), presented the remaining DSAs, announced the availability of the *Addendum to the Final Alternatives Development and Evaluation Report for the Gaston East-West Connector* (PBS&J, October 2008) on the project web site, and showed the right-of-way limits for the preliminary engineering designs within the DSA corridors. None of the comments received resulted in the addition, elimination, or substantial modification of the DSAs.

1.2.2 FIRST SCREENING – PROJECT CONCEPTS

In the First Screening – Project Concepts, six alternative concepts (discussed in Section 2.2 of the Draft EIS) were evaluated in an iterative process to determine if they were reasonable and practicable, based upon their ability to meet the project's purpose and need, potential impacts, and their financial feasibility. The six alternative concepts include:

- No-Build Alternative
- Transportation System Management (TSM) Alternatives
- Transportation Demand Management (TDM) Alternatives
- Mass Transit Alternatives and Multi-Modal Alternatives
- Improve Existing Roadways Alternatives
- New Location Alternatives

Qualitative and quantitative performance measures were used to the level of detail necessary to evaluate the ability of the various project concepts to meet the project's purpose and need, including mobility and direct access components. To meet the purpose and need, an alternative must provide more than a minor improvement. Those concepts that could not be developed to

meet the defined purpose and need were removed from further consideration. Each alternative concept was evaluated to determine whether they would:

- Reduce travel distances and/or travel times between representative origin/destination points within southern Gaston County and between southern Gaston County and Mecklenburg County.
- Provide a transportation facility that would operate at acceptable levels of service (generally Level of Service [LOS] D or better on the mainline) in the design year (2030) for travel between Gaston County and Mecklenburg County.
- Reduce congested vehicle miles traveled and/or congested vehicle hours traveled in Gaston County compared to the No-Build Alternative in 2030.

In some instances, financial feasibility also was addressed. The iterative first screening resulted in some alternatives being developed to a higher level of detail than others in order to determine whether they should be retained for the Second Screening or eliminated. **Table 1-1** summarizes the results of the First Screening – Project Concepts process.

TABLE 1-1: Summary of Results for First Screening – Project Concepts

Project Concept	Ability to Meet Purpose and Need*			Decision to Eliminate/ Retain for Second Screening	Reason for Decision
	Reduces Travel Times / Distances	Provides a Transportation Facility with Acceptable Levels of Service in the Design Year	Reduces Congested Vehicle Miles and/or Congested Vehicle Hours Traveled Compared to No-Build Alternative		
TSM Alternative	✖	✖	✖	Eliminated	Does not meet the project's purpose and need.
TDM Alternative	✖	✖	✖	Eliminated	Does not meet the project's purpose and need.
Mass Transit Alternative – Transit on Existing Alignment	✖	✖	✖	Eliminated	Does not meet the project's purpose and need.
Mass Transit Alternative – Transit on New Alignment	✓ (for transit users only)	✓ (for transit users only)	✖	Eliminated	Does not meet the project's purpose and need. Not financially feasible.
Multi-Modal Alternative – Transit on Existing Alignment	✖	✖	✖	Eliminated	Does not meet the project's purpose and need.
Multi-Modal Alternative – Transit on New Alignment	✓ (for transit users only)	✓ (for transit users only)	✖	Eliminated	Does not meet the project's purpose and need. Not financially feasible.
Improve Existing Roadways Alternative – Scenario 4 – Toll or Non-Toll on I-85	✖	✖	✖	Eliminated	Does not meet the project's purpose and need.

TABLE 1-1: Summary of Results for First Screening – Project Concepts

Project Concept	Ability to Meet Purpose and Need*			Decision to Eliminate/ Retain for Second Screening	Reason for Decision
	Reduces Travel Times / Distances	Provides a Transportation Facility with Acceptable Levels of Service in the Design Year	Reduces Congested Vehicle Miles and/or Congested Vehicle Hours Traveled Compared to No-Build Alternative		
Improve Existing Roadways Alternative – Scenario 8 – Toll or Non-Toll on I-85	✖	✖	✖	Eliminated	Minimal improvements do not meet project's purpose and need. High levels of impacts.
New Location Alternative – Non-Toll Scenario	✓	✓	✓	Eliminated	Meets the project's purpose and need. Not financially feasible.
New Location Alternative – Toll Scenario	✓	✓	✓	Retained	Meets the project's purpose and need. Is financially feasible. Retained for detailed study.
No-Build Alternative	✖	✖	✖	Retained	Retained for comparison purposes.

* See Sections 1.2 and 1.3 of the Draft EIS for details on the purpose and need for the project. The column headings are abbreviations for the evaluation measures listed in Section 1.3.

✖ - means the alternative concept cannot meet this evaluation factor.

✓ - means the alternative concept does meet, or could be designed to meet, this evaluation factor.

No-Build Alternative. The No-Build Alternative is the baseline alternative for the design year (2030). The No-Build Alternative assumes that the transportation systems for Gaston County and western Mecklenburg County would evolve as planned, but without the proposed project. Although the No-Build Alternative would not improve mobility, access or connectivity and thereby would not meet the project's purpose and need, the No-Build Alternative was retained for additional screening so as to provide a baseline for comparison with the DSAs.

Transportation System Management Alternative. The TSM Alternative includes modest physical and operational enhancements to improve performance, safety, and management of traffic operations without major construction. TSM improvements on I-85 ramps and ramp termini, US 29-74, and US 321 would not noticeably improve mobility, access or connectivity. Travel distances would remain the same and travel times would not be noticeably reduced. Similarly, signal coordination and intersection improvements would not be expected to noticeably improve congested vehicle hours traveled or congested vehicle miles traveled in Gaston County when compared to the No-Build Alternative.

Transportation Demand Management Alternative. The TDM Alternative includes measures and activities that change traveler behavior. The TDM Alternative includes demand management strategies currently being implemented in Gaston and/or Mecklenburg County –

such as a freeway management system, staggered work hours, and flex-time; and the conversion of existing lanes to high-occupancy vehicle (HOV) lanes or high-occupancy toll (HOT) lanes.

Although TDM measures such dynamic message boards, ramp meters, incident management systems, etc. would help optimize the efficiency of traffic flow on existing roadways, these roadways would remain congested due to the projected high volumes of traffic. Similarly, HOV or HOT lanes would improve traffic flow for travelers using those lanes, but general purpose lanes would remain congested. The use of the TDM Alternative would not reduce travel distances or travel times, nor would they noticeably improve congested vehicle hours traveled or congested vehicle miles traveled in Gaston County when compared to the No-Build Alternative. As such, the TDM Alternative would not meet the purpose and need of the project and was eliminated from further study.

Mass Transit Alternative. The Mass Transit Alternative, using expanded bus or rail service on existing facilities, was eliminated from further study because it would not meet the project's purpose and need. Although new alignments could provide increase connectivity and mobility, it would not meet the project's purpose and need and it would not be financially feasible. None of the Mass Transit Alternative scenarios would noticeably reduce vehicle miles traveled and/or congested vehicle miles traveled in Gaston County compared to the No-Build Alternative.

Multi-Modal Alternative. The Multi-Modal Alternative includes a combination of the Mass Transit Alternative and the TSM Alternative. Various combinations were reviewed in Section 2.2.5.2 of the Draft EIS. However, none of the options served to attract enough trips to reduce vehicle miles traveled and/or congested vehicle miles traveled compared to the No-Build Alternative and as such would not meet the project's purpose and need. In addition, the Multi-Modal Alternative was determined to be cost prohibitive.

Improve Existing Roadways Alternative. Two alternatives to improve existing roadways, known as Scenario 4 and Scenario 8, were evaluated in the Draft EIS (Section 2.2.6). These scenarios involve variations in widening I-85 to eight and ten lanes as well as various improvements to US 29-74 and north-south feeder routes. Both non-toll and toll options were evaluated. These alternatives would not improve travel times, mobility, access, or connectivity within southern Gaston County nor between southern Gaston County and Mecklenburg County. As such, the Improve Existing Roadways Alternative would not meet the project's purpose and need. These alternatives also would result in travel delays during construction, long construction duration, and community disruption cause by the required improvements to existing I-85. There are no controlled-access routes between Gaston and Mecklenburg Counties that could serve as an alternate route to I-85 during construction.

New Location Alternative. The New Location Alternative would extend from I-85 west of Gastonia to I-485 and NC 160 in Mecklenburg County, with various interchanges along the mainline. There would be new bridge crossings of the South Fork Catawba River and the Catawba River. Both toll and non-toll scenarios were assessed. As discussed in Section 2.2.7 of the Draft EIS, the New Location Alternative would meet the project's purpose and need and is consistent with local transportation plans. However, due to the financial infeasibility of the non-toll scenario, only the toll scenario was carried forward for further analysis.

1.2.3 SECOND SCREENING – PROJECT CORRIDORS

In the Second Screening – Project Corridors (discussed in Section 2.3 of the Draft EIS), the alternative concept (New Location Alternative) that made it through the First Screening process was further refined and evaluated to determine the DSAs.

The process used to develop and evaluate preliminary alternatives to ultimately determine DSAs is summarized in the flowchart in **Section 1.2.1** and described in detail below.

1. A Refined Study Area for the New Location Alternatives was identified, relying upon land suitability mapping (Draft EIS Section 2.3.2.1).
2. Numerous 1,200-foot-wide Preliminary Corridor Segments were developed within the Refined Study Area using the land suitability mapping and design criteria. These Preliminary Corridor Segments (approximately 116 miles of corridors) were presented to the public at the first series of Citizens Informational Workshops in September and December 2003 (Draft EIS Chapter 9 provides more detail on public involvement).
3. Second Screening Step 1 - Preliminary Corridor Segments were reviewed with local, state, and federal resource and regulatory agencies to determine if any should be eliminated based upon "fatal flaws" or high levels of estimated impacts to the human and/or natural environments, as compared to other segments under consideration.
4. The remaining Preliminary Corridor Segments (approximately 72 miles) were connected to form endpoint-to-endpoint corridors from I-85 to I-485 and the corridor width was extended from 1,200 feet to 1,400 feet in order to allow for more flexibility in establishing alignments.
5. Functional designs were prepared within these corridors, taking into consideration engineering design constraints and the locations of known sensitive human and natural resources. These are referred to as the Functional Design Corridors. The 1,400-foot-wide Functional Design Corridor boundaries then were shifted to be centered around the functional design alignments.
6. Second Screening Step 2 - Impacts to the natural and human environments based on the functional designs within the Functional Design Corridors were estimated and tabulated. The impact evaluation factors are listed in Table 2.2 of the Draft EIS. There were 90 possible endpoint-to-endpoint combinations of Functional Design Corridors evaluated.
7. From the set of Functional Design Corridors, sixteen DSAs were recommended based upon estimated impacts to the natural and human environments, engineering design considerations, and input from local, state, and federal resource and regulatory agencies. These recommendations were presented to the public for comment and input at the second series of Citizens Informational Workshops in January and February 2006.
8. Preliminary engineering designs were developed for the sixteen DSAs, based on 2030 Non-Toll Scenario traffic forecasts.
9. New information became available after the DSAs were identified and preliminary engineering designs completed. The new information included:
    - New information provided by Duke Energy Corporation regarding Allen Steam Station operations.
    - New traffic forecasts for various year 2030 scenarios, including the New Location Alternative Toll Scenario.
10. Four DSAs were eliminated due to unavoidable interference with critical operations at Duke Energy Corporation's Allen Steam Station.

11. The 2030 Toll Scenario traffic forecasts were used to verify that the DSAs' preliminary engineering designs would provide adequate capacity for implementing the project as a toll facility.

1.2.4 DETAILED STUDY ALTERNATIVES

As noted above, twelve endpoint-to-endpoint new location DSAs were identified for further study based upon the first and second screenings. These DSAs are listed in **Table 1-2** and shown in **Figure 1-4a-b**. In addition to the twelve new location DSAs, the No-Build Alternative was retained for comparison purposes throughout the planning process.

TABLE 1-2: Twelve Final Detailed Study Alternatives

Detailed Study Alternative	West Area – Generally west of US 321	Central Area – Generally east of US 321 and west of NC 279 or the South Fork Catawba River	East Area – Generally east of NC 279 or the South Fork Catawba River
	H Segment	J Segment	K Segment
4	H2A-H3	J4a-J4b-J2c-J2d-J5a-J5b	K2A-KX1-K3B-K3C
5	H2A-H3	J4a-J4b-J2c-J2d-JX4-J1e-J1f	K1A-K1B-K1C-K4A
9	H2A-H3	J4a-J4b-J2c-J2d-JX4-J1e-J1f	K1A-K3A-K3B-K3C
22	H2A-H2B-H2C	J3-J2c-J2d-J5a-J5b	K2A-KX1-K3B-K3C
23	H2A-H2B-H2C	J3-J2c-J2d-JX4-JIe-J1f	K1A-K1B-K1C-K4A
27	H2A-H2B-H2C	J3-J2c-J2d-JX4-JIe-J1f	K1A-K3A-K3B-K3C
58	H1A-H1B-H1C	J1a-JX1-J2d-J5a-J5b	K2A-KX1-K3B-K3C
64	H1A-H1B-H1C	J1a-J1b-J1c-J1d-J1e-J1f	K1A-K1B-K1C-K4A
68	H1A-H1B-H1C	J1a-J1b-J1c-J1d-J1e-J1f	K1A-K3A-K3B-K3C
76	H1A-HX2	J2a-J2b-J2c-J2d-J5a-J5b	K2A-KX1-K3B-K3C
77	H1A-HX2	J2a-J2b-J2c-J2d-JX4-J1e-J1f	K1A-K1B-K1C-K4A
81	H1A-HX2	J2a-J2b-J2c-J2d-JX4-J1e-J1f	K1A-K3A-K3B-K3C

Refer to **Figure 1-4a** for a map of the DSAs and their corridor segments.

Preliminary designs were developed for each DSA, using the design criteria presented in Appendix D of the Draft EIS. Each DSA was a controlled-access toll facility consisting of six lanes with a 46-foot grass median. At the time the Draft EIS was prepared, each DSA included 11 to 12 interchanges. The lengths of the DSAs are similar, ranging from 21.4 miles to 23.7 miles.

Traffic forecasts and operations analyses for the DSAs are discussed in Section 2.4.4 of the Draft EIS. Preliminary cost estimates for each DSA are presented in Section 2.4.5 of the Draft EIS. The total estimated median costs reported in the Draft EIS ranged from $1,281 million to $1,378 million. DSA 9 is identified as having the second to lowest cost.

Updated costs, typical sections, and traffic forecasts for the Preferred Alternative are discussed in **Section 2.3.**

1.2.5 RECOMMENDED ALTERNATIVE

The following information is from Section 2.5 of the Draft EIS, which describes the selection of DSA 9 as the Recommended Alternative. DSA 9 is comprised of Corridor Segments H2A-H3-J4a-J4b-J2c-J2d-JX4-J1e-J1f-K1A-K3A-K3B-K3C, as shown in **Figure 1-4a-b**.

The FHWA, NCTA, and NCDOT identified a Recommended Alternative in the Draft EIS, which provided readers an indication of the agencies' thinking at the time the Draft EIS was published. After the Draft EIS comment period ended, the FHWA and NCTA (now a division of NCDOT, as described in **Section P.1**), identified a Preferred Alternative based on consultation with local transportation planning agencies, and state and federal environmental resource and regulatory agencies, as well as consideration of agency and public comments received on the Draft EIS and at the public hearings (**Chapter 3**).

The Preferred Alternative is developed further in this Final EIS, as described in **Chapter 2**. The NEPA process will conclude with a Record of Decision (ROD), which will document the Selected Alternative to be constructed.

DSA 9 was identified in the Draft EIS as the Recommended Alternative based on the following considerations. Please note this list is not in order of importance, but is organized by issues as they were presented in the Draft EIS. Also, this list does not represent all benefits or impacts of DSA 9, just those elements that differentiated DSA 9 when compared to the other DSAs.

Cost and Design Considerations

- DSA 9 is one of the shortest alternatives at 21.9 miles (all alternatives range from 21.4 to 23.7 miles).
- DSA 9 has the second-lowest median total cost ($1,282 million) (all alternatives range from $1,281 million to $1,378 million).

Human Environment Considerations

- DSA 9 is one of the four DSAs with the fewest numbers of residential relocations at 348 residential relocations (the range being 326 to 384 residential relocations).
- Although DSA 9 is higher in the range of business relocations at 37 (the range being 24 to 40 business relocations), it would avoid impacts to Carolina Specialty Transport (provides transportations services to special needs groups) that would occur under DSAs 58, 64, 68, 76, 77 and 81.
- DSA 9 is in the middle of the range of total neighborhood impacts at 25 impacted neighborhoods (the range being 21 to 31 impacted neighborhoods).

  *Note: In the Draft EIS, impacts to the White Oak subdivision from Corridor Segment JX4 (DSAs 5, 9, 23, 27, 77, and 81) were inadvertently not included in Table 3-5 of the Draft EIS). In addition, impacts to the Saddlewood neighborhood were double-counted for DSAs 4, 5, 9, 22, 23, 27, 76, 77, and 81. (**Appendix A, Errata).** The total number of neighborhood impacts for DSA 9 is still 25 based on the Draft EIS preliminary design, with the range being 21 to 32.*

- DSA 9 would have no direct impacts to schools (DSAs 5, 23, and 27 also avoid direct impacts to schools).
- DSA 9 would not require relocation of known cemeteries (DSAs 27, 68, and 81 also would not require relocation of known cemeteries).
- At Linwood Road, DSA 9 is one of three alternatives (DSAs 4, 5, and 9) that would avoid impacting either the Karyae Park YMCA Outdoor Family Center or the Pisgah Associate Reformed Presbyterian Church (part of the church property is also an historic site eligible for listing on the National Register of Historic Places).

- DSA 9 is one of the three alternatives (DSAs 4, 5, and 9) farthest from Crowders Mountain State Park.
- DSA 9 would avoid right-of-way requirements from Daniel Stowe Botanical Garden (DSAs 4, 22, 27, 58, 68, 76, and 81 also avoid these right-of-way requirements).
- DSA 9 would avoid the relocation of Ramoth AME Zion Church and cemetery, which is part of the Garrison Road/Dixie River Road community (DSAs 4, 22, 27, 58, 68, 76, and 81 also avoid this church).
- DSA 9 is one of the eight alternatives (DSAs 4, 9, 22, 27, 58, 68, 76, and 81) with the least amount of right of way required from future Berewick Regional Park in Mecklenburg County.

Physical Environment Considerations

- DSA 9 is in the middle range of estimated numbers of receptors impacted by traffic noise at 245 receptors (the range being 204 to 309 impacted receptors).
- DSA 9 is one of the alternatives (DSAs 4, 5, 9, 22, 23, and 27) that would impact the least acreage of land in Voluntary Agricultural Districts (VAD). DSA 9 also is one that is expected to have the least indirect and cumulative effects to farmlands, based on the qualitative indirect and cumulative effects analysis (Draft EIS Chapter 7).
- DSA 9 is one of the alternatives with the fewest power transmission line crossings at 14 crossings (the range being 13 to 18).

Cultural Resources Considerations

- DSA 9 is one of six alternatives (DSAs 4, 5, 9, 22, 23, and 27) that would not require right of way from the Wolfe Family Dairy Farm historic site. Selection of DSA 9 makes it more likely that, if the US 321 Bypass is constructed at some future time, the project would also avoid the Wolfe Family Dairy Farm historic site.
- DSA 9 is one of four alternatives (DSAs 5, 9, 23, and 27) with low to moderate potential to contain archaeological sites requiring preservation in place or complex/costly mitigation.

Natural Resources Considerations

- DSA 9 is one of eight alternatives (DSAs 4, 9, 22, 27, 58, 68, 76, and 81) that would cross the South Fork Catawba River and the Catawba River where the rivers have been more affected by siltation and they are less navigable, and water-based recreation would be affected less than with DSAs that cross farther south.
- DSA 9 would impact the least amount of Upland Forested Natural Communities at 882 acres (all alternatives range from 882 to 1042 acres).
- DSA 9 is one of the alternatives (DSAs 4, 9, 22, and 76) having the lowest potential to indirectly affect upland wildlife species due to habitat fragmentation.
- DSA 9 is lower in the range of impacts to ponds at 4.1 acres (all alternatives range from 2.1 to 6.3 acres).
- DSA 9 is lower in the range of impacts to wetlands at 7.5 acres (all alternatives range from 6.9 to 13.2 acres).
- DSA 9 is lower in the range of impacts to perennial streams at 38,894 linear feet (all alternatives range from 36,771 to 50,739 linear feet).

- DSA 9 would have the fewest number of stream crossings at 91 (all alternatives range from 91 to 120 crossings).
- DSA 9 is one of eight alternatives (DSAs 5, 9, 23, 27, 64, 68, 77, and 81) that has a biological conclusion of No Effect relating to the federally endangered Schweinitz's sunflower.

1.3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section of the Final EIS summarizes the affected environment and environmental consequences described in Chapters 3 through 9 of the Draft EIS, and also includes general updates to the existing environment where indicated. The impact summary table from the Draft EIS, Table S-2, is included in **Appendix C** for reference.

1.3.1 HUMAN ENVIRONMENT

1.3.1.1 Land Use and Planning

Land Use and Transportation Plans

Generally, each of the DSAs would be consistent with area land use and transportation plans

The information in this section is summarized from Section 3.1 of the Draft EIS and includes updates to local land use plans in the study area and the *GUAMPO 2035 LRTP* and *MUMPO 2035 LRTP*. More detailed information regarding local land use planning and changes in land use as a result of the Preferred Alternative is provided in the *Quantitative Indirect and Cumulative Effects Analysis* (Louis Berger Group, Inc., August 2010) and **Section 2.5.5** of this Final EIS.

Existing Land Use. Land use within the Project Study Area is of mixed intensity and density, and includes farmland, estate homes, single-family neighborhoods, rural housing clusters, manufactured/mobile homes, and multi-family housing.

Pockets of commercial, office, and industrial uses are concentrated generally in the cities and towns, near Charlotte-Douglas International Airport, and along major transportation routes such as I-85, US 321, US 29-74, NC 274 (Union Road), NC 279 (South New Hope Road), and NC 273 (Southpoint Road), particularly where water and sewer services are provided. Other land uses include places of worship and public and private recreational areas.

Land Use Trends. The population of the Project Study Area is growing, and rural areas have been transitioning to suburban uses. This transition from rural to more of a suburban nature is generally consistent with what Gaston County and municipalities near the DSAs (Bessemer City, Gastonia, Cramerton, Belmont, McAdenville, and City of Charlotte) have envisioned in their land use plans.

Consistency with Land Use and Transportation Plans. Section 3.1.3 of the Draft EIS provides a summary of local land use and transportation plans within the Project Study Area. Generally, each of the DSAs would be consistent with area land use and transportation plans, and the No-Build Alternative would not be consistent. Since the Draft EIS was published, Bessemer City and Mecklenburg County updated their land use plans and GUAMPO and MUMPO updated their LRTPs.

The *Bessemer City Land Use Plan* was adopted in July 2009, replacing the *1995 Land Use Plan*. The updated plan recommends that land be set aside to accommodate future growth that may be generated by the Gaston East-West Connector.

Figure 1-3 in this Final EIS shows the updated *Southwest District Future Land Use Map* adopted December 29, 2009. There are no substantial changes on the map in the vicinity of the Gaston East-West Connector.

The *GUAMPO 2035 LRTP* and *MUMPO 2035 LRTP* both include the proposed Gaston East-West Connector as a toll facility.

Land Use Impacts. Since the DSAs are on new location, direct land use changes from any of the DSAs would include converting the land needed for right of way from its existing use to transportation use.

Even without construction of the project, southern Gaston County and western Mecklenburg County are generally planned for continued suburban development, with much of the undeveloped land slated for residential use. It is conceivable that the Gaston East-West Connector could influence a transition to other types/mixes of land uses, as well as the timing of these potential transitions, particularly at proposed interchange locations. As such, the project could play a role in the transition of the overall character within southern Gaston County from rural to suburban, which is consistent with the *Gaston County Comprehensive Plan*.

1.3.1.2 Existing Social and Economic Resources and Community Characteristics

The Draft EIS Sections 3.2.1 and 3.2.2 includes an overview of the Project Study Area's existing social and economic characteristics summarized from the *Final Community Impact Assessment for the Gaston East-West Connector* (PBS&J, October 2008), available on the NCTA Web site (www.ncturnpike.org/projects/gaston), and the *Community Characteristics Report for the Gaston East-West Connector* (PBS&J, November 2007).

The following is a brief summary of the information presented in Sections 3.2.1 and 3.2.2 of the Draft EIS. Updates to information about populations with limited English proficiency and updates to cemeteries, schools, and fire departments are noted below.

Population Characteristics. The Demographic Study Area consists of 53 Gaston County Block Groups and seven Mecklenburg County Block Groups and was established to identify and analyze population growth, household, and other demographic characteristics. Between 1990 and 2000, the Demographic Study Area grew 13 percent, with the largest percent increases in population generally occurring south of Gastonia, followed by southeast and southwest Gaston County and the southern end of Mecklenburg County. The areas having the most block groups with negative or smaller growth increases are located west of Gastonia and within and around Bessemer City.

Whites, African-Americans, and Hispanics are the three largest racial/ethnic groups within the project study area. Based upon the 2000 Census, the median family income for Gaston County ($46,271) was about the same as the state average ($46,335) and the median family income for Mecklenburg County ($60,608) was higher than the state average.

Executive Order 13166 – Improving Access to Services for Person with Limited English Proficiency, federal and state agencies are directed to take reasonable steps to ensure meaningful access to information and services is provided. US Census data for the Demographic Study Area was reviewed to identify Limited English Proficiency (LEP) populations in

accordance with NCDOT's current standards and the Department of Justice Safe Harbor Act threshold. This threshold is defined as language groups in a demographic area in which more than 5 percent of the adult population or 1,000 persons speak English less than "Very Well" as reported in the US Census. The 2000 US Census data for the Demographic Study Area indicate the presence of a Spanish language group that exceeds the threshold of 1,000 persons. The Demographic Study Area contains 1,587 adult persons whose primary language group is Spanish and who speak English less than "Very Well". This is approximately 3 percent of the population of the Demographic Study Area.

In accordance with the Safe Harbor Act provisions, written translations of documents have been, and will be, provided for the LEP language group in addition to other measures assuring meaningful access. These other measures include notice of Right of Language Access for future meetings for this project, continued advertisements in, and offer of articles for, publication in Spanish language newspapers, and continued inclusion of community service organizations on the project mailing list. Thus, the requirements of Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency will be satisfied.

Economic Characteristics. In 1990, the Manufacturing sector provided the highest percentage of jobs in Gaston County at 46.8 percent, followed by Trade/Transportation/Utilities at 18.9 percent. In 2006, the Manufacturing sector still provided the highest percentage of jobs in Gaston County, but the percentage fell by over half to 22.9 percent. Education/Health moved to the second highest percentage, followed by Trade/Transportation/Utilities. In 1990 and 2006 the sector that provided the highest number of jobs in Mecklenburg County was Trade/Transportation/Utilities. The Professional/Business sector provided the second highest number of jobs in both 1990 and 2006.

Named Neighborhoods and Other Communities. The Project Study Area contains 59 named neighborhoods within the municipalities and unincorporated areas of Gaston County and Mecklenburg County. A complete list of these neighborhoods is included in the *Final Community Impact Assessment for the Gaston East-West Connector* (PBS&J, October 2008). **Figure 1-5a-b** depicts the general locations of the existing neighborhoods in relation to the DSAs.

Also within and near the DSAs are housing clusters that are not identified as named communities in available GIS data. These could represent rural communities in which there are social interconnections. These seventeen areas are shown in **Figure 1-5a-b** (labeled with an "N" and a number).

One of the rural communities is the Garrison Road/Dixie River Road community. This community is defined roughly by Mt. Olive Church Road (SR 1184) on the north, Dixie River Road (SR 1155) on the west/south, Sadler Road (SR 1150 on the north/west, and I-485 on the east (Telephone interview, Dixie River Community Association president, December 7, 2007). The Dixie Community Center located on Garrison Road essentially serves as the center of the community.

Community Resources and Services. Community resources and services within and near the DSAs are described in detail in Section 3.2.2.3 and Figure 3-7a-b of the Draft EIS.

Churches and Cemeteries. There are seventeen churches within and near the DSAs. Most cemeteries are located on church properties, but five are located on separate properties. Additional information about the boundaries of the Mt. Pleasant Baptist Church cemetery, discovered since the Draft EIS was published, is discussed in **Section 1.3.1.6**.

Schools. There are four public schools located within or near the DSAs. From west to east, these are: Edward D Sadler Elementary, Forest Heights Elementary, Forestview High School, and WA Bess Elementary.

At the time the Draft EIS was published, there were two preliminary sites being considered by Gaston County Schools for a future middle/high school campus. These are located in Corridor Segment K2A (DSAs 4, 22, 58, and 78) and Corridor Segment K3A (DSAs 9, 27, 68, and 81). Since the publication of the Draft EIS, the process to determine the actual location has been dropped, and there will be no new school in either of these locations. (Telephone interview, Executive Director Auxiliary Services for the Gaston School District, January 28, 2010).

Fire Departments. There is an update to fire station locations since the Draft EIS was published. The Crowders Mountain South Volunteer Fire Department previously located at 4802 York Highway (US 321) in Gastonia (Station F3 on Draft EIS Figure 3-7a) is no longer in operation (Telephone interview, Gaston County Fire Marshal's office, May 26, 2010). There are still two other volunteer fire departments (VFDs) within or near the DSAs: Crowders Mountain Central VFD (also known as Chapel Grove) and Crowders Mountain #2 VFD and Rescue.

Libraries. There is one library located within or near the DSAs. Union Road Branch Library is located just south of Forestview High School.

Parks and Recreation Areas. There are two publicly-owned parks and several privately-owned recreation areas within or near the DSAs. Publicly-owned parks, from west to east, include Crowders Mountain State Park, the Park at Forestview High School, and Berewick Regional Park.

Privately-owned recreational facilities include, from west to east: Camp Rotary Girl Scout Camp, Karyae Park YMCA facility, Linwood Springs Golf Course, Carolina Speedway, Daniel Stowe Botanical Garden, Allen Fishing Access Area (owned by Duke Energy Corporation), and the Belmont Optimist Club recreation fields (on property leased from Duke Energy Corporation).

There are also planned greenways within the Project Study Area. Planned greenways are shown on Figure 3-8a-b of the Draft EIS and include greenways proposed by GUAMPO and also the Carolina Thread Trail. The Carolina Thread Trail is proposed by the Catawba Lands Conservancy and the Trust for Public Land (Carolina Thread Trail Web site: www.carolinathreadtrail.org).

Bicycle Routes. There are five bicycle routes in Gaston County (NCDOT Web site: www.ncdot.org/it/gis/DataDistribution/BikeMaps/default.html). One of these routes, Route 1 – High Shoals-Crowders Mountain, crosses all the DSAs.

1.3.1.3 Relocations and Displacements

Residential and business relocation impacts for each of the DSAs are presented in Section 3.2.3 of the Draft EIS. A summary of relocation impacts reported in the Draft EIS is included in the table in **Appendix C**.

All DSAs would require relocation of residences and businesses. The total number of residential relocations for each DSA ranges from 326 residences (DSA 68) to 384 residences (DSA 76). Eight of the DSAs would include one to two farm relocations. The DSAs would relocate between 24 businesses (DSA 77) and 40 businesses (DSA 22).

Section 2.5.1.2 of this Final EIS provides updated relocation impacts associated with the refined preliminary design of the Preferred Alternative.

The NCTA will follow state and federal regulations and NCDOT policies for right-of-way acquisition and relocation.

1.3.1.4 Impacts to Neighborhoods

The information in this section is summarized from Section 3.2.4 of the Draft EIS. The preliminary design for the Preferred Alternative was refined in areas adjacent to several neighborhoods, as discussed in **Section 2.3.1**. An updated discussion of impacts to neighborhoods associated with the Preferred Alternative is included in **Section 2.5.1.3** of this Final EIS.

Due to the large project size and number of neighborhoods affected by the preliminary designs for the DSAs, a matrix was developed in order to better organize and describe impacts to neighborhoods. The matrix is presented in Table 3-5 and Table 3-6 of the Draft EIS.

The impacts from Corridor Segment JX4 (DSAs 5, 9, 23, 27, 77, and 81) to the White Oak subdivision were inadvertently not included in Table 3-5, and were not counted in the total neighborhood impacts reported for DSAs 5, 9, 23, 27, 77, and 81 (**Appendix A**).

The impacts to the Saddlewood subdivision were inadvertently counted twice in the Draft EIS for DSAs 4, 5, 9, 22, 23, 27, 76, 77, and 81. Because this neighborhood is located at the junction of two Corridor Segments (J2c and J2d), it was erroneously counted as being impacted by both segments (**Appendix A**).

All DSAs would have a negative impact to some existing neighborhoods. Impacts range from minor right-of-way encroachments on neighborhood properties to complete acquisition of a neighborhood. The number of named neighborhoods impacted by the DSAs range from 15 (DSAs 68 and 81) to 24 (DSA 5). The revised total neighborhood impacts for all DSAs are included in **Table 1-3**, with the complete corrected matrix (Draft EIS Table 3-5) reproduced in **Appendix A**.

TABLE 1-3: Summary of Impacts to Named Neighborhoods and Rural Communities

Type of Impact*	Detailed Study Alternative											
	4	**5**	**9**	**22**	**23**	**27**	**58**	**64**	**68**	**76**	**77**	**81**
Total Number of Category B Impacts	5	6	4	7	8	6	6	7	5	5	6	4
Total Number of Category C Impacts	13	14	12	13	14	12	9	11	9	10	11	9
Total Number of Category D Impacts	9	9	8	4	4	3	10	9	8	8	8	7
Total Number of Category E Impacts	1	3	1	0	2	0	2	4	2	1	3	1
Total Number of Neighborhood Impacts	28	32	25	24	28	21	27	31	24	24	28	21

Category A – No Impact (so not reported in this table), B – No relocations, C – Relocation of homes on end of road or at edge of neighborhood, D – Relocation of homes in midst of neighborhood, E – Total displacement of a neighborhood

1.3.1.5 Environmental Justice

The information in this section is summarized from Section 3.2.5 of the Draft EIS. There have been no updates to this information since the Draft EIS was published.

The Gaston East-West Connector project was evaluated for the potential for disproportionately high and adverse impacts on minority and low-income populations in two ways: 1) impacts that

result from building and operating any new road (e.g., taking of land, noise impacts, air impacts, etc.) and 2) impacts that result specifically from tolling the proposed facility.

The first category of impacts mainly involves people who are living in the immediate vicinity of the project. The general locations of African-American populations, Hispanic populations, and low-income populations are shown in Figures 3-3, 3-4, and 3-5 of the Draft EIS. Based on information presented in Section 3.2.5 of the Draft EIS, the construction of any of the DSAs was determined not to have a disproportionately high or adverse impact on minority and low-income populations.

The second category involves people who are potential users of the road – a much broader geographic area. All of the DSAs would provide a new, limited-access, east-west route in the region. A result of the project would be reduced traffic on the existing alternate non-toll route; I-85. Completing the project would benefit all motorists, including low-income motorists who may choose not to use the toll facility or may tend to use it less frequently.

All reasonable efforts have been made to include low-income and minority groups in the decision-making process to date. The project will not deny, reduce, or delay receipt of project benefits to low-income and minority groups. Impacts to low-income and/or minority populations resulting from implementing the Gaston East-West Connector as a toll facility are not anticipated to be "disproportionately high and adverse".

1.3.1.6 Impacts to Community Resources and Services

The information in this section is summarized from Section 3.2.6.1 of the Draft EIS. The impact summary table from the Draft EIS included in **Appendix C** lists the impacts to community resources for each DSA. Additional information regarding the historic boundaries of the Mt. Pleasant Baptist Church cemetery has been discovered since the Draft EIS. In addition, there is a correction noted for impacts to cemeteries.

An updated discussion of impacts to community resources associated with the refined preliminary design of the Preferred Alternative is included in **Section 2.5.1.5** of this Final EIS.

Churches and Cemeteries. Table 3-8 in the Draft EIS shows the estimated impacts to churches and cemeteries. All DSAs would result in an impact to at least one church and/or cemetery.

As included in **Appendix A**, impacts to Mt. Pleasant Baptist Church cemetery were listed for DSA Segment KX1 (DSAs 4, 22, 58, and 76) in Draft EIS Table 3-8, but these same impacts should also have been listed for DSA Segment K3A (DSAs 9, 27, 68, and 81) since the segments overlap in the area near the cemetery. The impact was stated as taking 2.1 acres (60 percent) of wooded area on the south and east side of parcels owned by the Mt. Pleasant Baptist Church. The area of this property with observed gravestones would not be impacted.

The Mt. Pleasant Baptist Church Cemetery is located in the northwest quadrant of the proposed interchange of the Gaston East-West Connector and Southpoint Road (NC 273). During the Phase II Archaeological Survey for the Preferred Alternative (**Section 2.5.3.2**), additional gravesites were discovered south of the Mt. Pleasant Baptist Church cemetery's present-day parcel boundaries. The historic boundaries of the cemetery were larger, and encompassed approximately an additional one-half acre to the southwest (*Gaston East-West Connector Intensive Archaeological Survey*, Coastal Carolina Research, February 2010).

The preliminary designs shown in the Draft EIS for DSAs 4, 9, 22, 27, 58, 68, 76, and 81 included a ramp and loop in the northwest quadrant of the Southpoint Road (NC 273) interchange. The proposed right of way would impact the gravesites discovered in the historic boundaries of the

cemetery. As discussed in **Section 2.5.3.2**, a redesign of the Preferred Alternative's interchange with Southpoint Road (NC 273) removed the loop, reducing the right of way needed in the northwest quadrant, and therefore avoiding the historic boundaries of the cemetery and the gravesites. This redesign would have been able to be applied to the other DSAs that would impact this site.

Schools. DSAs that use Corridor Segment H 1A (DSAs 58, 64, 68, 76, 77, and 81) would require a minor encroachment (0.36 acres) onto Sadler Elementary School property from construction of the US 29-74 interchange. However, normal use of the school and its access would not be impacted.

DSAs that use Corridor Segment J4a (DSAs 4, 22, 58, and 76) would require land from the southeast corner and the front of the Forestview High School property to construct the relocation of NC 264 (Union Road). All existing access to the school would remain. A maximum of 20 parking spaces in the visitor lot and 20 parking spaces in the student lot could be impacted.

It is anticipated that no matter which DSA is selected as the Preferred Alternative, the project would temporarily impact school bus routes during construction, as well as result in modifications to existing routes and/or promote new school bus routes. The NCTA will coordinate with Gaston County Schools and Mecklenburg County Schools to minimize impacts to school bus routes.

Fire Stations. DSAs that use Corridor Segment H1C (DSAs 58, 64, and 68) could require a maximum of 0.64 acres of right of way from the front of Crowders Mountain #2 VFD and Rescue on Bethany Road. It is unlikely that any impacts to parking or other uses would occur.

All DSAs would result in short term impacts to fire and rescue service during construction, including potential re-routing of existing service routes. Maintenance of traffic along these routes will be important during construction, and NCTA will coordinate with the Gaston County Fire Marshal and area fire stations to ensure continuation of services.

Libraries and Community Centers. The Union Road Branch Library would not be impacted by any of the DSAs.

The preliminary designs shown in the Draft EIS for all DSAs would not displace the Dixie Community Center. However, the presence of the project in this area could affect community cohesion and interaction among persons/groups in the community.

The preliminary design for the Preferred Alternative was updated in this area, and its impacts to the Dixie Community Center are discussed in **Section 2.5.1.5**.

Parks and Recreation Areas. None of the DSAs would directly impact Crowders Mountain State Park, Park at Forestview High School, Camp Rotary Girl Scout Camp, or Allen Fishing Area.

Berewick Regional Park. All DSAs would involve a minor encroachment into undeveloped parcels owned by Mecklenburg County that are part of Berewick Regional Park. Based upon the preliminary designs in the Draft EIS, DSAs that use Corridor Segment K3C (DSAs 4, 9, 22, 27, 58, 68, 76, and 81) would acquire approximately 1.6 acres of this public park site west of and adjacent to I-485. DSAs that use Corridor Segment K4A (DSAs 5, 23, 64, and 77) would acquire approximately 3.3 acres (2.1 acres on the west of and adjacent to I-485, 0.6 acres from the northernmost parcel, and 0.6 acres on the southwest side of the property along Dixie River Road). These minor encroachments on the edges of the property owned by Mecklenburg County are not anticipated to impact access or any future uses.

Mecklenburg County Park and Recreation Department stated its belief that all DSAs would provide improved access to the future Berewick Regional Park, which would benefit the park. The Department did not believe that the proposed right of way needed from Mecklenburg County property for any of the DSAs would detract from the planned function and use of the site as a park. However, the Department would like to continue coordinating with NCTA to ensure that, for the Preferred Alternative, right of way and construction limits within the property boundaries are minimized as necessary to ensure that significant activities, features, and attributes of the proposed park are not adversely affected (Letters from Mecklenburg County Park and Recreation Department dated September 25, 2008 and December 5, 2008, Appendix A-5 in the Draft EIS). Additional discussion about the future Berewick Regional Park as a Section 4(f) resource is included in Section 5.4.3.1 of the Draft EIS and **Section 1.3.3.3** and **Section 2.5.3.3** of this Final EIS.

The preliminary design for the Preferred Alternative was updated in this area, and as discussed in **Section 2.5.1.5**, no right of way is expected to be required from Berewick Regional Park.

Karyae Park. The uses and functions of this privately-owned YMCA facility would be adversely impacted by DSAs that include Corridor Segment H1A (DSAs 58, 64, 68, 76, 77, and 81).

Linwood Springs Golf Course. Under DSAs that use Corridor Segment H3 (DSAS 4, 5, and 9), access to the golf course entrance on Linwood Road would change slightly with the construction of the Linwood Road interchange, but the functions of the golf course would not be impacted.

Carolina Speedway. Approximately 7.7 acres of the northern and western sides of this privately-owned speedway property would be impacted by DSAs that include Corridor Segment J1f (DSAs 5, 9, 23, 27, 64, 68, 77, and 81). Impacts would occur to the parking areas.

The preliminary design for the Preferred Alternative was updated in this area, as discussed in **Section 2.5.1.5**.

Daniel Stowe Botanical Garden. None of the DSAs are anticipated to negatively impact the privately-owned Daniel Stowe Botanical Garden (DSBG). All the DSAs pass to the north of DSBG.

The nearest DSAs are those that use Corridor Segment K1C (DSAs 5, 23, 64, and 77). The mainline of these DSAs passes approximately one-quarter mile north of the northern boundary of DSBG. However, construction of the NC 279 (South New Hope Road) interchange in Corridor Segment K1C (DSAs 5, 23, 65, and 77) would require a minor right-of-way encroachment of approximately 0.6 acres required at the northeastern end of the DSBG property. These minor encroachments would not impact the use and function of the DSBG property. Access to the truck entrance at the northern end of the property would be maintained.

Duke Energy Corporation Recreational Fields (Belmont Optimist Club). DSAs that include Corridor Segment K3B (DSAs 4, 9, 22, 27, 58, 68, 76, and 81) would impact the recreational ball fields owned by Duke Energy Corporation and leased by the Belmont Optimist Club. The recreational fields have a total area of approximately 4.9 acres. The preliminary designs for Corridor Segment K3B would impact the edge of the baseball field's outfield and the north corner of the general recreational field. The current right-of-way limits require approximately 0.3 acres, while the construction limits impact approximately 0.1 acres. Minimization measures will be investigated during final design if DSA 4, 9, 22, 27, 58, 76, or 81 is selected as the Preferred Alternative.

The preliminary design for the Preferred Alternative was updated in this area to avoid impacts to the recreational fields, as discussed in **Section 2.5.1.5**.

Planned Greenways. There are several planned greenways in the Project Study Area, as shown in Figure 3-8a-b of the Draft EIS. All DSAs have the potential to cross greenways that have yet to be constructed. During final design of the Preferred Alternative, NCTA will coordinate with the applicable groups to identify needed accommodations for existing and funded greenways that cross the Preferred Alternative.

1.3.1.7 Community Safety

The information in this section is summarized from Section 3.2.6.2 of the Draft EIS. There have been no changes to this information since the Draft EIS.

Emergency Response. The Gaston East-West Connector would have a long-term positive impact on emergency response times within the Project Study Area. The project is likely to quicken some response times for services by decreasing travel times, and by providing improved east-west connectivity in southern Gaston County. There are not likely to be considerable differences among the DSAs with regard to response times.

Pedestrians and Bicycles. The proposed project does not include pedestrian and bicycle provisions since it is a controlled-access freeway.

One of Gaston County's bicycle routes (Route 1: High Shoals – Crowders Mountain) runs east-west through the area along Linwood Road, and crosses Corridor Segments H1A, H2C and H3 (i.e., all of the DSAs). As such, the project may impede or block pedestrian and bicycle traffic desiring to travel from one side of the highway to the other, because travel over/under the roadway would only be possible at interchanges and grade-separated crossings. For established and planned bicycle routes and existing and funded greenways, NCTA will coordinate with the entities having jurisdiction over these facilities during the final design of the Preferred Alternative to provide appropriate and safe crossing of these facilities.

Maintenance of Traffic During Construction. Maintenance of traffic and sequencing of construction would be planned and scheduled in order to minimize traffic delays throughout the Project Study Area. Access to all businesses and residences would be maintained to the extent possible through controlled construction scheduling.

Fog. Dense fog may occur at certain times of the year along the major rivers in the Project Study Area, including the Catawba River and the South Fork Catawba River. NCTA and NCDOT do not have a written policy regarding procedures for designing projects in fog-prone areas. Projects are studied on a case-by-case basis, typically after a project has been constructed. For example, NCDOT evaluated the conditions on the I-95 bridge over the Roanoke River near Roanoke Rapids. In this location, NCDOT installed a weather station to assess weather conditions, such as fog, and to prompt a variable message sign warning travelers of thick fog and limited visibility. Additional devices used to enhance safety in fog-prone areas can include reflective pavement markers and lighting. In accordance with NCDOT normal operating procedures, fog-related safety issues will be evaluated on a case-by-case basis after construction, and measures installed where warranted.

1.3.2 PHYSICAL ENVIRONMENT

1.3.2.1 Noise

Section 4.1 of the Draft EIS provides details of the noise analysis conducted for the DSAs. A summary of impacts and mitigation reported in the Draft EIS is presented in the Draft EIS impact summary table included in **Appendix C**.

The noise analysis for the Preferred Alternative (DSA 9) has been updated to incorporate design changes and updated year 2035 traffic forecasts prepared since the Draft EIS was circulated. The updated noise analysis for the Preferred Alternative is discussed in **Section 2.5.2.1** of this Final EIS.

Traffic noise from the DSAs was evaluated based upon FHWA and NCDOT criteria. The FHWA Traffic Noise Model® (TNM), Version 2.5, was used to predict future traffic noise levels for this project and to evaluate the feasibility and reasonableness of preliminary noise barriers.

The table in **Appendix C** lists the numbers of receptors predicted to be impacted by traffic noise, based upon the 2030 traffic noise contours (Draft EIS Appendix G). Impacted receptors are receptors expected to experience traffic noise impacts either by approaching or exceeding the FHWA Noise Abatement Criteria (NAC) based upon the 71 dBA Leq traffic noise contour (for Category C) and 55 dBA Leq noise contours (for Category B), or by a substantial increase in exterior noise levels (as defined in NCDOT's Traffic Noise Abatement Policy). Impacted receptors do not include noise-sensitive receptors that would be relocated by the project.

The numbers of impacted receptors range from 196 impacted Category B receptors for DSA 68, to 301 impacted Category B receptors for DSA 76. Category B receptors in the vicinity of the DSAs include residences and churches. Relatively few businesses (Category C) would be impacted by noise along the DSAs, with the numbers of impacts ranging from three businesses for DSA 77 to ten businesses for DSA 22.

If traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures for reducing or eliminating the noise impacts must be considered. Types of abatement measures include highway alignment selection, traffic management measures, vegetative buffers, property acquisition, or noise barriers. Due to design restraints, access and space requirements, and cost considerations, noise barriers were found to be the only feasible and reasonable method of abatement.

Twenty-two locations were identified where noise barriers were preliminarily determined to be feasible and reasonable. The twenty-two preliminary noise barriers are listed in Table 4-5 of the Draft EIS and are shown in **Figure 1-6**.

1.3.2.2 Air Quality

The information in this section is summarized from Section 4.2 of the Draft EIS. Air quality issues addressed include transportation conformity, mobile source air toxics (MSATs), potential air quality impacts from construction activities, and potential for road and bridge icing from the Allen Steam Station air pollution control equipment. As discussed below, there have been updates to transportation conformity and MSATs since the Draft EIS was published. Due to the complexity of air quality issues, background text from the Draft EIS has been included here under "Existing Conditions Related to National Ambient Air Quality Standards" and "Transportation Conformity Background".

Existing Conditions Related to National Ambient Air Quality Standards. The US Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: carbon monoxide, nitrogen dioxide, ozone, lead, particulate matter, and sulfur dioxide. An area that exceeds the NAAQS for one or more criteria pollutants is said to be in "non-attainment" of the NAAQS enforced under the Clean Air Act.

As presented in Section 4.2 of the Draft EIS, the Charlotte-Gastonia-Rock Hill air quality region, which includes the project area, is in attainment for nitrogen dioxide, lead, particulate matter,

and sulfur dioxide. Except for Mecklenburg County, all other areas within the Charlotte-Gastonia-Rock Hill air quality region are designated as attainment for carbon monoxide. Mecklenburg County is a maintenance area for carbon monoxide.

On June 15, 2004, the Charlotte-Gastonia-Rock Hill air quality region was designated as a moderate non-attainment area for the 1997 8-hour ozone NAAQS (USEPA Web site: www.epa.gov/oar/oaqps/greenbk). The region includes the following counties in North Carolina: Mecklenburg, Gaston, Lincoln, Cabarrus, Rowan, Union, and the southern portion of Iredell. The urbanized area of eastern York County, South Carolina, also is included. Compliance with the 1997 ozone standard was required by June 15, 2010. The State Implementation Plan (SIP) for ozone for this region submitted to USEPA by the NC Department of Environment and Natural Resources (NCDENR) Division of Air Quality (DAQ) projected that the 8-hour ozone standard would be met by this time (*State of the Environment Report 2008*, Mecklenburg County Land Use & Environmental Services).

The SIP in North Carolina is developed by the NCDENR-DAQ. The SIP describes how North Carolina will maintain or achieve compliance with the NAAQS.

Transportation Conformity Background. Section 176(c) of the Clean Air Act Amendments (42 USC 7506(c)) requires that transportation plans, programs, and projects conform to the intent of the SIP. Conformity requirements apply to transportation plans, programs, and projects funded or approved by the FHWA or the Federal Transit Administration (FTA) in areas that do not meet, or previously have not met, NAAQS for ozone, carbon monoxide, particulate matter, or nitrogen dioxide (*Fact Sheets on Highway Provisions*, FHWA Web site: www.fhwa.dot.gov/safetealu/factsheets/conformity.htm).

Under the transportation conformity regulations, a transportation conformity determination is required every time a Metropolitan Planning Organization (MPO) approves an update or amendment to its LRTP and transportation improvement program (TIP). A regional conformity determination is needed for each update and amendment to an LRTP and TIP.

In addition to the regional conformity determination for LRTPs and TIPs, FHWA also must make a project-level conformity determination. For all pollutants, a project-level conformity determination can be made only if the project is included in a conforming LRTP and TIP. In addition, for carbon monoxide and particulate matter, a project-level conformity finding requires a localized conformity analysis, known as a "hot-spot" analysis.

For the Gaston East-West Connector project, transportation conformity determinations are required for two pollutants: ozone and carbon monoxide. The conformity requirements apply to these pollutants because the Metrolina region as a whole is designated as a nonattainment area for the 1997 8-hour ozone standard and Mecklenburg County is designated as a maintenance area for carbon monoxide.

Transportation Conformity Update. The Draft *Conformity Analysis and Determination Report for the Cabarrus-Rowan MPO, Mecklenburg-Union MPO, and the Gaston Urban Area MPO 2035 Long Range Transportation Plans and the FY 2009-2015 Transportation Improvement Programs and for Non-MPO Areas of Lincoln County, Iredell County, Gaston County, and Union County areas (8-Hour Ozone, and CO (Mecklenburg County Only))* was made available for public review on February 5, 2010. Public meetings to solicit comments on these documents as well as the Draft *2035 LRTP* and the *2009 – 2015 STIP Amendment* were held on February 24, 2010 in the Charlotte Mecklenburg Government Center, on February 17, 2010 in the Gaston County Main Library, and other locations in the region.

All of the above referenced documents were made available for review until the close of the public review and comment period on March 8, 2010. As of that date, no substantive comments were received and all were endorsed by the MUMPO TCC on March 11, 2010, by MUMPO on March 24, 2010, by GUAMPO TCC on March 10, 2010, and by GUAMPO on March 23, 2010. USDOT made a conformity determination on the LRTP and TIP on May 3, 2010. A copy of the USDOT letter, along with USEPA's April 22, 2010 review, can be found in **Appendix K** of this Final EIS.

After the May 3, 2010 conformity determination made by the USDOT, the GUAMPO prepared an amendment to the *2035 LRTP* and *2009-2015 TIP* so that the project design concept and scope included in the LRTP and TIP is consistent with the Preferred Alternative. GUAMPO made a conformity determination on the amended *2035 LRTP* and *2009-2015 TIP* on August 24, 2010. USDOT issued a conformity determination on the amendments on October 5, 2010. A copy of the USDOT letter is included in **Appendix K** of this Final EIS.

Mobile Source Air Toxics Update. Subsequent to circulation of the Draft EIS, the FHWA released updated guidance regarding MSATs, titled *Interim Guidance Update on MSAT Analysis in NEPA Documents* (FHWA, September 2009) (FHWA Web site: www.fhwa.dot.gov/environment/airtoxic/100109guidmem.htm). The interim guidance update "reflects recent regulatory changes, addresses stakeholder requests to broaden the horizon years of emission trends performed with MOBILE6.2, and updates stakeholders on the status of scientific research on air toxics." The update "does not change any project analysis thresholds, recommendations, or guidelines."

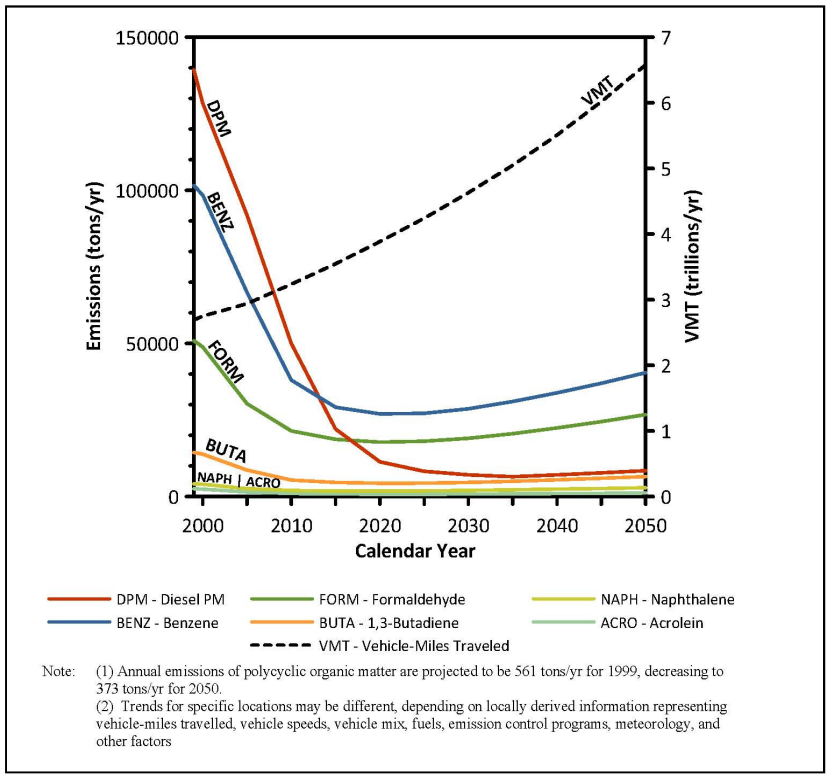
The following discussion replaces the text in Section 4.2.3 of the Draft EIS.

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that the USEPA regulate 188 air toxics, also known as hazardous air pollutants. The USEPA has assessed this expansive list in their latest 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 (IRIS) (www.epa.gov/iris/).

In addition, USEPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future USEPA rules.

The 2007 USEPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using the USEPA MOBILE6.2 model, even if vehicle activity vehicle-miles traveled (VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in **Exhibit 1-1**.

EXHIBIT 1-1: National MSAT Emission Trends 1999 – 2050 for Vehicles Operating on Roadways Using USEPA MOBILE6.2 Model



Source: *Interim Guidance Update on MSAT Analysis in NEPA Documents* (FHWA, September 2009).

Mobile Source Air Toxics Impact Analysis Update. As mentioned above, the *Interim Guidance Update on MSAT Analysis in NEPA Documents* (FHWA, September 2009) does not change any project analysis thresholds, recommendations, or guidelines. Therefore, the qualitative impact evaluation conclusions described in Section 4.2.5.2 and Appendix H of the Draft EIS do not change. However, the interim guidance update did recommend updated language for incomplete and unavailable information and provided information on new research. Section 4.2.5.2 of the Draft EIS is updated as described below. Appendix H in the Draft EIS also has been updated and is included as **Appendix D** in this Final EIS.

The following text replaces the text in Section 4.2.5.2 of the Draft EIS.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of the NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, FHWA is duly expected by the public and other agencies to address MSAT impacts in environmental documents. The FHWA, USEPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

While this research is ongoing, FHWA requires each NEPA document to address MSATs and their relationship to the specific highway project through a tiered approach (*Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*, FHWA, September 2009). A qualitative analysis of MSATs for this project appears in its entirety in **Appendix D** of this Final EIS.

Construction Air Quality. Provided that local ordinances for open burning and dust are followed, significant air quality impacts due to construction of the proposed project are not anticipated. The proposed project would be constructed in sections, limiting the overall construction activity occurring at any one location. There would also be emissions related to construction equipment and vehicles. However, these impacts related to construction would be temporary.

Road and Bridge Icing Potential from Allen Steam Station Air Pollution Control Equipment. Duke Energy Corporation's Allen Steam Station, a major coal-fired power plant, is located between Southpoint Road and the Catawba River on the Belmont peninsula (Draft EIS Figure 2-8a).

The Allen Steam Station recently installed air pollution control equipment to comply with the North Carolina Clean Smokestacks Act of 2002. The Allen Steam Station air pollution control equipment is located north of the main power plant, just south of Corridor Segments K3B/K3C.

The air pollution control equipment includes scrubbers for sulfur dioxide control that will emit steam through a tall stack. In correspondence with NCTA, Duke Energy Corporation raised concerns that the steam emitted from the stack could result in icing on the nearby proposed roadway and the associated bridge crossing of the Catawba River (Telephone interview, Duke Energy Regional Manager, September 14, 2005).

In response to the concerns, a study was conducted to evaluate the likelihood and extent of potential icing on the proposed roadways and bridge crossings of the Catawba River for Corridor Segments K3B/K3C (DSAs 4, 9, 22, 27, 58, 68, 76, and 81) and Corridor Segment K4A (DSAs 5, 23, 64, and 77) (*Analysis of Potential Icing Impacts Due to Allen Steam Station SO_2 Scrubber – Gaston East-West Connector,* MACTEC, September 2008, incorporated by reference).

The model predicted there would be no potential for icing on the proposed Gaston East-West Connector due to exhaust gases released from the air pollution control scrubber stack.

1.3.2.3 Farmland

The following information is summarized from Section 4.3 of the Draft EIS, with an update to prime and important farmland soils and an update to agricultural census information. Updated information on impacts to prime and important farmland soils associated with the refined preliminary design of the Preferred Alternative is presented in **Section 2.5.2.3** of this Final EIS.

Prime and Important Farmland Soils. Section 4.3.2 and Table 4-8 of the Draft EIS discuss prime and important farmland soils within the DSA corridors. This discussion is based on Natural Resource Conservation Service (NRCS) soils surveys for Gaston County (dated May 1989) and Mecklenburg County (dated June 1980) and a list of prime and statewide important farmland soils for North Carolina downloaded from the US Department of Agriculture (USDA) Web site in April 2005. This data also is presented in Appendix M of the Draft EIS.

Updated soils surveys and lists of prime and important farmland soils for Gaston County and Mecklenburg County were published by the NRCS on June 17, 2009 and April 29, 2009, respectively (NRCS Web site: http://soildatamart.nrcs.usda.gov)

Table 1-4 replaces Table 4-8 of the Draft EIS with the most recent list of prime and important farmland soils within the DSAs. The updated data is included in **Appendix E** of this Final EIS.

TABLE 1-4: Prime and Important Farmland Soils in the Detailed Study Alternative Corridors

Soil Symbol	Soil Name	Percent Slope	County
Prime Farmland Soils			
AmB	Alamance variant gravelly loam	2-8	Gaston
ApB	Appling sandy loam	1-6	Gaston
CeB2	Cecil sandy clay loam	2-8	Gaston & Mecklenburg
CoA	Congaree loam	0-2	Gaston
HeB	Helena sandy loam	1-6	Gaston
LdB2	Lloyd sandy clay loam	2-8	Gaston
MaB2	Madison sandy clay loam	2-8	Gaston
TaB	Tatum gravelly loam	2-8	Gaston
VaB	Vance sandy loam	2-8	Gaston
WnB	Winnsboro loam	2-8	Gaston
*ChA	Chewacla loam	0-2	Gaston
EnB	Enon sandy loam	2-8	Mecklenburg
HeB	Helena sandy loam	2-8	Mecklenburg
MeB	Mecklenburg fine sandy loam	8-15	Mecklenburg
*MO	Monacan loam	n/a	Mecklenburg
Statewide Important Farmland Soils			
CeD2	Cecil sandy clay loam	8-15	Gaston & Mecklenburg
LdD2	Lloyd sandy clay loam	8-15	Gaston
LgB	Lignum silt loam	1-6	Gaston
MaD2	Madison sandy clay loam	8-15	Gaston
PaD2	Pacolet sandy clay loam	8-15	Gaston
TaD	Tatum gravelly loam	8-15	Gaston
VaD	Vance sandy loam	8-15	Gaston & Mecklenburg
WeD	Wedowee sandy loam	6-15	Gaston
WnD	Winnsboro loam	8-15	Gaston
DaD	Davidson sandy clay loam	8-15	Mecklenburg
EnD	Enon sandy loam	8-15	Mecklenburg
MeD	Mecklenburg fine sandy loam	8-15	Mecklenburg

Source: NRCS Web site: http://soildatamart.nrcs.usda.gov; Gaston County data dated June 17, 2009; Mecklenburg County data dated April 29, 2009.
*Prime if drained and either protected from flooding or not frequently flooded during growing season.

All proposed DSAs would involve the use of prime and statewide important farmland soils. The No-Build Alternative would not directly impact prime and important farmland soils. **Table 1-5** presents the updated acreages of prime and important farmland soils within the preliminary design right of way for each DSA, based on the 2009 soils surveys. This is an update to the data reported in Table 4-9 of the Draft EIS. Using the updated soils data, the acreages were recalculated using GIS by overlaying the preliminary design right of way on the soils GIS layer and subtracting out disturbed land already in urban development. See **Section 2.5.2.3** of this Final EIS for impacts associated with the refined preliminary design for the Preferred Alternative.

TABLE 1-5: Impacts to Prime and Important Farmland Soils

DSA	Total Acreage in DSA Right of Way	Prime Farmland Soils (Acres in Right of Way)*			Statewide Important Farmland Soils (Acres in Right of Way)*			Total acreage of Prime and Important Farmland Soils in DSA
		Gaston	Mecklenburg	Total Prime	Gaston	Mecklenburg	Total Important	
4	1,901	621	134	754	260	71	331	1,085
5	1,837	593	83	677	238	65	303	980
9	1,893	628	134	762	252	71	323	1,084
22	1,940	614	134	748	255	71	325	1,073
23	1,872	586	84	670	233	65	298	968
27	1,931	621	134	755	247	71	317	1,072
58	2,009	633	134	767	338	71	408	1,175
64	1,991	578	84	661	344	65	409	1,070
68	2,047	612	134	746	357	71	428	1,174
76	1,901	629	134	763	263	71	334	1,097
77	1,837	602	84	686	242	65	307	992
81	1,893	637	134	770	255	71	326	1,096

Sources for Soils Information: Soils Survey of Gaston County, North Carolina (NRCS, June 17, 2009); Soils Survey of Mecklenburg County, North Carolina (NRCS, April 29, 2009). Available for download on the NRCS Web site: http://soildatamart.nrcs.usda.gov
*Acreages are calculated for the preliminary design right of way for each DSA. Areas of prime and statewide important soils already in urban development were not included in the totals.

Farmland Conversion Impact Ratings. Section 4.3.4.2 of the Draft EIS discusses farmland conversion impact ratings. There are no updates to this section, which is summarized below.

In accordance with the Farmland Protection Policy Act of 1981 (FPPA) and FHWA's *Guidelines for Implementing the Final Rule of Farmland Protection Policy Act for Highway Projects*, a "Farmland Conversion Impact Rating for Corridor Type Projects" form was prepared. The NRCS forms are included in Appendix I of the Draft EIS.

The ratings on the NRCS forms are comprised of two parts. The Land Evaluation Criterion Value represents the relative value of the farmland to be converted on a scale from 0 to 100 points. The Corridor Assessment, which is rated on a scale of 0 to 160 points, evaluates farmland soils based upon its use in relation to the other land uses and resources in the immediate area. The two ratings are added together for a possible total rating of 260 points. Sites receiving a total score of 160 points or more are given increasingly higher levels of consideration for protection (7 CFR 658.4).

Table 4-10 in the Draft EIS lists the total points for each DSA. The total point value for each DSA is less than 160 points. According to the FPPA, lands that receive a combined score of less than 160 points are not covered by the FPPA. Since the soils impacted by the DSAs did not meet the threshold of protection based on the evaluation under the FPPA, the impacts to prime and statewide important farmland were not considered under FPPA.

Existing Agricultural Uses. Since publication of the Draft EIS, there has been an update to the 2002 agricultural census information presented in Section 4.3.3.2 of the Draft EIS. According to the *2007 Census of Agriculture* (USDA National Agricultural Statistics Service, February 2009, USDA Web site: www.agcensus.usda.gov/Publications/2007/index.asp), the number of farms between 2002 and 2007 increased from 450 to 516 and the average farm size decreased from 93 to 73 acres in Gaston County. For Mecklenburg County, the number of farms between 2002 and 2007 decreased from 300 to 236, while the average farm size decreased from 85 to 81 acres.

Local Agricultural Programs. In July 2004, Gaston County adopted a Voluntary Agricultural District (VAD) ordinance under the authority of the Agricultural Development and Farmland Preservation Enabling Act (NCGS Chapter 106 Sections 735-743). Mecklenburg County does not have a VAD ordinance.

Parcels participating in the VAD program are shown in Draft EIS Figure 4-3. Gaston County farmers who enroll their farms in the Gaston County VAD program agree to keep their lands dedicated to agricultural uses for 10 years, and they have the right to public hearings in their communities if there are ever land condemnation proceedings against lands within the districts (*Gaston County Voluntary Agricultural District Ordinance,* Gaston County Web site: www.co.gaston.nc.us/ordinances/VADordinance2004-07-22.pdf).

There are 21 parcels currently participating in the VAD program that would be directly impacted by various DSAs. The No-Build Alternative would not directly impact any VAD properties.

As shown in Draft EIS Table 4-11, the number of impacted VAD program properties range from 8 to 11, with impacted acreage ranging from 44.7 to 138.4 acres. DSAs 64 and 68 impact the most number and acreage of VAD properties, as these DSAs are located in more rural areas. DSAs 4 and 22 would impact the least number and acreage of VAD properties.

Although all DSAs would impact agricultural lands in Gaston County, the project is consistent with the County's land use plans, which designate southern Gaston County as an area targeted for more suburban development. Discussion with Gaston County staff and reviews of local planning documents indicate that the area surrounding the proposed project is slated for suburban development.

Farm Relocations. As reported in Section 4.3.4.3 of the Draft EIS, the *Relocation Reports for the Gaston East-West Connector* (Carolina Land Acquisitions, Inc., June 2008) note that zero to two farms would be displaced, depending upon the DSA. DSAs 4, 22, 58, and 76 would not displace any farms. DSAs 5, 9, 23, 27, 77 and 81 would displace one farm, and DSAs 64 and 68 would displace two farms. Because much of southern Gaston County is still rural, it is anticipated that there would be suitable replacement property available for farm relocation.

1.3.2.4 Utilities and Infrastructure

The following information is summarized from Section 4.4 of the Draft EIS. Utilities addressed include electric power, natural gas, telecommunications, water and sewer facilities, and railroads. Table 4-12 in the Draft EIS summarizes major utility impacts for each DSA. There has been one update to this information since the Draft EIS was circulated, which is a new rail spur near the Charlotte-Douglas International Airport.

Electrical Power Generation and Transmission. None of the DSAs would directly impact the Duke Energy Corporation's Allen Steam Station. The number of crossings of electrical power transmission lines varies from a minimum of 13 (DSA 5 and DSA 23) to a maximum of 18 (DSA 58). The preliminary designs for the DSAs minimized impacts to electrical power transmission lines to the extent feasible, based upon data available at that time.

Transmission Lines vs Distribution Lines

Electric power transmission lines transmit power between a power plant and a substation near a populated area. Electric power distribution lines deliver the power from the substation to the consumer. This same concept also applies to other utilities, such as natural gas and water.

Natural Gas. All DSAs would cross natural gas transmission easements owned by Plantation Pipeline Company and Colonial Pipeline Company. Each easement contains two natural gas transmission pipelines. Although both natural gas transmission and distribution lines would be

crossed by the DSAs, the project is not expected to impact consumer gas service. To avoid disruptions in service and delivery, NCTA would coordinate any required relocation or modification of transmission lines with Plantation Pipeline Company and Colonial Pipeline Company in addition to any required relocation or modification of distribution lines with area providers.

Telecommunications. No communications towers or cell towers would be impacted by any of the DSAs. Various AT&T and Time Warner Cable telecommunication lines cross the Project Study Area and the DSAs.

Water and Sewer Service. The DSAs would cross water and sewer lines, but no negative impacts, or disruptions in service, are anticipated with any of the DSAs. None of the DSAs would impact water or wastewater treatment facilities.

Wells within the Preferred Alternative's right of way would be surveyed prior to project construction. NCTA would purchase these wells and cap and abandon them in accordance with State standards (15 NCAC 2C).

Railroads. The Norfolk Southern mainline that runs east-west through Gaston County would be impacted by DSAs that use Corridor Segment H2A (DSAs 4, 5, 9, 22, 23, and 27). The track is close to, and parallels, the east side of NC 274 (Bessemer City Road). Modifications to the I-85/NC 274 (Bessemer City Road) interchange will require the replacement of the existing railroad bridge over I-85. Substantial disruptions in rail service are not anticipated.

All DSAs cross the Norfolk Southern branch line that runs north-south parallel to the east side of US 321. The interchange design at US 321 for all DSAs has the ramps located on the west side of US 321 to avoid the rail line.

The DSAs that use Corridor Segment K3B (DSAs 4, 9, 22, 27, 58, 68, 76, and 81) would cross the rail spur that serves Duke Energy's Allen Steam Station.

All DSAs would cross the new Norfolk Southern rail spur located east of I-485 that will serve the intermodal facility at the Charlotte-Douglas International Airport.

Utility coordination would be conducted during final design. All utility providers would be contacted and coordinated with to ensure that the proposed design and construction of the project would not substantially disrupt service.

1.3.2.5 Visual Resources

The following information is summarized from Section 4.5 of the Draft EIS. There have been no updates to this information since the Draft EIS was circulated.

As visual impacts can be subjective, a distinction was not made among alternatives with regard to the most or least visually impacting alternative. However, some general conclusions can be made regarding visual/aesthetic changes. Overall, the DSAs that have a higher number of neighborhoods exposed to the roadway (i.e., impact a greater number of neighborhoods with residential relocations) are expected to have a greater amount of visual impacts. In this case, all of the DSAs have similar numbers and types of relocation impacts to neighborhoods. As such visual impacts to neighborhoods are not expected to vary significantly among the DSAs as a result of this project.

During final design of the Preferred Alternative, NCTA will investigate the feasibility and reasonableness of incorporating cost-effective treatments for the proposed major bridges over the Catawba River and South Fork Catawba River to enhance aesthetics.

1.3.2.6 Hazardous Materials

The following is summarized from Section 4.6 of the Draft EIS. There are no updates to this section of the Draft EIS. The impact summary table from the Draft EIS included in **Appendix C** of this Final EIS lists the numbers of potentially contaminated sites with each DSA. Appendix J in the Draft EIS includes more detailed information about potentially contaminated sites.

Additional studies to evaluate potentially contaminated sites were conducted for the Preferred Alternative. Updated information on hazardous materials impacts associated with the Preferred Alternative is presented in **Section 2.5.2.6** of this Final EIS.

As discussed in Section 4.6.1 of the Draft EIS, an assessment of the project area was performed to identify the presence of potentially contaminated sites. Forty-six sites were identified within the immediate vicinity of the DSAs. The 46 sites include 25 Underground Storage Tanks (UST), twelve manufacturing facilities, three junkyards, two hazardous waste sites, one apparent landfill, and three other contaminated sites. Figure 4-6 of the Draft EIS identifies the locations of these sites.

Table 4-13 of the Draft EIS summarizes the impacts from potentially contaminated sites for each DSA. All potential impacts were rated as low, low to medium, or medium. This means there would be little to no impact to cost or schedule for a site rated low. A medium rating may incur additional costs and time due to the handling of contaminated materials and/or a need for special construction techniques or products.

Impacts to Potentially Contaminated Sites

All impacts to potentially contaminated sites were rated low, low to medium, or medium in regards to additional costs and time.

Based on the assessment presented in Section 4.6.2 of the Draft EIS, the DSAs closest to Gastonia's city limits on the west side had the highest numbers of potentially contaminated sites. DSAs 4, 5, 9, 22, 23, and 27 would impact 21-24 potentially contaminated sites, while DSAs 58, 64, 68, 76, 77, and 81 would impact 12 to 14 potentially contaminated sites.

1.3.2.7 Floodplains and Floodways

The following information is summarized from Section 4.7 of the Draft EIS. Updated Flood Insurance Rate Maps (FIRMs) for portions of Gaston County and Mecklenburg County have been issued since publication of the Draft EIS, as described below.

As discussed in Section 4.7.1 of the Draft EIS, the Federal Emergency Management Agency (FEMA), in cooperation with federal, state, and local governments, developed floodplain and floodway boundaries and FIRMs for Gaston County and Mecklenburg County. The Draft EIS referred to September 2007 FIRM for Gaston County and February 2004 FIRM for Mecklenburg County.

In the Project Study Area, FIRMs were updated in March and November 2009 for panels in the eastern end of the project (North Carolina Floodplain Mapping Program Web site: www.ncfloodmaps.com/firm_indexes.htm). A comparison of these new maps with the floodplains and floodways in Draft EIS Figure 4-7 show no noticeable differences in boundaries at the scale of the figure.

Named streams with defined floodplains in the Project Study Area include, from west to east: Abernethy Creek, Oates Branch, Bessemer Branch, Crowders Creek, Blackwood Creek, Ferguson Branch (floodplain only), McGill Branch (floodplain only), South Crowders Creek (floodplain only), Catawba Creek, South Fork Catawba River, Catawba River, Beaverdam Creek, and

Legion Lake Stream. Several unnamed tributaries of Crowders Creek and Catawba Creek also have defined floodplains. Defined floodways generally are located within or near municipal limits.

As discussed in Section 4.7.3 of the Draft EIS, a preliminary hydraulics analysis (*Final Preliminary Hydraulic Technical Memorandum for the Gaston County East-West Connector*, PBS&J, December 2007) was performed to identify the preliminary sizes and locations of major drainage structures along the DSAs that would be needed to adequately carry floodwaters. Major drainage structures are bridges, box culverts, or pipe culverts greater than 72 inches in diameter.

The major drainage structures and crossings were reviewed by the environmental regulatory and resource agencies at Turnpike Environmental Agency Coordination (TEAC) Meetings on February 5, March 4, and April 8, 2008. As a result of these meetings, the NCTA agreed to include several bridges in the preliminary designs beyond those required to convey floodwaters. The recommended bridges are listed in Section 4.7.3 of the Draft EIS.

Figure 4-8 and Table 4-14 of the Draft EIS summarize the major drainage structures associated with each DSA. Details are provided in Appendix K of the Draft EIS. DSAs 22, 23, and 27 would have the most bridges (8 bridges), and DSA 58 the fewest (6 bridges). DSAs 4 and 58 would have the greatest number of major culverts and pipes (47 culverts and pipes), while DSA 77 would have the fewest (39 culverts and pipes).

DSAs that are closer to Crowders Creek (DSAs 4, 5, 9, 22, 23, and 27) have the most total combined floodway and floodplain crossings (21-23 crossings).

The preliminary designs for DSAs that use Corridor Segment J4a (DSAs 4, 5, and 9) would involve a longitudinal encroachment on the Crowders Creek floodplain just north of New Haven Drive. This longitudinal encroachment would be approximately 1,400 feet in length and include an area of approximately 5 acres.

For all new location crossings on FEMA-regulated streams (streams where a floodway and/or floodplain has been identified), a Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) will be submitted to the NC Flood Mapping Program for streams in Gaston County and to Charlotte-Mecklenburg Storm Water Services for streams in Mecklenburg County.

In National Flood Insurance Program (NFIP) flood hazard areas, the final hydraulic designs for the Preferred Alternative will ensure that the floodway will carry the 100-year flood without adversely affecting floodplain elevations. The effect of all the DSAs can be mitigated effectively through proper sizing and design of hydraulic structures (culverts, bridges, and channel stabilization).

A LOMR is FEMA's modification to an effective FIRM, or Flood Boundary and Floodway Map (FBFM), or both. LOMRs are generally based upon the implementation of physical measures affecting the hydrologic or hydraulic characteristics of a flooding source, and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA). The LOMR officially revises the FIRM or Flood Boundary and FBFM, and sometimes the Flood Insurance Study (FIS) report, and when appropriate, includes a description of the modifications (FEMA Web site: www.fema.gov/plan/prevent/floodplain/nfipkeywords/lomr.shtm).

1.3.3 CULTURAL RESOURCES

1.3.3.1 Historic Architectural Resources

Historic Architectural Sites

None of the DSAs would result in an Adverse Effect to a historic property on or eligible for listing on the National Register of Historic Places.

The following information is summarized from Section 5.2 of the Draft EIS. There have been no updates to this information since the Draft EIS was published.

Meetings were held with the State Historic Preservation Office (HPO) on April 21, 2008 and July 21, 2008 to reach concurrence on properties eligible for listing on the National Register of Historic Places (NRHP), and to reach concurrence on the assessment of effects to listed and eligible properties from the DSAs. Concurrence forms are included in Appendix A-2 of the Draft EIS.

Eighteen properties within the DSAs were determined on or eligible for listing in the NRHP. These are shown in Figure 5-1 of the Draft EIS. Effects to these properties were determined based on the preliminary design for each DSA. Table 5-2 in the Draft EIS presents the effects determination for each listed and eligible property, as well as any conditions placed on the DSAs to achieve a No Adverse Effect determination.

As listed in Table 5-2 of the Draft EIS, none of the DSAs would result in an Adverse Effect to a historic property listed on or eligible for listing on the NRHP. During final design of the Preferred Alternative, the designs will be reviewed to ensure the applicable conditions listed in Table 5-2 are met to maintain the No Adverse Effect determinations.

Properties with a No Adverse Effect related to one or more DSAs include the Wolfe Family Dairy Farm, William Clarence Wilson House, JBF Riddle House, Harrison Family Dairy Farm, and Thomas Allison House. Each property with a No Adverse Effect determination is discussed briefly in Section 5.2.2 of the Draft EIS. Appendix L of the Draft EIS contains figures showing each historic resource receiving a No Adverse Effect determination in relation to the DSAs' preliminary designs on aerial photography.

1.3.3.2 Archaeological Resources

The following information is summarized from Section 5.3 of the Draft EIS. There are no updates to this section of the Draft EIS.

Since the Draft EIS was published, an intensive archaeological survey and assessment has been prepared for the Preferred Alternative. Additional information regarding this assessment is provided in **Section 2.5.3.2** of this Final EIS.

There are 33 previously recorded sites within or immediately adjacent to the DSAs. Most of these sites have limited potential for additional significant information due to low artifact densities and/or loss of integrity though agriculture or erosion.

Sites from all the major prehistoric and historic periods are represented in the Project Study Area. Only one known site dates to the time of early European explorations. This Native American habitation site with burials, Site 31 GS55 (Crowders Creek site) is located south of the DSAs. Eighteenth and nineteenth century sites are numerous, and include gold mines. Other types of industrial sites, such as a textile mill, also have been noted within the DSAs.

It is unlikely that any of the 33 known archaeological sites within or adjacent to the DSAs warrant preservation in place. However, there is the potential for impacts to archaeological sites that have not been previously identified. The archaeological resource assessment included an

evaluation of the potential for site types that would merit preservation in place or would require costly and complex excavation. Based upon this information, **Table 1-6** presents a ranking of the DSAs.

TABLE 1-6: Ranking of DSAs by Potential to Impact Archaeological Resources

Overall Potential for Archaeological Sites Requiring Preservation in Place or Costly and Complex Excavation	DSAs
High	4, 22, 58, 76
Moderate to High	64, 68
Moderate	5, 9, 77, 81
Low	23, 27

Source: *Archaeological Assessment of Detailed Study Alternatives for the Proposed Gaston East-West Connector* (Coastal Carolina Research, Inc., April 2007).

1.3.3.3 Section 4(f) and Section 6(f) Resources

The following information is summarized from Section 5.4 of the Draft EIS. An update is included below summarizing input received during the Draft EIS public review period regarding Berewick Regional Park. Also, since the Draft EIS was published, the preliminary design for the Preferred Alternative was modified and the refined preliminary design avoids encroachment on Berewick Regional Park. This design refinement is discussed in **Section 2.5.3.3**.

Section 4(f) Resources. There are three publicly-owned parks and eighteen significant historic sites located in or near the DSAs that are protected by Section 4(f) (49 USC Section 303 and 23 CFR Part 774).

Parks. Publicly-owned parks include Crowders Mountain State Park, Gaston County's Park at Forestview High School, and Mecklenburg County's Berewick Regional Park.

As described in Section 5.4.3 of the Draft EIS, none of the DSA's will directly or indirectly impact Crowders Mountain State Park or Gaston County's Park at Forestview High School. However, all of the DSAs' preliminary designs, as presented in the Draft EIS, would encroach upon Berewick Regional Park.

The refined preliminary design for the Preferred Alternative would not encroach on Berewick Regional Park. The information presented below documents public comments received regarding this issue prior to the design modifications.

DSAs that use Corridor Segment K3C (DSAs 4, 9, 22, 27, 58, 68, 76, and 81) would impact approximately 1.6 acres on the east end of the park, adjacent to I-485 based on the preliminary designs presented in the Draft EIS. DSAs that use Corridor Segment K4A (DSAs 5, 23, 64, and 77) would impact approximately 3.3 acres. These minor encroachments on the edges of the property owned by Mecklenburg County were not anticipated to impact access or any future planned uses.

The Mecklenburg County Park and Recreation Department concurred that the estimated right of way needed under any of the DSAs (as shown in the Draft EIS) would not adversely affect the activities, features, and attributes of Berewick Regional Park (Section 5.4.3.1 of the Draft EIS).

After the Draft EIS was published, potential Section 4(f) impacts were presented at the Public Hearings for the proposed project held in June 2009, and public comment was solicited on the comment forms regarding the estimated encroachments into the proposed Berewick Regional Park. Of the 153 comment forms received during the public comment period, more than fifty-

eight percent had no comment on potential impacts to the Berewick Regional Park; approximately ten percent felt there were no adverse effects; twenty-one percent felt there would be adverse effects; and eleven percent were unsure, did not know, or just did not want the project to be built at all.

Since Mecklenburg County Park and Recreation Department, and the majority of the public, do not believe Berewick Regional Park would be adversely impacted by the DSAs, there appears to be grounds for a finding of *de minimus* effect. However, as discussed in Section **2.5.3.3**, the Preferred Alternative refined preliminary design avoids taking right of way from Berewick Regional Park, and no further action under Section 4(f) is required. If the refined preliminary design for the Preferred Alternative is modified during final design in such a way as to encroach on Berewick Regional Park, then the Section 4(f) issue will need to be reevaluated.

De minimis effects

De minimis effects on publicly-owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not "adversely affect the activities, features and attributes" of the Section 4(f) resource (FHWA Web site: www.fhwa.gov/hep/qasdeminimis.hm).

Historic Architectural Sites. There are eighteen historic architectural resources listed on or eligible for listing on the NRHP located in the Area of Potential Effect (APE) (Section 5.2.1.2 and Figure 5-1 of the Draft EIS). Because they are listed on or eligible for listing on the NRHP, they are considered significant historic sites under Section 4(f). Of these eighteen historic architectural resources, there are five historic architectural resources receiving a determination of No Adverse Effect from the HPO and FHWA: 1) Wolfe Family Dairy Farm; 2) William Clarence Wilson House; 3) JBF Riddle House; 4) Harrison Family Dairy Farm; and 5) Thomas Allison House.

Approximately 29 acres of the Wolfe Family Dairy Farm site would be needed for the right of way for DSAs 58, 64, 68, 76, 77, and 81). FHWA and the State Historic Preservation Officer (SHPO) found that the impacts to the Wolfe Family Dairy Farm would constitute a *de minimis* effect and the analysis of avoidance alternatives is not required (Appendix A-5 in the Draft EIS).

There would be no land required from the William Clarence Wilson House, the JBF Riddle House, the Harrison Family Dairy Farm, or the Thomas Allison House for any of the DSAs. As long as the conditions are met to maintain the No Adverse Effects determinations, there would be no use of these resources and no Section 4(f) evaluation would be required.

Section 6(f) Resources. Crowders Mountain State Park is the only Section 6(f) resource located near the DSAs. None of the DSAs would directly impact the park or convert any of the park property to a non-recreational use.

1.3.4 NATURAL RESOURCES

1.3.4.1 Geology, Mineral Resources, and Soils

The following information is summarized from Section 6.1 of the Draft EIS, with updates based on the most recent soil surveys for Gaston and Mecklenburg Counties.

Mineral Resources. According to the NCDENR Department of Land Resources, there are several active and inactive permitted mines in Gaston and Mecklenburg counties (*List of Permitted Active and Inactive Mines in North Carolina*, Department of Land Resources – Division of Land Resources, May 2008). None of the active or inactive mines would be impacted

by the DSAs. Geotechnical surveys conducted during the final design phase would identify abandoned mine shafts in the area that could affect construction activities.

Soils. The USDA NRCS has published soil surveys for all counties within North Carolina. The surveys for the project study area described in the Draft EIS Section 6.1, *Soil Survey of Gaston County, North Carolina* (USDA, May 1989) and *Soil Survey of Mecklenburg County, North Carolina* (USDA, June 1980) were updated June 17, 2009 and April 29, 2009, respectively (NRCS Web site: http://soildatamart.nrcs.usda.gov). The updated soils information reflects changes in soil series information and farmland classifications.

The soil surveys provide maps showing the soil types within Gaston County and Mecklenburg County and information on soil properties that can affect land use. The 2009 soil surveys identify the soil types within the DSAs. This soil data serves to update the data presented in Appendix M of the Draft EIS and is included in **Appendix E** of this Final EIS.

The entire area underlain by the DSAs is rated "somewhat limited" or "very limited" for road construction. This means the soil properties indicate that special planning, design, or maintenance is needed to overcome soil limitations. The concern cited in the soil surveys is low strength (i.e., the soil is unable to support loads). Some soils also have shrink-swell potential, which is the potential for a soil volume to change with a loss or gain of moisture. Shrinking and swelling can cause damage to structures and roads, if either lack special design (USDA, January 1996). A complete list of soils and soil properties can be found in **Appendix E**.

The expected soil limitations can be overcome through proper engineering design, including the incorporation of techniques such as soil modification, appropriate choice of fill material, use of non-corrosive subgrade materials, and design of drainage structures capable of conveying estimated peak flows. Decisions regarding soil limitations and methods to overcome them would be determined during the final design phase.

1.3.4.2 Water Resources

The following information is summarized from Section 6.2 of the Draft EIS. Section 6.2.1 describes existing water resources, Section 6.2.2 describes water quality, and Section 6.2.3 discusses water resources impacts and mitigation. Updates are provided below, as noted. Updated discussions of potential indirect and cumulative effects to water quality associated with the Preferred Alternative are included in **Section 2.5.5** of this Final EIS.

Water Resource Descriptions. There are no updates to this section of the Draft EIS (Section 6.2.1) since it was published. A summary of water resources in the Project Study Area is provided below.

River Basins, Named Streams, and Lakes. DSAs are located within the Catawba River Basin (USGS Hydrologic Unit Codes 03050101 and 03050102; NC Division of Water Quality sub-basins 03-08-34, 03-08-36, and 03-08-37). Named streams within the Project Study Area are shown in Figure 4-7 of the Draft EIS. The named streams include Abernethy Creek, Oates Creek (Branch), Bessemer Branch, Crowders Creek, McGill Branch, Ferguson Branch, Blackwood Creek, Mill Creek, Catawba Creek, South Fork Catawba River, Catawba River, Beaverdam Creek, and Legion Lake Stream. Numerous unnamed perennial and intermittent tributaries are also present in the Project Study Area.

Named Streams

There are thirteen named streams crossing or in the immediate vicinity of the DSAs. Ten are in Gaston County, two are in Mecklenburg County, and one (Catawba River/Lake Wylie) forms the county boundary.

Lake Wylie in the Project Study Area is a dammed portion of the Catawba River and is comprised of segments of the Catawba River, South Fork Catawba River, and Catawba Creek. Lake Wylie is part of the Catawba-Wateree Hydro Project operated by Duke Energy.

The Catawba-Wateree Hydro Project is licensed by the Federal Energy Regulatory Commission (FERC). The FERC licenses and governs all non-federal hydropower projects located on navigable waterways. For Lake Wylie, the FERC project boundary is the "full pond contour", which is 569.4 feet above Mean Sea Level (Duke Energy Corporation Web site: www.duke-energy.com/catawba-wateree-relicensing/relicensing-terms.asp).

Water Supply Resources. Two named water bodies that cross the DSAs are designated as water supply uses. The Catawba River/Lake Wylie downstream of Paw Creek (Stream Index #11-(123.5)) and the South Fork Catawba River (Stream Index #11-129-(15.5)) are classified as Water Supply V (WS-V) water supplies by the NCDENR-Division of Water Quality (NCDWQ). The Catawba River/Lake Wylie upstream of Paw Creek to I-85 (Stream Index #11-(122)) is designated WS-IV (NCDWQ Web site: http://h2o.enr.state.nc.us/bims/reports/reportsWB.html). Water supply watershed critical and protected areas associated with Lake Wylie are just north of the DSAs, and are shown in Figure 4-7 of the Draft EIS.

The majority of the area crossed by the DSAs is not currently served by public water (Draft EIS Figure 4-4), and these areas rely on private wells or community wells for drinking water.

Water Quality. Section 6.2.2 of the Draft EIS describes best usage classifications (Section 6.2.2.1), impaired waters (Section 6.2.2.2), point source dischargers (Section 6.2.2.3), non-point source dischargers (Section 6.2.2.4), and water quality monitoring and basin-wide assessments (Section 6.2.2.5). These sections are summarized below, with updates as noted.

Best-Usage Classifications. There have been no updates to the best-usage classifications of the named stream segments in the study area since the Draft EIS was published. Out of the thirteen named streams, eleven are classified as Class C waters, which are designated for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. South Fork Catawba River and Catawba River/Lake Wylie are classified as water supplies, as described above. No waters classified as High Quality Waters (HQW) or Outstanding Resource Waters (ORW) occur within one mile of the Project Study Area.

Impaired Waters. Section 303(d) of the Clean Water Act requires states to develop a list of waters that are not meeting water quality standards or which have impaired uses. The 2006 *Final North Carolina 303(d) List* (NCDWQ Web site: http://h2o.enr.state.nc.us/tmdl/documents/303d_Report.pdf) is the most recent list, as reported in the Draft EIS. Portions of Abernethy Creek, Crowders Creek, and Catawba Creek within the Project Study Area are included on the list.

303(d)-Listed Streams in the Project Study Area

Abernethy Creek, Crowders Creek, and Catawba Creek, are listed on the Final 2006 303(d) list as having impaired use for aquatic life.

A Draft 2010 303(d) list has been published (NCDWQ Web site: http://h2o.enr.state.nc.us/tmdl/documents/draft_2010_Cat_5.pdf). Within the Project Study Area, Crowders Creek, McGill Branch, Catawba Creek, and South Fork Catawba River are listed on the 2010 Draft 303(d) list. Although Abernethy Creek was included on the Final 2006 303(d) list, it is not included on the Draft 2010 list.

Point and Non-Point Source Dischargers. Point source dischargers in North Carolina are regulated through the National Pollutant Discharge Elimination System (NPDES) program administered by the NCDWQ. Appendix O in the Draft EIS has been updated in **Appendix F** of this Final EIS. No new dischargers have been added since the last download of the information

on October 7, 2008 from the NCDWQ Web site. However, Plantation Pipe Line is no longer listed as an active permit.

In Appendix O of the Draft EIS, Permit Numbers NC0086193, NC0086142, NC0084468, NC0072061, NC0069035, and NC0063860 are listed under "Heater Utilities Inc". The most recent version of the NPDES list (01/04/10) lists these same permits under "Aqua North Carolina, Inc".

Water Quality Monitoring and Basin-Wide Assessments. The discussions and references to basinwide water quality plans included in Section 6.2.2.5 of the Draft EIS have not changed since the Draft EIS was prepared.

Water Resources Impacts and Mitigation. This section is summarized from Sections 6.2.3 and 6.2.4 of the Draft EIS. There have been no changes since the Draft EIS.

Water Quality. As discussed in more detail in Section 6.2.3 of the Draft EIS, short-term impacts on water quality within the project study area may result from soil erosion and sedimentation. Construction impacts to water quality may not be restricted to the communities in which the construction activity occurs, but may also affect downstream communities. Long-term impacts on water quality also are possible due to particulates, heavy metals, organic matter, pesticides, herbicides, nutrients, and bacteria that are often found in highway runoff.

Prior to construction, an erosion and sedimentation plan would be developed for the Preferred Alternative in accordance with applicable rules, regulations and guidance, including the latest versions of the NCDENR publication *Erosion and Sediment Control Planning and Design Manual,* the NCDWQ's *Stormwater Best Management Practices Manual* (July 2007), and NCDOT's *Best Management Practices for Protection of Surface Waters*.

The *Standard Specifications for Roads and Structures* requires proper handling and use of construction materials (NCDOT, January 2002) (NCDOT Web site: www.ncdot.org/doh/preconstruct/ps/specifications/dual/). The contractor would be responsible for taking every reasonable precaution throughout the construction of the project to prevent the pollution of any body of water. The contractor also shall be responsible for preventing soil erosion and stream siltation.

Water-Based Recreational Activities. Boating, fishing, and waterskiing occur on the Catawba River and South Fork Catawba River, particularly in the areas south of the Allen Station Station on the Catawba River and south of the Allen Steam Station canal on the South Fork Catawba River. The DSAs that cross the Catawba River and South Fork Catawba River south of the Allen Steam Station (DSAs 5, 23, 64, and 77) would cross in areas having more recreational opportunities, and recreation likely would be temporarily affected during project construction.

DSAs 4, 9, 22, 27, 58, 68, 76, and 81) would cross the rivers north of the Allen Steam Station, which are areas that are less navigable due to siltation. Therefore, these DSAs would have less impact on recreational uses of the rivers.

Catawba-Wateree Hydro Project. Lake Wylie is part of the Catawba-Wateree Hydro Project operated by Duke Energy. Any crossings of the Lake Wylie "full pond contour" (569.4 feet Above Mean Sea Level) require a permit from FERC (Telephone interview, Allen Steam Station FERC Permit Coordinator, March 2, 2006). Portions of the Catawba River, South Fork Catawba River, and Catawba Creek are part of Lake Wylie.

Since all the proposed DSAs cross Lake Wylie, they will cross the contour line, thus triggering the need for a permit. NCTA has initiated coordination with Duke Energy Corporation regarding the FERC permit process. The process is expected to result in a FERC license revision

to allow an easement within the FERC project boundary for NCTA to construct the Gaston East-West Connector, including the bridges over Lake Wylie. The No-Build Alternative would not require initiation of the FERC permit process.

1.3.4.3 Natural Communities and Wildlife

The following information is summarized from Section 6.3 of the Draft EIS. There are no updates to terrestrial communities, terrestrial wildlife, aquatic communities and wildlife, or invasive plant species as documented in Sections 6.3.1 through 6.3.5 of the Draft EIS.

Updated direct impacts to natural communities and wildlife as a result of design changes to the Preferred Alternative can be found in **Section 2.5.4.3** of this Final EIS. Indirect and cumulative impacts are analyzed and discussed in the *Quantitative Indirect and Cumulative Effects Analysis* (Louis Berger Group, Inc., August 2010) and in **Section 2.5.5** of this Final EIS.

Terrestrial Communities. Nine terrestrial communities were identified within the DSAs, as described in Section 6.3.1 of the Draft EIS: disturbed/maintained, agricultural land, clearcut, hardwood forest, mesic mixed hardwood forest (piedmont subtype), mixed pine-hardwood forest, pine forest, pine plantation, and successional community.

As indicated in Section 6.3.6 of the Draft EIS, terrestrial communities would be impacted permanently by project construction from clearing and paving. Table 6-4 in the Draft EIS and the Draft EIS Summary of Impacts table included in **Appendix C** provide the acreage of terrestrial communities by habitat type impacted by DSA. The acreage represents the area within each DSA's proposed right-of-way limits. The predominant community types in all DSAs are disturbed/maintained areas and pine hardwood forest, followed by hardwood forest. These three community types comprise 72-78 percent of the DSAs' preliminary design rights of way.

Terrestrial Wildlife. Both direct and indirect impacts from the DSAs would occur to the terrestrial communities and the animals that inhabit them. Destruction of natural communities along the DSAs' rights of way would result in the loss of foraging and breeding habitats for the various animal species that utilize the area.

DSAs using Corridor Segments H1C, J1c, K1A, and K4A (DSAs 5, 23, 27, 58, 64, 68, 77, and 81) have a greater potential to indirectly affect upland species due to habitat fragmentation in that these corridor segments are located the farthest distance away from previously fragmented forestland. DSAs 4, 9, 22, and 76 would have comparable levels of lesser indirect effects due to existing habitat fragmentation.

The impacts of habitat fragmentation can be reduced by providing connections between habitats on either side of the Gaston East-West Connector. In consultation with the NCWRC (NC Wildlife Resources Commission), US Fish and Wildlife Service (USFWS), and USEPA, at a TEAC Meeting on April 8, 2008, the NCTA identified a location along all DSAs where wildlife passage structures could be provided to maintain habitat connectivity.

A wildlife passage structure will be studied at the crossing of Stream S156 during final design of the Preferred Alternative. Stream S156 (Figure 2-9q and 2-9r in the Draft EIS) is located between Forbes Road to the west and Robinson Road to the east. All DSAs cross this stream. DSAs 64 and 68 cross this stream using Corridor Segment J1b/J1c, DSA 58 crosses this stream using Corridor Segment JX1, and DSAs 4, 5, 9, 22, 23, 27, 76, 77, and 81 cross this stream using Corridor Segment J2c.

Wildlife passages are often additional culverts placed adjacent to the culverts needed for water passage. During final design, the NCTA will coordinate with the NCWRC, USFWS, and USEPA

on the feasibility and design of the wildlife passage at Stream S156, and on designing bridge crossings to be wildlife friendly when feasible.

Aquatic Communities and Wildlife. Aquatic communities in the DSAs include both intermittent and perennial piedmont streams, as well as still-water ponds. Impacts to aquatic communities include fluctuations in water temperature as a result of the loss of riparian (forest) vegetation. Construction impacts may not be restricted to the communities in which the construction activity occurs, but may also affect downstream communities. Temporary and permanent impacts to aquatic organisms may result from increased sedimentation. Impacts to aquatic communities and wildlife from erosion and sedimentation will be minimized through implementation of a stringent erosion-control schedule and the use of Best Management Practices.

Important Natural Areas. None of the DSAs' preliminary designs would encroach on the three important natural areas within or immediately adjacent to the DSAs: NC Natural Heritage Program's (NCNHP) Crowders Mountain State Park and Vicinity, NCNHP's Stagecoach Road Granitic Outcrop, and the Catawba Lands Conservancy conservation easement.

Invasive Plant Species. Several known invasive species are present within the DSA corridors, as described in Section 6.3.5 of the Draft EIS. Construction of any of the DSAs has the potential to provide opportunities for introduction or spread of invasive plant species. Known invasive plant species will not be used in construction, revegetation, or landscaping. NCTA will follow the Best Management Practices (BMP) recommended by NCDOT for management of invasive plant species.

1.3.4.4 Jurisdictional Issues

The following information is summarized from Section 6.4 of the Draft EIS. Updates related to jurisdictional water resource surveys and impacts for the Preferred Alternative are discussed in more detail in **Section 2.5.4.4** of this Final EIS.

Waters of the United States. Section 404 of the Clean Water Act prohibits discharge of dredged or fill material into waters of the US, except when executed in accordance with a permit. The term Waters of the US has broad meaning and incorporates both wetlands and surface waters such as streams and ponds. The US Army Corps of Engineers (USACE) is responsible for issuing permits and enforcing permitting requirements under Section 404 of the Clean Water Act. The NCDWQ has regulatory input through Section 401 of the Clean Water Act (Water Quality Certification). The USEPA also participates in the permitting process.

Catawba River Riparian Buffer Rules. Permanent riparian buffer protection rules were enacted by the State for the main stem of the Catawba River and its main stem lakes below Lake James to the south to the North Carolina/South Carolina border (15 NCAC 02B.0243-0244). Lake Wylie is one of the main stem lakes in which the buffer rules apply. All of the DSAs cross water bodies that are part of Lake Wylie.

The buffer protection rules apply within 50 feet of all riparian shorelines along the Catawba River main stem and the seven main stem lakes, including Lake Wylie. Zone 1 of the buffer is the 30 feet nearest the water's edge, and Zone 2 is 20 feet landward of Zone 1.

Certain activities (including road crossings) may be allowable with mitigation but must first be reviewed and given written approval by NCDWQ. If it can be shown that there are "no practical alternatives" to the proposed activity, a variance may be allowed with mitigation (NCDWQ Web site: http://h2o.enr.state.nc.us/nps/documents/FactSheet7-29-04.pdf).

Existing Jurisdictional Resources. More than 400 jurisdictional stream segments, 350 jurisdictional wetlands, and 58 ponds were identified within the DSA corridors during surveys conducted in April through May of 2007. Figure 2-9a-ii in the Draft EIS shows these resources. Appendix N in the Draft EIS lists the attributes of each surveyed pond, wetland, and stream.

Streams range from small intermittent channels to large perennial streams and rivers. Four types of wetlands were identified within the DSAs; palustrine emergent (PEM1), palustrine forested (PFO1), palustrine shrub/scrub (PSS1 and PSS3C), and palustrine with unconsolidated bottoms (PUBHh). Approximately seven percent of the wetlands were rated High Quality, approximately 30 percent were rated Medium Quality, and the remainder (approximately 63 percent) were rated Low Quality.

Field jurisdictional verifications for streams and wetlands were performed by the USACE and the NCDWQ on April 12 and 13; May 2, 3, 10 and 11; and June 25 and 26, 2007. Written verification was received from NCDWQ by letter dated August 2, 2007 (Draft EIS Appendix A-5). Written verification from the USACE on final jurisdictional determinations will be provided for the Preferred Alternative (Telephone interview, USACE representative, October 15, 2007).

Impacts to Jurisdictional Resources. This section is a summary of Section 6.4.4 of the Draft EIS. There have been no changes to this information since the Draft EIS.

Impacts to Wetlands, Ponds, and Streams. Project construction for any of the DSAs cannot be accomplished without infringing on surface waters, including streams, wetlands, and ponds. Streams may be filled, relocated, or placed in a culvert by project construction. Wetlands may be either partially or completely filled. In some instances, larger wetland areas may become hydraulically disconnected from an adjacent stream.

Table 6-5 in the Draft EIS and the Draft EIS summary table in **Appendix C** present the amounts of streams, wetlands, and ponds estimated to be impacted by each DSA's preliminary design. These impact estimates take into account avoidance and minimization measures that have been incorporated into the project, including the bridging of streams and wetlands (discussed in detail in Draft EIS Section 4.7.3). The impacts were calculated using the preliminary designs' construction limits, with an additional 25-foot buffer, in accordance with NCDOT procedures.

DSA 58 would have the greatest perennial stream impacts (totaling 50,739 linear feet), and DSA 81 would have the greatest intermittent stream impacts (10,417 linear feet). DSA 81 would have the fewest linear feet of perennial stream impacts (36,771 linear feet), and DSA 22 would have the least intermittent stream impacts (8,953 linear feet).

Impacts to Catawba River Buffers. Based on the preliminary design within each DSA, impacts to the Catawba River riparian buffers are projected for the crossings of Lake Wylie. Since Lake Wylie spans the Project Study Area, none of the DSAs could avoid crossing Catawba River buffers. Table 6-6 in the Draft EIS lists the impacts to Catawba River Buffers.

Permitting and Mitigation. An Individual Permit under Section 404 of the Clean Water Act and an individual Section 401 Water Quality Certification will be required for roadway encroachment into jurisdictional wetlands and surface waters.

The DSAs incorporate measures to avoid and minimize impacts to Waters of the US. The NCTA met with the environmental resource and regulatory agencies at TEAC Meetings on February 5, March 4, and April 8, 2008, to discuss bridging and alignment discussions for the DSAs' preliminary designs. As a result of those meetings, NCTA agreed to include several bridges in

the preliminary designs, beyond those required to convey floodwaters, to avoid or minimize stream and wetland impacts.

Design refinements for the Preferred Alternative resulted in additional avoidance and minimization measures. These are discussed in greater detail in **Section 2.3** of this Final EIS.

Because this project would be permitted under an Individual 404 Permit, mitigation for impacts to surface waters will be required by the USACE and the NCDWQ. Furthermore, in accordance with its regulations (33 CFR Part 332), the USACE requires compensatory mitigation to ensure that adverse effects to the aquatic environment are minimal. It is anticipated that USACE and NCDWQ will require compensatory mitigation for stream impacts.

Section 404 Permit

Implementation of any of the DSAs will require an Individual Permit from the USACE and a Section 401 Water Quality Certification from the NCDWQ for wetland and stream impacts.

A conceptual mitigation plan for the Preferred Alternative has been prepared, and is described in **Section 2.5.4.4** of this Final EIS. As part of this plan, NCTA has received agreement from the NCDENR Ecosystem Enhancement Program (EEP) to provide compensatory mitigation through the in-lieu fee program. All impacts, corresponding mapping, and mitigation information will be included in the 401 Water Quality Certification Application submitted by NCTA to NCDWQ and the 404 Dredge and Fill permit package submitted to USACE following the completion of the NEPA process.

Catawba River Buffers. Implementation of DSA 5, 9, 23, 27, 64, 68, 77, or 81 would be designated as uses that are allowable with mitigation because they would cumulatively impact more than one-third acre of buffer. The NCDWQ will issue a mitigation determination that specifies the required area and location of mitigation (15A NCAC 02B.0244). Mitigation may be met by payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund, donation or real property of interest in real property, or restoration or enhancement of a non-forested riparian buffer (15A NCAC 02B.0244).

1.3.4.5 Protected Species

The following information is summarized from Section 6.5 of the Draft EIS.

Additional surveys for Schweinitz's sunflower were conducted for the Preferred Alternative after publication of the Draft EIS, as summarized in **Section 2.5.4.5**. These surveys were conducted for the Preferred Alternative service roads and areas where the refined preliminary design was outside the original study corridor boundary.

Federally-Protected Species. Plants and animals with a federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Sections 7 and 9 of the *Endangered Species Act of 1973* (ESA), as amended.

The USFWS lists three species under federal protection that are considered to have ranges extending into Gaston County, and five species under federal protection that are considered to have ranges extending into Mecklenburg County (USFWS Web site: www.fws.gov/nc-es/es/countyfr.html). These species are listed in Table 6-7 of the Draft EIS and in **Table 1-7**, along with the bald eagle, which has been delisted but is still federally protected by the Bald and Golden Eagle Protection Act.

Impacts to Protected Species. Table 6-9 in the Draft EIS summarizes the DSAs' potential effects on protected species and is reproduced here as **Table 1-7**.

TABLE 1-7: Summary of Effects on Federally Protected Species

Common Name	Scientific Name	County	Status	Potential Habitat Present in DSAs?	Biological Conclusion
Vertebrates					
Bald eagle	*Haliaeetus leucocephalus*	Gaston, Mecklenburg	Delisted	Yes	None Required
Bog turtle	*Clemmys muhlenbergii*	Gaston	T(S/A)	Yes	None Required
Invertebrates					
Carolina heelsplitter	*Lasmigona decorata*	Mecklenburg	E	Yes	No Effect
Vascular Plants					
Michaux's sumac	*Rhus michauxii*	Mecklenburg	E	Yes	No Effect
Schweinitz's sunflower	*Helianthus schweinitzii*	Gaston, Mecklenburg	E	Yes	May Affect/ Not Likely to Adversely Affect
Smooth coneflower	*Echinacea laevigata*	Mecklenburg	E	Yes	No Effect

Source: USFWS Web site: www.fws.gov/nc-es/es/countyfr.html, Updated 1/31/08
Notes: E-Endangered-A species that is threatened with extinction throughout all or a significant portion of its range.
T - Threatened-A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. T(S/A) - Similarity of Appearance-Threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

Endangered plant surveys were conducted in November 2009 for the Preferred Alternative in areas where the refined preliminary design and service roads extended outside of the original study corridor boundaries (**Section 2.5.4.5**). These surveys did not find any Schweinitz's sunflowers.

1.3.5 INDIRECT AND CUMULATIVE EFFECTS

Chapter 7 of the Draft EIS presents information from the qualitative *Indirect and Cumulative Effects Assessment for the Gaston East-West Connector* (Louis Berger Group, Inc., March 2009). The information presented below is summarized from Chapter 7 of the Draft EIS.

A *Quantitative Indirect and Cumulative Effects Analysis* (Louis Berger Group, Inc., August 2010) has been completed for the Preferred Alternative and the results of that assessment are presented in **Section 2.5.5** of this Final EIS.

1.3.5.1 Analysis Methodology

The qualitative assessment summarized in Chapter 7 of the Draft EIS was performed in accordance with NCDOT guidance titled, *Assessing Indirect and Cumulative Effects of Transportation Projects in North Carolina* (November, 2001), referred to in the Draft EIS as *ICI Guidance*.

This qualitative analysis was undertaken in five steps based on the NCDOT guidance, including:

- Definition of Indirect and Cumulative Effects (ICE) Study Areas (Step 1)
- Identification of the ICE Study Area's Direction and Goals (Step 2)
- Inventory of Notable Features (Step 3)
- Identification of Impact-Causing Activities (Step 4)
- Identification and Analysis of Potential Indirect and Cumulative Effects (Step 5)

To aid in defining the scope of the ICE assessment, meetings were offered with the following agencies: FHWA, NCTA, North Carolina Department of Transportation (NCDOT), US Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), NC Wildlife Resources Commission (NCWRC), US Environmental Protection Agency (USEPA), North Carolina Department of Environment and Natural Resources - Division of Water Quality (NCDWQ), State Historic Preservation Office (HPO), GUAMPO, and MUMPO. The USFWS, NCWRC, and NCDWQ offered assistance.

Representatives from the FHWA, NCTA, and NCDOT met with representatives from US Fish and Wildlife Service and NC Wildlife Resources Commission on June 29, 2007 (meeting minutes included in Draft EIS Appendix A-5). The purpose of the meeting was to collaboratively identify the sensitive resources, identify the study methodologies, define the ICE study area boundaries, and confirm the timeframe for the assessment. Based on input from the NCWRC, the ICE assessment included a section addressing potential indirect effects on upland wildlife habitat, including habitat fragmentation.

A similar scoping meeting was held with North Carolina Department of Environment and Natural Resources - Division of Water Quality (NCDWQ) on July 26, 2007 (meeting minutes included in Draft EIS Appendix A-5). NCDWQ agreed with the proposed multi-county qualitative approach of assessing potential ICEs associated with the proposed project, and the boundaries based on local watersheds.

Interviews also were held with local agency staff and local experts to gather information on notable features considered in this ICE assessment.

1.3.5.2 Study Areas

ICE Study Area. The study area used for analysis is called the ICE Study Area and includes most of Gaston and parts of Cleveland, Mecklenburg, and York (South Carolina) counties as shown in Figure 7-1a of the Draft EIS. The purpose of the ICE Study Area was to provide a basic level of geography that would encompass any reasonably foreseeable, potential indirect effects stemming from the proposed Gaston East-West Connector project. The potential transportation impact activities would fall within a portion for the ICE Study Area, and are more sharply described at the District and Interchange Area levels.

ICE Study Areas

Three geographic study areas were used. The largest, the ICE Study Area includes most of Gaston County and parts of Mecklenburg, Cleveland and York counties. The ICE Study Area was divided into ten Districts to better describe impacts. The smallest study areas were Interchange Areas, used to describe changes that may occur in the immediate vicinity of new access points created by the project.

Districts. The ICE Study Area was divided into ten districts (Districts 1 through 10) to facilitate discussions with local experts during interviews, as well as to provide a level of geography that would better describe potential indirect and cumulative effects that were more localized in nature.

Interchange Areas. The Interchange Areas are the third (and smallest) study area type used to assess the unique changes that would potentially be produced by increasing accessibility in the immediate vicinity of proposed interchanges with the Gaston East-West Connector (Draft EIS Figure 7-1b).

Temporal Boundary. A timeframe for analysis spanning from 1989 to 2030 was established for the ICE analysis. This temporal boundary is intended to encompass other past, present, and reasonably foreseeable future actions that could incrementally contribute to substantial changes

in land use, in combination with the proposed project. The year 1989 is the year the Gaston East-West Connector concept was first identified on the Gaston Urban Area Thoroughfare Plan. The year 2030 is the horizon year for the *GUAMPO 2030 LRTP* (May 2005), and the *MUMPO 2030 LRTP* (Amended September 2005).

1.3.5.3 Study Area Directions and Goals and Notable Features

Study Area Directions and Goals. In order to determine study area directions and goals, plans adopted by the local jurisdictions were reviewed. Reviews also were conducted of development policies, guidelines, utility provisions, and other actions that specifically provide information on the approach that local governments take toward managing growth. Meeting minutes from Planning Commissions, Boards of Commissioners, and City and Town Councils were reviewed and considered as well.

Jurisdictions in the ICE Study Area include four counties and four municipalities:

- Gaston County
- City of Gastonia (Gaston County)
- City of Bessemer City (Gaston County)
- City of Belmont (Gaston County)
- Mecklenburg County
- City of Charlotte (Mecklenburg County)
- Cleveland County
- York County, SC

The study area directions and goals for these jurisdictions are described in Section 7.3 of the Draft EIS.

Notable Features. Notable features is a broad term that describes characteristics of the environment that society would like to protect, emphasizing characteristics such as (1) recovery time from disturbance/destruction, (2) sensitivity to disruption, and (3) vulnerability to changes directly, indirectly, or cumulatively induced by the project (*ICI Guidance Volume II*, NCDOT, November 2001).

The qualitative *Indirect and Cumulative Effects Assessment* considered and assessed a wide range of notable features, including growth and land use, wildlife habitat, water resources, protected species, farmland, noise, air quality, and cultural resources.

Based on the information in the qualitative *Indirect and Cumulative Effects Assessment*, interviews with representatives from local governments and agencies, and input received from resource and regulatory agencies in the scoping process; FHWA and NCTA decided to highlight three notable features in the Draft EIS. These are: (1) growth and land use, (2) habitat fragmentation, and (3) water quality and aquatic habitat. These are described in Sections 7.4.1 through 7.4.3 of the Draft EIS.

Details on all the evaluated notable features and the assessments of indirect and cumulative effects to these features are included in the qualitative *Indirect and Cumulative Effects Assessment for the Gaston East-West Connector* (Louis Berger Group, Inc., March 2009).

1.3.5.4 Summary of Findings

Table 1-8 presents an overall summary of the potential for indirect and cumulative effects to occur in Gaston County, Mecklenburg County, Cleveland County, and York County, SC as a result of the Gaston East-West Connector. Table S-2 of the Draft EIS (included in **Appendix C** of this Final EIS) compares the DSAs in relation to direct impacts, indirect, and cumulative effects.

In **Table 1-8**, the column describing the potential for the project to improve mobility, access, and connectivity relates to travel time savings that would occur as a result of any of the DSAs. The column describing the potential for indirect effects relates to the potential for the project to influence growth rates and types and to affect notable features in the portions of each County that are part of the ICE Study Area. The column describing the potential for cumulative effects relates to how much the project would contribute to the overall factors that would drive land use change. For example, in York County, SC, growth and land use would be more heavily influenced by availability of water and sewer service and by implementation of their land use plans, than it would be by the project. Therefore, the potential for the project to contribute to cumulative effects related to land use change was rated low for the York County, SC portion of the ICE Study Area.

There are some minor differences between the DSAs, but overall there are no significant differences between the DSAs in terms of their general potential for indirect and cumulative effects to all the notable features assessed at the ICE Study Area level, District level, and Interchange level (Gaston and Mecklenburg Counties only).

The following sections summarize the indirect and cumulative effects on the three notable features that have been highlights in this chapter; growth and land use, habitat fragmentation, and water quality and aquatic habitat. Discussions of the indirect and cumulative effects to all notable features assessed are included in the qualitative *Indirect and Cumulative Effects Assessment for the Gaston East-West Connector* (Louis Berger Group, Inc., March 2009).

TABLE 1-8: Summary of Potential for Indirect and Cumulative Effects by County

Portion of County in ICE Study Area	Potential for Project to Improve Mobility, Access and Connectivity*	Potential for Accelerated Growth and Other Indirect Effects as a Result of the Project*	Potential for Project to Contribute to Cumulative Effects Related to Land Use Change*	DSAs which Contribute to Indirect and Cumulative Effects
Gaston	High	High	Moderate	All DSAs (4, 5, 9, 22, 23, 27, 58, 64, 68, 76, 77, 81)
Mecklenburg	High	Moderate	Moderate	All DSAs (4, 5, 9, 22, 23, 27, 58, 64, 68, 76, 77, 81)
Cleveland	Low	Low	Low	None
York, SC	Low/Moderate	Moderate	Low	All DSAs (4, 5, 9, 22, 23, 27, 58, 64, 68, 76, 77, 81)

Source: *Indirect and Cumulative Effects Assessment for the Gaston East-West Connector,* Louis Berger Group, Inc., March 2009

* Low – there would be some change from current or expected future No-Build condition, but the change would be minor and likely not noticeable.
Moderate – there would be a noticeable change from current or expected future No-Build conditions.
High – there would be a substantial change from current or expected future No-Build conditions.

Indirect and Cumulative Effects on Growth and Land Use (ICE Study Area). As shown in **Table 1-8**, the Gaston East-West Connector has a low potential to cause indirect or cumulative effects in Cleveland County. As shown in Draft EIS Figure 7-2, average travel time savings would be small for areas in Cleveland County. There would be no distinguishable differences in development rates in Cleveland County anticipated between the construction of any one of the proposed DSAs and the No-Build Alternative.

There is a low/moderate potential for the project to improve mobility and access in York County, SC. York County's average travel time savings is occasionally greater than 10 minutes with the proposed project in place. However, other data gathered from local sources did not indicate a significant anticipated influence from the Gaston East-West Connector on growth and land use changes. Therefore, the potential for accelerated growth and indirect effects to notable features

in York County as a result of the project are moderate. The potential for cumulative effects in York County, SC are primarily due to planned provisions for water and sewer service and residential development anticipated with or without the project.

Gaston County has a high potential to experience accelerated growth and indirect effects to notable features as a result of the project, and Mecklenburg County has a moderate potential. Both Gaston County and Mecklenburg County have a moderate potential to experience cumulative effects related to land use changes as a result of the project. In addition, Gaston and Mecklenburg counties have a high potential to experience improved mobility, access and connectivity, which is the purpose and need of the project. Growth and land use changes, along with the proposed project, are anticipated in the *Gaston County Comprehensive Plan* (July 2002) and Mecklenburg County's *2015 Plan: Planning for Our Future* (November 1997) and *2008-2010 Strategic Business Plan*.

The additional new runway at Charlotte-Douglas International Airport will increase that facility's passenger and freight capacities, as well as increase rail shipping capacity at this location and in the eastern section of the ICE Study Area. Residential development in western Mecklenburg County and throughout southeastern and south-central Gaston County, with some mixed uses, will be the predominant form of future development. Interchanges with the Gaston East-West Connector are physically within both Gaston and Mecklenburg counties, and notable for development potential during the analysis were the interchanges at US 321 and NC 274 (both in Gaston County). The cumulative impact of these activities will depend in part on local planning and policy guidelines, such as the Phase II water quality standards that are being considered in Gaston County.

Additionally, cumulative effects from increased residential and retail-oriented development are expected to continue in the attractive areas around the Catawba River (for example, in the River Bend and South Point Townships). Many of these homes are large, single-family detached units on one acre or more of land without public water/sewer connections. Unique descriptions of development activities within each of the small towns in Gaston County are provided in the *Indirect and Cumulative Effects Assessment for the Gaston East-West Connector* (Louis Berger Group, Inc., March 2009).

The indirect and cumulative effects associated with the DSAs may vary somewhat regarding effects on habitat fragmentation and water quality and aquatic habitat. These potential effects are summarized below. A more detailed table listing specific indirect and cumulative effect factors at the DSA level, and the differences amongst the DSAs, is provided in Draft EIS Appendix P. The table in Draft EIS Appendix P is a summary of a variety of factors used to draw conclusions regarding notable features.

Indirect and Cumulative Effects on Habitat Fragmentation (Gaston County and Mecklenburg County). All DSAs would have the potential to add to forest fragmentation and wildlife disturbance in the southwest section of Mecklenburg County. DSAs using Corridor Segments H1C, J1c, K1A, and K4A (DSAs 5, 23, 27, 58, 64, 68, 77, and 81) have a greater potential to indirectly affect upland species in Gaston County due to habitat fragmentation because these corridor segments are located the farthest distance away from previously fragmented forestland. DSAs 4, 9, 22, and 76, would have comparable levels of lesser indirect effects due to existing habitat fragmentation. Direct impacts to natural communities are discussed in Draft EIS Section 6.3.6.

Indirect and Cumulative Effects on Water Quality and Aquatic Habitat (ICE Study Area). Regarding the differentiation of impacts from individual Detailed Study Alternatives, DSAs 58, 64, 68, 76, 77, and 81 would have comparable levels of indirect effects and cumulative

effects to water quality and aquatic habitat as a result of induced development. These potential effects would be greater than those associated with the No-Build Alternative, but less than potential effects associated with DSAs 4, 5, 9, 22, 23, and 27. DSAs 4, 5, 9, 22, 23, and 27 are closer to Crowders Creek, and would be expected to have a greater amount of stormwater runoff effects. However, these can be minimized through implementation of local stormwater ordinances and BMPs. Direct and indirect impacts to water quality and water resources would occur in Gaston and Mecklenburg counties and these are discussed in Draft EIS Sections 6.2.2 and 6.2.3.

1.3.6 OTHER IMPACTS

1.3.6.1 Irretrievable and Irreversible Commitment of Resources

The following information is reproduced from Section 8.1 of the Draft EIS. There have been no updates to this information.

Implementation of any of the DSAs would involve a commitment of a range of natural, physical, human, and fiscal resources. Land used for the construction of the proposed facility is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion will be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material would be expended. Additionally, large amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect upon continued availability of these resources. Any construction also would require a substantial one-time expenditure of both state and federal funds, which are not retrievable.

The commitment of these resources is based on the concept that residents in the immediate area, region, and state will benefit by the improved quality of the transportation system. These benefits will consist of improved accessibility and connectivity, savings in time, and greater availability of quality services which are anticipated to outweigh the commitment of these resources.

1.3.6.2 Relationship between Short-Term Impacts and Long-Term Impacts

The following information is reproduced from Section 8.2 of the Draft EIS. As previously noted, the date for the MUMPO and GUAMPO LRTPs has been updated from 2030 to 2035.

The most disruptive local short-term impacts associated with the proposed projects would occur during land acquisition and project construction. However, these short-term uses of human, physical, socioeconomic, cultural, and natural resources would contribute to the long-term productivity of the Project Study Area.

The local, short-term impacts and use of resources by implementation of any of the DSAs would be consistent with the maintenance and enhancement of long-term productivity. Construction of the proposed Gaston East-West Connector would add a vital link to the long range transportation system for the region. It is anticipated that the proposed project would enhance long-term access and connectivity opportunities in Gaston County and Mecklenburg County, and

would support local and regional commitments to transportation improvement and economic viability.

1.4 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

The following information is summarized from Chapter 9 of the Draft EIS, which discusses public involvement and agency coordination activities prior to preparation of the Draft EIS. Public involvement and agency coordination activities since the Draft EIS was prepared are described in **Chapter 3** of this Final EIS.

1.4.1 PUBLIC INVOLVEMENT

1.4.1.1 Citizens Informational Workshops

Three series of Citizens Informational Workshops (CIWs) were held for the project prior to the Draft EIS. In 2003, the first series of CIWs were held on September 30, (Forestview High School, Gastonia), December 9, (South Point High School, Belmont), and December 10, (Hunter Huss High School, Gastonia). The workshops, held by NCDOT, presented the purpose and need for the project and the preliminary alternatives being considered. Approximately 734 citizens signed in at the first series of workshops, and 192 written comment forms were received at, and following, the workshops.

The second series of CIWs took place in 2006 on January 31 (Hunter Huss High School, Gastonia), February 1 (Olympic High School, Charlotte), and February 2 (South Point High School, Belmont). These workshops were held by NCTA with assistance from NCDOT. The purpose of this series of workshops was to present the recommended DSAs for input and comment. Approximately 813 citizens signed in at the second series of workshops and there were 185 written comment forms during and after the workshops.

The third series of CIWs, held by NCTA, took place in 2008 on August 6 (Olympic High School, Charlotte), August 7 (South Point High School, Belmont), and August 11 (Gastonia Adult Recreation Center, Gastonia). The purpose of this workshop series was to seek feedback regarding the elimination of Corridor Segment K1D from detailed study and to present the following the additional public comment:

- Updates to the project's *Purpose and Need Statement*, June 2008,
- The *Addendum to the Final Alternatives Development and Evaluation Report,* July 2008,
- The DSAs and the preliminary right-of-way limits for the roadway designs within the study corridors, and
- The potential elimination of the project's interchange at US 29-74.

A total of 1,026 citizens signed in at the third series of workshops. There were 205 written comments received at and following the workshops.

1.4.1.2 Local Officials Meetings

Local Officials Meetings were held September 30, 2003, January 31, 2006, February 1, 2006, and August 6, 2008, prior to each series of CIWs. Their purpose was to provide local officials with opportunities to ask questions and submit comments, as well as an opportunity for NCTA to give a project overview and status report.

1.4.1.3 Small Group Meetings

Throughout the study process, the project study team met with a variety of organizations, agencies, and groups to exchange information, collect data, or to make a presentation about the project at the request of community groups. At these meetings, NCTA provided project updates and answered questions from attendees.

These groups included the Duke Energy Corporation, Gaston Chamber of Commerce, Friends of Crowders Mountain, Paradise Point Neighborhood Group, Medallist Development Corporation, NC League for Transportation and Logistics, Ramoth AME Zion Church, Brown's Cove Neighborhood Group, Garrison Road/Horton Road Community, Misty Waters Subdivision, River Lakes Subdivision, Karyae Park YMCA, Pisgah ARP Church, and Town of Belmont.

1.4.1.4 Other Outreach Efforts

Newsletters distributed in April 2003 and September 2003 announced the upcoming Citizens Informational Workshops and included project information and updates. Brochures and postcards also were used to provide the public with information about the project and project-related events. These items were posted to the project web site and available for download.

A project web site (www.ncturnpike.org/projects/gaston) provides project information, documents, previous newsletters and postcards, project maps and an online comment form. The online comment form enables users to add their name to the project mailing list and/or provide comments and ask questions. Visitors are also able to e-mail the project study team directly (at gaston@ncturnpike.org). The Web site is periodically updated as new information, documents, maps, and reports become available.

A toll-free hotline number was created for the project (1-800-475-6402). This provides a resource for citizens to ask questions, provide input, or request a meeting for a particular organization. All calls received are logged and responded to in a timely manner.

1.4.2 AGENCY COORDINATION

1.4.2.1 Scoping Letter

A formal scoping letter, as required by NEPA, was sent by NCDOT to local, state, and federal agencies on April 9, 2003. The letter is included in Appendix A-3 of the Draft EIS, along with agency response letters. The purpose of the scoping letter was to solicit comments and collect pertinent project information early in the project development process. The coordination (NEPA scoping) between NCDOT, FHWA, and the agencies assisted with the development of the purpose and need statement, range of alternatives considered, and the determination of the DSAs.

Table 9-1 in the Draft EIS lists the agencies that provided comments in response to the scoping letter, along with a brief summary of the comments.

1.4.2.2 Notice of Intent

A Notice of Intent (NOI) to prepare a Draft EIS for the project was published by FHWA in the Federal Register on April 27, 2006 (Volume 71, No. 81, pages 24909-24910).

1.4.2.3 Section 6002 Project Coordination Plan

In October 2008, in accordance with Section 6002 of SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users), the NCTA developed a *Section 6002 Project Coordination Plan* for the proposed Gaston East-West Connector project. The plan establishes a project schedule, sets a monthly schedule for coordination meetings, establishes agency review times, identifies a process for resolving issues of concern, and identifies cooperating and participating agencies.

The *Section 6002 Project Coordination Plan* was developed and finalized in consultation with the Federal Highway Administration (FHWA), and North Carolina Department of Transportation (NCDOT), as well as the cooperating and participating agencies.

The project's final *Section 6002 Project Coordination Plan*, which provides for a process similar to Merger 01, is included in Appendix A-7 of the Draft EIS, along with copies of invitation letters to Cooperating Agencies and Participating Agencies, and responses to those invitations.

1.4.2.4 Agency Coordination Meetings

Agency coordination meetings regarding the Gaston East-West Connector have been held from 2002 through 2009. When the NCTA assumed administration of the project in 2005, the NCTA included the project in regularly scheduled monthly meetings, referred to as TEAC Meetings, to review the status of the current NCTA projects, environmental concerns, and permitting requirements.

Table 9-3 in the Draft EIS provides summaries of the agency coordination meetings held for the Gaston East-West Connector prior to publication of the Draft EIS. Descriptions of TEAC meetings which occurred after the publication of the Draft EIS are included in **Section 3.2** of this Final EIS.

1.5 UNRESOLVED ISSUES AND ISSUES RESOLVED SINCE DRAFT EIS

Section S.9 of the Draft EIS lists unresolved issues to be addressed prior to the publication of the Final EIS. These issues are listed below, along with a brief description of the resolution.

- Selection of the Least Environmentally Damaging Practicable Alternative (LEDPA) and development of avoidance and minimization efforts within the corridor of the Preferred Alternative in coordination with regulatory agencies.
    - DSA 9 was selected as the LEDPA in coordination with the environmental resource and regulatory agencies, as detailed in **Section 3.2.1.1** of this Final EIS. Avoidance and minimization efforts are described in **Section 2.3.3**.
- Preparation of a conceptual mitigation plan for unavoidable wetland and stream impacts.
    - A conceptual mitigation plan was prepared for the Preferred Alternative, as described in **Section 2.5.4.4** of this Final EIS.
- Completion of additional archaeological surveys for the Preferred Alternative corridor, as necessary, based on coordination with NCDOT and the State Historic Preservation Office (HPO).
    - Additional archaeological surveys for the Preferred Alternative were conducted, as described in **Section 2.5.3.2** of this Final EIS.

- The next update to the GUAMPO LRTP and MUMPO LRTP and conformity determinations will need to designate the project as a toll facility prior to completion of the ROD.
    - The 2035 LRTPs for GUAMPO and MUMPO include the proposed project as a toll facility. USDOT made a conformity determination on the LRTPs and TIPs on May 3, 2010. However, there were still two inconsistencies between the Preferred Alternative and the project included in the GUAMPO *2035 LRTP*. The GUAMPO *2035 LRTP* included an interchange at Bud Wilson Road, and there were different assumptions for the year 2015 configuration (**Section 2.5.2.2**). The Bud Wilson Road interchange has been eliminated from the Preferred Alternative (**Section 2.3.1.6**). Current plans are for the Preferred Alternative in 2015 to be constructed as a four-lane facility from I-485 to US 321 and as an interim two-lane facility from US 321 to I-85. The remaining two lanes for the segment from US 321 to I-85 would be constructed by 2035.

      After the May 3, 2010 conformity determination made by the USDOT, the GUAMPO prepared an amendment to the *2035 LRTP* and *2009-2015 TIP* so that the project design concept and scope included in the LRTP and TIP is consistent with the Preferred Alternative. GUAMPO made a conformity determination on the amended *2035 LRTP* and *2009-2015 TIP* on August 24, 2010. USDOT issued a conformity determination on the amendments on October 5, 2010. A copy of the USDOT letter is included in **Appendix K** of this Final EIS.