NWCP
NORTHWEST CORRIDOR PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

VOLUME 1a

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NORTHWEST CORRIDOR PROJECT

prepared by:
FEDERAL HIGHWAY ADMINISTRATION and
GEORGIA DEPARTMENT OF TRANSPORTATION

CSNHS-0008-00(256), PI No.0008256

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Pursuant to:

National Environmental Policy Act of 1969, as amended, Section 102(2)(c), 42 U.S.C. 4332 (2)(c); National Historic Preservation Act of 1966, Section 106, 16 U.S.C. 470. et seq; Executive Order 11990 (Protection of Wetlands); Executive Order 12898 (Environmental Justice for Low-Income and Minority Populations); Executive Order 13045 (Protection of Children from Environmental Health and Safety Risks); Executive Order 13166 (Improving Access to Services for Persons with Limited English Proficiency); Federal Transit Act, 49 U.S.C. Section 5323(b), Section 5309(e)(2) - (7), 5301(e), and 5324(b)(1) - (3); Title 49 U.S.C. Section 303, formerly Department of Transportation Act of 1966, Section 4(f).

For FHWA: Rodney N. Barry Date: 10/12/11
Rodney N. Barry, P.E., Division Administrator
Federal Highway Administration, Georgia Division

For GDOT: Keith Golden Date: 10-11-11
Keith Golden, P.E., Commissioner
Georgia Department of Transportation

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NORTHWEST CORRIDOR PROJECT
COBB AND CHEROKEE COUNTIES, GEORGIA
FINAL ENVIRONMENTAL IMPACT STATEMENT

Responsible Agencies

The Federal Highway Administration (FHWA) and the Georgia Department of Transportation (GDOT) are Joint Lead Agencies.

Abstract

The project proponents propose improvements to the Northwest Corridor in the Atlanta metropolitan area. Alternatives considered in the Supplemental Draft Environmental Impact Statement (SDEIS) included the No-Build Alternative and the Two-Lane Reversible Alternative. This latter alternative, known as the Build Alternative, would involve constructing a tolled, reversible managed-lane system on I-75 and I-575 in Cobb and Cherokee Counties. The SDEIS Build Alternative with some minor modifications was identified by GDOT as the Preferred Alternative for evaluation in this Final Environmental Impact Statement (FEIS).

Because federal approvals, permits, and funding assistance are required, the proposed project is subject to review under the National Environmental Policy Act of 1969, as amended (NEPA). The preparation of this FEIS is in compliance with this Act. The FEIS defines the No-Build and Preferred Alternatives, identifies the capital costs associated with these two alternatives, and describes why the previously considered alternatives from the Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) and the SDEIS were dismissed. The potential transportation and environmental impacts are described and the environmental commitments required to mitigate anticipated impacts are identified. In addition, agency consultation and public involvement activities are summarized and responses to comments on both the AA/DEIS and the SDEIS are presented in this document. This information will be used to make a decision on whether to implement the project.

The FEIS has a review period of 30 days following the publication of the Notice of Availability, after which the FHWA may issue a Record of Decision (ROD) and make a final decision on the project.

For additional information, the following persons may be contacted:

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Persons with disabilities may request project information be prepared and supplied in alternate forms by calling collect and leaving a message at tel. (404) 377-4012. A person at GDOT will return the message to determine what kind of assistance is required. Persons with hearing impairment may call the Public Service Commission at 711 to use the Georgia Relay System.

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For questions regarding the Northwest Corridor Project Final Environmental Impact Statement, please call (404) 377-4012.

Servicios de Traducción
Si tiene preguntas sobre la Declaración del Impacto Ambiental Final de las Autopistas I-75 y I-575, del Proyecto del Corredor Noroeste (Northwest Corridor Project), por favor llame al (404) 377-4012.

Serviço de Tradução
Para maiores esclarecimento sobre o Relatório Final de Impacto Ambiental do Projeto do Northwest Corridor, telefonar para (404) 377-4012.

Measurements
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NWCP

SUMMARY

S. Summary

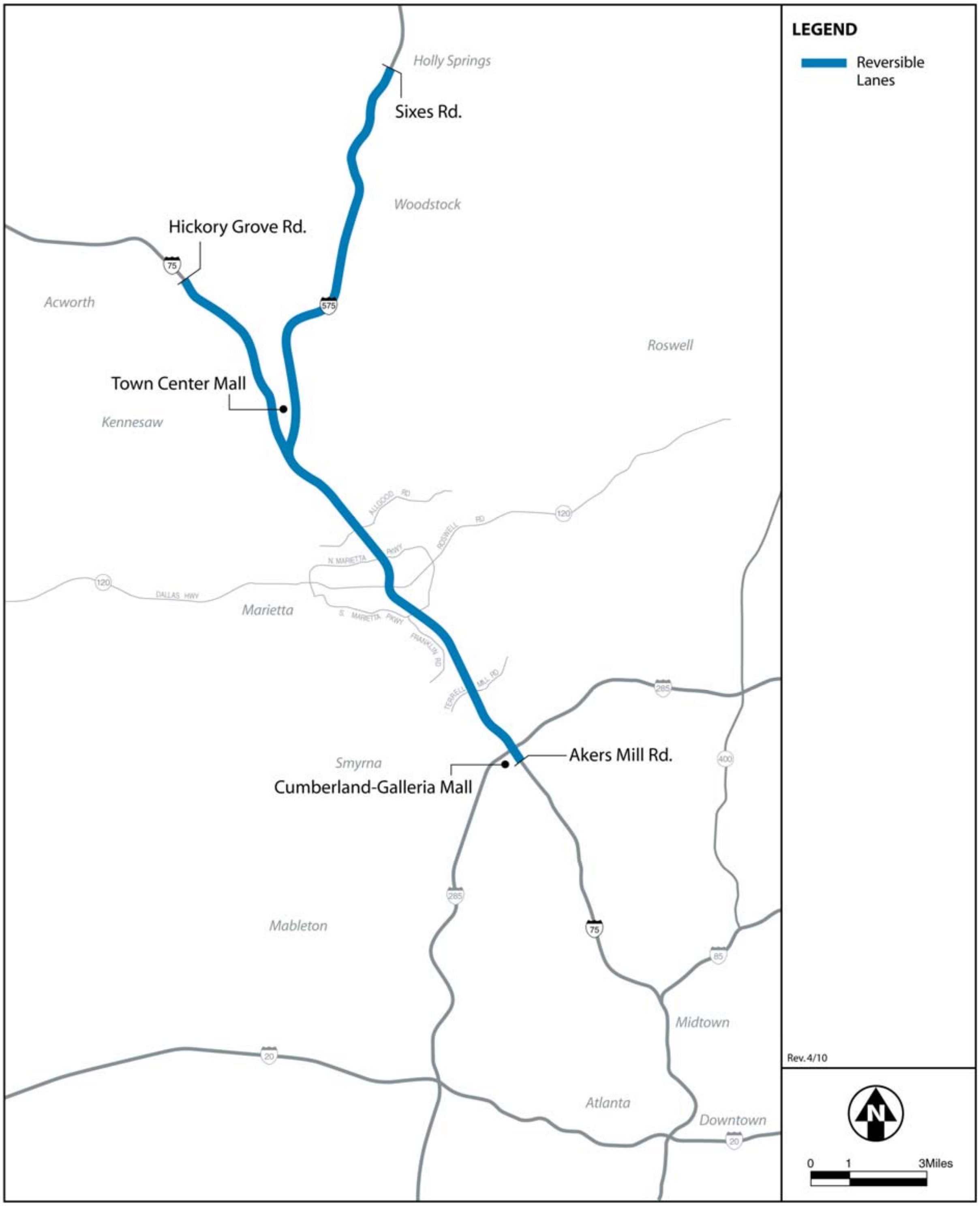
The text following is a summary of the information and analysis presented in the Final Environmental Impact Statement (FEIS) for the Northwest Corridor Project. It reviews the purpose and need for the project and describes the Preferred Alternative for highway improvements proposed for Interstate 75 (I-75) and I-575 in Cobb and Cherokee Counties. The transportation and environmental impacts and the trade-offs of the Preferred Alternative compared to the No-Build Alternative are described briefly. In addition, the text summarizes agency consultation, public involvement activities, and the next steps in the environmental review process and project development. The sources for the analysis and documentation presented in this discussion are found in an extensive list of references contained in the FEIS.

S.1 The Proposed Action

The Federal Highway Administration (FHWA) and Georgia Department of Transportation (GDOT) propose to make transportation improvements to I-75 and I-575 in the Atlanta metropolitan area. The proposed managed lanes would extend from the current end of the high-occupancy vehicle (HOV) lanes on I-75 at Akers Mill Road south of I-285. Two new reversible managed lanes would be constructed between I-285 and I-575. A single reversible lane would be constructed on I-75 from the I-75/I-575 Interchange to just north of Hickory Grove Road. Similarly, a single reversible lane would be constructed on I-575 between the I-75/I-575 Interchange and Sixes Road. The total length of highway corridor improvements is 29.7 miles. The location of the proposed improvements is shown in Figure S-1. The proposed transportation improvements are referred to collectively as the Northwest Corridor Project.

Because federal approvals, permits, and funding assistance would be used to construct the highway improvements, the proposed project must be evaluated for potential environmental impacts as required by the National Environmental Policy Act of 1969, as amended. The first Notice of Intent to announce the planned preparation of the Environmental Impact Statement appeared in the *Federal Register* on March 15, 2004. In May 2007, the *Northwest I-75/I-575 Corridor Project Alternatives Analysis/Draft Environmental Impact Statement* (AA/DEIS) was published. The AA/DEIS evaluated four build alternatives that included different combinations of transportation improvements including: transportation system management, HOV (i.e., carpool) lanes, truck-only lanes (TOL), and bus rapid transit (BRT) (buses operated similar to a train and servicing a limited number of transit stops).

Following the public review of the AA/DEIS, a number of changes occurred that affected the proposed alternatives and completion of the environmental review process. Due largely to public comment, both the TOL and BRT components of the project were eliminated from further consideration. A second Notice of Intent was published on December 24, 2009 advising interested parties that a Supplemental Draft Environmental Impact Statement would be prepared. The *Northwest Corridor Project, Supplemental Environmental Impact Statement* (SDEIS) was issued on September 18, 2010. It was prepared to address the changed conditions affecting the project as well as to evaluate a new alternative – the Two-Lane Reversible Alternative (referred to as the Build Alternative). This alternative was based on the HOV element of the earlier alternatives, but “right-sized” it for the Northwest Corridor and more closely matched the financial resources available to GDOT to implement the proposed project. Under the SDEIS Build Alternative, tolled reversible managed lanes would be constructed in the project corridor. Following the public review of the SDEIS, minor modifications were made to the SDEIS Build Alternative, and this modified alternative was subsequently identified by GDOT as the Preferred Alternative for evaluation in the FEIS.


LEGEND
Reversible Lanes
Holly Springs
Sixes Rd.
Woodstock
Hickory Grove Rd.
75
575
Acworth
Roswell
Town Center Mall
Kennesaw
120
Marietta
DALLAS HWY
285
Akers Mill Rd.
Smyrna
Cumberland-Galleria Mall
400
Mableton
75
85
Midtown
20
Atlanta
Downtown
Rev. 4/10
N
0 1 3Miles

S.2 Purpose and Need

The Northwest Corridor is one of the most severely congested highway corridors in the Atlanta metropolitan region, and improvements are needed to reduce congestion. Over the past two decades, urban development in Cobb and Cherokee Counties, in terms of both population and employment growth, has substantially increased traffic congestion on both I-75 and I-575. The amount of time required to travel to and from destinations in the Atlanta metropolitan area using these highway segments has increased, and the ability to accurately estimate the time it will take to reach a particular destination has declined. Moreover, the severe congestion in the Northwest Corridor affects all types of vehicles – private passenger vehicles, carpools and van pool vehicles, public transit buses, and delivery and freight trucks.

The purpose of the Northwest Corridor Project is to address the following:

- Need to reduce congestion
- Need to improve mobility by reducing travel time and increasing reliability
- Need to improve access by improving connectivity between regional activity centers
- Need to improve safety by reducing existing roadway design deficiencies and congestion-related crashes
- Need to reduce vehicle emissions by improving vehicular travel efficiency and increasing the proportion of high capacity vehicles

Based on these transportation problems, the purpose of the project is to make improvements to the highways in the Northwest Corridor that meet the following goals:

- Improve transportation effectiveness of I-75 and I-575 that also contributes to the improved performance of the regional transportation system
- Provide additional transportation choices or options that increase the capacity of I-75 and I-575;
- Improve the quality of life by improving mobility and minimizing adverse effects on both natural resources and the built environment;
- Improve transportation equity by providing an equitable distribution of benefits and impacts to all populations; and
- Provide cost-effective and affordable transportation improvements.

Measures of effectiveness were used to evaluate how well the No-Build and Preferred Alternatives meet the project goals. The analysis also compares and contrasts these two alternatives.

In addition, the Atlanta metropolitan area currently does not meet all of the National Ambient Air Quality Standards for regulated air pollutants. The metropolitan area does not meet the federal eight-hour standard for ozone (O_3) and the annual standard for small particulates ($PM_{2.5}$) in the atmosphere. These measures of air quality are related to the substantial traffic congestion in the Northwest Corridor. As such, the forecast increase in traffic congestion is expected to further reduce air quality in the Atlanta metropolitan area in the absence of transportation improvements.

Major planning efforts addressing the Northwest Corridor are the Atlanta Regional Commission's *Envision6, Volume I: 2030 Regional Transportation Plan* (2007), the recently adopted *PLAN 2040 Regional Transportation Plan* (July 2011), and GDOT's *Atlanta Regional Managed Lane System Plan* (2010). In 2005, the Atlanta Regional Commission formed a Managed Lane Planning Team to develop managed-lane policies to be used in the development of regional transportation plans and programs. The resulting policy document, *Managed Lanes Policy for the Atlanta Region* (2007) recognizes managed lanes as a tool to provide and maintain mobility and travel options for the citizens of and travelers in the Atlanta region. The policy was incorporated into the *Envision6 2030 Regional Transportation Plan* and the accompanying *FY 2008-2013 Transportation Improvement Program* (FY 2008-2013 TIP). *Envision6* supports transit system expansion and development, and also addresses supporting transportation systems, such as the managed-lane concept to increase the transportation system capacity of the region's highways.

Through coordination with all of its transportation planning partners, GDOT adopted the *Atlanta Regional Managed Lane System Plan* for the Atlanta region in December 2009 and published the plan in January 2010. The purpose of the plan is to develop a system-wide approach to implement managed lanes consistent with the *Managed Lanes Policy for the Atlanta Region*. The implementation strategy allows for corridor-specific consideration of revenue and funding options, construction, demand, and impact issues.

The Preferred Alternative for the Northwest Corridor is a managed-lane system that was subsequently included in the adopted FY 2008-2013 TIP. The proposed reversible managed lane project also was incorporated in Atlanta Regional Commission's *PLAN 2040 Regional Transportation Plan* and its associated FY 2012-2017 TIP, both of which were adopted on July 27, 2011. In these most recent transportation planning documents, the 29.7-mile project is titled the Northwest Corridor (I-75 and I-575) Managed Lanes Project (AR-ML-930). The Georgia Regional Transportation Authority approved the FY 2012-2017 TIP on August 18, 2011 and the FHWA issued a conformity determination with concurrence by the US Environmental Protection Agency on September 6, 2011. As such, the project is part of a conforming regional transportation plan and transportation improvement program.

S.3 Project Alternatives Considered

The AA/DEIS that was approved and circulated in 2007 evaluated the No-Build Alternative and four build alternatives that included combinations of HOV lanes, TOLs, transportation systems management (TSM), and BRT. The No-Build Alternative included all existing highway and transit services and facilities within the Northwest Corridor and the remainder of the region. It also included the planned regional long-range improvements for the area outside the Northwest Corridor, except for the planned managed-lane improvements for I-285 and I-20 West. The latter were excluded because they influence the traffic operation benefits of the proposed improvements to I-75.

All facilities and services under the No-Build Alternative were included under each of the build alternatives evaluated in the AA/DEIS. Each alternative provided for the extension of the HOV lanes on I-75 and I-575, and the addition of TOLs on I-75. The HOV and TOLs would essentially be the same throughout the I-75 and I-575 corridor under all of the build alternatives. The primary difference among the AA/DEIS build alternatives was the type and level of transit improvements that would have been included under each alternative, e.g., bus frequency, types of passenger facilities, location and size of park-and-ride lots, and number and type of transit vehicles. The AA/DEIS build alternatives were distinguished by the following characteristics:

- The **HOV/TOL Alternative** provided for only a minimum expansion of transit service in the corridor in addition to the transit improvements committed in the transportation improvement program. This alternative provided GDOT with the ability to advance the HOV/TOL element of the project with only minimal transit improvements.
- The **HOV/TOL/TSM Alternative** was a lower-cost transit alternative compared to the other transit alternatives. It included a major expansion of express bus service operating in the HOV lanes with supporting transit facility improvements, such as park-and-ride lots and bus transfer facilities.
- The **HOV/TOL/BRT Alternative** served the same travel markets as the HOV/TOL/TSM Alternative, but with five BRT stations located at proposed special HOV interchanges on I-75 where vehicles would have direct access to the HOV lanes.
- The **HOV/TOL/Reduced BRT Alternative** was a reduced-cost version of the HOV/TOL/BRT Alternative with only three stations along the I-75 corridor. It was intended as the first phase of the BRT system in the event funding was not available for the five stations included in the HOV/TOL/BRT Alternative.

In addition to the design options, two operational options were considered for the AA/DEIS build alternatives:

- High-Occupancy-Toll Lane Option that would allow single-occupancy vehicles use of the HOV lanes by paying a toll.
- Truck-Only-Toll Lane Option that would require truck operators to pay a toll. The TOT lanes could be mandatory or voluntary for heavy-duty through trucks.

Following publication of the AA/DEIS in May 2007, a number of major project milestones occurred that affected completion of the environmental review process. These changed conditions included:

- The GDOT review of comments on the AA/DEIS identified substantial opposition and concern over anticipated costs for both the TOL and BRT elements of the four build alternatives.
- The national economy had entered into a substantial recession and GDOT determined there were curtailed funding options for the proposed project. These economic conditions would affect the amount of money available to construct any transportation improvements in the Northwest Corridor.
- In April 2008, GDOT completed a statewide truck lanes needs identification study that concluded TOLs in metro Atlanta were not financially feasible.
- The Atlanta Regional Commission released the 2008 Travel Demand Forecasting Model, which replaced the computer model used to conduct the traffic analysis presented in the AA/DEIS. The new model indicated stronger directional flows during peak commute periods. This indicated potential opportunities to implement a reversible managed-lane system, not just a bi-directional managed-lane system. A reversible managed-lane system would allow the number of lanes to be reduced in half by adding highway capacity to serve only the peak period major direction of traffic flow, i.e., southbound during the morning commute period.

As a result of these changes, GDOT decided in 2008 to eliminate the TOL and the BRT elements of the build alternatives evaluated in the AA/DEIS, leaving only the HOV lane element of the project. To identify a lower-cost, but still highly effective alternative, GDOT conducted traffic modeling for three different managed-lane concepts using the new 2008 Travel Demand Forecasting Model. The three concepts were:

- Concept A – a two-lane bi-directional HOV system operating on I-75 between I-285 and I-575, and a single bi-directional HOV system northwards to Hickory Grove Road on I-75 and Sixes Road on I-575;
- Concept B – two reversible (one-direction) lanes operating on I-75 between I-285 and I-575, and single reversible lanes northwards to Hickory Grove Road on I-75 and Sixes Road on I-575; and
- Concept C – three reversible lanes operating on I-75 between I-285 and I-575, two reversible lanes on both I-75 and I-575 north to Big Shanty Road, and a single reversible lane further north to Hickory Grove Road on I-75 and Sixes Road on I-575.

Considering this analysis, Concept A was dropped from further study because bi-directional lanes would result in unused capacity in the off-peak direction flow, and the alternative would have additional potential environmental impacts as a result of the additional right-of-way required. Concept C was dropped because of the additional cost of a third lane on I-75 between I-285 and I-575 and the second lane on each corridor north of the I-75/I-575 Interchange – neither of which was warranted by the forecast traffic volumes. Considering these findings, GDOT concluded that limited financial resources should not be spent on constructing new highway lanes that would not be used to near capacity. As neither Concept A nor Concept C ranked as high as Concept B with respect to the project goal to provide a cost-effective and affordable solution, Concept B was identified as the most appropriate design concept. Following this analysis, conceptual engineering plans were developed for Concept B, which was renamed the Two-Lane Reversible Alternative.

The concept for the Two-Lane Reversible Alternative was consistent with the GDOT adopted regional managed-lane system plan. This plan provides motorists with substantially improved level of service (LOS) (i.e., less congestion) on the proposed managed-lane system to encourage people to carpool and not use of the general-purpose lanes. The tolling policy for the proposed managed lanes would be structured to provide opportunities for increased transportation mobility for users.

In September 2010, the SDEIS was published. The document compared and contrasted the Two-Lane Reversible Alternative against the No-Build Alternative. In addition, the purpose of the SDEIS was to update the technical analysis due to changed conditions. The affected environment had changed since the publication of the AA/DEIS in May 2007, and regulatory changes required new or different analyses in the environmental document.

Following publication of the SDEIS, GDOT fine-tuned the SDEIS's two-lane reversible managed-lane concept. Minor modifications to the project design were made to further minimize potential impacts, particularly traffic congestion. Additional changes were made to reduce costs based on the completion of the Value Engineering Study in late 2009. These minor modifications included:

- Adding extra travel lanes to facilitate northbound managed-lane traffic merging with the general-purpose lanes at both northern termini,
- Adding ramp lanes at several managed-lane interchanges,

- Reconfiguring several local roadways adjacent to the managed-lane interchanges, and
- Shifting the horizontal and vertical alignment of the managed-lane system south of I-575.

With the incorporation of these refinements, the modified SDEIS Build Alternative was identified by GDOT as the Preferred Alternative for the Northwest Corridor Project.

S.4 The Preferred Alternative

The FEIS evaluates the potential environmental effects of the Preferred Alternative. This alternative was identified as preferred over the previously evaluated and dismissed alternatives discussed in the AA/DEIS and SDEIS. The four AA/DEIS build alternatives were dismissed because of substantial public opposition to the concepts of TOL and BRT, and because of curtailed funding options for those alternatives. The Preferred Alternative has a conceptual capital cost estimate of $968.3 million compared to the capital costs for the AA/DEIS alternatives, which ranged from $3.52 billion to $4.07 billion. In addition, the AA/DEIS build alternatives had substantially higher environmental impacts because of the substantial right-of-way acquisition and displacements required. For comparison, between 340 and 380 displacements would occur for the AA/DEIS build alternatives versus 18 displacements – 12 businesses and 6 residences – for the Preferred Alternative.

In the FEIS, the Preferred Alternative is compared against the No-Build Alternative. The No-Build Alternative was defined to include all existing highway, transit services, and transit facilities within the project corridor. In addition, it includes the planned long-range improvements from *Envision6 2030 Regional Transportation Plan* located outside the project corridor. The exceptions were the planned managed-lane improvements for I-285 North, I-285 West and I-20 West. As a conservative approach to the analysis, the managed-lane improvements to I-285 North, I-285 West and I-20 West were excluded because they would be expected to increase use of I-75 and/or I-575 under the Preferred Alternative. In addition, there is risk that implementation of the I-285 and I-20 West improvements may not occur as planned. As such, the No-Build Alternative is the baseline for comparison of potential transportation and environmental effects of the Preferred Alternative.

The Preferred Alternative includes all proposed transportation facilities and services considered part of the No-Build Alternative, plus the additional proposed improvements for both I-75 and I-575. The Preferred Alternative would extend the two I-75 managed lanes (HOV lanes, one in each direction) that currently terminate at Akers Mill Road south of the I-75/I-285 interchange. Two new managed lanes would extend north to the I-75/I-575 interchange. A single managed lane would continue north on I-75 from the I-75/I-575 interchange to just beyond Hickory Grove Road. Similarly, a single managed lane would continue north on I-575 from the I-75/I-575 interchange to the Sixes Road interchange. The proposed managed-lane facility includes improvements of approximately 16.8 miles on I-75, 11.3 miles on I-575, and 1.6 miles on I-285. The proposed 29.7 miles of new managed lanes would be designed for highway speeds of 55 miles per hour (mph) on I-75 between I-285 and I-575 and 65 mph on each corridor north of the I-75/I-575 interchange. The ramps connecting the I-75 managed lanes to I-285 would be designed for 45 mph.

Unlike the existing HOV lanes on I-75 south of I-285, the new managed lanes on I-75 would be reversible, meaning the directional flow of traffic in the lanes would change during the day. During the morning peak commute period, the lanes would only accommodate southbound traffic towards downtown Atlanta. During the evening peak commute period, the directional flow of the traffic would be reversed to accommodate only northbound traffic towards the suburban communities. Like the two reversible lanes on I-75, the single reversible lanes north of the I-75/I-575 interchange on both I-75 and I-575 would only accommodate peak period directional flows.

The two new managed lanes would be on elevated structures or on walls on the west side of I-75 between Akers Mill Road and the I-75/I-575 interchange (see Figure S-2 and Figure S-3). Along this segment, the managed lanes also would be elevated on structures over existing roadways that cross the highway (see Figure S-4 and Figure S-5). The managed lanes on I-75 would connect to the general-purpose lanes on I-285, and the proposed design and alignment have been coordinated with the proposed managed lanes on I-285.

Figure S-2. I-75 Typical Elevated Managed Lanes on Structures (South of I-575) – Looking North

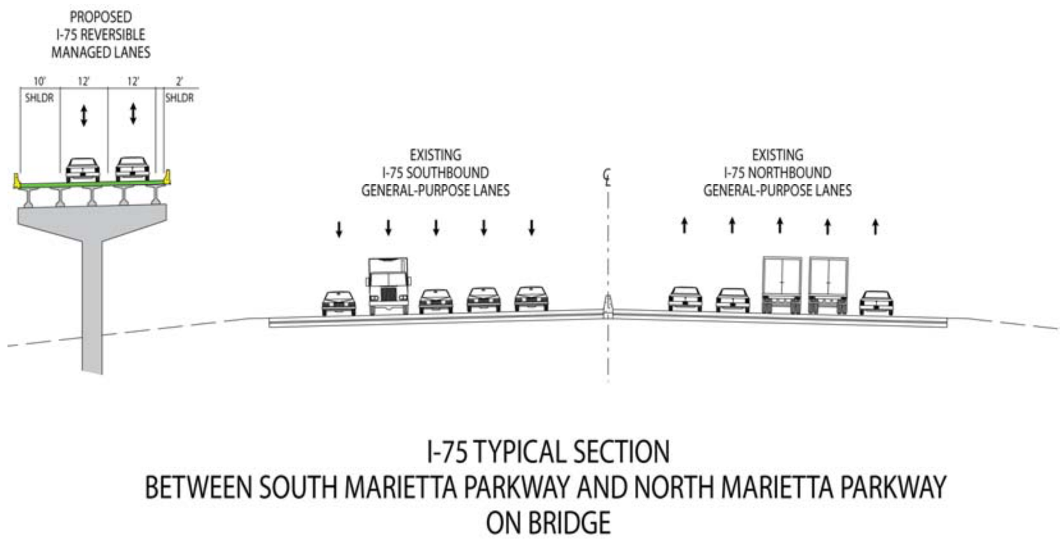


Figure S-3. I-75 Typical Elevated Managed Lanes on Walls (South of I-575) – Looking North

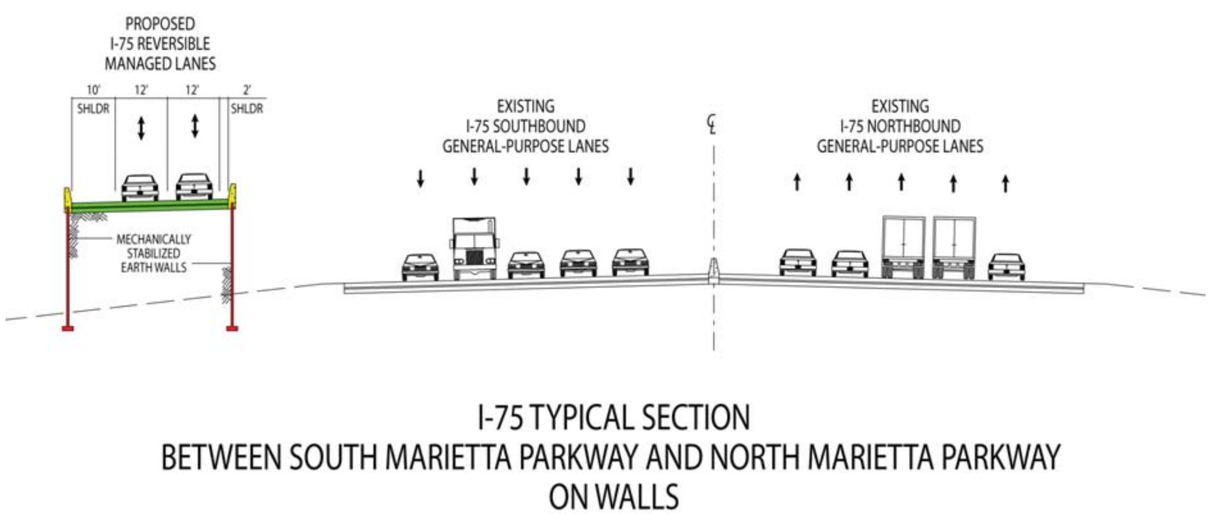


Figure S-4. I-75 Typical Elevated Managed-Lanes Overpass (South of I-575) – Profile Looking West and Section Looking North at Windy Hill Road

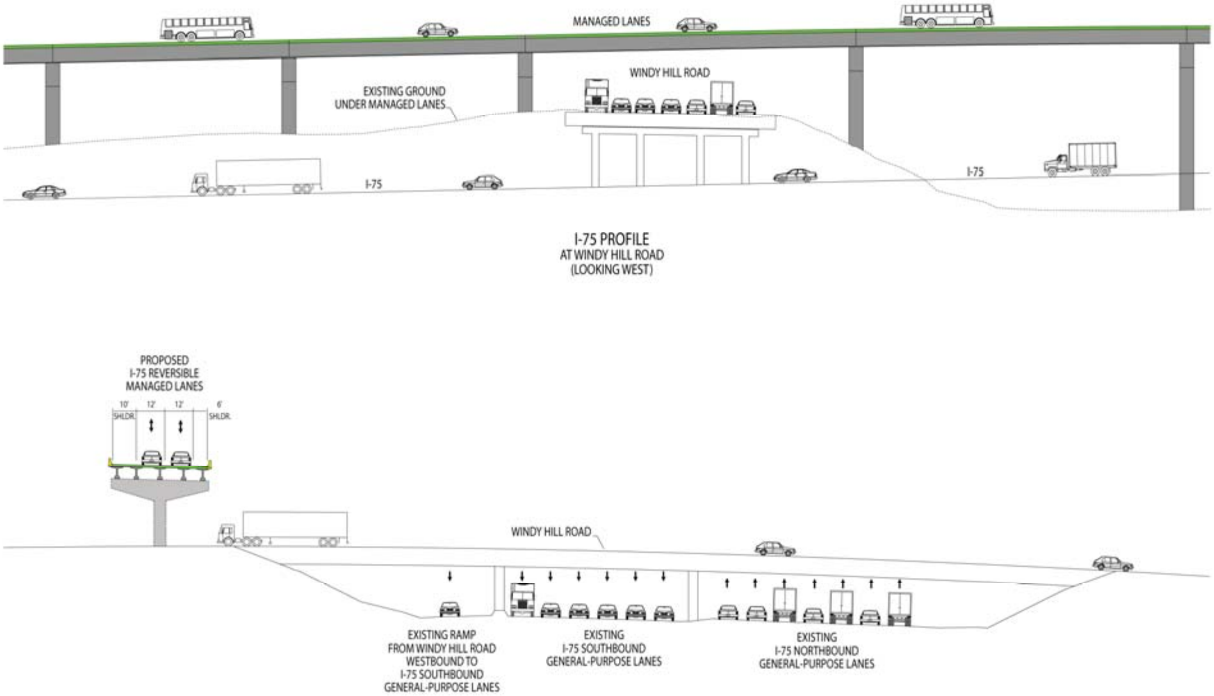


Figure S-5. I-75 Managed-Lane Interchange (South of I-575) – Simulation Looking North at SR 3 Conn/Roswell Road

Figure S-6 shows a typical cross-section of the single managed-lane improvements proposed for I-75 north of the I-75/I-575 interchange. Figure S-7 shows a typical cross-section of the proposed single managed-lane improvements proposed for I-575. In both cases, the single managed lane would be located in the existing highway medians. In addition, while the existing general-purpose lanes and shoulders may be relocated slightly, neither would be reduced in width.

Vehicles would use both managed-lane interchanges and slip ramps to access the reversible lanes as shown in Figure S-5 and Figure S-8, respectively. The new managed-lane interchanges on I-75 would be separately located from the existing general-purpose interchanges. On I-575, three pairs of slip ramps would be constructed to provide access to the reversible lane proposed along this corridor. These slip ramps would allow traffic in the inside general-purpose lanes to merge to the center median area of the highway where the new reversible lane would be constructed. For safety reasons, slip ramps and a system of gates would be configured separately for northbound and southbound traffic to prevent traffic from entering the reversible lane traveling against the directional flow of traffic.

Figure S-6. I-75 Managed Lane (North of I-575) – Looking North

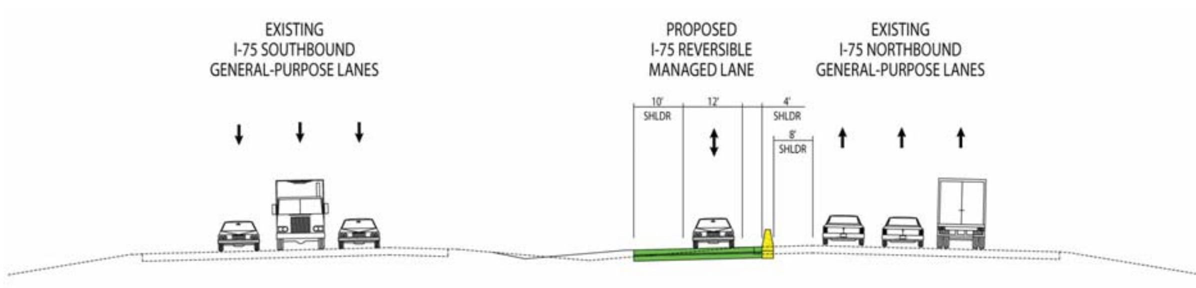


Figure S-7. I-575 Managed Lane (North of I-75) – Looking North

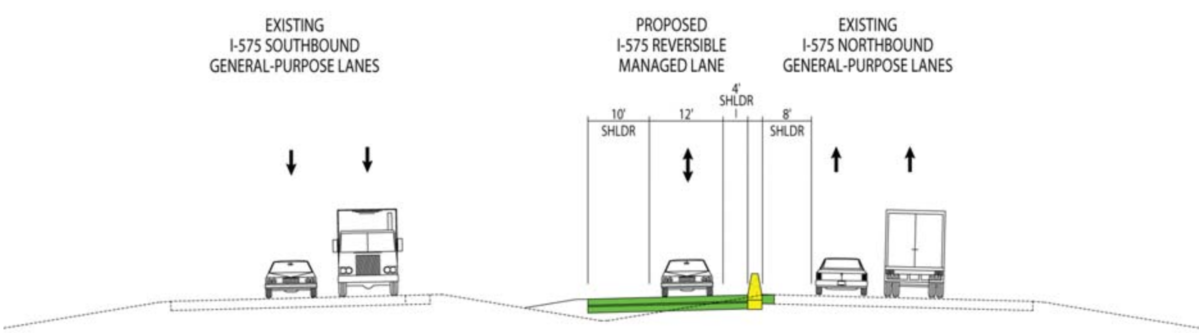
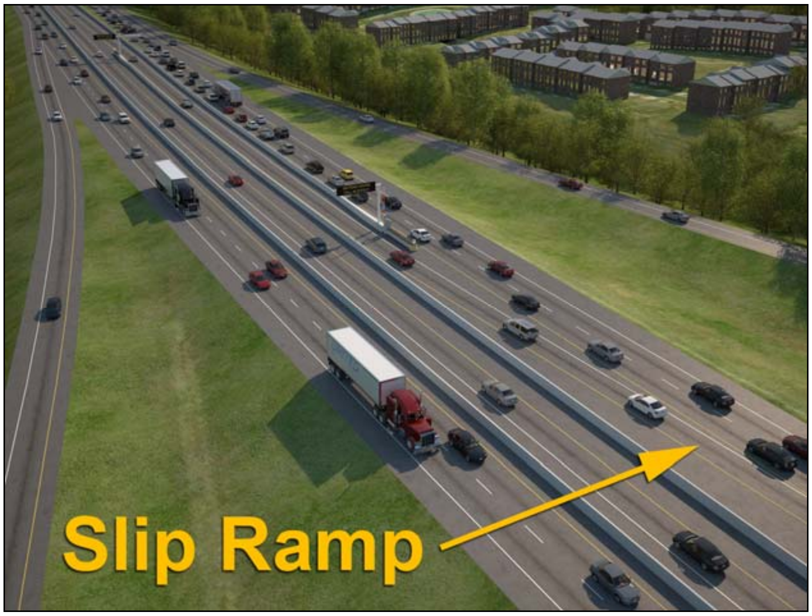


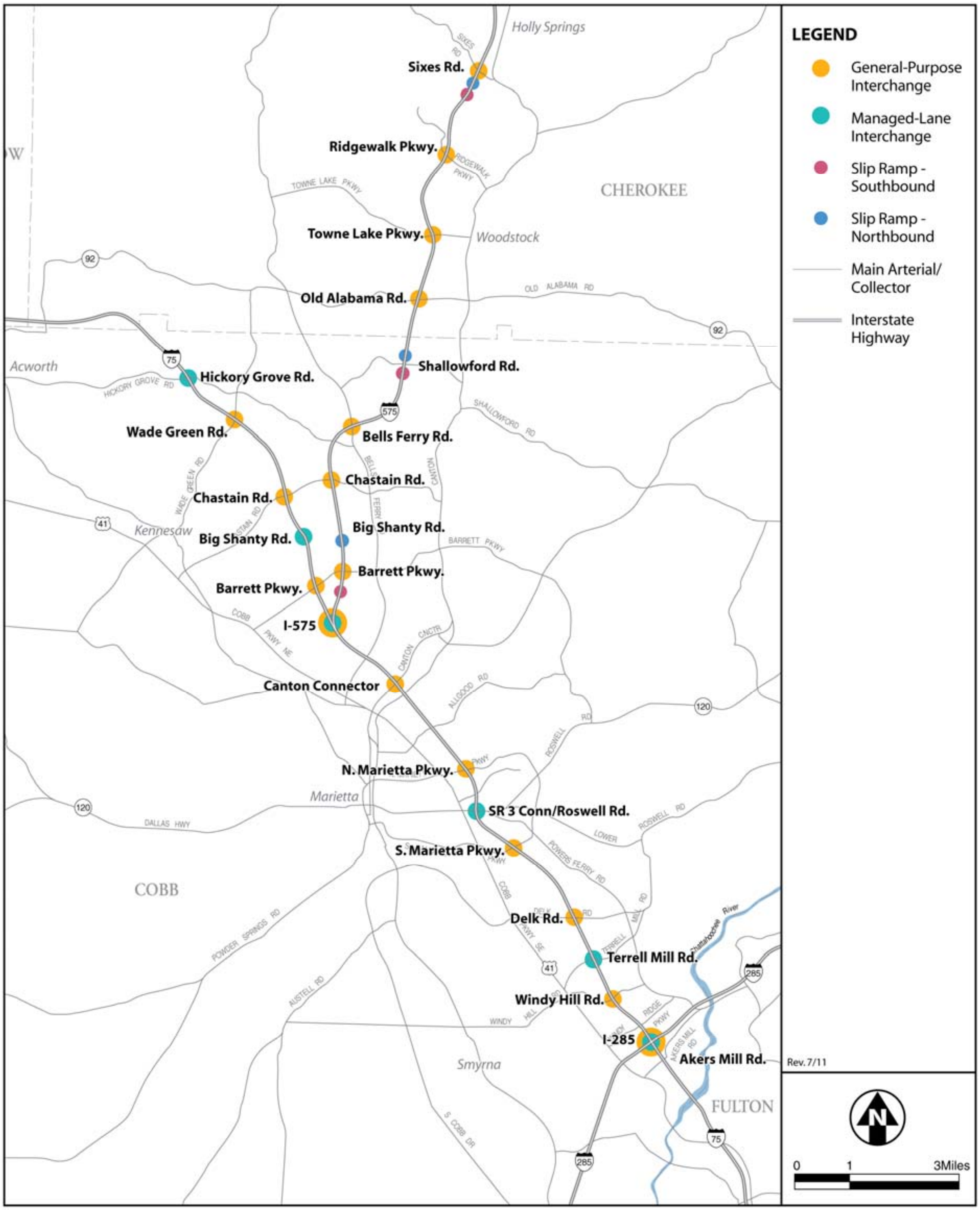
Figure S-8. I-575 Managed Lane (North of I-75) and Typical Slip Ramp – Looking South



A total of six managed-lane interchanges would be constructed on I-75 (see Figure S-9). These interchanges would be at the following locations: I-285, Terrell Mill Road, SR 3 Connector/ Roswell Road, I-575, Big Shanty Road, and Hickory Grove Road. On I-575, three pairs of slip ramps would be constructed near the existing general-purpose interchanges at Barrett Parkway, Shallowford Road, and Sixes Road. As described above, the location differs for southbound and northbound slip ramp accesses at each of these three locations.

With the exception of the Hickory Grove Road managed-lane interchange, the ramps at interchanges on I-75 would allow access on and off the reversible lane system in both directions of travel. For safety reasons, however, the managed-lane slip ramps on I-575 would only allow vehicles to enter the reversible-lane system and travel southbound during the morning peak period. Similarly, managed-lane slip ramps on I-575 would only allow vehicles to exit the reversible lane system and travel northbound in the evening peak period. Mechanical gates would be lowered to prevent use of the northbound accesses during the morning southbound operation of the managed lanes and would change to prevent use of the southbound accesses during the evening northbound operation of the managed lanes. Access to the managed-lane system also would be prevented for a short period of time during changes in operational direction of the reversible lanes to prevent crashes.

Transit buses operating as express service would use the proposed reversible lanes on I-75 from I-285 to north of Hickory Grove Road and on I-575 north to Sixes Road during peak periods. The express routes would be modified to use the proposed managed-lane interchanges on I-75 between Akers Mill Road and Hickory Grove Road and the proposed slip ramps on I-575. Modification of such transit services, however, is not part of the Northwest Corridor Project.



LEGEND
General-Purpose Interchange
Managed-Lane Interchange
Slip Ramp - Southbound
Slip Ramp - Northbound
Main Arterial/ Collector
Interstate Highway
Rev. 7/11
0 1 3Miles
Holly Springs
Sixes Rd.
Ridgewalk Pkwy.
CHEROKEE
Towne Lake Pkwy.
Woodstock
Old Alabama Rd.
Acworth
Hickory Grove Rd.
Shallowford Rd.
Wade Green Rd.
Bells Ferry Rd.
Chastain Rd.
Chastain Rd.
Kennesaw
Big Shanty Rd.
Big Shanty Rd.
Barrett Pkwy.
Barrett Pkwy.
I-575
Canton Connector
N. Marietta Pkwy.
Marietta
SR 3 Conn/Roswell Rd.
S. Marietta Pkwy.
COBB
Delk Rd.
Terrell Mill Rd.
Windy Hill Rd.
I-285
Akers Mill Rd.
Smyrna
FULTON

After a thorough review of various procurement options, GDOT determined that a Public-Private Partnership (P3) procurement would be the best approach for the proposed managed-lane facility. The P3 procurement would leverage limited transportation funds by partnering with the private sector to provide supplemental funding. Under this approach, GDOT would contract with a third party to design, construct, finance, operate, and maintain the facility. The use of private industry partners would provide greater opportunities for innovative approaches for project implementation, both in terms of funding and project delivery methods.

The proposed operation plan for the Preferred Alternative provides for management of the reversible lanes. Toll pricing would be used both as an incentive and disincentive to ensure a desirable flow of traffic (minimum LOS D) on the managed-lane system. On December 16, 2010, the GDOT P3 Steering Committee approved a draft Express Toll Lane tolling policy for the project. Under this tolling policy, every vehicle using the managed lanes would pay a toll regardless of occupancy, including SOVs, HOVs, and certified alternative-fuel vehicles. The only exceptions would be registered transit vehicles (buses and vanpools), military vehicles, emergency vehicles, and P3 Developer vehicles. Heavy and medium trucks, such as those with more than two axles, would not be permitted to use the managed lanes. Tolls would be collected through the use of electronic tolling systems and would be dynamically priced to maintain a minimum average operating speed of 45 mph. The tolling collection technology would be interoperable with other Georgia managed-lane systems and would include video tolling and remote cash payment options. The technology would be periodically reviewed to ensure that tolls are collected in as efficient and effective a manner as practicable, and could include the use of systems interoperable with other states, among other measures.

Despite its lower cost, the Preferred Alternative would still require substantial financial resources. The financing structure includes the use of facilities and terms consistent with potential similar, precedent-setting P3 projects. The GDOT anticipates the P3 Developer Agreement would obligate the P3 Developer to design, construct, finance, operate, and maintain the Northwest Corridor Project in return for the right to retain a portion of the toll revenues. The P3 Developer would collect the tolls from users of the managed-lane facility. The remaining portion of the tolls would repay project bonds and loans. Any additional tolling revenue may be used for other projects identified in the statewide transportation planning process.

S.5 Affected Environment

The Northwest Corridor Project study area is located in an urbanizing area largely characterized by residential subdivisions with large commercial and employment centers located around the major highway interchanges and downtown commercial and industrial areas of the corridor's major cities – Smyrna, Marietta, Kennesaw, and Woodstock. The affected environment described in the FEIS includes the following topics: land use, population and employment, including environmental justice populations, neighborhoods and community facilities, transportation services and facilities, safety and security, visual quality and aesthetics, parklands, historic and archaeological resources, air quality, noise, ecosystems, water resources, geology and soils, and hazardous materials.

The Northwest Corridor extends from just south of I-285 northwesterly through Cobb County and northeasterly into Cherokee County. According to the regional 2010 forecasts by the Atlanta Regional Commission, the study area comprises approximately 14 percent of the population and about13 percent of total employment in the 20-county region. The Atlanta metropolitan area, and particularly the Northwest Corridor, has experienced substantial growth over the past two decades. Between 1990 and 2010, the study area population increased by almost 59 percent and employment increased by 76 percent, despite the recent recession. In particular, the percent increase in population was slightly less than the region's growth between 1990 and 2010 (64 percent), but employment growth was substantially greater than that experienced in the region (60 percent). Moreover, urbanization in the Northwest Corridor is expected to continue long-term in the future, though at a more conservative rate.

The two-county study area is part of a large metropolitan region and the composition of its population reflects the region's diversity. There are large numbers of families, children, and elderly. The 2006-2008 American Community Survey reported the study area population is nearly 35 percent minority populations – largely African American and Hispanic. However, this is less than the region's 46 percent minority characteristics. The study area also includes a sizable Brazilian community. Only about 7 percent of the population is linguistically isolated with Spanish being the predominant non-English language spoken. The study area is somewhat more affluent than the metropolitan region, with an estimated 6 percent compared to 8 percent of the population living at or below the poverty level. Over 70 percent of the households own their own home.

The Northwest Corridor is one of the most economically important areas in the Atlanta metropolitan area. It contains several of the region's major activity and employment centers, including Cumberland-Galleria, Marietta, Town Center, Dobbins Air Reserve Base, and Kennesaw State University. These centers of employment, and Perimeter Center to the east on I-285, serve as major destinations for travel to and from the Northwest Corridor. Land uses in the area are diverse and encompass residential, commercial, office, industrial, public/institutional, transportation/utilities, and park/open space uses. The Chattahoochee River National Recreation Area is south of the southern terminus of the project, and the Kennesaw Mountain National Battlefield Park is to the west of I-75 near Marietta. The Woodstock Olde Rope Mill Park is adjacent to the I-575 right-of-way. Existing and planned recreational trails are adjacent to and cross under the highway corridor.

As an urbanized area, there are many community facilities and services within the study area. These include educational institutions, health care clinics, hospitals, libraries, senior centers, and recreation centers. The land use controls and policies are governed by local governments including Cobb and Cherokee Counties and the cities of Smyrna, Marietta, Kennesaw, Acworth, and Woodstock. The Atlanta Regional Commission reviews local government comprehensive land use plans within the study area, while local government zoning ordinances regulate land use and development.

Both I-75 and I-575 are major highways serving commuters in Cobb and Cherokee Counties, as well as interstate travelers. Both highways currently experience considerable congestion as a result of insufficient capacity to accommodate peak period traffic demand. Peak periods are growing longer and congestion is spilling over to arterial routes parallel to I-75, such as Cobb Parkway. Both noise and air quality issues are major public concerns. The principal source of noise in the corridor is vehicular traffic – from automobiles, trucks, and buses moving along I-75 and I-575 and the access ramps to these highways. Adjacent residential communities and commercial areas are currently exposed to traffic noise levels that may interfere with spoken communication. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or reducing human or animal health. Carbon monoxide, hydrocarbons, nitrogen oxides, ozone, particulate matter, and mobile source air toxics are pollutants that can be traced principally to motor vehicles. The Atlanta metropolitan area currently does not meet the National Ambient Air Quality Standards for two pollutants: ozone and particulate matter smaller than or equal to 2.5 microns in size.

Among the important natural features of the Northwest Corridor are streams and floodplain areas. The four major streams within the study corridor are Rottenwood Creek, Sope Creek, Noonday Creek, and Little River. All of the streams have been degraded by the effects of urbanization, including non-point source pollution and altered hydrology. The Chattahoochee River is approximately one-quarter mile south of the southern terminus of the proposed transportation improvements. Portions of the study area are within 100-year floodplains designated along Rottenwood Creek, Hope Creek, Sope Creek, and Poorhouse Branch (a tributary of Rottenwood Creek).

There are a number of properties along the corridor that are known to be contaminated with hazardous materials or petroleum wastes, and construction of the project may involve some of these properties. In addition, petroleum and hazardous materials on nearby properties could be seeping into the ground, flowing into groundwater, and contaminating properties to be acquired for project construction.

S.6 Transportation Impacts

The regional traffic analysis was prepared using the Atlanta Regional Commission 2008 Travel Demand Forecasting Model for the 20-county Atlanta metropolitan region to assess the reversible-lane and managed-lane attributes of the Preferred Alternative. The regional travel effects of the project were measured through changes in the number of daily person trips by travel mode, by trip purpose, and by total person hours of travel. The region is forecast to generate a total of about 27 million daily person trips in 2035. The No-Build Alternative is forecast to result in an estimated 27 million highway trips and the Preferred Alternative would result in approximately 3,000 fewer trips due to reduced reliance on SOV travel. The distribution of trips by mode indicates an increase of over 6,000 HOVs and a decrease in SOV travel by an estimated 9,000 trips for the Preferred Alternative. Though nearly 80 percent are non-work related, the work-related trips would get “squeezed” into a short period of time (mostly the two peak periods – the commute periods) and would decrease by an estimated 2,000 person trips. The total number of person hours of travel would decline by an estimated 47,000 hours with the proposed managed lanes for the Northwest Corridor. Moreover, vehicle miles of travel would increase by over 512,000, while vehicle hours of travel would decrease by over 36,600 hours. Together, the data show improved regional access and mobility under the Preferred Alternative.

More detailed analysis was conducted for the Northwest Corridor to assess the advantages of the Preferred Alternative. With the proposed managed lanes, the Northwest Corridor would have increased capacity. For three major segments on I-75 and for I-575, the 2035 average daily traffic volumes would increase between 7 and almost 14 percent per highway segment, while average daily traffic volumes in the general-purpose lanes would decrease and improve the level of service. The volumes on the arterial roadways crossing I-75 at general-purpose lane interchanges would remain about the same or slightly decrease. On I-575, the proposed slip ramp accesses to the managed lanes would generally result in somewhat decreased congestion at the general-purpose lane interchanges on I-575 due to the increase in HOV traffic. The daily travel conditions would improve slightly for the arterial roadways that parallel I-75 and I-575, including Cobb Parkway (US 41), Powers Ferry Road, Canton Road, and Bells Ferry Road.

Under the Preferred Alternative, vehicle and person throughput on both I-75 and I-575 would increase substantially. The 2035 modeling indicates vehicle throughput for I-75 segments south of Hickory Grove Road, Chastain Road, I-575, and Delk Road would increase during the morning peak period by 15 to 23 percent. The person throughput for the same highway segments would increase between 25 and 35 percent. Similar analysis was conducted for segments south of Sixes Road, Towne Lake Parkway, SR 92, and Chastain Road on I-575. Under the Preferred Alternative, southbound I-575 morning peak period vehicle throughput would increase between

15 and 24 percent over the No-Build Alternative, and person throughput would increase between 22 and 33 percent. Analysis was also conducted for the evening peak period northbound traffic for both segments. Under the Preferred Alternative, vehicle throughput in the I-75 segment would increase between 14 and 24 percent and the person throughput would increase between 22 and 40 percent. On I-575, the northbound vehicle throughput would increase between 16 and 26 percent, and person throughput would increase between 21 and 35 percent. In summary, for both the I-75 and I-575 segments of the Preferred Alternative, both critical peak periods direction of flow vehicle throughput would increase more than 14 percent and person throughput would increase more than 20 percent compared to the No-Build Alternative.

Table S-1 shows 2035 LOS in the Northwest Corridor would improve under the Preferred Alternative. During both peak periods, the direction of flow in the general-purpose lanes at the southern end of I-75 would improve from LOS F under the No-Build Alternative to an acceptable LOS D or better. Elsewhere, traffic conditions for those using the general-purpose lanes would be no worse than they would be without the improvements. But for the thousands of vehicles using the managed lanes, conditions would consistently be LOS D or better. Similarly, traffic conditions on I-575 would be improved for peak period direction of flow from generally LOS E and LOS F to LOS E or LOS D in the general-purpose lanes, while the thousands of vehicles using the proposed managed lane would experience LOS D and LOS C. LOS D is consistent with the anticipated target minimum operating speed of 45 mph for the managed lanes. The increased capacity of the highway would also attract vehicles from nearby parallel arterials and could reduce congestion on nearby arterials.

In 2015 and 2035 under the No-Build Alternative, many intersections would not function at an acceptable LOS during the peak traffic hours, while under the Preferred Alternative substantially fewer intersections would not meet acceptable performance standards. On I-75, improvements at the new managed lane interchanges would be needed to accommodate the traffic resulting from the project. On I-75 some traffic would redistribute itself under the Preferred Alternative to use the managed-lane interchanges where there are no interchanges now. On I-575, because of the substantial travel time savings, traffic is expected to redistribute itself to maximize the use of the managed lanes and minimize time in the general-purpose lanes.

Under the Preferred Alternative, the 2015 and 2035 average forecast travel time in the corridor general-purpose lanes would improve compared to the No-Build Alternative during both the morning and evening peak hour periods. Table S-2 and Table S-3 show the forecast travel time for 2015, the planned opening year of operation. A comparison of travel times for the 2035 for the No-Build and Preferred Alternatives is shown in Table S-4 and Table S-5. These calculations are based on projected traffic volumes, average travel speeds, reduction in traffic congestion, and changes in distances as a result of changes in travel patterns. For purposes of discussion, analysis of the travel time savings is provided for the morning and evening peak hour periods in 2035, the long-range planning horizon.

Under the 2035 No-Build Alternative, the average travel time southbound on I-75 from Hickory Grove Road to Akers Mill Road is projected to be approximately 61 minutes in the morning peak period, compared to 52 minutes in the general-purpose lane and 26.5 minutes in the managed lanes under the Preferred Alternative. Similarly, the northbound travel during the evening peak period for the same segment would be 76 minutes for the No-Build Alternative, and an estimated 62 minutes for the general-purpose lanes and 35 minutes for the managed lanes under the Preferred Alternative. Thus, the Preferred Alternative would reduce average travel time in the corridor general-purpose lanes by more than 9 minutes and travel using the managed lanes would require less than half the time required under the No-Build Alternative.

Table S-1. Basic Highway Segment Levels of Service, 2035 Peak Hour

Location	2035 No-Build Alternative		2035 Preferred Alternative			
	AM Peak Hour	PM Peak Hour	AM Peak Hour GP	AM Peak Hour ML*	PM Peak Hour GP	PM Peak Hour ML*
I-75 Northbound						
N. of Hickory Grove Rd	E	F	F	n/a	F	D
S. of Hickory Grove Rd	E	F	F	n/a	F	D
S. of Big Shanty Rd	D	D	F	n/a	F	D
S. of I-575	D	F	D	n/a	E	D
S. of Allgood Rd	D	F	E	n/a	F	D
S. of SR 3 Conn/ Roswell Rd	D	E	E	n/a	E	D
S. of Terrell Mill Rd	D	F	D	n/a	C	D
S. of I-285	D	E	D	n/a	E	C
S. of Akers Mill Rd	D	E	D	n/a	E	C
I-75 Southbound						
N. of Hickory Grove Rd	F	F	F	B	D	n/a
S. of Hickory Grove Rd	F	F	F	C	D	n/a
S. of Big Shanty Rd	E	C	F	D	D	n/a
S. of I-575	F	D	F	D	D	n/a
S. of Allgood Rd	F	E	E	D	E	n/a
S. of SR 3 Conn/ Roswell Rd	F	D	F	D	D	n/a
S. of Terrell Mill Rd	F	D	F	D	D	n/a
S. of I-285	F	D	F	D	D	n/a
S. of Akers Mill Rd	F	D	F	D	D	n/a
I-575 Northbound						
N. of Sixes Rd	C	E	C	n/a	E	n/a
S. of Sixes Rd	C	F	C	n/a	E	B
S. of Towne Lake Pkwy	D	F	D	n/a	F	B
S. of SR 92	C	F	C	n/a	F	B
S. of Bells Ferry Rd	C	F	C	n/a	F	C
S. of Big Shanty Rd	C	F	C	n/a	E	D
S. of Barrett Pkwy	C	D	C	n/a	D	D
I-575 Southbound						
N. of Sixes Rd	F	D	F	n/a	D	n/a
S. of Sixes Rd	F	D	F	B	D	n/a
S. of Towne Lake Pkwy	F	D	F	B	D	n/a
S. of SR 92	F	D	F	B	D	n/a
S. of Bells Ferry Rd	F	D	F	B	D	n/a
S. of Big Shanty Rd	E	C	F	D	D	n/a
S. of Barrett Pkwy	D	C	E	D	C	n/a

Notes: * n/a designation reflects managed lanes would not be operational in this direction during the peak hour. GP = general-purpose lane; ML = managed lane; AM = morning; PM = evening; and ML = managed lane. Level of services ranges from A (best) to F (worst).

Table S-2. Travel Time for I-575 and I-75 Southbound, 2015 AM Peak Hour

Northwest Corridor Travel Time For Trips in 2015 AM Peak (in minutes)								
			Destination On I-75 SB					
			Akers Mill Road	Delk Road	S. Marietta Pkwy	N. Marietta Pkwy	I-575 /I-75 JCT	I-575 SB at SR 92
Origin	I-575 SB at Sixes Road	GP Lane (No-Build)	50.9	42.9	38.4	33.2	26.3	9.4
		GP Lane (Preferred)	49.2	41.4	37.1	31.9	25.1	9.1
		Managed Lane (Preferred)	20.4	17.1	15.6	13.6	10.3	3.7
	I-75 SB at Hickory Grove Road	GP Lane (No-Build)	41.9	33.9	29.4	24.2	17.3	n/a
		GP Lane (Preferred)	41.1	33.3	29	23.8	17.0	
		Managed Lane (Preferred)	16.3	12.9	11.4	9.4	6.1	

Notes:
n/a = Movement not permitted through the I-75/575 interchange.
GP = general-purpose lane; AM = morning; SB = southbound.

Table S-3. Travel Time for I-75 and I-575 Northbound, 2015 PM Peak Hour

Northwest Corridor Travel Time For Trips in 2015 PM Peak (in minutes)									
			Destination						
			I – 75 NB					I – 575 NB	
			Delk Road	S. Marietta Pkwy	N. Marietta Pkwy	I-575/I-75 JCT	Hickory Grove Road	SR 92	Sixes Road
Origin on I-75 NB	Akers Mill Road	GP Lane (No-Build)	9.1	13.8	18.3	28.8	44.5	45.9	58.7
		GP Lane (Preferred)	8.2	12.4	16.7	26.5	41.1	42.2	54.2
		Managed Lane (Preferred)	3.3	5.4	6.9	10.9	16.5	17.2	21.4

Notes:
GP = general-purpose lane; PM = evening; NB = northbound.

Table S-4. Travel Time for I-575 and I-75 Southbound, 2035 AM Peak Hour

Northwest Corridor Travel Time For Trips in 2035 AM Peak (in minutes)								
			Destination On I-75 SB					
			Akers Mill Road	Delk Road	S. Marietta Pkwy	N. Marietta Pkwy	I-575 /I-75 JCT	I-575 SB at SR 92
Origin	I-575 SB at Sixes Road	GP Lane (No-Build)	73.8	62.7	56.1	48.7	37.2	16.5
		GP Lane (Preferred)	65.4	55.5	49.9	43.1	32.9	13.8
		Managed Lane (Preferred)	33.6	28.1	25.2	22.0	16.2	5.4
	I-75 SB at Hickory Grove Road	GP Lane (No-Build)	60.7	49.6	43.0	35.6	24.1	n/a
		GP Lane (Preferred)	52.3	42.5	36.9	30.1	19.9	
		Managed Lane (Preferred)	26.4	20.8	17.9	14.7	8.9	

Notes:
n/a – Movement not permitted through the I-75/575 interchange.
GP – general-purpose lane; AM – morning; SB – southbound.

Table S-5. Travel Time for I-75 and I-575 Northbound, 2035 PM Peak Hour

Northwest Corridor Travel Time For Trips in 2035 PM Peak (in minutes)									
			Destination						
			I – 75 NB					I – 575 NB	
			Delk Road	S. Marietta Pkwy	N. Marietta Pkwy	I-575/I-75 JCT	Hickory Grove Road	SR 92	Sixes Road
Origin on I-75 NB	Akers Mill Road	GP Lane (No-Build)	10.6	19.2	27.4	48.0	76.1	73.3	97.4
		GP Lane (Preferred)	9.5	16.6	23.6	40.7	62.3	62.2	81.7
		Managed Lane (Preferred)	6.0	10.4	13.5	23.0	34.9	38.0	45.2

Notes:
GP = general-purpose lane; PM = evening; NB = northbound.

Similar benefits would be experienced by users traveling the Sixes Road to Akers Mill Road segment of the Northwest Corridor. During the morning peak period, average southbound travel time for the No-Build Alternative would be nearly 74 minutes, compared to about 65 minutes in the general-purpose lanes and 34 minutes in the managed lanes under the Preferred Alternative. During the evening peak period, travel in this same segment northbound would be over 97 minutes, while travel under the Preferred Alternative would be approximately 82 minutes in the general-purpose lanes and 45 minutes in the managed lanes. Again, travel using the proposed managed lanes would reduce average travel time between Akers Mill Road and Sixes Road by more than half. Moreover, transit riders would benefit under the Preferred Alternative as transit routes would be revised to take advantage of the managed lanes. Analysis of trip data shows that transit riders would be able to bypass the congested general-purpose lanes on both I-75 and I-575 under the Preferred Alternative and their travel time could generally be reduced by about half, for the interstate portion of the route, compared to using the general-purpose lanes under the No-Build Alternative described above. Additionally, the transit travel time could be more reliable due to the improved level of service.

Freight and commercial trucks would not be permitted to use the managed lanes under the Preferred Alternative, but travel time using the general-purpose lanes on both I-75 and I-575 is expected to improve somewhat. These travel time improvements would be the same as described above for the Preferred Alternative general-purpose lanes. As such, freight and commercial truck traffic would experience improved travel conditions and improved reliability in the general-purpose lanes due to improved level of service.

S.7 Environmental Consequences

The FEIS presents a comprehensive analysis of potential environmental impacts of the proposed Preferred Alternative and compares these impacts to those of the No-Build Alternative. The analysis assessed impacts on land use, social, cultural, visual and aesthetics, air quality and noise, and natural resources. Both long-term operational impacts and short-term temporary construction impacts were evaluated. Indirect and cumulative effects are discussed as well as recommended measures to mitigate impacts.

The Preferred Alternative would largely be constructed within the existing highway right-of-way of I-75 and I-575. Along the 29.7-mile corridor proposed for transportation improvements, only 13 full and 63 partial acquisitions (mostly narrow slivers of land) would be required for the project. An estimated 8 properties affected by property acquisition are expected be contaminated with hazardous materials, which would require additional investigations during future preconstruction phases of this project as well as special procedures during construction. A total of 6 residential and 7 commercial properties would be displaced, which would require relocation of 6 residences with an estimated 15 household members. A total of 12 businesses with an estimated 33 employees also would be displaced. These property acquisitions would not adversely affect any historic sites, known archaeological sites, or parklands. The federal Uniform Relocation Assistance and Real Property Acquisition Act and the Georgia Relocation Assistance and Land Acquisition Policy Act would provide for the fair and equitable treatment of persons displaced by the Preferred Alternative. Continued outreach to minority and low-income populations in the project area may identify additional mitigation for these impacts prior to the publication of the National Environmental Policy Act of 1969, as amended, required Record of Decision.

The displaced households and businesses are located within minority and low-income neighborhoods in the Marietta area adjacent to the existing I-75 right-of-way. These displacements are not expected to substantially disrupt existing neighborhood character or cohesion. The purchase of the private property for public use would reduce the Cobb County property tax base by an insignificant amount. The new managed lanes would be constructed along the west side of I-75, south of the I-75/I-575 interchange to avoid impacts to streams, wetlands, two cemeteries and historic resources, and would be elevated on structures where necessary. These structures would include both bridges and mechanically stabilized earth walls. This would result in a moderate change in the visual character, but not out of context in the existing highway setting. Community outreach during final design would be used to identify context-sensitive issues such as visual impacts. Special finishes, treatments, and landscaping would be used to mitigate these visual effects. The proposed alignment of the single reversible lanes in the median of the existing I-75 and I-575 highways north of the I-75/I-575 interchange would not change the visual quality along these segments of the Northwest Corridor. Noise levels would increase along the corridor and sound barriers are anticipated to mitigate these impacts. Focused public outreach would occur with property owners affected by increased noise levels to determine appropriate noise mitigation measures during final design. Best management practices also would be required during construction to reduce and minimize dust, noise, light and glare, and temporary traffic detours.

The Northwest Corridor Project would result in impacts to natural features such as streams, floodplains, and wetlands. In total, 3,025 linear feet of streams, 17 acres of floodplain, and 0.3 acre of wetlands would be affected by the Preferred Alternative. Efforts to mitigate these effects would be implemented during final project design. For example, mitigation measures would include rehabilitation and restoration of the streams, floodplain, and wetlands following construction. In addition, best construction management practices would be used to minimize construction effects on these resources.

In addition, potential indirect and cumulative effects of the Preferred Alternative were evaluated. Indirect effects are foreseeable actions that would occur later in time or farther removed in distance. Further urban development in the corridor would be consistent with local and regional land use plans. As a result, no substantial induced growth or shift in land use, population, employment, or traffic would be anticipated; thus no indirect effects are expected to occur. In contrast, cumulative effects consider the proposed project combined with reasonably foreseeable future actions, particularly programmed road improvement projects and planned redevelopment in Cobb and Cherokee Counties. Those elements of the environment that would not result in substantial direct effects during construction or operation would not contribute to cumulative effects. Further investigations were conducted for acquisition and displacement, environmental justice, aesthetics, noise, and water quality. Considering the limited scope of these potential effects, no indirect or cumulative effects are expected.

Table S-6 summarizes and compares the environmental impacts of the Preferred Alternative and the No-Build Alternative.

Table S-6. Summary of Anticipated Environmental Impacts

Impact	No-Build Alternative	Preferred Alternative
Acquisitions and Displacements	• No impact	• 13 full and 63 partial property acquisitions, totaling 76. • 6 residential and 7 commercial properties, including 12 businesses.
Land Use	• Not fully supportive of the Atlanta Regional Commission's planning policies and local plans/policies	• Supportive of the Atlanta Regional Commission's planning policies and local plans/policies.
Population and Employment	• No impact	• Residential and business acquisitions would result in the displacement of an estimated 15 residents and 33 employees.
Economic Impacts	• No impact	• Approximately $105,000 annual reduction in property taxes due to acquisitions.
Neighborhoods and Community Facilities	• No impact	• Community effects would be limited to a small number of neighborhoods adjacent to the highway, primarily located on the west side of I-75 in the Marietta area. Effects include potential increases in noise levels. • Disruptions would be on the edges of existing neighborhoods, so no substantial change to cohesion. • No effects to community facilities or cohesion in any neighborhoods along the project corridor.
Environmental Justice	• No impact	• Acquisition of 5 (of 6 total) residential and 7 commercial properties located in minority and low-income neighborhoods. • Displacement of 15 residents, 12 businesses, and 33 employees in low-income and minority neighborhoods. • Disproportionate and adverse impacts due to property acquisition.
Safety and Security	• No impact	• Emergency response times would improve.
Visual Quality and Aesthetics	• No impact	• Potential to generate less than substantial visual impacts to viewers of the road from adjacent land uses, but not out of context in the existing highway setting. • The use of aesthetic finishes, treatments, and landscaping could create a positive change in the corridor by creating a potentially unifying visual element along the highway for both views from the roadway and views of the roadway from adjacent properties and roadways.

Table S-6. Summary of Anticipated Environmental Impacts (continued)

Impact	No-Build Alternative	Preferred Alternative
Parklands and Other Section 4(f) Properties	• No impact	• No impact to Chattahoochee River National Recreation Area, Olde Rope Mill Park, or a baseball field in the Deer Run Neighborhood. • No right-of-way or easements would be required from parklands. • Temporary construction impacts would occur on the Bob Callan Trail, but no anticipated permanent adverse impacts. Because the trail is a Section 4(f) resource and the project would have temporary impacts on the trail, the project will need to comply with the requirement for Section 4(f) approval based on Section 774.13(d). • Would not prevent the future construction of any of the programmed or proposed trails within the study area.
Historic and Archaeological Resources	• No impact	• No impact.
Air Quality	• No impact	• Not expected to violate current applicable National Ambient Air Quality Standards or Mobile Source Air Toxics levels. • Project is in a non-attainment area for $PM_{2.5}$. Interagency consultation has determined that the project is not of air quality concern, a quantitative "hot-spot" analysis is not required, and the project meets the standards of the Clean Air Act and 40 Code of Federal Regulations 93.123(b)(1).
Noise	• No impact	• Along I-75, road traffic noise would affect approximately 1,451 Activity Category B sites (e.g., residences, hotels, nursing homes, churches, parks) and 467 Activity Category C sites (e.g., developed or urbanized land uses, non-residential or other uses not included in Activity Category B), and 59 Activity Category E sites (e.g., hotel, motel, offices, restaurants). • Along I-575, road traffic noise would affect 139 Activity Category B sites and 19 Activity Category C sites.
Ecosystems	• No impact	• No effect on 10 threatened or endangered species. • "May affect, not likely to adversely affect" the Cherokee darter. • "No significant adverse affect" to the Chattahoochee crayfish and lined chub.
Water Resources	• No impact	• 3,025 linear feet of streams impacted. • 17 acres of 100-year floodplain impacted. • 0.3 acre of wetlands impacted. • Conditional Letter of Map Revision and Letter of Map Revision required for crossing of Hope Creek and Rottenwood Creek
Geology and Soils	• No impact	• No impact.

Table S-6. Summary of Anticipated Environmental Impacts (continued)

Impact	No-Build Alternative	Preferred Alternative
Hazardous Materials	• No impact	• 11 medium-rated potentially contaminated parcels are located along I-75. • Of these 11 medium-rated parcels, a total of 8 parcels could be affected by potential right-of-way purchase and construction easements.
Construction Impacts	• No impact	• Short-term impacts related to noise, visual quality, dust, vehicular access, and water quality. • 0.7 mile of longitudinal encroachments to 25-foot vegetative buffers as a result of the construction activities.
Indirect and Cumulative Effects	• No impact	• No adverse indirect or cumulative effects.

S.8 Permits and Other Federal Actions Needed

The following permits and federal actions would be required to implement the Preferred Alternative:

Government Actions:

- FHWA approval of the I-75/I-575 Interchange Justification, Modification and Interstate Systems Analysis Report
- FHWA issuance of the National Environmental Policy Act of 1969, as amended Record of Decision
- FHWA approval of the Final Project Management Plan
- Secretary of Transportation approval of Transportation Infrastructure Finance and Innovation Act loan, if available
- FHWA approval of tolling authority
- FHWA approval of the Financial Plan
- FHWA authorization of federal funding for right-of-way and construction
- SRTA approval of the tolling policy proposed by the P3 Developer.
- Federal Emergency Management Agency approval of a Conditional Letter of Map Revision and issuance of a Letter of Map Revision for the crossing of Hope Creek and Rottenwood Creek.

Permits:

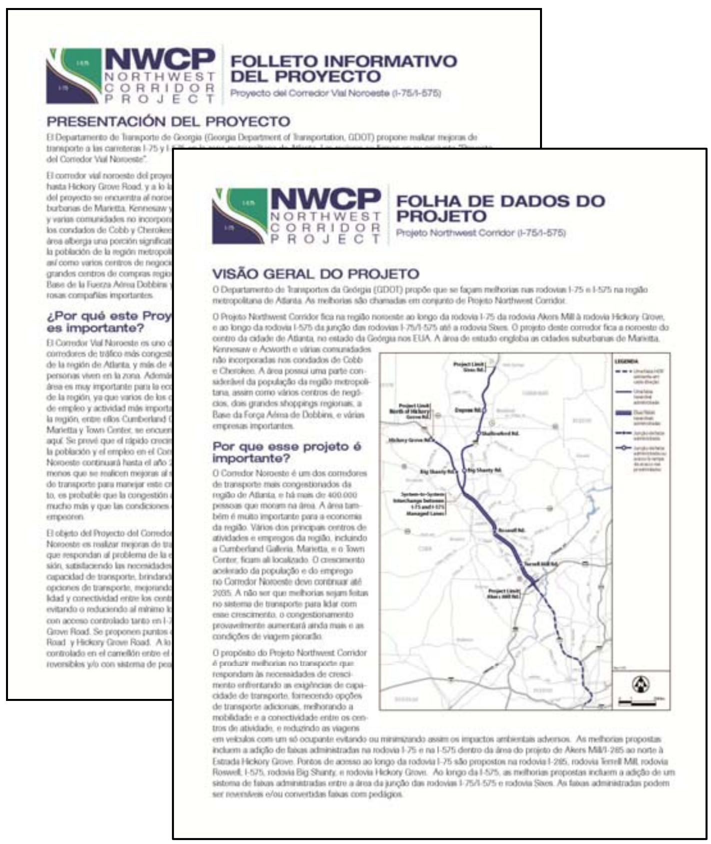
- US Army Corp of Engineers Section 404 Individual Permit
- US Army Corp of Engineers Section 401 Water Quality Certification
- Federal Emergency Management Agency No-Rise Certification for Floodways

- Stream Buffer Variance
- National Pollutant Discharge Elimination System Stormwater General Permit for Construction Activities
- Noise Ordinance Variance (for nighttime construction activities)
- Street Use Permit.

S.9 Consultation and Coordination

Good communication between affected parties, the public, and agencies is of paramount importance in the overall success of any transportation project. It is an especially important component of the environmental review process. As such, input has been solicited throughout the project process from federal, tribal, state, and local agencies and jurisdictions, interested organizations, as well as the general public.

In recognition of the anticipated impacts on minority and low-income communities, the project study team developed a public involvement plan, including an environmental justice outreach program. The program implementation was designed to build and sustain meaningful participation for all interested parties. Techniques for obtaining participation by minority and low-income communities included distribution of project handouts through study area churches, civic organizations, and social service agencies, and a number of staffed kiosk events. Handouts were translated into both Spanish and Portuguese and paper and electronic versions were sent to community organizations for distribution to their members.



Spanish and Portuguese translations of the spring 2010 project fact sheet.

In addition, interagency consultation and coordination was used to facilitate open communication and information sharing. Project study team members from GDOT met with individual local government agency representatives. Coordination pursuant to Section 106 of the National Historic Preservation Act was done, including invitations to the following tribal governments: Alabama-Coushatta Tribe of Texas, Chickasaw Nation, Eastern Band of Cherokees Indians of North Carolina, Muscogee (Creek) Nation of Oklahoma, Poarch Band of Creek Indians, Seminole Nation of Florida, Thlopthlocco Tribal Town, and the United Keetoowah Band of Indians. Of these tribes, the Chickasaw Nation responded and requested future notices concerning the project be directed to the Muscogee (Creek) Nation and the Cherokee Nation. The Eastern Band of Cherokee Indians responded to concur with the findings of the archaeological study. Coordination efforts with review and permitting agencies also included solicitation of agency perspectives on the project and review of draft technical reports.

Following publication of the AA/DEIS in May 2007, 145 letters, emails, comment forms, and comments from the public hearings were received on the Northwest Corridor Project. Copies of these comments and the court reporter documents for the three public hearing open house events are reproduced in the FEIS.

The commenters on the AA/DEIS addressed three main topics – the design and operation of the alternatives, the environmental impacts, and the financial feasibility of the project. Substantial opposition was expressed concerning the proposed TOLs due primarily to the negligible benefit provided and the proposed mandatory use of the tolled facilities. Commenters pointed out that the proposed operating plans for the bus service for both the BRT and reduced-BRT elements of the proposed project were unreasonable and provided exceptionally high transit service at a substantial cost to the region. Agencies, major stakeholders, and members of the public supported the proposed HOV or HOT lanes, but voiced concern that the AA/DEIS did not evaluate the HOV element of the proposed project as a stand-alone alternative. Substantial negative comment was received concerning the large footprint of the project and its substantial adverse impacts on adjacent neighborhoods and property owners. Commenters also called attention to the very high cost of construction and the operation costs of the proposed AA/DEIS build alternatives. Comments considered the proposed project potentially infeasible and/or an inappropriate allocation of public funds for the construction and operation of a single transportation project. Based largely on these substantial comments, GDOT and FHWA dismissed the concepts of TOLs and BRT, and initiated the preparation of a SDEIS to evaluate a new managed-lane concept.

As GDOT progressed with refining the proposed Build Alternative in response to comments on the AA/DEIS, the project stakeholders were provided with ongoing opportunities to provide comments. Public outreach included a second Notice of Intent in December 2009, additional newsletters, small group meetings, press releases, coordination with agencies, and coordination with minority and low-income communities. For the SDEIS, GDOT held two public hearing open houses in October 2010. During the SDEIS public comment period, an estimated 105 agencies, organizations, and individuals submitted comments. The comments were both positive and negative about the Two-Lane Reversible Alternative. Major topics addressed by the commenters included the following:

- General support or opposition of the proposed managed-lane system.
- Engineering design (horizontal or vertical alignment) or operation of the managed-lane system and its connections with existing highways and HOV lanes in the Northwest Corridor.
- Additional reversible lanes should be provided north of the I-75/I-575 interchange.
- Additional transit should be included as part of the proposed transportation improvements.
- Proposed tolling of the reversible lanes, tolling policies for specific types of vehicles, and how the tolls would be collected from local as well as out-of-state residents.
- Toll rates and dispersal of toll revenues between GDOT and the selected P3 Developer.
- Project financing and sources of funding.

- Potential increased congestion on nearby arterial roads and/or financial infeasibility of the project.
- Enforcement of HOVs and payment of tolls.
- Visual impacts of retaining walls, sound barriers, and elevated portions of the managed-lane system.
- Concerns about safety of the reversible lanes as a new type of travel lane in the region.
- Construction-related congestion and effects on private property access, and similar issues during operation especially near the proposed managed-lane interchanges.
- Potential noise impacts at individual properties.
- Potential adverse changes in property values.

These comments have been considered and some are reflected in the minor modifications made to the SDEIS Build Alternative since it was identified as the Preferred Alternative. Other comments have been used to refine the evaluation of potential environmental impacts in the FEIS. Copies of comments received on the SDEIS are reproduced as part of the FEIS.

In addition, as part of the environmental review process, GDOT has conducted ongoing consultation with various federal and state agencies since project initiation through preparation of the FEIS. As part of this effort, the project lead agencies, the FHWA and GDOT, have met on a regular basis. In addition, GDOT has coordinated with government agencies regarding statutory and regulatory compliance issues of the proposed project. Copies of over 40 written agency correspondences are reproduced in the FEIS to document this agency consultation.

In particular, coordination with the Georgia State Historic Preservation Officer concluded with issuance of a Finding of No Historic Property Affected on September 16, 2011, which also documented that GDOT had fulfilled its responsibilities under Section 106 of the National Historic preservation Act of 1966, as amended. On February 10, 2011, the FHWA recommended that the proposed project was not a project of air quality concern, was exempt from “hot-spot” analysis requirements, and met the statutory and regulatory transportation conformity requirements; and the US Environmental Protection Agency concurred with this recommendation on February 16, 2011. Moreover, on September 6, 2011, the FHWA approved the conformity determination in the recently adopted *PLAN 2040 Regional Transportation Plan,* which means the project is part of the recently adopted regional transportation plan and transportation improvement program. Lastly, on August 10, 2011, the US Fish and Wildlife Service sent a letter to FHWA acknowledging notification of changes in project design that required relocation of a stream, and the federal agency concurred that impacts to the stream are unavoidable and necessary for project implementation. Moreover, the letter indicated the proposed mitigation fully satisfies GDOT’s responsibility under the Fish and Wildlife Coordination Act.

Both public outreach and agency coordination will continue through project design, construction, and the start of operation. These activities will address public concerns, project mitigation, as well as required construction permitting.

S.10 Evaluation of Alternatives

As part of the analysis presented in the FEIS, the No-Build and Preferred Alternatives were evaluated against the project goals, measures of effectiveness, compared, and trade-offs discussed. The findings of this analysis are presented in the sections below.

S.10.1 Evaluation Based on Project Goals

The goals of the Northwest Corridor Project are derived from the project needs. Current travel conditions in the corridor are highly congested, which increases travel time and reduces transportation system reliability. Access to regional activity centers is poor and safety is reduced due to congestion levels. Travel efficiency also is low, resulting in comparatively high vehicle emissions. To address these issues, goals were identified for the Northwest Corridor Project.

The extensive traffic modeling and analysis concluded that the Preferred Alternative would better address project needs than the No-Build Alternative. By constructing new managed lanes on I-75 and I-575, the Preferred Alternative would increase the capacity of the Northwest Corridor to accommodate existing as well as future travel demand through 2035. These improvements would require the acquisition of 13 properties, and effects on natural resources would be minimal. With these improvements, congestion under the Preferred Alternative would be less than what is projected under the No-Build Alternative.

Because overall corridor travel times would decrease for both the general-purpose lanes and the managed lanes, though more so for the managed lanes, mobility would be improved for all users. These users would include drivers and passengers in HOVs, transit passengers, and potentially drivers of SOVs. Drivers and passengers in personal vehicles would have the choice to pay a toll and use the managed lanes to substantially reduce travel time and improve transportation reliability compared to continued use of the general-purpose lanes. In addition, all transit passengers, including many low-income persons, would be provided with similar benefits at no additional cost associated with tolling as express buses in the Northwest Corridor would be re-routed to the managed lanes. By making these improvements to the Northwest Corridor, access to regional activity centers in Marietta, Downtown Atlanta, Midtown, Perimeter Center, Buckhead, Cumberland-Galleria, and Town Center would be improved. The managed-lane improvements would increase highway capacity and also could attract traffic from parallel arterials. This in turn could reduce congestion, improve reliability, and improve safety on those roads. Finally, the travel advantages of the Preferred Alternative would likely contribute to improved air quality by managing congestion.

These improvements to the transportation system would result in both short-term temporary construction and long-term operational adverse effects. These effects to both the natural and built environment, however, can be mitigated such that the adverse effects could be avoided or minimized. In particular, adverse impacts on a relatively small number of minority and low-income populations due to right-of-way acquisition could be mitigated by the greater transportation benefits minority and low-income populations as a whole could realize during the operational phase of the project.

The benefits of the Preferred Alternative include improved transportation effectiveness, additional transportation options and choice, improved quality of life, and improved transportation equity; and these benefits come with a financial cost. That cost must be affordable based on the financial resources available to the region and cost-effective. Preliminary analysis indicates there is financial capacity to implement the Preferred Alternative, which is estimated to be approximately $968.3 million in year of expenditure.

The GDOT has concluded that harnessing private-sector innovation and resources through a P3 Developer Agreement would be the best way to ensure cost-effective and expedited delivery of the proposed project. In February 2011 GDOT submitted information to FHWA documenting the expected commitment of funds towards construction and right-of-way acquisition phases of the project. Sources include the following: private activity bonds, bank loan, Transportation Infrastructure Finance and Innovation Act loan, equity from the private sector, and GDOT payments. These sources total more than $1,153 million (excluding sources required for service commencement) and fully indicate the project is affordable when compared to the current capital cost estimate of $968.3 million. In addition, the Atlanta Regional Commission has programmed the necessary funding to deliver the project through a P3 Developer Agreement in the adopted FY 2012-2017 Transportation Improvement Program.

The GDOT anticipates the P3 Developer Agreement would obligate the P3 Developer to design, construct, finance, operate and maintain the project in return for the right to retain a portion of toll revenues from the users of the toll portions of the project. The P3 Developer Agreement may allow the P3 Developer to use identified public funding to make the proposed project financially feasible. Toll revenues from the Northwest Corridor Project would be used to partially support both construction and operation of the project. In accordance with FHWA's guidance, an Initial Financial Plan must be prepared for the project. GDOT requested that the Initial Financial Plan could be submitted to FHWA for approval after the award of the P3 Developer Agreement. At that time, the capital costs and sources and uses of funds provided by the P3 Developer and the necessary public funds would be finalized. On July 5, 2011 FHWA concurred with GDOT's request, but noted that construction funds cannot be authorized until the Initial Financial Plan has been submitted and approved.

S.10.2 Trade-offs of the Alternatives

As part of the analysis presented in the FEIS, a trade-offs analysis was conducted. This analysis evaluated the Preferred Alternative across the project's goals – transportation effectiveness, transportation choices, quality of life, cost-effectiveness, transportation equity, and cost-effective and affordable improvements.

The No-Build Alternative encompasses planned highway and transit improvements that would be built whether or not the improvements in the Preferred Alternative are implemented. Compared to the No-Build Alternative, the Preferred Alternative would provide improved transportation effectiveness, additional transportation choices, and improved quality of life. The Preferred Alternative would be affordable and financially feasible. Under the No-Build Alternative, there would be no adverse effects as a result of the proposed improvements of the Preferred Alternative, but the benefits of the Preferred Alternative also would not occur.

The Preferred Alternative would be more effective in meeting the project goals. The Preferred Alternative would provide additional transportation options that increase transportation system capacity in the Northwest Corridor and would improve access to activity centers. The improvements would enhance mobility and support the public and private investments consistent with local land use and transportation plans without degrading air quality. The improvements would be equitable in terms of benefits provided to the various study area population groups, and, in general, environmental impacts. For some elements of the environment, no significant adverse impacts would occur. For others, no significant adverse impacts would result following the implementation of best management practices and recommended mitigation measures.

S.11 The Next Steps

Consultation and coordination with government agencies, stakeholders, and members of the public would continue through the completion of the environmental review process and on through project final design, construction, and operation. GDOT and the selected P3 Developer would meet with property owners to make final decisions regarding potential sound barriers and mitigation for visual effects. Moreover, the P3 Developer would also respond to public complaints during construction.

In the near-term, the FEIS is posted on the project website *www.nwcproject.com*. Paper copies were sent to the following libraries: Atlanta-Fulton County Library, Cobb County Library, and the Sequoyah Regional Library. A newsletter highlighting key points of the FEIS, ways to submit comments, and upcoming public involvement activities was distributed. Information kiosks will be held at malls, churches, service organizations, and other public meetings such as city council or county commission meetings. Project team members will be available upon request to present project updates to special interest groups. In addition, a public meeting will be held to discuss with property owners the proposed sound barriers and potential effects on their property.

The review period for the FEIS will extend for 30 days following the publication date, after which FHWA may issue a Record of Decision. Following the issuance of this document, FHWA may make a final decision regarding implementation of the Northwest Corridor Project.

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Additional Technical Information

Separately bound technical reports supporting the conclusions presented in this document are listed below:

- *Advance Toll Signage Technical Report* (Parsons Brinckerhoff, 2011)
- *Air Quality Technical Report* (Parsons Brinckerhoff, 2011)
- *Conceptual Stage Study* (Diana Hunt and Associates, 2011)
- *Contamination Screening and Evaluation Report, Final with Errata* (Parsons Brinckerhoff, December 2010)
- *Cultural Resources Report (Parsons Brinckerhoff, 2011)*
- *Ecology Technical Report (Parsons Brinckerhoff, 2011)*
- *Evaluation of Tolling Effects on Low-Income Populations* (HNTB, 2011)
- *Hydraulic and Hydrological Technical Report* (Parsons Brinckerhoff, 2011)
- *Noise Technical Report* (Parsons Brinckerhoff, 2011)
- *Traffic Technical Report* (Parsons Brinckerhoff, 2011)

Copies of these technical reports have been sent to three regional libraries: 1) Central Library of the Atlanta-Fulton County Library System, One Margaret Mitchell Square, Atlanta, Georgia 30303; 2) Central Library of the Cobb County Public Library System, 266 Roswell Street, Marietta, Georgia 30060; and 3) Library Headquarters/RT Jones Memorial Library of the Sequoyah Regional Library System, 116 Brown Industrial Parkway, Canton, Georgia 30114.

Copies of these documents and other technical reports prepared for the Northwest Corridor Project can be reviewed at offices of the Georgia Department of Transportation at the following locations: 1) Office of Environmental Services, One Georgia Center, 600 W Peachtree Street NW,16th Floor, Atlanta, Georgia 30308; 2) Georgia Department of Transportation District 7, Cobb Area Engineer's Office, 1269 Kennestone Circle, Marietta, Georgia 30066; and 3) Georgia Department of Transportation, District Six Office, 500 Joe Frank Harris Parkway, Cartersville, Georgia 30120.

In addition, copies have been uploaded to the project website, which can be found at URL: *www.nwcproject.com*. Electronic and paper copies of these reports and information about archaeological resource issues can be obtained upon request by contacting:

Darryl D. VanMeter, State Innovative Program Delivery Engineer
Georgia Department of Transportation
One Georgia Center
600 W. Peachtree Street, NW, 19th Floor
Atlanta, Georgia 30308
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ACRONYMS AND GLOSSARY

ACRONYMS

$\mu g/m^3$	Micrograms per Cubic Meter
3D	Three-dimensional
AA	Alternatives Analysis
AA/DEIS	Alternatives Analysis/Draft Environmental Impact Statement
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic
AJC	Atlanta Journal-Constitution
AMP	Ambient Monitoring Program
APE	Area of Potential Effects
ARC	Atlanta Regional Commission
ASTM	American Society for Testing and Materials
ATR	Automatic Traffic Recorder
B&K	Bruel and Kjaer
BMP	Best Management Practice
BRT	Bus Rapid Transit
CAAA	Clean Air Act Amendments
CCID	Cumberland Community Improvement District
CCT	Cobb Community Transit
CD	Collector/Distributor Road
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CIDs	Community Improvement Districts
CLOMR	Conditional Letter of Map Revision
CMS	Changeable Message Signs
CO	Carbon Monoxide
CPI	Consumer Price Index
CWA	Clean Water Act
CVC	Community Village Center
dB	Decibels
dBA	A-weighted Sound Level
DCA	Department of Community Affairs
DPM	Diesel Particulate Matter
DRI	Development of Regional Impact
EA	Environmental Assessment

EB	Eastbound
ECCA	East Cobb Civic Association
EJ	Environmental Justice
EMIT	Easy Mobile Inventory Tool model
EPD	Georgia Environmental Protection Division
ESA	Endangered Species Act
ETA	Equitable Target Area
ETC	Electronic Toll Collection
ETL	Express Toll Lanes
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FTA	Federal Transit Administration
FWCA	Fish and Wildlife Coordination Act
FY	Fiscal Year
GARVEE	Grant Anticipation Revenue Vehicles
GDNR	Georgia Department of Natural Resources
GDOT	Georgia Department of Transportation
GP	General-Purpose Lane
GRTA	Georgia Regional Transportation Authority
GTP	Georgia Transportation Partners
HC	Hydrocarbon
HCM	Highway Capacity Manual
HCS	Highway Capacity Manual Software
HERO	Highway Emergency Response Operators
HOT	High-Occupancy-Toll
HOT3+	High-Occupancy-Toll with Three or More Persons
HOV	High-Occupancy Vehicle
HOV2	High-Occupancy Vehicles with Two Persons
HOV2+	High-Occupancy Vehicles with Two or More Persons
HOV3	High-Occupancy Vehicles with Three Persons
HOV3+	High-Occupancy Vehicles with Three or More Persons
HSWA	Hazardous and Solid Wastes Amendments
HUC	Hydrologic Unit Code
ICI	Indirect and Cumulative Impacts
IFP	Initial Financial Plan
IJR	Interchange Justification Report
IMR	Interchange Modification Report

IMR/IJR/SA	Interchange Justification, Modification and Interstate Systems Analysis Report
IRIS	Integrated Risk Information System
ISTEA	Intermodal Surface Transportation Equity Act of 1991
LCI	Livable Centers Initiative
LEP	Limited English Proficiency
L_{eq}	Equivalent Sound Level
LOMR	Letter of Map Revision
LOS	Level of Service
LPA	Locally Preferred Alternative
MARTA	Metropolitan Atlanta Rapid Transit Authority
ML	Managed Lane
MLI	Managed-Lane Interchange
MOE	Measures of Effectiveness
mph	Miles per Hour
MSA	Metropolitan Statistical Area
MSAT	Mobile Source Air Toxics
mvm	Million Vehicle Miles of Travel
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NATA	National Air Toxics Assessment
NB	Northbound
NBP	National Battlefield Park
NEPA	National Environmental Policy Act of 1969, as amended
NFIP	National Flood Insurance Program
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act of 1966
NIOSH	National Institute for Occupational Safety and Health
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOT	Notice of Termination
NO_x	Nitrous Oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O&M	Operations and Maintenance
O_3	Ozone
OCGA	Official Code of Georgia Annotated
OFR	Off-Ramp

ONR	On-Ramp
P3	Public-Private Partnership
PABs	Private Activity Bonds
PAR	Practical Alternative Review
Pb	Lead
PHT	Person Hours of Travel
PIOH	Public Information Open House
PM	Particulate Matter
PMT	Person Miles of Travel
POM	Polycyclic Organic Matter
ppm	Parts per Million
PS&E	Plans, Specifications, and Estimates
RAC	Regional Activity Center
RCRA	Resource Conservation and Recovery Act
RCRA COR ACT	Resource Conservation and Recovery Information System Handlers with Corrective Action
RFQ	Request for Qualifications
ROD	Record of Decision
RTP	Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users of 2005
SARA	Superfund Amendments and Reauthorization Act
SB	Southbound
SDEIS	Supplemental Draft Environmental Impact Statement
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOP	Standard Operating Procedure
SOV	Single-Occupancy Vehicles
SO_x	Sulfur Oxide
SPCC	Spill Prevention, Control, and Countermeasure Plan
SR	State Route
SR 3 Conn	SR 3 Connector
SRTA	State Road and Tollway Authority
STIP	State Transportation Improvement Program
TAD	Tax Allocation District
TAZ	Traffic analysis zones
TCACID	Town Center Area Community Improvement District
TDM	Transportation Demand Management
THPO	Tribal Historic Preservation Officer

TIFIA	Transportation Infrastructure Finance and Innovation Act
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Load
TNM®	Traffic Noise Model
TOL	Truck-Only Lane
TOT	Truck-Only Toll
TRB	Transportation Research Board
TSCA	Toxic Substances Control Act
TSM	Transportation Systems Management
URL	Uniform Resource Locator
USACE	US Army Corp of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	US Department of Transportation
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
UST	Underground Storage Tanks
V/C	Traffic Volume/Highway Capacity
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles of Travel
VOC	Volatile Organic Compounds
vphpl	Vehicles per Hour per Lane
vpmpl	Vehicles per Mile per Lane
WB	Westbound
WPC	Workplace Center
YOE	Year-of-Expenditure

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GLOSSARY

Advanced Traffic Management System (ATMS)	Remotely operated traffic management system for monitoring and managing operations of a roadway system including HOV lanes and arterial streets. Major elements of the system include surveillance, communications, and controls.
Alignment	Center of roadway; used to design road.
Average Daily Traffic (ADT)	A measure of traffic. The average number of vehicle trips generated over a specific time period.
Average Vehicle Occupancy (AVO)	The number of people divided by the number of vehicles (including buses) traveling past a specific point over a given time period.
Barrier-Separated Lane	An HOV lane separated from the regular lanes of traffic by a concrete barrier. The facility may be one-lane reversible or a two-lane bi-directional.
Benefit Area	A total of 15 transportation analysis districts comprise the study area and they encompass most of Cobb County and all of Cherokee County. This is the geographic area that would substantially derive transportation benefits from the proposed project improvements to the Northwest Corridor. As such, the area is referred to as the benefit area.
Best Management Practices (BMP)	Used during construction, methods that have been determined to be the most effective, practical means of preventing or reducing environmental impacts.
Bidirectional HOV Facility	Preferential facility in which lanes in both directions of traffic flow are provided.
Block group	A subdivision of a census tract, a block group is the smallest geographic unit for which the Census Bureau tabulates sample data.
Buffer-Separated Lanes	A facility in which the HOV lane is separated from the general-purpose lanes by a designated buffer.
Built Environment	The elements of the environment that are generally built or made by people as contrasted with natural processes.
Bus Rapid Transit (BRT)	A term describing a bus operation that is generally characterized by operation on a separate right-of-way that permits high speeds.
Census	The census of population and housing is taken by the Census Bureau in years ending in zero. The census form includes both a short form (100 percent survey) and a long form (sample survey of one in six households).
Census Tract	This is a small, relatively permanent statistical subdivision for the purpose of presenting data. Census tract boundaries generally follow visible features, but may follow governmental unit boundaries or other non-visible features. Census tracts average about 4,000 inhabitants.
Central Business District (CBD)	Commonly referred to as downtown.
Change of Mode	Transfer from one type of transportation vehicle to another.

Community Cohesion	The social relationships, patterns, and interaction among persons and groups within a community that allows for the recognition and coalescence of common values and goals for the community.
Commute Trips	Trips that are taken on a daily or regular basis to work.
Conceptual Design	A roadway design that explores an idea in broad terms to determining its merits prior to evaluation in detail during preliminary design. Typically, it represents approximately 15 to 30 percent of engineering and supports the environmental review process.
Concurrent-Flow Lane	An HOV lane that is operated in the same direction as the adjacent general-purpose lanes.
Construction Impact (see also *effect, impact)*	Temporary impact that would occur over a short period of time while a project is under construction.
Continuous Access	An HOV lane separated from the regular lanes of traffic by a painted stripe only.
Contra-Flow Lane	An HOV lane operating in the opposite direction of the normal flow of traffic, and designated for peak direction travel.
Cost	Resources used to produce a good or service.
Cumulative Impact (see also *effect, impact)*	Impact that "results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions..." [40 CFR 1508.7 (NEPA)]. The cumulative effects of an action may be undetectable when viewed in the individual context of direct and even indirect impacts but can, nonetheless, add to other disturbances and eventually lead to a measurable environmental change.
Direct HOV/HOT Ramps	Highway entrance ramps set up as restricted use ramps for HOV/HOT facility-eligible vehicles.
Directional Split	The distribution of traffic flows on a two-way facility.
Dynamic Pricing	Tolls that vary in response to changing congestion levels, as opposed to variable pricing that follows a fixed schedule.
Ecosystem	A biological community of interacting organisms and their physical environment.
Effect (see also *impact, construction impact, cumulative impact, operational impact, secondary impact)*	"Effect" and "impact" are synonymous. Effects include ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial. Effects include: (1) *direct effects* that "are caused by the action and occur at the same time and place," and (2) *indirect effects* that "are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable" [40 CFR 1508.8 (NEPA)].
Electronic Toll Collection	This refers to electronic systems that collect vehicle tolls, reducing or eliminating the need for tollbooths and for vehicles to stop.
Express Toll Lane (ETL)	Managed lane where all vehicles, except for registered transit vehicles, pay a toll. Trucks are not permitted in the managed lane.

Enforcement	Function of maintaining the rules and regulations of a preferential treatment to maintain the integrity.
Enforcement Area	Designated space on which enforcement can be performed.
Environmental Impact Statement (EIS)	Comprehensive study of all the potential impacts of a project funded with federal dollars.
Environmental Justice	A federal policy that provides equitable outreach benefits to minorities and low-income populations and that any adverse environmental effects are not disproportionate to these historically underserved groups.
Express Bus Service	Bus service with a limited number of stops, usually at a high speed.
Final Design	A roadway design that is prepared in detail sufficient for construction and represents 100 percent of the engineering effort.
General-Purpose Lanes	Lanes on a highway or expressway that are open to all motor vehicles.
Grade Separation	The vertical separation of intersecting transportation facilities.
Groundwater	Supply of fresh water found beneath the earth's surface, usually in aquifers, that supply wells and springs.
Hazardous Materials	Material, often waste, that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, explosive, or chemically reactive. In general, any materials which poses harmful risks to human health and/or the environment.
High-Occupancy Vehicle (HOV)	A passenger vehicle carrying more than a specified minimum number of people. For example, a HOV2+ lane requires passenger vehicles to have a driver and one or more passengers. HOVs include carpools and vanpool as well as buses.
High-Occupancy Vehicle System	Development and operation of a coordinated approach of physical improvements such as HOV lanes, park-and-ride lots, and supporting services and policies.
Hispanic/Latino	A self-designated classification of people whose origins are from Spain, the Spanish-speaking countries of Central or South America, the Caribbean, or those identifying themselves generally as Spanish, Spanish-American, etc. Origin can be viewed as ancestry, nationality, or country of birth of the person or person's parents or ancestors. Hispanic/Latino persons may be of any race, White and Non-White (Persons of Color).
HOT Lanes (High-Occupancy Toll Lanes)	HOV facilities that allow lower occupancy vehicles, such as solo drivers, to use these facilities in return for toll payments, which could vary by time-of-day or level of congestion.
HOV Lane	An exclusive traffic lane or facility limited to carrying high occupancy vehicles (HOVs) and certain other qualified vehicles.
HOV/HOT Highway-to-Highway Connectors	Special highway-to-highway ramps restricted to HOV/HOT lane-eligible vehicles.

Impact (see also *effect, construction impact, cumulative impact, operational impact, secondary impact)*	The effect or consequence of actions. Environmental impacts are effects upon the elements of the environments.
Impervious Area	An area where water cannot flow down to groundwater resources.
Incentive Programs	Policies and techniques aimed at a specific behavior.
Indirect Impact (see also *effect, impact*)	Impacts that "are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use; population density or growth rate; and related effects on air and water and other natural systems, including ecosystems" [40 CFR 1508.8 (NEPA)].
Intelligent Transportation Systems (ITS)	The application of advanced technologies to enhance the operation and management of a transportation system.
Interchange	The system of grade-separated ramps connecting two or more roadways.
Intermodal	Facility connections between transportation modes.
Lead agency	The agency with the main responsibility for complying with NEPA procedural requirements.
Level of Service (LOS)	Qualitative measure that describes the operational conditions of a roadway or intersection.
Limited Access	Access management used to restrict entry to a facility based upon facility congestion levels or operational condition, such as the presence of an accident or maintenance activities. Typically, access is not restricted by type of user.
Limited English Proficiency (LEP)	Persons with limited English proficiency (LEP) are individuals with a primary language other than English who must due to limited fluency in English, communicate in their primary language in order that they have an equal opportunity to participate effectively in or benefit from federal services.
Linguistically Isolated	Linguistically isolated households are defined as those where no member 14 years and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well" (US Census Bureau, 2009). In other words, all members of the household 14 years and over have at least some difficulty with English.
Local Bus Service	Bus routes and service characterized by frequent stops and slow operating speeds.
Mainline	General-purpose lane on a highway that is open to all motor vehicles.
Managed Lane	A lane or lanes that increase highway efficiency by packaging various operational and design actions. Lane management operations may be adjusted at any time to better match regional goals.

Managed-Lane Interchange	An interchange used to provide access between a general-purpose cross street and the managed-lane roadway facility.
Managed-Lane System-to-System Interchange	The intersection of two managed-lane roadway facilities providing access to and from each as required from an operational standpoint. It does not provide access to highway general-purpose lanes.
Mileage-Based Fee	The fee charged for using a vehicle based on the vehicle miles traveled (VMT) in the jurisdiction.
Mitigation	Measures taken to reduce adverse impacts on the environment. “Mitigation” includes in order of sequence: (1) Avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or taking affirmative steps to avoid or reduce impacts; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; (5) compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or (6) monitoring the impact and taking appropriate corrective measures [40 CFR 1508.20 (NEPA).
Mode	Means of travel such as highway, transit, bicycle, equestrian, or pedestrian.
Mode Shift	The change from one means of travel to another.
Multi-Modal	Facilities serving more than one transportation mode.
National Environmental Policy Act of 1969, as Amended (NEPA)	Legislation enacted in 1969 that requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.
National Register of Historic Places (NRHP)	The nation’s official list of cultural resources worthy of preservation. Properties include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.
Natural Environment	Those aspects of the environment frequently referred to as natural elements, or resources, such as earth, air, water, and wildlife.
Non-Attainment Area	A geographic area in which the level of air pollution is higher than the level allowed by nationally accepted standards for one or more pollutants.
Notice of Intent	The written decision by the federal NEPA lead agency that a proposal is likely to have a significant adverse environmental impact and, therefore, preparation of an EIS is required.
Off-Peak Direction	Direction of lower demand during the peak commuting period.
Operational Impact (see also *effect, impact)*	Environmental impact that could occur long term following the construction of a project.
Origin-Destination Study	Analysis of the starting and ending points or zones of people or vehicles.
Park-and-Ride Lot	Facility where individuals can park their private vehicles and access public transportation.

Peak Direction	Direction of higher demand during a peak commuting time.
Peak Hour	The hour in which the maximum demand occurs on a facility.
Peak Period	Period in which traffic levels rise from normal levels to maximum levels – usually considered a four-hour period encompassing "rush hour."
Person Hours of Travel (PHT)	The amount of time, in hours, spent by each person on a trip.
Person Miles of Travel (PMT)	The number of miles traveled by each person on a trip.
Person Trip	A trip made by a person by any mode (or combination of modes) for any purpose.
pH	A scientific measurement of hydrogen ion concentration used to express acidity (0.0 to <7.0 values) or alkalinity (>7.0 to 14.0 values).
Preliminary Design	A roadway design that has been evaluated in sufficient detail to establish configuration and right-of-way requirements and is ready to be advanced into final design for construction. Typically, it represents approximately 30 to 75 percent of the engineering effort.
Price	The direct costs borne by users for consuming a good or service.
Project Terminus	The end points of a highway corridor that allows full consideration of potential alternatives that address the project purpose and need. The corridor must have rational end points that demonstrate the proposed improvements have independent utility, but do not restrict consideration of other foreseeable improvements.
Public Hearing	A public proceeding conducted for the purpose of acquiring information or evidence that will be considered in evaluating a proposed transportation project and that affords the public an opportunity to present for the record their views, opinions, and information on such projects [CFR 327.3(a)].
Public-Private Initiative	A private company or group of companies submit an offer to a public agency to provide public services as a joint public-private venture as allowed by Georgia legislation. If accepted, the private company or group of companies agrees to a contractual relationship that defines roles and responsibilities for each party. See Public-Private Partnership.
Public-Private Partnership	A Public-Private Partnership, or P3, is a partnership formed by a public entity, in this case GDOT, and a private company or group of companies. It is a non-traditional arrangement to provide for: (1) an acceptance of a private contribution or service in exchange for a public benefit; (2) a sharing of resources and means of providing transportation system projects or service; or (3) cooperation in researching, developing, and implementing transportation system projects or services. This approach allows GDOT to better use the limited resources available for major transportation projects through a developer agreement to leverage private sector innovation and capital.
Queue	A line of vehicles or persons.

Queue Bypass	An HOV facility that provides a bypass around a queue of vehicles delayed at a ramp or mainline traffic meter or other bottleneck location.
Race	Race is a self-identification characteristic of population and the 2000 census included White and Non-White (Persons of Color). Non-White includes Black or African-American alone, American Indian or Alaska Native alone, Asian alone, Native Hawaiian or other Pacific Islander alone, some other race alone, or a mixture of two or more races. Non-White can include persons of Hispanic/Latino heritage. Some Hispanic/Latinos, however, are White.
Ramp Metering	Procedure used to reduce congestion by managing vehicle flow from local-access on-ramps. The entrance ramp is equipped with a traffic signal that allows vehicle to enter the highway at predetermined intervals.
Regressive Tax	A regressive tax is a tax such that the rate of taxation decreases as the amount subject to taxation decreases. Generally, a regressive tax is more burdensome on poor individuals than rich individuals relative to financial resources available. Examples of regressive taxes include flat taxes as well as sales tax on food and gasoline due to the inelasticity of household consumption of these goods.
Reverse Commute	Travel time between work/school and home in the opposite direction of the peak direction of travel.
Reversible HOV Lane	HOV facility in which the direction of traffic flow can be changed at different times of the day to match the peak direction of travel.
Reversible Lane	A roadway lane that can be operated in different directions of travel based on the time of day to address operational peaks in traffic flow.
Scoping	Determining the range of proposed actions, alternatives, and impacts to be discussed in an EIS. The required scoping process provides agencies and the public opportunity to comment. Scoping is used to encourage cooperation and early resolutions of potential conflicts, to improve decisions, and to reduce paperwork and delay.
Section 4(f)	A provision of the US Department of Transportation providing protection for publicly owned public parks, recreation areas, wildlife and waterfowl refuges, or historic sites on or eligible for the National Register of Historic Places [49 USC 303 and 23 USC 138, 23 CFR 771.107(e) and 771.135].
Sensitive Noise Receptor	Sites such as schools or neighborhoods where people would be exposed to substantially increased noise levels that approach abatement criteria due to a project.
Slip Ramp	A transitional travel lane that allows traffic to transition from the general-purpose lanes to a managed-lane facility (or vice versa) without significant change in speed.
Social Resources	Social elements of the environment, including population, housing, community facilities, religious institutions, social and employment services, cultural and social institutions, government institutions, military installations, and neighborhood cohesion.

SR 3 Connector/ Roswell Road	Effective January 29, 2007, the State Highway System was revised per Order of the Commissioner 3443 which approved the removal of a section of State Route 120 and redesignation of State Route 120 Loop as State Routes 3 Connector, 120, and 120 Alternate to the State Highway System.
Stormwater	That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface water. It can carry pollutants from the air and land into receiving waters.
Throughput	The volume of vehicle or passengers passing a specific point during a predetermined period of time.
Time-of-Day Pricing	Facility tolls that vary by time-of-day in response to varying congestion levels. Typically, such tolls are higher during peak periods when the congestion is most severe.
Toll Policy	The toll policy for the Northwest Corridor Project (I-75 and I-575) is based on the information available at the time of the preparation of the Final Environmental Impact Statement (FEIS) and sets the operational strategy to help meet the established needs and goals of the project. The toll policy for the Northwest Corridor Project may be adjusted to meet the operational needs of the corridor over time. The selected toll operational strategy for the Northwest Corridor Project is Express Toll Lanes (ETL) (See Appendix D). The *Atlanta Regional Managed Lanes System Plan* (GDOT, 2010a) established recommendations for each corridor but concluded that the toll policy for each corridor should be established to respond to the needs identified in that corridor and the goals established during the NEPA process. The toll policy is specific to this corridor and does not apply to the region.
Traffic Assignment	The planning and modeling process of allocating trips by different modes and to different origins and destination and routes.
Traffic Volume	The number of vehicles on a roadway.
Traffic Analysis Districts	Comprised of multiple traffic analysis zones. These traffic analysis zones usually share some common characteristics such as geographic boundary (e.g. county or municipality), land use pattern, demographic pattern, or travel pattern.
Transfer Center	Mode transfer facility serving buses or other modes.
Transponder	An electronic tag or device mounted on a license plate, built into a vehicle, or placed on the dashboard. The tag is read electronically by an electronic tolling device that automatically assesses the amount of the user fee.
Transportation Demand Management (TDM)	The use of a variety of strategies, techniques, and incentives to provide the most efficient and effective use of transportation facilities. Typically, the objective is to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time.
Transportation System Management (TSM)	Actions that improve the operation and coordination of transportation services and facilities.

Travel Demand Forecasting Model	A computer model of traffic generation based on movement between study area traffic analysis zones (specific small geographic areas) within an assumed boundary or area. A variety of analysis measures can be deducted based on the forecast travel volumes.
Travel Time	The length of time it takes to travel between two points.
Travel Time Reliability	Term referring to the lack of variability in travel time that can be expected using different facilities.
Travel Time Savings	Time saved by using an HOV facility rather than the general-purpose lanes.
Trip Generation Rates	Number of vehicular trips to and from a development. These rates are used to identify the potential impacts of new projects.
Trips	The one-way movement of one person or vehicle between origin and destination.
Value Pricing	A system of fees or tolls paid by drivers to gain access to dedicated roadway facilities providing a superior level of service compared to the competitive free facilities. Value pricing permits anyone to access the managed lanes, and the value of the toll is used to ensure that the management goals of the facility are maintained.
Vehicle Hours Traveled (VHT)	The total hours of travel in hours by all motor vehicles of a specific group in a given area at a given time.
Vehicle Miles Traveled (VMT)	The total distance traveled in miles by all motor vehicles of a specific group in a given area at a given time.
Volume to Capacity Ratio	The ratio of demand flow rates to capacity for a given type of transportation facility.

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NWCP

ENVIRONMENTAL COMMITMENTS TABLE

ENVIRONMENTAL COMMITMENTS TABLE

Project Information

Project No.:	CSNHS-0008-00(256)
County :	Cobb & Cherokee
PI No.:	0008256
Status:	FEIS
Date Updated:	October 17, 2011

Project Manager Review

☒ I have reviewed these commitments and verified their feasibility.
☐ All delineations are marked on the plans.

Darryl D. VanMeter

PM Signature

October 17, 2011

Date

Specialist Review

Air/Noise
Archaeology
Ecology/404
History
NEPA

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Pre-Construction Commitments							
1	All Waters of the U.S., state waters, and stream/pond buffers will be shown on the plans and appropriately labeled.	Memo to project designer	Office of Environmental Services/ P3 Developer	No cost	Yes	No	Incomplete
2	Stream buffer variances will be obtained for Streams 4, 8, 15, 36A, 54, and 55 prior to project implementation.	FEIS/Ecology Technical Report	Office of Environmental Services/ P3 Developer	No cost	No	No	Incomplete
3	Specific protective measures for migratory birds, the federally listed Cherokee darter, and state listed Chattahoochee crayfish and lined chub will be included in the P3 Developer Agreement.	FEIS/Ecology Technical Report	Office of Innovative Program Delivery	No cost	No	Yes	Incomplete
4	Mitigation for the unavoidable 3,025 linear feet of permanent stream impacts (a total of 17,396.25 stream mitigation credits) will be provided by using an USACE-approved commercial mitigation bank or GDOT-owned bank serving HUC 03130001 and HUC 03150104.	FEIS/Ecology Technical Report	P 3 Developer/Office of Environmental Services	TBD	No	No	Incomplete

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5	Mitigation will be provided for the unavoidable permanent impacts to 0.30 acres of wetlands (a total of 1.93 wetland/open water credits). Wetland mitigation will take place at an approved USACE wetland mitigation bank serving HUC 03130001 and 03150104.	FEIS/Ecology Technical Report	P3 Developer/Office of Environmental Services	$15,440	No	No	Incomplete
6	A USACE Section 404 Individual Permit will be acquired prior to project implementation.	FEIS	Office of Environmental Services/ P3 Developer	No cost	No	No	Incomplete
7	A NPDES permit will be acquired prior to construction.	FEIS	Office of Construction/ P3 Developer	No cost	No	No	Incomplete
8	Coordination with FEMA, Cobb and Cherokee Counties, and GDNR will be conducted regarding the impacts to regulatory floodways. Hope Creek, Rottenwood Creek, Sope Creek and Elizabeth Branch are FEMA-studied and will require a FEMA no-rise certification. Because the proposed crossing of Hope Creek and Rottenwood Creek will increase the floodway widths, approval of a CLOMR by FEMA will be required before construction. Issuance of a LOMR by FEMA will be required after construction is complete. The P3 Developer will prepare the final hydraulic analysis using the most current hydraulic information available.	FEIS	Office of Environmental Services/ Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Incomplete
9	The P3 Developer shall design the project to reduce impacts to floodplains. These features should include bridge structures over streams, increasing the slope ratio at the 100-year floodplain crossings, and placing retaining walls at the 100-year floodplain crossings.	FEIS	Office of Environmental Services/ Office of Innovative Program Delivery	TBD	No	No	Incomplete

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10	A final decision on the installation of sound barriers will be made upon completion of additional detailed noise abatement analysis based on final design and public outreach to affected property owners. Coordination with property owners regarding the location of potential sound barriers will be conducted prior to the final decision on the installation of the sound barriers. Public involvement will be conducted in accordance with the approved public involvement plan for the project.	FEIS/Noise Technical Report	Office of Environmental Services / P3 Developer	TBD	No	No	Incomplete
11	Design features that may aid emergency access will be considered during future stages of project design.	FEIS	P3 Developer/Office of Innovative Program Delivery	No cost	No	No	Incomplete
12	The height of both structural walls and sound barriers will be mitigated visually through the use of context-sensitive aesthetic finishes or treatments and, where possible, landscaping. Community outreach to this end will be implemented during final design.	FEIS	Office of Environmental Services / P3 Developer	TBD	No	No	Incomplete
13	A detailed financial plan for the Northwest Corridor Project will be developed by GDOT and approved by FHWA. Access to the managed-lane facility by disadvantaged persons will be included in the financial plan. The P3 Developer accounting related to the Northwest Corridor Project will be subject to GDOT audits.	FEIS	Office of Financial Management and GDOT Financial Advisor	No cost	No	No	Incomplete

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14	Potential methods to mitigate tolling for minority and low-income populations, such as special programs to facilitate use of the managed-lane system for low-income populations will be explored during the design and construction of the facility.	FEIS	SRTA/ P3 Developer/ Office of Innovative Program Delivery	No cost	No	No	Incomplete
15	A public information and notification plan to provide project information, updates, and construction information to community businesses and residents will be developed and maintained throughout project development. The plan will address the project through design, construction and operations.	FEIS/Public Involvement Plan	Office of Environmental Services / P3 Developer	None	No	No	Incomplete
16	The project mailing list initiated during the AA/DEIS will be maintained, updated, and kept current throughout final design and construction activities to ensure all interested citizens will be notified about meetings and project news	FEIS/Public Involvement Plan	Office of Environmental Services / P3 Developer	$0.00	No	No	Incomplete
17	The P3 Developer, working collaboratively with GDOT, shall assess the need for multi-lingual communications and, where appropriate, furnish facility-related materials in English, Spanish, Portuguese, and/or other demographic adaptations.	FEIS/P3 Developer Agreement	Office of Environmental Services / P3 Developer	TBD	No	No	Incomplete
18	A detailed construction noise mitigation plan will be developed prior to the initiation of construction.	FEIS/Noise Technical Report	Office of Environmental Services P3 Developer	No cost	No	No	Incomplete

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19	A mitigation plan for the extended duration of potential 24-hour effects from construction-related noise, light, glare, and dust will be developed. The plan will be coordinated with neighborhood groups, including residents living in close proximity to the project corridor construction zone and staging areas.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Incomplete
20	Eligible historic boundary for the Marietta and North Georgia Railroad (i.e., the right-of-way of the railroad mainline) and the Dobson Gulf Service Station - Marietta Muffler will be included on all plans. No construction will occur within the historic boundaries.	Email from Chad Carlson , GDOT Historian, dated 8/27/10	Office of Innovative Program Delivery/ P3 Developer	No cost	Yes	No	Incomplete
21	A Level II contamination assessment will be conducted at all sites where right-of-way is required.	FEIS	Office of Innovative Program Delivery/ Office of Materials and Research/ P3 Developer	No cost	No	No	Incomplete
22	Prior to construction, GDOT, the P3 Developer, and agencies that provide emergency response will prepare an emergency response plan that addresses coordination with construction activities and emergency responders.	FEIS/P3 Developer Agreement	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Incomplete
23	Prior to construction, NOAA shall be provided no less than a 90-day notification of planned activities that will disturb or destroy any geodetic control monuments. This will provide time to plan for and execute relocation of geodetic monuments.	Letter from Christopher Harm, NOAA National Geodetic Survey, dated July 10, 2007	Office of Innovative Program Delivery/ P3 Developer	TBD	Yes	No	Incomplete
24	A community mitigation plan for the Northwest Corridor Project will be developed and will include mitigation items cited in the FEIS and the ROD.	GDOT	Office of Environmental Services/ Office of Innovative Program Delivery	No cost	No	No	Incomplete

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25	Meetings will be conducted with the public regarding potential detours.	GDOT	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Incomplete
26	Placement of advance toll signage will avoid any waters of the U.S.	Advance Toll Signage Technical Report	Office of Innovative Program Delivery/ P3 Developer	No Cost	Yes	No	Incomplete
27	A field survey of bridge and culvert structures within the project corridor will be conducted prior to the beginning of construction in order to detect the presence of migratory birds and potential migratory bird nesting habitat.	FEIS/Ecology Technical Report	Office of Innovative Program Delivery/ P3 Developer	No cost	No	Yes	Signature Required
During Construction Commitments **Construction or Area Engineer signature required upon the completion of all During Construction Commitments.**							
28	The specific protective measures in the P3 Developer Agreement for migratory birds and the protection of federal and state endangered and threatened species and sensitive species for the Cherokee darter, Chattahoochee crayfish, and lined chub will be implemented.	FEIS/Ecology Technical Report	Office of Innovative Program Delivery/ P3 Developer	No cost	No	Yes	Signature Required
29	A field survey of bridge and culvert structures will be conducted during construction activities to ensure nesting migratory birds and/or potential nesting habitat will not be disturbed outside of the approved specified time periods.	FEIS/Ecology Technical Report	Office of Innovative Program Delivery/ P3 Developer	No cost	No	Yes	Signature Required

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30	Pedestrian and bicycle traffic on the Bob Callan Trail will be maintained by means of an approved traffic control plan during construction of proposed bridges. Conditions to be provided in the Transportation Management Plan (TMP). Precautions will be taken to ensure the safety of the trail users during construction. The trail facility will not be used for construction staging. Construction of the managed lanes over Bob Callan Trail will be of limited duration. Construction of the proposed bridge widening will occur at night when the trail is closed. The trail will remain open during the day during normal operating hours. No change in ownership will take place to any parkland. Any impact to the Bob Callan Trail due to P3 Developer construction activities will be mitigated by restoring the Trail to pre-construction conditions.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No cost	Yes	No	Signature Required
31	A public information and notification plan/program to provide project information/ updates/construction information to community businesses and residents during construction and operations will be implemented.	FEIS	Office of Innovative Program Delivery/ P3 Developer	None	No	No	Signature Required
32	The project mailing list initiated during the AA/DEIS will be maintained, updated and kept current throughout construction activities to ensure all interested citizens will be notified about meetings and project news.	FEIS	Office of Innovative Program Delivery/ P3 Developer	None	No	No	Signature Required

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33	The P3 Developer, working collaboratively with GDOT, shall assess the need for multi-lingual communications and, where appropriate, furnish Facility-related materials in English, Spanish, Portuguese and/or other demographic adaptations.	FEIS/P3 Developer Agreement	Office of Innovative Program Delivery/ P3 Developer	No costs	No	No	Signature Required
34	Variances, special permits, or approval may be required if construction occurs during nighttime hours and/or on Sundays. Any necessary variances to noise ordinances will be obtained prior to construction.	FEIS/Noise Technical Report	Office of Innovative Program Delivery/ P3 Developer	No costs	No	No	Signature Required
35	Construction activities will be scheduled so that property access and utility disruptions are anticipated, scheduled in advance, and are as brief as possible. Advance notification for such disruptions will be provided to affected property owners and businesses.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No costs	No	No	Signature Required
36	Deliveries of construction materials will be scheduled to minimize disruptions to surrounding land uses.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No costs	No	No	Signature Required
37	A mitigation plan for the extended duration of potential 24-hour effects from construction-related noise, light, glare, and dust will be implemented.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No costs	No	No	Signature Required
38	No equipment and materials lay down and staging areas will be located within 500 yards of Olde Rope Mill Park.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No costs	No	No	Signature Required
39	The P3 Developer shall comply with all state and local sound control and noise level rules, regulations, and ordinances.	FEIS/Noise Technical Report	Office of Innovative Program Delivery/ P3 Developer	No costs	No	No	Signature Required

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40	The following noise abatement measures will be implemented during construction: • Keep the public informed when work is going to be done; • Keep a telephone log of complaints and how they were resolved • Limit the number and duration of onsite idling equipment; • Maintain all construction equipment in good repair; • Reduce noise from all stationary equipment and facilities by using suitable enclosures; • Schedule truck loading, unloading and handling operations to minimize construction site noise.	FEIS/Noise Technical Report	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Signature Required
41	The following standard preventive BMP measures will be implemented during construction to minimize the amount of construction dust generated: • Minimize land disturbance; • Use watering trucks to minimize dust; • Cover trucks when hauling dirt; • Stabilize surface of dirt piles if not removed immediately; • Limit vehicular paths and stabilize these temporary roads.	FEIS/Air Quality Technical Report	Office of Innovative Program Delivery/ P3 Developer	No Cost	No	No	Signature Required

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42	The following BMP measures will be implemented to the extent practicable to minimize greenhouse gas emissions during construction: • Reduce equipment idle time; • Reduce fuel usage through increased fuel efficiency; • Use alternative fuels; • Properly maintain equipment; • Provide driver training to improve operating efficiency; • Use properly sized equipment; • Replace older, less fuel efficient equipment with newer, more efficient equipment; • Reuse/recycle waste construction materials.	FEIS/Air Quality Technical Report	Office of Innovative Program Delivery/ P3 Developer	No Cost	No	No	Signature Required
43	The following BMP measures will be implemented during construction in order to minimize worker exposure to diesel exhaust: • Position exhaust pipes so that diesel fumes are directed away from the operator and nearby workers; • Routine inspection and maintenance of filtration devices.	FEIS/Air Quality Technical Report	Office of Innovative Program Delivery/ P3 Developer	No Cost	No	No	Signature Required

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44	The following measures will be implemented to the extent practicable to minimize worker exposure to diesel exhaust during construction: • Use low-sulphur diesel fuel; • Retrofit engines with exhaust filtration devices to capture diesel particulate matter; • New equipment should be equipped with the most advanced emission control system available.	FEIS/Air Quality Technical Report	Office of Innovative Program Delivery/ P3 Developer	No Cost	No	No	Signature Required
45	Where possible, lane closures will be limited to nighttime periods or on weekends.	FEIS/P3 Developer Agreement	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Signature Required
46	Where possible, construction on the cross streets and highway ramps will take place during off-peak periods.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Signature Required
47	A project hotline number will be provided and a field office or mobile trailer will be opened within Cobb County so that any and all members of the public can directly report problems related to construction activities, and ensure problems will be resolved promptly.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Signature Required
48	The P3 Developer shall comply with the emergency response plan.	FEIS/P3 Developer Agreement	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Signature Required
49	Construction and installation activities for the advance toll signage shall avoid impacts to waters of the U.S.	Advance Toll Signage Technical Report	Office of Innovative Program Delivery/ P3 Developer	No cost	Yes	No	Signature Required

*Estimated cost for planning purposes only; in current dollars as of date updated.

NO.	COMMITMENT/REQUIREMENT *(Separate out commitments by PI No.)*	DOCUMENT STIPULATED IN	RESPONSIBLE PARTY	ESTIMATED COST*	PLACE ON PLANS *(Yes or No)*	REQUIRES A SPECIAL PROVISION *(Yes or No)*	STATUS *(Pre- and Post Construction – Complete or Incomplete; During Construction – Signature Required)*
50	A federal and state compliant relocation assistance program will be available to displaced persons and businesses. The program will comply with requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and the Georgia Relocation Assistance and Land Acquisition Policy Act.	FEIS	Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Signature Required
51	A limited due diligence transaction screening investigation (American Society for Testing and Materials [ASTM] E1528) will be conducted for all properties immediately prior to purchase.	FEIS	Office of Environmental Services/ Office of Innovative Program Delivery/ P3 Developer	No cost	No	No	Signature Required
Post Construction Commitments							
52	An annual study will be conducted to monitor the use of the managed-lane system for potential impacts to environmental justice populations and provide opportunities for the public to submit feedback on system operations and customer satisfaction. The monitoring will occur for three years after the opening of the project.	FEIS	P3 Developer/Office of Innovative Program Delivery	No Cost	No	No	Signature Required
			Total Estimated Cost* for all Project Commitments:	TBD			

*Estimated cost for planning purposes only; in current dollars as of date updated.

CHAPTER 1
PURPOSE AND NEED

1. PURPOSE AND NEED

The Federal Highway Administration (FHWA) and Georgia Department of Transportation (GDOT) propose to make transportation improvements to Interstate 75 (I-75) and Interstate 575 (I-575) in the Atlanta metropolitan area. These improvements are collectively referred to as the Northwest Corridor Project. Because federal approvals, permits, and funding assistance are required to construct the improvements, the proposed project is subject to review under the National Environmental Policy Act of 1969, as amended (NEPA).

This chapter describes the project location, the project background, the purpose and need for the proposed transportation improvements, and the existing and forecast transportation problems for I-75 and I-575 in the Northwest Corridor. Overall, the need for the proposed project and the purpose of the proposed project are the same as described in the *Northwest I-75/I-575 Corridor Project Alternatives Analysis/Draft Environmental Impact Statement* (AA/DEIS) (FHWA and GDOT, 2007) and the *Northwest Corridor Project Supplemental Draft Environmental Impact Statement* (SDEIS) (FHWA and GDOT, 2010).

1.1 Project Location

The Northwest Corridor Project is located in the Atlanta metropolitan area, northwest of downtown Atlanta, Georgia, and it specifically encompasses portions of Cobb and Cherokee Counties. Within the project area, I-75 extends to the northwest from downtown Atlanta. The project corridor begins on I-75 at Akers Mill Road south of I-285 in Cobb County, and extends northwesterly through the suburban cities of Smyrna, Marietta, Kennesaw, and Acworth. The corridor also travels through several unincorporated communities in Cobb County (see Figure 1-1). Within the project area, I-575 branches northeasterly from I-75 and extends into Cherokee County and the cities of Woodstock and Holly Springs. The project area is home to a substantial share of the region's population as well as several major business centers; two large regional shopping malls, Dobbins Air Reserve Base, a large Lockheed Martin aircraft facility, two universities, a county airport, and numerous major corporations (see Figure 1-2).

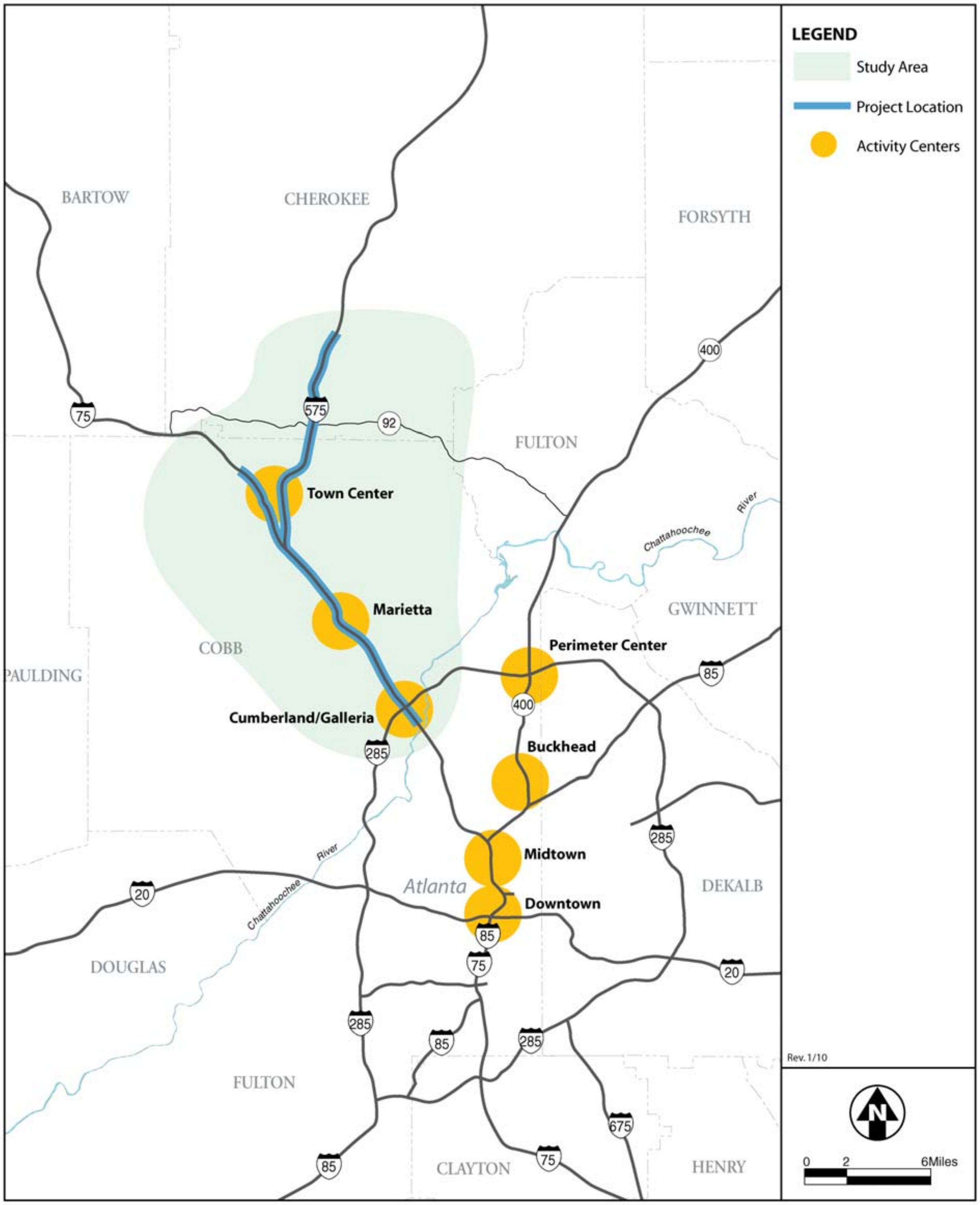
A major north-south route through Georgia, I-75 is also the primary route for commuters traveling to jobs within the project area as well as in the region, especially to Midtown, downtown Atlanta, Buckhead, and Perimeter Center. It also serves the transportation needs for regional travel and freight trucking. In downtown Atlanta, I-75 merges with I-85. Leaving I-85, it proceeds northwesterly as a 10- to 12-lane highway to I-285, which is the beltway around Atlanta. North of I-285, the number of lanes on I-75 varies from six to 15. Farther to the north in Cobb County, I-75 connects with the southern terminus of I-575, which serves Cherokee County. The I-575 corridor traverses northeasterly through a more rural area. This highway has four general-purpose lanes, two in each direction.

1.2 Project Background

The following sections describe the recent project background leading to the preparation of this Final Environmental Impact Statement (FEIS).

1.2.1 Early Project Studies, Concepts, and Alternatives

In May 2007, FHWA and GDOT published the AA/DEIS. This document was the culmination of several years of study of two separate projects that were combined for the Northwest Corridor Project.


LEGEND
Study Area
Project Location
Activity Centers
BARTOW
CHEROKEE
FORSYTH
FULTON
COBB
PAULDING
GWINNETT
DEKALB
DOUGLAS
FULTON
CLAYTON
HENRY
Town Center
Marietta
Cumberland/Galleria
Perimeter Center
Buckhead
Midtown
Downtown
Atlanta
Chattahoochee River
Chattahoochee River
75
575
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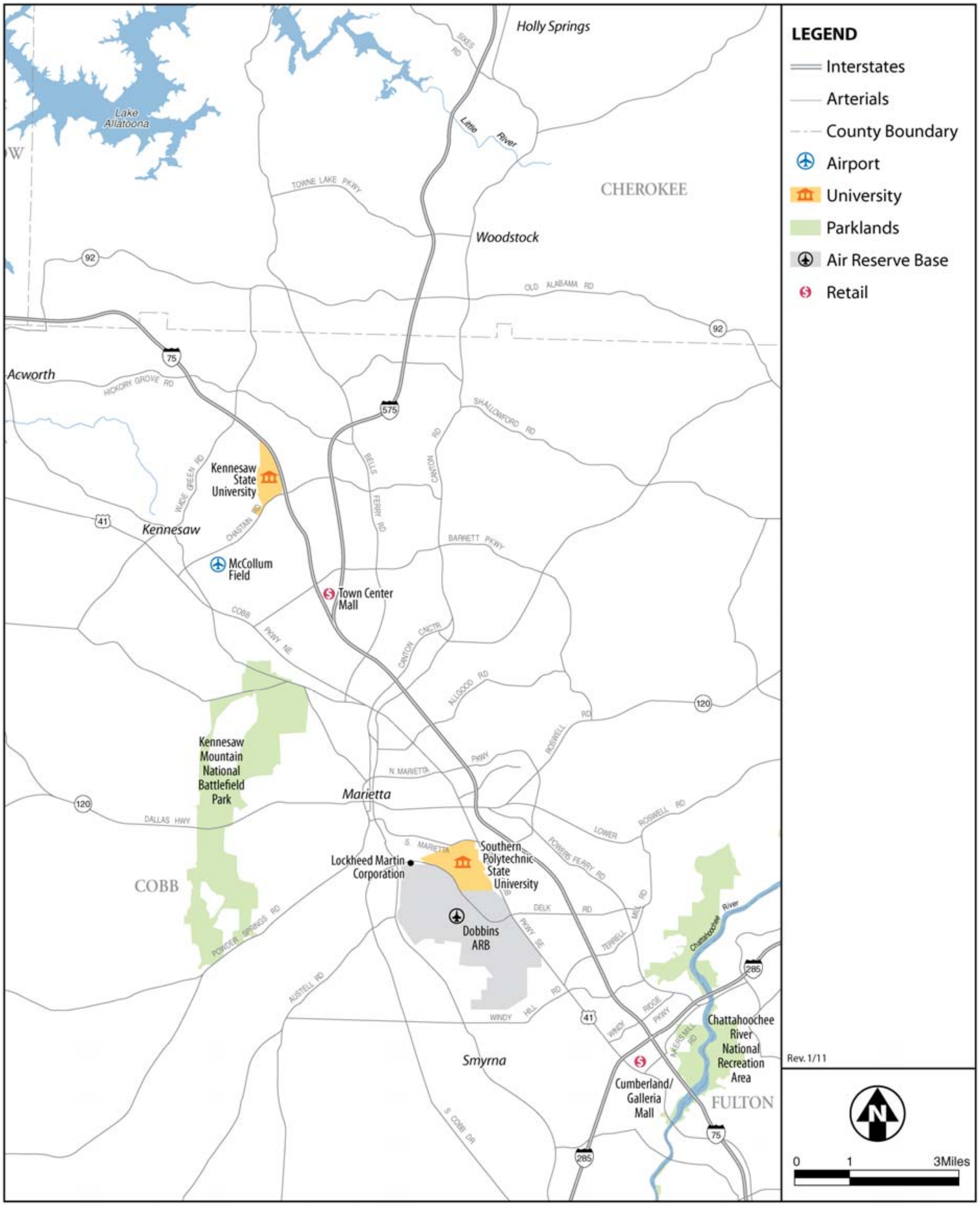


LEGEND
Interstates
Arterials
County Boundary
Airport
University
Parklands
Air Reserve Base
Retail
Holly Springs
Lake Allatoona
Little River
CHEROKEE
Woodstock
TOWNE LAKE PKWY
OLD ALABAMA RD
Acworth
HICKORY GROVE RD
SHALLOWFORD RD
Kennesaw State University
Kennesaw
McCollum Field
Town Center Mall
BARRETT PKWY
COBB PKWY NE
Kennesaw Mountain National Battlefield Park
Marietta
DALLAS HWY
COBB
Lockheed Martin Corporation
Southern Polytechnic State University
Dobbins ARB
POWDER SPRINGS RD
AUSTELL RD
Smyrna
S COBB DR
Chattahoochee River National Recreation Area
Cumberland/ Galleria Mall
FULTON
Rev. 1/11
0 1 3Miles

The initial development of alternatives for the Northwest Corridor Project began during the GDOT Design Concept Study and the Georgia Regional Transportation Authority (GRTA) *Northwest Corridor Connectivity Study: Conceptual Alternatives Memorandum* (GRTA, 2003b). The first investigation resulted in the preparation of several studies that examined alternatives for the extension of HOV lanes on both I-75 and I-575. The second evaluated transit alternatives in conjunction with the extension of the high-occupancy vehicle (HOV) system. Various horizontal and vertical configurations of HOV lanes were studied. The concept proposed adding two HOV lanes in each direction on I-75 between I-285 and the I-75/I-575 interchange and a single HOV lane in each direction north to Wade Green Road (south of Hickory Grove Road) on I-75, and an additional HOV lane in each direction on I-575 north to Sixes Road. Additional concepts were identified during project scoping. These included high-occupancy-toll (HOT) lanes, elevated HOV lanes in the median of I-75, reversible lanes, conversion of existing general-purpose lanes, and transportation system management strategies. Of these concepts, the only ones considered for detailed environmental analysis were the HOT lanes and the transportation systems management (TSM) concept, which is required for all transportation projects based on US Department of Transportation (USDOT) guidance.

Refinements to the concepts occurred following the scoping period for the combined project. In August 2005 truck-only lanes were added to the project proposal largely in response to a public-private initiative received by GDOT. Additional study examined various concepts related to the number, location, and configuration of the HOV and truck-only-toll (TOT) lanes. The locations of the bus rapid transit (BRT) stations and designs of the station interchanges were considered with substantial public input. These concepts were again vetted with agency and public stakeholders in November 2005.

At the end of this extensive study, four build alternatives plus design and operational options were identified for detailed evaluation in the AA/DEIS. The build alternatives included the following: HOV/Truck-Only Lane (TOL) Alternative, HOV/TOL/TSM Alternative, HOV/TOL/BRT Alternative, and HOV/TOL/Reduced-BRT Alternative. Design options considered included placement of the TOL to the inside of the roadway, the Allgood-Flyover Option, and the Roswell Road Interchange Alignment Option. The two operational options included HOT Lane Option and the TOT Lane Option.

1.2.2 Reconsideration of the Proposed Project Alternatives

After publication of the AA/DEIS in May 2007, a number of events transpired that affected the completion of the environmental impact assessment process and the feasibility of the original build alternatives. Review of comments on the AA/DEIS by GDOT identified substantial opposition to elements of the four build alternatives. The national economic recession led GDOT to reevaluate funding opportunities and the financial feasibility of the proposed project. Also, GDOT had adopted and approved new transportation plans and policies that no longer support elements of the build alternatives evaluated in the AA/DEIS. Moreover, the Atlanta Regional Commission (ARC) had updated its Travel Demand Forecasting Model in 2008 and initial studies indicated travel behaviors forecast for 2035 would be somewhat different from travel behaviors reflected in the data produced by the ARC 2004 model upon which the AA/DEIS analysis was based. These events are described in the paragraphs below.

1.2.2.1 Comments on the AA/DEIS

Agency, stakeholder, and public comments on the AA/DEIS fell into three primary groups – comments on the alternatives, the impacts of the alternatives, and the financial feasibility of the alternatives. Copies of these comments are reproduced in Appendix K of this FEIS, which can be found at regional libraries, is posted on the project website, and may be obtained by contacting GDOT. (See the listing of additional technical information in the table of contents of this document and for the GDOT contact information.)

Regarding the comments on the alternatives, the Georgia Motor Trucking Association as well as numerous individual regional trucking firms submitted comments in opposition to separate TOL facilities. These stakeholders alleged that the proposed facilities provided negligible benefit to both truck and general-purpose traffic using I-75. The TOL and TOT elements of the project were not part of the adopted *Mobility 2030, Volume I: Regional Transportation Plan* (*Mobility 2030* RTP) (ARC, 2004) or the *Mobility 2030, Volume II: FY 2006-2011 Transportation Improvement Program* (Fiscal Year [FY] 2006-2011 TIP) (ARC, 2006a) when the AA/DEIS was published. Comments pointed out the proposed operating plans for the bus service for both the BRT and reduced BRT element of the proposed project were unreasonable and provided exceptionally high transit ridership. Agencies, major stakeholders, and members of the public supported consideration of proposed HOV or HOT lanes, but voiced concern that the AA/DEIS did not evaluate the HOV element of the project as a stand-alone build alternative. Moreover, the proposed HOV/HOT element of the proposed project was inconsistent with the FY 2006-2011 TIP. This was because at the time the AA/DEIS was published, the adopted TIP called for an HOV system with no tolling component.

Regarding impacts of the alternatives, comments pointed out that the large footprint of the project (including two HOV and two TOL lanes in each direction on I-75) would result in substantial adverse impacts on adjacent neighborhoods and property owners. In addition, stakeholders commented that the proposed increased number of buses traveling to the Metropolitan Atlanta Rapid Transit Authority (MARTA) Arts Center Station as part of the BRT and reduced-BRT elements of the proposed project would cause substantial adverse impacts in Midtown Atlanta.

Comments on the AA/DEIS also called attention to the very high cost of constructing and operating all of the alternatives. Stakeholders questioned the potential financial infeasibility of constructing the alternatives and/or inappropriate allocation of public funds for a single transportation project. The proposed mandatory use and required tolling of the truck-only lanes was strongly opposed by major trucking industry stakeholders. Because FTA indicated they did not believe the exceptionally high level of transit ridership projected for the BRT and Reduced BRT elements of the project, the likelihood that FTA would award New Starts funding for the project was very low. The absence of FTA New Starts funding contributed to making the entire project financially infeasible long-term. As such, the comments on the AA/DEIS resulted in the elimination of the TOL, TOT, BRT, reduced-BRT elements of the proposed project, and the remaining HOV element of the project was under financial scrutiny.

1.2.2.2 Financial Feasibility Re-Evaluated

Since the publication of the AA/DEIS, financial market conditions in the U.S. have deteriorated, which has affected virtually all sources of debt and equity capital as well as the cost of capital. In light of these changes, GDOT re-evaluated funding opportunities for the proposed project with alternatives ranging in capital costs from about $3.3 billion to over $4.5 billion (GDOT, 2007). The funding opportunities identified included toll revenue bonds, general obligation bonds, general obligation bonds with refinancing using toll revenue bonds, and a concession and system-backed financing.

Passage of legislation in 1999 also requires the Georgia State Transportation Board to balance state and federal infrastructure expenditures in Georgia's thirteen congressional districts. Amendments to this legislation have reduced the balancing to only 80 percent of infrastructure expenditures over a five-year period, but this requirement continues to encumber the planning and funding of large transportation projects. For the Northwest Corridor Project, this legislation has reduced the amount of available funding and delayed when funding would be available.

In addition to the deterioration in the national economy and weakness of the debt market, GDOT's funding sources have declined. In fact, the *Feasibility Report for the Development Phase* (GDOT, 2007) indicated that all of the build alternatives evaluated in the AA/DEIS exceeded GDOT's funding capabilities. Together, these issues caused GDOT to consider lower-cost alternatives than those evaluated in the AA/DEIS.

1.2.2.3 A New Transportation Planning Framework for the Northwest Corridor

After publication of the AA/DEIS, Georgia adopted a new regional freight mobility plan and completed planning studies on the use of truck-only lanes and managed-lanes for the Atlanta metropolitan area. In late 2005, the Atlanta Regional Freight Task Force, ARC, and GDOT worked together to prepare the *Atlanta Regional Freight Mobility Plan* (ARC, 2008a). This report documented the importance of the I-75 corridor for freight traveling both north and south of the Atlanta region, the very congested traffic conditions in the corridor, and specific bottlenecks in the corridor at the I-285 and I-575 interchanges. Among a number of alternatives, the report presented analysis on the feasibility of a system of truck-only lanes for the metropolitan region to improve freight mobility. This planning effort, completed soon after the publication of the AA/DEIS, concluded that the construction of a network of truck-only lanes, including such lanes for I-75, would not be cost effective.

In 2008, GDOT also completed a comprehensive study on truck lanes called the *Statewide Truck Lanes Needs Identification Study* (GDOT, 2008). The study evaluated truck-only lanes as complementary treatments to current interstate highway facilities and key state routes. It assumed the truck-only lane use would be voluntary and tolling would not be implemented. The analysis clearly showed that truck-only lanes would provide increased mobility, reduced travel time, and improved reliability for trucks using the special lanes compared to continued use of highway general-purpose lanes. The cost-benefit analysis indicated that the benefits exceeded costs. However, the study identified that approximately 60 percent of the truck travel occurs outside of the peak travel periods, and heavy trucks comprise only 6 percent of the region's peak period traffic volumes. As such, the TOL element would not address peak period congestion issues along the Northwest Corridor. And, considering the total cost required to implement such a system, this effort concluded that "the construction of a stand-alone truck-only lane network in metropolitan Atlanta is not recommended." It also concluded that truck-only lanes are not the only strategy to improve freight movement, and Georgia's efforts to develop a managed-lane system for metropolitan Atlanta should provide substantial benefits to all traffic, including truck traffic.

Following the publication of the AA/DEIS, combined efforts of the State Transportation Board and the State Road and Tollway Authority (SRTA) were initiated to determine the operational and financial feasibility of regionally managing traffic congestion through the use of occupancy and pricing to provide viable transportation options. This combined effort was cemented with the signing of a joint resolution by the two agencies on March 26, 2008. In April 2009, the State Transportation Board adopted a resolution to guide the future development of the proposed network of congestion-price lanes. It identifies vehicle types that shall have preferential status without paying a toll to use the HOT lanes, including passenger vehicles occupied by three persons or more, all buses, registered alternative fueled vehicles, and on-call emergency vehicles. Subsequently, GDOT published the *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a). The Plan was approved by the GDOT Board by a resolution passed in December 2009. This plan provides guidance for developing a system-wide approach to the implementation of managed lanes. The managed-lane system will be consistent with the ARC *Managed Lanes Policy for the Atlanta Region* (ARC, 2007a) and will be developed in coordination with all of the transportation planning partners. The Plan, however, also provided latitude for GDOT to evaluate each corridor separately and develop cost-effective managed-lane projects by corridor. This change in the transportation planning framework encouraged analysis of the HOV element of the project to be developed as part of the regional managed-lane system.

1.2.2.4 An Updated Travel Demand Forecasting Model

Lastly, the traffic analysis in the AA/DEIS used the ARC 2004 Travel Demand Forecasting Model developed for the 13-county Atlanta region. In December 2004, however, the US Environmental Protection Agency (USEPA) designated the Atlanta metropolitan area as a non-attainment area for fine particulate matter ($PM_{2.5}$). This new non-attainment area covered a 20-county area. As a result, the ARC updated its Travel Demand Forecasting Model to include the 20 counties to meet the federal requirements for performing air quality conformity analysis. This updated model was released in 2008. Initial analysis using the new model indicated that travel behaviors forecast for 2035 would be somewhat different from travel behaviors reflected in the data produced by the ARC 2004 model used for the traffic analysis presented in the AA/DEIS.

1.2.3 Refining and Identifying the Preferred Alternative

Since the transit improvements and the truck-only lanes were removed from the build alternatives evaluated in the AA/DEIS, the managed-lane element was the only portion of the Northwest Corridor Project that remained for continued study. Additional investigations, however, indicated that an earlier managed-lane concept that had previously been eliminated could be appropriate for the corridor. Analysis using the new ARC 2008 Travel Demand Forecasting Model evaluated the HOV concept and findings indicated stronger directional traffic flows during peak periods. This change indicated that forecast traffic volumes potentially could be best accommodated by a reversible managed-lane system, not a bi-directional managed-lane system.

To assess the advantages and disadvantages of each, traffic modeling was conducted to evaluate three managed-lane concepts for the Northwest Corridor. These included: the AA/DEIS two-lane bi-directional HOV system (two lanes in each direction south of the I-75/I-575 interchange and single lanes in each direction to the project's two north termini); a managed-lane system with two reversible lanes between I-285 and I-575 and one reversible lane northwards to Hickory Grove Road and Sixes Road; and a managed-lane system with three reversible lanes between I-285 and I-575 and one reversible lane north of the I-75/I-575 interchange to Hickory Grove Road and Sixes Road. The evaluation of these three concepts indicated that the two-lane bi-directional HOV system would result in considerable unused capacity in the off-peak periods and the traffic analysis showed the three-lane reversible lane concept was not warranted considering the substantial additional cost over the two-lane reversible concept. The latter concept demonstrated the best transportation effectiveness considering anticipated financial constraints. This refined Two-Lane Reversible Alternative was evaluated against the No-Build Alternative in the SDEIS published in September 2010. With a reduction from eight new travel lanes to only two new travel lanes south of the I-75/I-575 interchange, the Two-Lane Reversible Alternative resulted in substantially reduced environmental impacts compared to the build alternatives evaluated in the AA/DEIS.

Following publication of the SDEIS and assessment of public and agency comments, GDOT fine-tuned the Two-Lane Reversible Alternative to further minimize potential environmental impacts, particularly traffic congestion. Additional changes were made to reduce costs based on the completion of the Value Engineering Study (GDOT, 2009b and 2010c). Modifications included the addition of auxiliary lanes at both the north termini north of Hickory Grove Road on I-75 and at Sixes Road on I-575, adding turning lanes at several managed-lane interchanges. Other modifications included reconfiguring local roadways adjacent to the managed-lane interchanges and incorporating minor shifts in the horizontal and vertical alignment of the managed-lane system south of the I-75/I-575 interchange.

These changes resulted in a build alternative that could accommodate forecast traffic and would have substantially lower adverse environmental impacts. Moreover, this refined build alternative would be substantially less costly to build and operate compared with previously considered build alternatives. As such, GDOT identified this modified build alternative as the project's Preferred Alternative for evaluation in this FEIS.

1.3 Purpose of the Project

Transportation improvements are proposed for the Northwest Corridor to meet long-term regional transportation needs. Urban development in Cobb and Cherokee Counties over the past decades has substantially increased traffic congestion on both I-75 and I-575. Mobility has become increasingly difficult and time-consuming for commuters and interstate travelers using I-75 and I-575. The congestion equally affects single occupancy vehicles (SOVs), HOVs, buses, and commercial vehicles. There also are segments of I-75 and interchanges with design deficiencies that contribute to congestion and safety concerns. In addition, the availability of undeveloped land in the I-575 corridor and pressures for continued urbanization in the Northwest Corridor are projected to result in substantial long-term increases in both population and employment, which would lead to even worse traffic congestion.

The purpose of the Northwest Corridor Project is to address the following:

- Need to reduce congestion
- Need to improve mobility by reducing travel time and increasing reliability
- Need to improve access by improving connectivity between regional activity centers
- Need to improve safety by reducing existing roadway design deficiencies and congestion-related crashes
- Need to reduce vehicle emissions by improving vehicular travel efficiency and increasing the proportion of high capacity vehicles.

Project goals were developed for the Northwest Corridor Project and were published in the AA/DEIS and the SDEIS. These goals were developed based on the transportation needs of the project area and were used to identify potential project alternatives (see Chapter 2, Alternatives Considered). The goals address project effectiveness, environmental impacts, equity, cost effectiveness, and financial feasibility. The project goals are:

- Improve transportation effectiveness of I-75 and I-575 that also contributes to the improved performance of the regional transportation system

- Provide additional transportation choices or options to increase the capacity of I-75 and I-575
- Improve the quality of life by improving mobility and minimizing adverse effects on both natural resources and the built environment
- Improve transportation equity by providing an equitable distribution of benefits and impacts to all populations
- Provide cost-effective and affordable transportation improvements.

Measures of effectiveness were used to evaluate how well the alternatives considered meet these project goals. These measures of effectiveness are discussed in Chapter 4, Transportation Impacts and Chapter 5, Environmental Consequences. Specific measures of effectiveness also are used to compare and contrast the No-Build and Preferred Alternatives in Chapter 7, Evaluation of Alternatives.

1.4 Land Use and Growth Trends

The capacity of the transportation system in the Northwest Corridor is determined by roadway and interchange design, modes of travel, and vehicle occupancy. The demand for a transportation system and its ability to accommodate existing and future travel is greatly determined by land use patterns. This section briefly describes the land use, activity centers, population, employment, and travel demand characteristics of the Northwest Corridor that determine the need for transportation improvements.

1.4.1 Land Use

The Northwest Corridor is diverse in land use and ranges from dense urban land uses to new low-density development and undeveloped areas. It also is home to several major regional activity centers and business districts, including Cumberland-Galleria, downtown Marietta, and Town Center, each representing a major travel destination within the transportation study area. Downtown Atlanta, Midtown, Buckhead and Perimeter Center are major destinations for those traveling through the study area. These activity centers are the focal points for the regional highway and transit systems.

Suburban single family residential development characterizes Cobb and Cherokee Counties. High rise office complexes, commercial strip centers, and multi-family housing dominate the immediate area around Cumberland-Galleria and the I-75/I-285 interchange in the southern portion of the project area. To the north of I-285, the corridor contains a mix of old and new industrial uses centered around two industrial parks. Town Center north of the I-75/I-575 interchange is surrounded by commercial shopping strips. Newer commercial strip development is progressing along Barrett Parkway west of I-75. The area north of Town Center and to the northeast along I-575 is predominantly low- and medium-density suburban residential development (lots generally less than 1 acre), some agriculture, with areas of open space/undeveloped property.

1.4.2 Population

The 20-county Atlanta metropolitan area, particularly the Northwest Corridor, has experienced tremendous growth in population since 1990 (see Table 1-1) despite the recession over the past several years. Between 1990 and 2010, the study area population increased by 59 percent, or an average of about 3 percent per year. This increase in study area population allowed it to continue to comprise more than 14 percent of the region's total population.

Table 1-1. Population and Employment Trends for the Study Area and Region

	Population					Percent Change	
	1990	2000	2010	2015	2035	1990-2010	2010-2035
Study Area Total	468,422	652,292	746,788	796,494	1,026,162	59%	37%
Remaining Region	2,572,524	3,576,200	4,252,603	4,597,180	6,217,468	65%	46%
Total Region*	3,040,946	4,228,492	4,999,391	5,393,674	7,243,630	64%	45%
	Employment					Percent Change	
	1990	2000	2010	2015	2035	1990-2010	2010-2035
Study Area Total	194,000	310,933	342,204	374,908	534,227	76%	56%
Remaining Region	1,411,588	1,837,373	2,222,770	2,472,390	3,623,388	57%	63%
Total Region*	1,605,588	2,148,306	2,564,974	2,847,298	4,157,615	60%	62%

* The total region includes the 10 counties that are covered by the Atlanta Regional Commission (Cherokee, Clayton, Cobb, DeKalb, Douglas, Fayette, Fulton, Gwinnett, Henry and Rockdale Counties) plus 10 surrounding counties that are part of the broader air quality region (Barrow, Bartow, Carroll, Coweta, Forsyth, Hall, Newton, Paulding, Spalding and Walton Counties).

Sources: US Census Bureau, 1990 and 2000; ARC, 2008b.

In the future, the study area population is projected to conservatively increase from about 746,800 to approximately 1,026,000 between 2010 and 2035. This is an average annual increase of about 1.5 percent, which is about half of the average annual rate of change between 1990 and 2010. This rate of growth for the study area is only slightly less than the projected 1.8 percent annual average rate of change for the region. The region is projected to grow somewhat more rapidly than the Northwest Corridor because the project corridor includes large areas that are already urbanized, particularly in Cobb County.

1.4.3 Employment

Though population increases have been substantial for more than 20 years, employment growth has been even greater in the study area. Between 1990 and 2010, employment in the study area increased from 194,000 to more than 342,000. This was an increase of about 76 percent, or an average annual rate of about 3.8 percent (see Table 1-1). By comparison, this average annual rate of increase in employment overshadowed the 3.0 percent average annual increase experienced in the 20-county region as a whole. Employment growth in the study area accounted for more than 15 percent of the regional employment increase during this period.

Despite the current economic recession, the long-term forecast employment for the study area is projected to increase from about 342,000 to 534,000 over the next 25 years. This is an increase of 56 percent, or an average annual increase of about 2.2 percent. This rate substantially exceeds the forecast 1.5 percent average annual increase in population. The regional total growth in employment is forecast to be somewhat greater at an average annual increase of about 2.5 percent per year. This pattern reflects a shift in employment growth to suburban areas, particularly in northern Cobb County.

1.4.4 Travel Demand

Increased travel demand is expected to accompany the projected growth in population and employment through 2035 in the study area. A scatter analysis of existing and projected trip-making patterns, or travel demand, was conducted to determine the major travel patterns and markets for trips with origins/destinations in the study area. The major destinations within the study area are Town Center, the central I-75 corridor, and Cumberland-Galleria. Major destinations for travel outside the study area are Midtown, downtown Atlanta, Buckhead, and Perimeter Center. No activity centers located north of the study area are major destinations for trips originating within the study area.

Table 1-2 presents the 2005, 2015, and 2035 estimated total daily person trips for both the study area and the region. These are one-way trips for all modes of travel. A total of 17.3 million total daily person trips are estimated for the region in 2005, of which 2.5 million or 15 percent are produced in the study area. By 2035 total regional trips are forecast to increase to 27.5 million, a 59 percent increase. In 2035, the total trips produced in the study area increase by 52 percent to 3.8 million. Overall, the total proportion of trips produced by the study area in comparison to the region is forecast to decline slightly over 30 years, from 15 percent to 14 percent. This is indicative of a maturing area. Available land for new development is reduced and other areas in the region with developable land will grow more quickly, thus increasing their share of regional traffic.

Table 1-2. Total Daily Person Trips, 2005, 2015 and 2035

	2005		2015		2035	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Regional Trips						
Total	17,274,000	100%	20,155,353	100%	27,521,000	100%
Trips Produced in Study Area	2,520,000	15%	2,868,019	14%	3,836,000	14%
Trips Produced Outside Study Area	14,754,000	85%	17,287,334	86%	23,684,000	86%
Trips Produced in Study Area						
Destination within Study Area	1,833,000	73%	2,082,046	73%	2,853,000	74%
Cumberland-Galleria	*174,000*	*9%*	*189,070*	*9%*	*219,000*	*8%*
Central I-75 Corridor	*249,000*	*14%*	*255,181*	*12%*	*292,000*	*10%*
Town Center	*221,000*	*12%*	*228,324*	*11%*	*240,000*	*8%*
Remainder of Study Area	*1,189,000*	*65%*	*1,409,471*	*68%*	*2,102,000*	*74%*
Destination Outside Study Area	687,000	27%	785,973	27%	983,000	26%
Midtown/Downtown	*45,000*	*7%*	*47,724*	*6%*	*56,000*	*6%*
Perimeter/Buckhead	*64,000*	*9%*	*68,894*	*9%*	*77,000*	*8%*
Atlanta	*56,000*	*8%*	*59,591*	*8%*	*70,000*	*7%*
Remainder of Region	*521,000*	*76%*	*609,764*	*78%*	*780,000*	*79%*
Trips Produced Outside Study Area						
Destination within Study Area	667,000	5%	755,821	4%	991,000	4%
Cumberland-Galleria	*119,000*	*18%*	*134,294*	*18%*	*162,000*	*16%*
Central I-75 Corridor	*101,000*	*15%*	*106,842*	*14%*	*121,000*	*12%*
Town Center	*56,000*	*8%*	*56,379*	*7%*	*59,000*	*6%*
Remainder of Study Area	*392,000*	*59%*	*458,306*	*61%*	*649,000*	*65%*
Destination Outside Study Area	14,087,000	95%	16,531,513	96%	22,694,000	96%
Midtown/Downtown	*597,000*	*4%*	*659,239*	*4%*	*830,000*	*4%*
Perimeter/Buckhead	*602,000*	*4%*	*641,212*	*4%*	*726,000*	*3%*
Atlanta	*549,000*	*4%*	*570,666*	*3%*	*697,000*	*3%*
Remainder of Region	*12,338,000*	*88%*	*14,660,396*	*89%*	*20,440,000*	*90%*

Notes: Totals may differ due to rounding. Percentages calculated before rounding.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

As noted in Table 1-2 a substantial increase in trips produced by the study area is forecast for 2035, but the proportion of trips generated by the study area in relation to total regional trips decreases by 1 percent between 2005 and 2035. The distribution of trips produced by the study area is also forecast to shift significantly by 2035. Trips generated within the study area that stay within the study area increase by over a million trips between 2005 and 2035, and increase in proportion by 1 percent. The destinations of those trips changes significantly. In 2005, 35 percent of the trips generated within the study area had a destination along I-75. In comparison, only 26 percent of the trips generated within the study area in 2035 will have a destination along I-75. The proportion destined for the remainder of the study area will see a substantial increase. This is the result of new destinations being developed a greater distance from the central portion of the study area along the I-75 corridor.

Examination of trips produced outside the study area with a destination inside the study area show a substantial increase in total numbers. However, the proportion of trips coming in from outside the study area is forecast to decline by 1 percent, from 5 percent in 2005 to 4 percent in 2035. The destinations of the trips from outside the study area become more geographically diverse – less focused on the Northwest Corridor.

Overall the data in Table 1-2 reflect a maturation of the travel patterns in the study area and a slowing of the increases in travel trips. There are still substantial increases forecast, but the balance of the region increases its overall share of trips. Within the Northwest Corridor, trip destinations are expected to shift from the central part of the corridor.

1.5 Transportation System Performance

An analysis of the performance of the transportation system (highway and transit) was conducted to evaluate the existing and planning horizon year effectiveness of the transportation system in the Northwest Corridor. The analysis for 2035 was conducted based upon *Envision6, Volume I: 2030 Regional Transportation Plan* (*Envision6* RTP) (ARC, 2007b) and the accompanying *FY 2008-2013 Transportation Improvement Program* (FY 2008-2013 TIP) (ARC, 2009d). All projects and services included in that plan and programmed in the FY 2008-2013 TIP were included in this analysis with the exception of the proposed managed lanes on I-285 between I-75 north and I-85 north, the proposed managed lanes on I-285 between I-75 north and I-20 West, and the proposed managed lanes on I-20 West to the west of I-285. These projects were excluded to make the volume forecasts for the managed lanes on I-75 and I-575 as conservative as possible. The results of this analysis are presented below. Detailed information is available in the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i).

1.5.1 Highway System Performance

The performance of I-75 and I-575 was analyzed based on traffic volumes, level of service, and travel time. The analysis focused on the inbound direction during the morning peak period (i.e., 6:00 a.m. to 10:00 a.m.) and the outbound direction during the evening peak period (i.e., 3:00 p.m. to 7:00 p.m.). These directions are considered to represent the peak direction during each peak period.

1.5.1.1 Traffic Volumes

An analysis of traffic volumes indicates how much traffic a highway can accommodate. The traffic volumes were broken down by number of vehicles by type. The types of vehicles analyzed included SOVs, HOVs, and commercial vehicles such as medium-duty and heavy-duty trucks. This analysis provides valuable information on the characteristics of traffic congestion issues and needed improvements. The volumes shown are peak period volumes, encompassing the four highest travel hours in both the morning and evening periods. The morning peak period is from 6 a.m. to 10 a.m. and the evening peak period is from 3 p.m. to 7 p.m. Peak hour traffic is significantly different than peak period traffic volumes. Peak hour is defined as the highest volume in the one hour period (four consecutive quarter hours) within the four hour peak period. For the Northwest Corridor Project the morning peak hour is 7:00 a.m. to 8:00 a.m. while the evening peak hour is 5:00 p.m. to 6:00 p.m. Peak hour traffic volumes are used for detailed traffic operations analysis.

Traffic Volumes on I-75

Figure 1-3 presents traffic volume information for I-75 in the morning peak period (inbound direction) in 2005 and Figure 1-4 shows evening peak period (outbound direction) traffic volumes. The analysis was conducted for I-75 from Hickory Grove Road in northern Cobb County to just south of the I-285 interchange. The figures also show the forecast total 2035 traffic volumes and the proportional breakdown for SOVs, HOVs, and trucks.

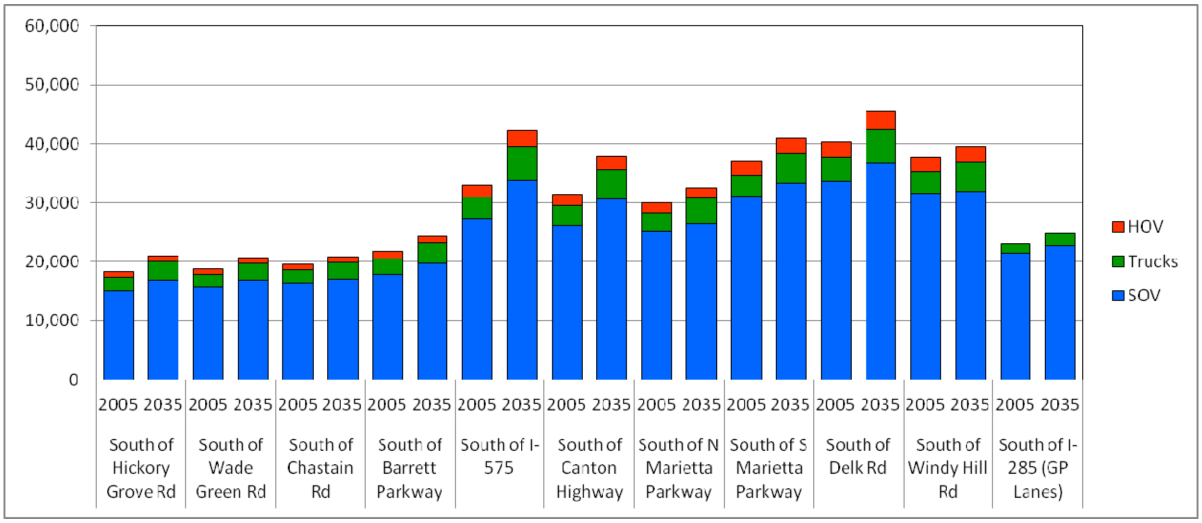
In 2005, the southbound morning peak period traffic volumes ranged from approximately 18,000 vehicles south of Hickory Grove Road to 40,000 vehicles south of Delk Road as shown on Figure 1-3. The SOVs comprise most of the vehicles during the morning peak period – approximately 82 to 94 percent. Truck traffic represents approximately 13 percent of the total volume at Hickory Grove Road, but declines to approximately 10 percent south of Delk Road; although the medium and heavy truck volume increased, the increases in automobile traffic mask that increase in volume. The HOV traffic represents an estimated 5 to 7 percent of the total traffic volume although there are no HOV facilities in the corridor. The HOV usage is likely in anticipation of the HOV lanes inside I-285.

The volume of traffic traveling inbound does not steadily increase from Hickory Grove Road south to I-285 as more and more vehicles enter the highway. Instead, the volume fluctuates because of short trips using the highway and traffic exiting the highway for employment destinations. In particular, there is a decline in traffic volume at the Canton Highway, North Marietta Parkway, Windy Hill Road, and I-285 interchanges. This is primarily because substantial traffic exits the highway at these interchanges to access employment centers at Town Center, Marietta, and the Cobb Parkway area (including Southern Polytechnic State University, Lockheed Martin Corporation, and Dobbins Air Reserve Base), respectively.

The morning peak period traffic volume patterns projected for 2035 are similar to conditions in 2005. This is because the highway is operating near capacity and little additional traffic can be accommodated on the existing highway. For example, south of Hickory Grove Road, the morning peak period traffic volume in the peak southbound direction was 18,300 in 2005 and is projected to be 21,000 in 2035, an average increase of approximately 0.5 percent per year. Significant increases in volumes between 2005 and 2035 occur for the I-75 segment south of the I-575 interchange to south of the Canton Highway and around Delk Road. This is attributable to the significant traffic growth forecast on I-575 and shorter trips using I-75 in the southern part of the corridor.

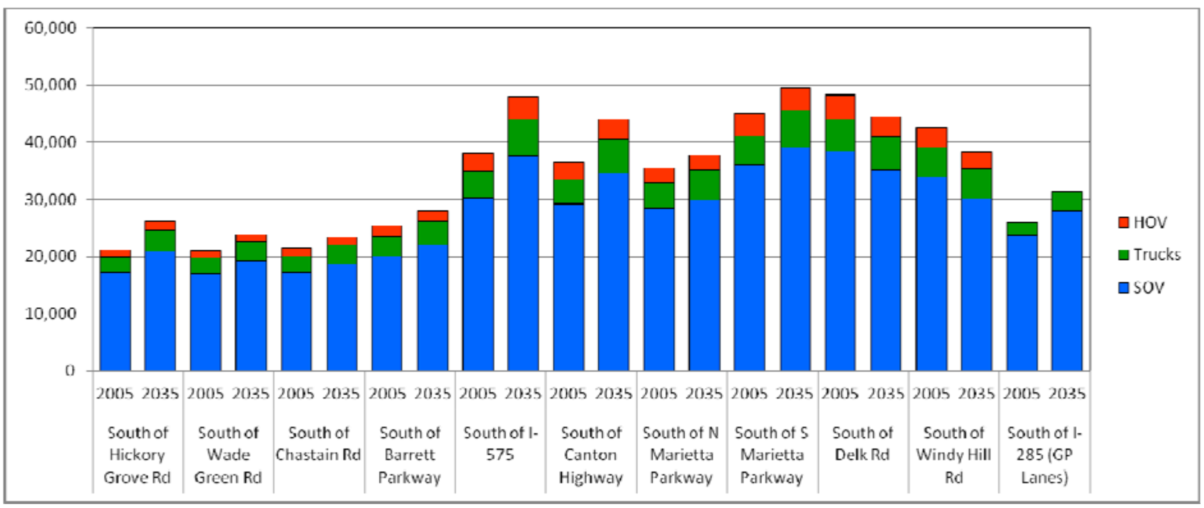
In 2005, the northbound evening peak period traffic volumes range from approximately 21,000 vehicles south of Hickory Grove Road to a corridor high of 48,000 vehicles south of Delk Road as shown on Figure 1-4. There are only slight differences in the distribution of types of vehicles during the evening peak period compared to the morning peak period.

Figure 1-3. A.M. Peak Period/Inbound Direction Traffic Volumes on I-75, 2005 and 2035



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Figure 1-4. P.M. Peak Period/Outbound Direction Traffic Volumes on I-75, 2005 and 2035



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

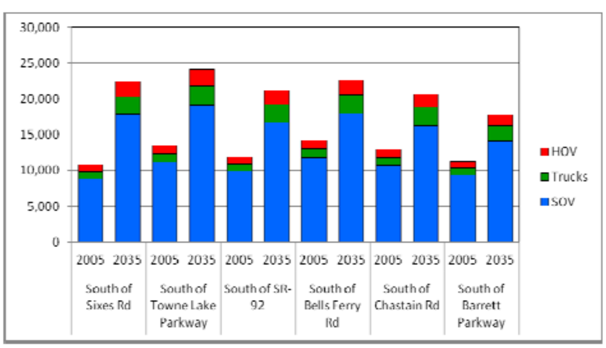
As in the morning peak period, the volume of traffic traveling outbound does not steadily decrease from I-285 north to Hickory Grove Road as more and more vehicles exit the highway. Instead, the volume fluctuates because of short trips using the highway and traffic exiting the highway for employment destinations. In particular, 2005 volumes begin to decline at Delk Road and then decline significantly at I-575. This pattern is significantly different in 2035 and is largely due to short trips entering the I-75 corridor and then leaving at the I-575 interchange. In 2035, volumes increase steadily until South Marietta Parkway, then fall substantially. They begin to grow again at North Marietta Parkway, reaching a peak at I-575 and then falling to a significantly lower level north of the I-575 interchange.

Some roadway segments show substantial increases in traffic volumes, particularly in the evening peak period between 2005 and 2035. It is particularly significant when these increases are evaluated in conjunction with the overall increases in daily traffic. The evening peak period traffic volume in the peak northbound direction was 21,200 in 2005 and is projected to be 26,200 in 2035 (see Figure 1-4) for the roadway segment south of Hickory Grove Road an increase of 5,000 vehicles. This is at the north end of the corridor where there should be the most latent capacity on I-75. However, the average annual daily traffic (AADT) for this same highway segment was 125,600 in 2005, and is projected to increase to 161,700 AADT in 2035. This indicates a net overall increase in traffic volume of 36,100 vehicles a day, but the vast majority of the increase (28,400) occurs during non-peak periods. Considering the substantial share of total traffic that is part of the “commute rush hour” period, the nearly 30 percent increase in total daily traffic volume would mean the “rush hour” would have to extend beyond the four-hour peak period. This would occur because commuters would try to avoid the peak commute hour, the heaviest period of commute congestion. It is during this period when there would be queues on particular highway on-ramps or at cross-street traffic signals, highway on-ramps metering (traffic signals controlling vehicles merging into highway traffic lanes), or other factors that could lengthen travel duration.

I-575 Traffic Volumes

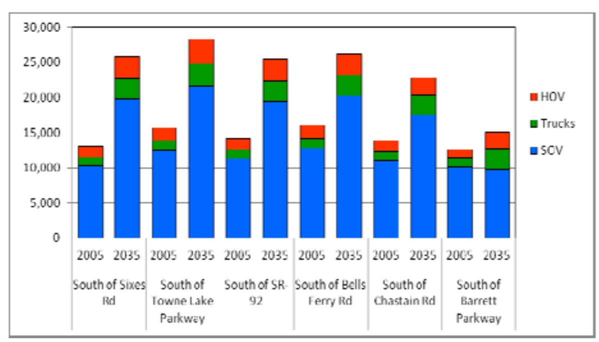
Figure 1-5 and Figure 1-6 present similar information about 2005 and 2035 traffic volumes by type for the morning and evening peak periods for I-575. In 2005, the morning inbound peak period traffic volumes ranged from approximately 11,000 to over 14,000 vehicles, which is about two-thirds of traffic volume on I-75 in northern Cobb County. The SOV, HOV, and truck traffic distribution is somewhat different than I-75 with approximately 83 percent, 9 percent, and 9 percent, respectively. In contrast to I-75, however, the projected 2035 morning total peak period traffic volumes on I-575 are forecast to increase substantially with construction of the planned third general-purpose lane project, an estimated 58 to over 100 percent increase. These increases are highest near the Sixes Road interchange and lowest near I-75 due to urbanization expanding northwards along I-575 and increasing employment in the Town Center area. The mix of traffic by type is expected to change only slightly through 2035.

Figure 1-5. A.M. Peak Period/ Inbound Direction Traffic Volumes on I-575, 2005 and 2035



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Figure 1-6. P.M. Peak Period/ Outbound Direction Traffic Volumes on I-575, 2005 and 2035



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

In 2005, the evening peak period traffic volumes on I-575 ranged from approximately 13,000 to 16,000 vehicles, which are somewhat higher than the traffic volumes in the morning peak period. Like the morning peak period, SOVs comprise most of the traffic on I-575. The projected 2035 outbound evening traffic volumes show substantial growth with volume growth rates ranging from 20 to 98 percent. Again, the greatest changes are expected near Town Lake Parkway and Sixes Road at the northern end of the Northwest Corridor in Cherokee County.

1.5.1.2 Roadway Levels of Service

The severity of roadway congestion is measured by a rating system referred to as level of service (LOS). Level of service describes the quality of traffic flow using national standards published in the *Highway Capacity Manual* (TRB, 2000). The level of service is reported using letter designations from A to F. The designation LOS A represents the best operating conditions (free traffic flow) and LOS F designates the worst operating conditions (stop and go conditions, substantially reduced speeds, and difficulty maneuvering). The *Envision6* RTP (ARC, 2007b) identifies LOS D or better as desirable in the Atlanta metropolitan area, which is consistent with the minimum desirable level of service for urban areas recommended by the American Association of State Highway and Transportation Officials (AASHTO). The designation "LOS D" is the level in which speeds begin to decline and congestion affects the freedom to maneuver within the traffic stream. As the congestion worsens, LOS E indicates operations are at capacity, and vehicles are closely spaced with little room to maneuver within the traffic stream.

Both I-75 and I-575 in the Northwest Corridor experience substantial congestion as a result of insufficient capacity to accommodate peak period traffic demand. Some of the factors that are constraining capacity include inadequate number of travel lanes and critical bottlenecks caused by lane drops, merges, diverges, and weaving areas. Under such conditions, LOS for individual locations along the highways may not reflect actual operating conditions. This is because some segments along the highway corridor may operate at an improved LOS due to upstream bottlenecks affecting the speeds and queues downstream from the point of heavy congestion. Therefore, the LOS rating for operating conditions along a highway should be measured based on density rather than traffic volume at a particular point. Traffic density measures effectiveness and is expressed as the average number of vehicles per 1-mile segment of traffic lane, or the percentage of available roadway space occupied by vehicles.

Another measure of highway adequacy to meet travel demand is provided by calculating the ratio of traffic volume to highway capacity (i.e., V/C ratios). Ratios above 1.0 indicate the highway is operating above its design capacity. Based on the V/C ratios, LOS ratings can be used to identify capacity constrained segments. This method is referred to as a planning level analysis. Planning level analysis measures the adequacy of the number of lanes based on travel demand, not operating conditions based on density of traffic volumes. A planning level analysis was conducted for I-75 and I-575 in the Northwest Corridor. This planning level analysis does not incorporate the effects of weaving and merging of ramps at interchanges.

The calculations of LOS and V/C ratios for the planning level analysis are directly based on output generated by the ARC regional travel forecasting model. The model was developed and validated based on a set of assumptions, such as per lane per hour capacity and proportion of trip making by time period. It is also based on specified parameters, such as trip generation rates. The trip assignment module assumes the capacity of a highway lane would be between 1,650 vehicles to 1,750 vehicles per hour. This unit of capacity is vehicles (including trucks) and therefore is lower than a traditional capacity figure, which would be in passenger car equivalents as recommended in the *Highway Capacity Manual* (TRB, 2000). The existing and projected LOS and V/C analyses based on model outputs are discussed below for I-75 and I-575.

Levels of Service on I-75

Table 1-3 presents 2005 and 2035 V/C ratios and LOS data for I-75 highway segments for both the morning and evening peak periods. As noted in Section 1.5.1.1 the traffic volumes rise and fall within the corridor, correspondingly the number of lanes available to accommodate the traffic also changes in response to the volume shifts. The analysis for 2005 indicates that traffic demand for all highway segments during the morning peak period was generally at LOS E or LOS F, which is below capacity. In 2035, traffic demand is expected to increase with all segments operating at LOS E or LOS F. This indicates that the number of lanes is inadequate in nearly all segments to accommodate the traffic demand. As traffic demand increases between now and 2035, the need for additional capacity is expected to increase as shown by increasing traffic volumes.

Table 1-3. Peak Period/Peak Direction Levels of Service on I-75, 2005 and 2035

Segment	Period	DIR	2005				2035			
			Lanes	Demand	V/C	LOS	Lanes	Demand	V/C	LOS
Southbound Peak Direction										
Hickory Grove Rd	AM	SB	3	18,000	1.00	F	3	21,000	1.18	F
South of Wade Green	AM	SB	3	19,000	0.92	E	3	21,000	1.06	F
South of Chastain Rd	AM	SB	3	20,000	1.04	F	3	21,000	1.13	F
South of Barrett Pkwy	AM	SB	4	22,000	0.87	E	4	24,000	0.99	E
South of I-575	AM	SB	6	33,000	0.82	D	6	42,000	1.04	F
South of Canton Hwy	AM	SB	5	31,000	0.93	E	5	38,000	1.14	F
South of N Marietta Pkwy	AM	SB	5	30,000	0.92	E	5	33,000	1.04	F
South of S Marietta Pkwy	AM	SB	6	37,000	0.94	E	6	41,000	1.08	F
South of Delk Rd	AM	SB	7	40,000	0.94	E	7	46,000	1.07	F
South of Windy Hill Rd	AM	SB	6	38,000	0.98	E	6	39,000	1.05	F
Northbound Peak Direction										
Hickory Grove Rd	PM	NB	3	21,000	1.04	F	3	26,000	1.29	F
South of Wade Green	PM	NB	3	21,000	1.03	F	3	24,000	1.21	F
South of Chastain Rd	PM	NB	3	21,000	1.14	F	3	23,000	1.26	F
South of Barrett Pkwy	PM	NB	4	25,000	1.01	F	4	28,000	1.12	F
South of I-575	PM	NB	6	38,000	0.94	E	6	48,000	1.20	F
South of Canton Hwy	PM	NB	5	36,000	1.08	F	5	44,000	1.32	F
South of N Marietta Pkwy	PM	NB	5	35,000	1.09	F	5	38,000	1.21	F
South of S Marietta Pkwy	PM	NB	7	45,000	1.02	F	7	50,000	1.17	F
South of Delk Rd	PM	NB	8	48,000	1.02	F	8	44,000	0.95	E
South of Windy Hill Rd	PM	NB	7	43,900	1.00	F	7	38,000	0.91	E

Notes: The demand volumes have been rounded, but calculations were performed using raw numbers.
DIR = direction; AM = morning peak period; PM = evening peak period; SB = southbound; NB = northbound; V/C = traffic volume/highway capacity; and LOS = level of service.
LOS Criteria:

V/C <0.50	0.50=<V/C<0.70	0.70=<V/C<0.84	0.84=<V/C<1.00	V/C>=1.0
LOS A/B	LOS C	LOS D	LOS E	LOS F

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

The V/C ratios are also shown in Table 1-3 and help to quantify how much roadway capacity is used compared to the highway capacity. The 2005 estimated data range from 0.82 to 1.04 during the morning inbound peak period, and are forecast to increase to a range from 0.99 to 1.18 in 2035. The V/C ratios for the outbound evening peak period range from 0.94 to 1.14 in 2005, and are forecast to increase in 2035 and range from 1.12 to 1.32. The 2035 V/C ratio and LOS improve for two segments during the evening peak period at the south end of the I-75 corridor, south of Delk Road. These improvements are a result of planned modifications to I-75 northbound between I-285 north and Delk Road. Under such circumstances, the projected traffic demand would generally exceed the practical capacity of the highway. Consequently, either traffic would detour to other routes on nearby arterial roads or the peak periods would expand in duration.

Levels of Service on I-575

Table 1-4 presents the LOS and V/C data for I-575 during morning and evening peak periods in 2005 and 2035. The analysis assumes the construction of an additional northbound and southbound travel lane on I-575 before 2035 as identified in *Envision6* RTP (ARC, 2007b). The analysis indicates that during the 2005 morning peak period two segments generally would operate at LOS D, an acceptable capacity in the southbound peak direction. In 2035, traffic demand is expected to increase with all segments operating at LOS E or F. During the evening peak period, most segments of I-575 northbound were determined to operate at LOS E or LOS F in both 2005 and 2035. The exception is the segment south of Barrett Parkway in 2035. Here, due to severe LOS F and V/C greater than 1.20 conditions on I-75, all traffic bound for I-575 that could avoid the I-75/I-575 interchange would likely exit to avoid the heavily congested conditions. These conditions indicate an inadequate number of lanes in both directions of I-575 despite the planned widening from two to three travel lanes in each direction.

Table 1-4. Peak Period/Peak Direction Levels of Service on I-575, 2005 and 2035

Segment	Period	Dir	2005				2035			
			Lanes	Demand	V/C	LOS	Lanes	Demand	V/C	LOS
Southbound Peak Direction										
South of Sixes Rd	AM	SB	2	11,000	0.76	D	3	22,000	1.06	F
South of Towne Lake Pkwy	AM	SB	3	13,000	0.93	E	4	24,000	0.91	E
South of SR 92	AM	SB	2	12,000	0.89	E	3	21,000	1.09	F
South of Bells Ferry Rd	AM	SB	3	14,000	0.75	D	4	23,000	0.88	E
South of Chastain Rd	AM	SB	2	13,000	0.97	E	3	21,000	1.04	F
South of Barrett Pkwy	AM	SB	2	11,000	0.87	E	3	18,000	0.92	E
Northbound Peak Direction										
South of Sixes Rd	PM	NB	2	13,000	0.92	E	3	26,000	1.26	F
South of Towne Lake Pkwy	PM	NB	3	16,000	0.84	E	4	28,000	1.07	F
South of SR 92	PM	NB	2	14,000	1.06	F	3	25,000	1.31	F
South of Bells Ferry Rd	PM	NB	3	16,000	0.84	E	4	26,000	1.01	F
South of Chastain Rd	PM	NB	2	14,000	1.04	F	3	23,000	1.11	F
South of Barrett Pkwy	PM	NB	2	13,000	0.97	E	3	15,000	0.79	D

Notes: The demand volumes have been rounded, but calculations were performed using raw numbers.
Dir = direction; AM = morning peak period; PM = evening peak period; SB = southbound;
NB = northbound; V/C = traffic volume/highway capacity; and LOS = level of service.
LOS Criteria:

V/C <0.50	0.50=<V/C<0.70	0.70=<V/C<0.84	0.84=<V/C<1.00	V/C>=1.0
LOS A/B	LOS C	LOS D	LOS E	LOS F

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

In 2005, the V/C ratios for both peak periods were estimated to range from 0.75 to 1.06 and would be expected to increase to 0.88 to 1.31 in 2035. The ranges of both existing and forecast V/C ratios generally exceed those calculated for I-75. Two segments would see improvements in V/C in 2035 as a result of the planned widening of I-575. These highway segments are south of Town Lake Parkway in the morning peak period and south of Barrett Parkway in the evening peak period. As on I-75, the congestion would be severe and would cause traffic to divert to other routes or avoid the most congested periods.

1.5.1.3 Highway Travel Times

The congestion on I-75 and I-575 has decreased operating speeds, resulting in increased travel times. An analysis of average travel time by SOV and HOV for representative trips within the study area to the regional activity centers as well as travel to major destinations outside of the study area was conducted using the ARC 2008 Travel Demand Forecasting Model. Table 1-5 presents the results of the analysis of travel times to activity centers in 2005 and 2035 by SOV and HOV assuming no transportation improvements are made except for the planned third general-purpose lane project on I-575. A comparison of travel times for 2005 revealed that travel times to activity centers are only slightly higher for SOV than for HOV trips because of the lack of HOV lanes on I-75 north of I-285. Between 2005 and 2035, travel times by SOV are expected to increase by 31 to 71 percent. Travel times by HOV are expected to increase by similar percentages.

Table 1-5. Average Travel Times by SOV and HOV Trips to Local and Regional Activity Centers, 2005 and 2035

	2005 (minutes)		2035 (minutes)		Percent Change	
Destination	SOV	HOV	SOV	HOV	SOV	HOV
Town Center	14	14	24	24	71%	71%
Cumberland-Galleria	20	20	28	28	40%	40%
Perimeter Center	36	36	47	47	31%	31%
Buckhead	40	39	53	51	33%	31%
Midtown	33	30	44	38	33%	27%
Downtown	35	31	48	41	37%	32%

Notes: HOV = high-occupancy vehicles; SOV = single-occupancy vehicles.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

These projected increases in travel times result from congestion and would affect all vehicle types using both I-75 and I-575, including trucks, transit, and emergency response vehicles. Moreover, without dedicated managed lanes, the existing travel time benefits of HOVs would be reduced.

1.5.1.4 Trucks and Heavy-Duty Vehicles

Use of highways by trucks and heavy-duty vehicles is important when evaluating capacity and congestion because these vehicles occupy more space, take longer to speed up and slow down, and affect passenger car driver behavior. These limitations are more noticeable on the long uphill grade on I-75 from I-285 to the northern portion of the study area. Moreover, through truck traffic is prohibited on I-75 south of I-285, so all through trucks must use I-285 and circumvent Midtown and downtown Atlanta.

As described above, the percentage of trucks operating on I-75 during peak periods is generally small, 10 percent or less. A review of truck volumes throughout the day found that the highest truck volumes occur midday, not during peak periods. These findings indicate that truckers are choosing not to travel during peak periods because of the heavy congestion. This may be largely because the majority of trucks using I-75 are through-trucks servicing the needs of businesses outside of the project corridor. It is anticipated this characteristic “congestion avoidance” by through trucks will continue on I-75 in 2035 as congestion conditions are forecast to be significantly worse.

1.5.2 Transit System Performance

The performance of the transit system was analyzed based on transit services provided to major destinations, the transit level of service based on passengers’ assessment of its adequacy, and transit travel time. Transit markets in the transportation study area are the same as the general travel markets. These markets include the following:

- travel from within the study area to activity centers outside of the study area
- travel from within the study area to activity centers within the study area
- travel between activity centers within the study area
- travel from outside the study area to activity center within the study area.

The ARC 2008 Travel Demand Forecasting Model estimated that in 2005 total study area transit person trips produced were about 10,000 trips, or 1 percent of all trips. Planned increases in transit service frequency are expected to increase the mode share to about 1.2 percent in 2035.

Like highway capacity level of service, analysis can be performed to assess transit service based on transit users’ opinions. The AA/DEIS concluded that only half of six service criteria were rated acceptable for the Northwest Corridor. Transit users considered service coverage to major destinations during peak periods acceptable. Passengers could expect to find a seat on the buses, and on-time performance and reliability were considered acceptable. However, hours of service and coverage of higher density residential areas were rated very low, as were headways during non-peak periods.

A detailed study of average transit travel times for representative trips also was conducted for the AA/DEIS. Travel times for transit included the wait time, transfer time, and in-vehicle time. The 2005 data indicated that travel by transit is, in general, considerably longer than by SOV. However, projected transit travel times show proportionately less deterioration in travel times compared to SOV due to overall increased traffic congestion and planned improvements in transit service.

1.5.3 Project Logical Termini

To develop alternatives that address transportation problems and needs on I-75 and I-575 in the Northwest Corridor, an updated traffic analysis was conducted for the SDEIS to reconfirm the reasonable limits and independent utility for the proposed transportation improvements presented in the AA/DEIS. This analysis demonstrates how the project end points meet the requirements of 23 *Code of Federal Regulations* (CFR) 771.111(f). The proposed project improvements must begin and particularly end at a specific location and the proposed design must provide an acceptable level of service in the 2035 design year. This also means that in the 2035 design year, the project should not require additional transportation improvements that do not appear in financially constrained RTP and TIP. The Preferred Alternative, however, may rely on other transportation improvements contained in the RTP for acceptable operation in the 2035 design year. At the northern I-575 terminus, the merge from the managed lanes to the general-purpose lanes at an acceptable LOS requires the added capacity in the I-575 widening project in the RTP. It is important to note that the traffic in the managed lanes is traffic that would be in the I-575 corridor even if the project were not constructed.

The following sections describe the logical termini configurations at each end of the project. Detailed operational information is found in Section 2.3.1.4 of this document.

1.5.3.1 South Terminus on I-75

At the south terminus on I-75, the reversible lanes are proposed to connect with existing HOV lanes on I-75 at Akers Mill Road and the planned managed lanes on I-285. The connections would allow seamless traffic flow in all directions between the managed lanes on I-75 and I-285. The proposed reversible lanes on I-75 would connect with the I-75 HOV lanes that currently terminate south of I-285 and would extend managed lanes northwards into the Northwest Corridor. One of the two proposed reversible lanes would split and connect to both directions of the existing bi-directional HOV system on I-75 to the south and the second reversible lane would split and connect to new eastbound and westbound ramps to I-285.

Since implementation of the managed lanes on I-285 are planned following the start of construction of the managed lanes on I-75, the proposed reversible lanes would initially connect to the eastbound and westbound general-purpose lanes on I-285. To demonstrate a worst-case scenario, the modeling analysis did not assume the planned managed lanes would be constructed on I-285 or I-20 West. Instead, the I-75 reversible lanes would connect to the general-purpose lanes. This ensures the analysis demonstrates the independent utility of the proposed Northwest Corridor Project.

1.5.3.2 North Terminus on I-75

At the north terminus on I-75, the proposed reversible lanes would end just north of Hickory Grove Road. The single reversible lane located in the highway median would merge with the inside general-purpose lane. This terminus is between the existing Wade Green Road interchange and the SR 92 interchange. The proposed project also includes a new managed-lane interchange at Hickory Grove Road.

To meet the requirements of 23 CFR 771.111(f), traffic modeling was conducted to determine the level of service under the No-Build Alternative. As congestion at the north end of the project is expected to occur for northbound traffic during the evening commute period, modeling was only performed for the evening peak period.

Initial analysis of the general-purpose lanes assuming the managed lanes terminate south of Hickory Grove Road and merge into the general-purpose lanes north of Hickory Grove Road indicated unacceptable operating conditions. To minimize this impact, the proposed design includes a 2,000-foot auxiliary lane, plus a long taper to improve the merging opportunities for the traffic in the managed lanes along this segment and minimize disruption of the general-purpose lanes. Traffic operation modeling indicates that this solution operates at an acceptable LOS given the design conditions. Any queuing conditions would occur in the managed lanes.

1.5.3.3 North Terminus on I-575

Consistent with the RTP, this analysis assumes the planned third lane in each direction on I-575 would be constructed prior to 2035. The northern terminus on I-575 is at Sixes Road. The Preferred Alternative extends a fourth general-purpose lane northbound to Sixes Road to achieve an acceptable level of service for merging traffic. At Sixes Road, the rightmost (outside) general-purpose lane becomes an exit-only lane. The second lane is an option lane, allowing drivers to either exit to Sixes Road or remain traveling northbound on I-575. Three general-purpose lanes would continue north. For this short distance, the highway capacity would be increased by an auxiliary lane for I-575 to facilitate merging and additional capacity would be added at the Sixes Road exit ramp. Under this roadway configuration, all LOS measures would provide acceptable level of service through the 2035 design year.

1.6 Highway Safety Concerns

An analysis of crashes and existing highway design deficiencies for both I-75 and I-575 was conducted. The analysis identified a number of safety concerns, which could contribute to reduced capacity and/or additional congestion. These issues are summarized below.

1.6.1 Design Deficiencies

Design deficiencies mean a highway does not meet current AASHTO standards. The most recent standards are those presented in *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2004). Design deficiencies contribute to congestion and safety concerns that affect highway use. Based on these standards, the deficiencies in I-75 and I-575 are summarized below:

- Vertical clearances are less than the standard 16 feet 6 inches at the Delk Road, South Marietta Parkway, and Dickson Road bridge crossings on I-75.
- Horizontal clearances are less than the standard 14 feet in several segments of I-75 and total approximately 14.4 miles.
- Shoulder widths are less than the standard 12 feet at several locations on I-75 and total approximately 12.9 miles.
- Mainline lanes are less than the standard 12-foot width at Windy Hill Road, Delk Road and South Marietta Parkway interchanges.
- Loop ramp radii are less than the standard 150 feet at the South Marietta Parkway interchange on I-75.
- Interchange spacing is less than the standard 1-mile spacing between the I-75/I-575 split and the Barrett Parkway Interchange on I-75.
- Lane imbalances exist at six locations on northbound I-75 and one location on southbound I-75. Lane imbalances can occur at interchanges where the number of ramp lanes and number of mainline lanes are not coordinated. One example is an outside mainline lane that becomes a single exit-only ramp lane. Lane imbalance can result in additional weaving in the area of interchanges that can have negative operational impacts on traffic flow.
- On-ramp taper distance is shorter than prescribed design standards on the northbound I-75 ramp from South Marietta Parkway.

1.6.2 Safety Analysis

The crash history for the project corridor was investigated to identify safety concerns for I-75 and I-575. Crashes specifically involving trucks were also examined. The analysis reviewed crash records from January 2006 to December 2008, and focused on crashes located on the highway and at locations at or near highway ramps.

1.6.2.1 Crash Rates

Crash rates estimate the number of crashes that have occurred for every 100 million vehicle miles of travel (VMT). The analysis examined highway segments along both I-75 and I-575 as defined by major interchanges. Total crash, injury crash, and fatal crash rates for both I-75 and I-575 are summarized in Table 1-6 and detailed by roadway segment in Appendix F of the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i).

Table 1-6. Average Crash Rates for I-75 and I-575, January 2006 – December 2008

Segment Data		Crash Rates (crashes per 100 mvm)				
I-75 Segment	**Segment Length (miles)**	**Total Crashes**	**Injuries**	**Injury Crashes**	**Fatalities**	**Fatal Crashes**
Study Corridor (January 2006-2008)						
I-75 Corridor Total	16.32	141.4	38.0	26.0	0.34	0.29
I-575 Corridor Total	11.43	123.3	34.9	24.9	**1.40**	**1.00**
Georgia Statewide Averages (for comparison)						
2006 Urban Interstates		200	69	46	0.73	0.66
2007 Urban Interstates		186	63	43	0.58	0.52
2008 Urban Interstates		187	63	43	0.62	0.56

Notes: Corridor totals were summarized for a three-year period for statistical reasons. The Georgia statewide average for each three-year period is provided as a reference. Crash data and traffic volumes are collected based on pre-defined segmentation. This causes a slight variance in total corridor length for this analysis from the exact published project length of 29.7 miles (16.8 miles on I-75, 11.3 miles on I-575 and 1.6 miles on I-285).
mvm = million vehicle mile of travel
Sources: GDOT, 2010e; Parsons Brinckerhoff, 2011i.

The major conclusions of the analysis are:

- The I-75 average crash rates for total crashes, injuries/ injury crashes, and fatalities/ fatal crashes are all under statewide averages for both the overall corridor and most highway segments.
- The I-575 average crash rates for total crashes and injuries/ injury crashes rates are under statewide averages for the corridor. Fatality rates, however, are higher than the statewide average for the overall corridor.
- On the I-75 segment from Wade Green Road to Hickory Grove Road, the total crash rate and injury crash rates exceed state averages. Similarly, on the I-75 segment from Chastain Road to Hickory Grove Road, the total crash rate exceeds the state average.
- On the I-75 segments from I-575 to Barrett Parkway and Barrett Parkway to Chastain Road, the fatal crash rates exceed state averages.

1.6.2.2 Truck Crashes

Truck crashes along I-75 and I-575 also were investigated. The frequency and severity of truck crashes were compared to truck volume percentages to determine if truck crashes were occurring disproportionately as shown in Table 1-7. In general, truck crash rates are near or slightly lower than the percentage of trucks on both I-75 and I-575. The primary exception is that trucks were involved in over 50 percent of fatal crashes on the I-75 corridor (compared with 9 to 12 percent trucks by volume).

Table 1-7. Percent of Crashes Involving Trucks on I-75 and I-575 Corridors, January 2006 – December 2008

	All Crashes	Involving Trucks & Heavy Vehicles	Percent of Crashes Involving Trucks
I-75 Corridor	Approx. 9% - 12% trucks based on 24-hour volumes		
All Crashes	5,343	591	11.1%
Injury Crash	981	106	10.8%
Fatal Crash	11	6	54.5%
I-575 Corridor	Approx. 5% trucks based on GDOT 24-hour volumes		
All Crashes	1,232	51	4.1%
Injury Crash	249	12	4.8%
Fatal Crash	10	0	0.0%

Sources: GDOT, 2010e; Parsons Brinckerhoff, 2011i.

1.7 Roadway Emissions and Air Quality

The Atlanta metropolitan area currently does not meet all of the National Ambient Air Quality Standards (NAAQS) for criteria pollutants (carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone (O_3) and sulfur dioxide). The metropolitan area is classified as a moderate non-attainment area for O_3 (eight-hour standard) and a non-attainment area for $PM_{2.5}$ (ARC, 2011d). For all other pollutants, the Atlanta metropolitan area is classified as an attainment area.

The non-attainment of O_3 (eight-hour standard) is largely caused by volatile organic compounds (VOC) and nitrous oxides (NO_x) from vehicle emissions reacting under sunlight and resulting in ground level ozone (smog). The combustion of fossil fuels by cars and trucks also accounts for a substantial portion of high levels of particulate matter, especially $PM_{2.5}$.

These air quality concerns correlate to the substantial traffic congestion and regional patterns of land development. Though LOS F congestion conditions occur during existing evening peak periods (the worst conditions) on more than half of the segments of I-75 and I-575, the 2035 forecast traffic conditions without any highway improvements indicate that most of I-75 and I-575 would operate at LOS F. The effects of worsened traffic congestion would be expected to adversely affect air quality in the Atlanta metropolitan area in the coming years.

Improvements to the highway system can help to prevent further degradation in air quality. The addition of general-purpose lanes would tend to support continued use of SOVs – a generally less efficient and relatively more polluting mode of travel. In contrast, improvements to the highway system that would encourage more efficient transportation modes such as managed lanes (e.g., HOVs and reversible lanes) and transit would more efficiently accommodate projected traffic demand and result in comparatively less air pollution.

CHAPTER 2
ALTERNATIVES CONSIDERED

2. ALTERNATIVES CONSIDERED

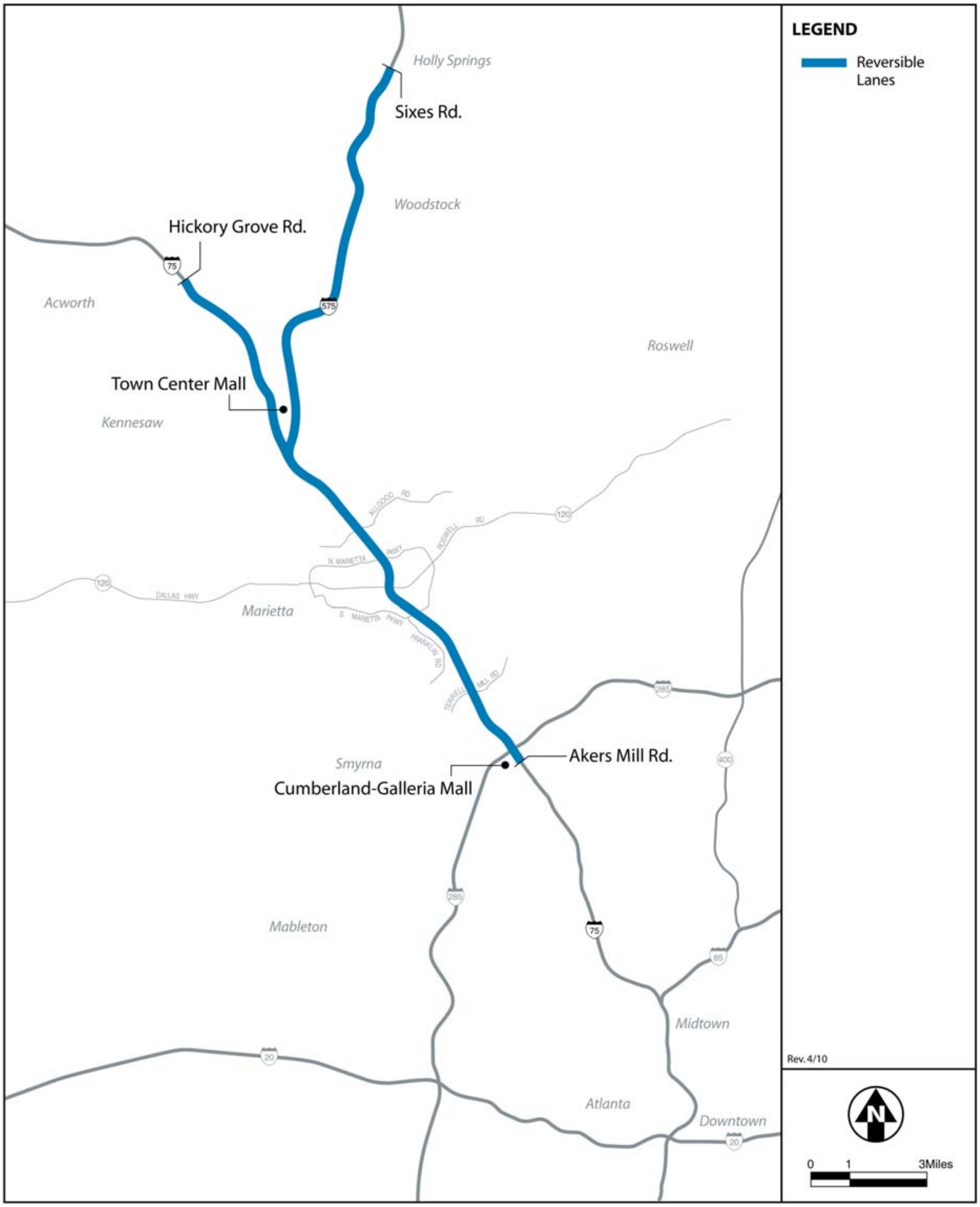
This chapter describes the alternatives considered for the Northwest Corridor Project leading up to the identification of the Preferred Alternative that is evaluated in this Final Environmental Impact Statement (FEIS).

Section 2.1 below describes the range of alternatives developed, evaluated, and dropped from consideration during the project study. It summarizes why early concepts were eliminated from detailed evaluation in the *Northwest I-75/I-575 Corridor Project Alternatives Analysis/Draft Environmental Impact Statement* (AA/DEIS) (FHWA and GDOT, 2007). The four build alternatives evaluated in the AA/DEIS are described, as well as changed conditions that affected the project study team decision to not move forward with any of those build alternatives. The subsequent project concepts developed after publication of the AA/DEIS are presented along with an explanation of the screening process undertaken to identify the Two-Lane Reversible Alternative that was evaluated in the *Northwest Corridor Project Supplemental Draft Environmental Impact Statement* (SDEIS) (FHWA and GDOT, 2010). This section also describes how the Two-Lane Reversible Alternative from the SDEIS was modified and identified as the Preferred Alternative for evaluation in this FEIS.

Section 2.2 describes the No-Build Alternative. Section 2.3 provides a detailed discussion of the transportation improvements included in the Preferred Alternative. Section 2.4 explains how the proposed limits of the project termini meet the requirements for logical termini. Section 2.5 presents the anticipated construction schedule. Capital cost estimates are found in Section 2.6 and the overall financial feasibility of the Northwest Corridor Project is discussed in Section 2.7.

In brief, the Preferred Alternative proposes to extend the existing managed lanes (i.e., the high-occupancy-vehicle [HOV] lanes) on Interstate 75 (I-75) northward from their existing terminus south of I-285. Figure 2-1 shows the project limits. The managed lanes would be extended from their current end at Akers Mill Road to I-285. Two new reversible managed lanes would be constructed on I-75 between I-285 and the I-75/I-575 interchange. From the I-75/I-575 interchange northwesterly on I-75 to just north of Hickory Grove Road, a single reversible lane would be built. From the I-75/I-575 interchange northeasterly on I-575 to Sixes Road, a single reversible lane would also be built. Rather than general-purpose or HOV lanes, the Preferred Alternative's managed lanes would be tolled reversible lanes. During the morning peak commute period, the lanes would accommodate southbound traffic; and during the evening peak commute period, the directional flow of traffic would reverse to accommodate northbound traffic. Vehicles would access the managed lane system via six new managed interchanges on I-75 and slip ramp accesses on I-575. The three pairs of slip ramps would allow access between the general-purpose lanes and the managed lane in the highway median. The southbound slip ramps would only allow vehicles to enter the reversible-lane system and the northbound slip ramps would only allow vehicles to exit the reversible-lane system. Barrier system gates would be raised or lowered as appropriate twice each day, during a period of low traffic volume, at each access point as part of the process of changing the directional flow of traffic. Section 2.3 provides a more detailed description of the Preferred Alternative and includes figures that show the specific location of the proposed managed-lane interchanges and slip ramps as well as the typical cross-sections along the project corridor.

The new lanes would be managed by restricting the types of vehicles able to use them and by charging a toll on most vehicles that do. Permitted vehicles (including passenger cars, vans, and other vehicles up to two axles and six tires) are those types of vehicles that would be permitted to use the lanes. Heavy and medium trucks would not be permitted to use the managed lanes. The toll rate charged to use the lanes would vary based on demand for the lanes in order to


LEGEND
Reversible Lanes
Holly Springs
Sixes Rd.
Woodstock
Hickory Grove Rd.
Acworth
Roswell
Town Center Mall
Kennesaw
Marietta
Smyrna
Akers Mill Rd.
Cumberland-Galleria Mall
Mableton
Midtown
Atlanta
Downtown
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maintain a target minimum operating speed of 45 miles per hour (mph) in the managed lanes. Exempt vehicles include registered transit vehicles, emergency vehicles, and school buses, and would be permitted to use the managed lanes without paying the toll. See Section 2.3.1.4 for additional details on tolling.

More detailed transportation information related to the discussion topics in the sections below can be found in the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i). Appendix F contains a study area highway and street map to assist the reader in understanding the study area and transportation analysis.

2.1 Development and Screening of Alternatives

The Preferred Alternative was identified from many alternatives previously studied to address the project purpose and need. A number of alternatives were considered in studies prior to initiation of the National Environmental Policy Act of 1969, as amended (NEPA) process. A total of four build alternatives, three design options, and two operational options were evaluated in the AA/DEIS. The AA/DEIS provides a more detailed discussion of the development and screening of the early alternatives (see AA/DEIS Section 2.3, page 2-7). The following sections summarize the alternatives previously identified and considered.

2.1.1 Alternatives Considered in Early Studies

The initial development of alternatives for the Northwest Corridor Project began during the Georgia Department of Transportation (GDOT) Design Concept Study and the Georgia Regional Transportation Authority (GRTA) *Northwest Corridor Connectivity Study: Conceptual Alternatives Memorandum* (GRTA, 2003b). The first investigation examined alternatives for the extension of HOV lanes on both I-75 and I-575, and the second evaluated transit alternatives in conjunction with the HOV extension.

2.1.1.1 Design Concept Study

Freeway Alternatives Considered

Several HOV lane alternatives were considered in the GDOT Design Concept Study. The HOV lane alternative selected for further study included HOV lanes on I-75 that would begin at the Akers Mill Road interchange south of I-285 where the existing HOV lanes terminate. The design included two HOV lanes in each direction north to the I-75 / I-575 interchange and one barrier-separated HOV lane in each direction north of the I-75/I-575 interchange to the Wade Green Road interchange on I-75 and north to the Sixes Road interchange on I-575. Access to the proposed HOV lanes would be provided by modifying the existing interchange on I-75 at Akers Mill Road and developing new direct access HOV interchanges on I-75 at Terrell Mill Road, Franklin Road, State Route 3 Connector/Roswell Road (SR 3 Conn/Roswell Road), Allgood Road, and Big Shanty Road. For I-575, similar access via HOV interchanges would be at Big Shanty Road, Shallowford Road, and Dupree Road.

The other type of HOV access considered, but initially eliminated, was slip ramps. Slip ramps are typically used in managed-lane systems in the United States where there is no logical connection or need for direct access from the managed-lane system to the arterial streets; and/or the managed-lane traffic shares the same desired destinations at the cross street interchanges as the general-purpose traffic. They also are low-cost alternatives to direct access connections that often require additional ramp and bridge improvements and additional right-of-way. The drawback to slip ramp access is that they can induce weaving between slip ramp access points and the general-purpose interchange ramps. The weaving potential becomes more problematic with higher numbers of general-purpose lanes.

Note, during the development of the Two-Lane Reversible Alternative evaluated in the SDEIS, direct access interchanges were removed from the concept and replaced with slip ramp access points largely as a cost-saving measure. These proposed interchanges were located along I-575 at Big Shanty, Shallowford Road, and Dupree Road.

Additional General-Purpose Lanes

The widening of I-75 to provide for additional roadway capacity through the addition of general-purpose lanes for single-occupancy vehicles (SOVs) was eliminated. The primary issues were air quality and concerns that congestion would be similar to the No-Build Alternative. Additional general-purpose lanes would not improve air quality and would not provide more reliable travel times, and so would not improve mobility.

Buffer-Separated High-Occupancy Vehicle Lanes

In general, HOV lanes can be provided in a variety of configurations; however, in all cases they must be separated from general-purpose lanes. The separation can be accomplished by using a painted stripe, a buffer area, or a physical barrier. Barrier-separated lanes were recommended for the Atlanta metropolitan area in *HOV Strategic Implementation Plan for the Atlanta Region* (GDOT, 2003). Barrier-separated HOV lanes are preferred for new construction because they provide better access control and are more effective at improving service levels and reducing violations than buffer-separated lanes. Physical barriers separating the HOV lanes from the general-purpose lanes also maintain safety by preventing potential violators from crossing over into the HOV system at random and disrupting traffic flow.

The proposed HOV lanes also could be used by transit vehicles, and/or could be managed as high-occupancy-toll (HOT) lanes for SOVs. Maintaining service levels in the HOV lanes for users and a competitive travel time by transit are necessary to improve mobility in the corridor. Buffer-separated lanes would not produce the same mobility benefits as barrier-separated lanes because they would reduce the reliability of traveling in the HOV lanes and increase travel times for HOV and transit users. Use of barrier-separated lanes is also important for managing traffic flow in HOT lanes. As a result, the buffer-separated HOV lanes alternative was eliminated from further consideration.

Transportation Systems Management Improvements

While GDOT was evaluating the HOV lane alternative, studies also were conducted to determine if transportation system management (TSM) highway improvements could meet future traffic demand without construction of the HOV lanes (see AA/DEIS Section 2.3.11, page 2-8). TSM highway improvements typically include features designed to improve traffic operations and maximize the efficiency of the highway network without substantial capital expenditure. As such, TSM improvements can include upgrading existing parallel arterial roadways, ramp metering, auxiliary lanes between interchanges, and enhancement of bus service in the corridor. At the time, the *Mobility 2030, Volume I: Regional Transportation Plan* (*Mobility 2030* RTP) (ARC, 2004) proposed numerous TSM improvements including operational improvements on US 41 (Cobb Parkway), ramp metering, and collector-distributor system improvements that were planned for I-75. Transit service improvements also were planned. The traffic analysis conducted, however, concluded that implementation of these types of transportation projects alone without the proposed HOV lanes would provide no improvement in mobility compared to the No-Build Alternative. As a result, the TSM alternative was eliminated from further consideration.

2.1.1.2 Northwest Connectivity Study

Other alternatives evaluated as part of the *Northwest Corridor Connectivity Study: Conceptual Alternatives Memorandum* (GRTA, 2003b) included several transit alternatives. The study identified and evaluated alternative transit modes and alignments between Midtown in Fulton County and Town Center in Cobb County. The study used a three-step process consisting of an initial screening of a long list of alternative modes and alignments, an intermediate screening of a short list of 11 conceptual alternatives, and a detailed evaluation of three candidate alternatives.

Each conceptual alternative consisted of a specific transit mode, a corridor alignment from Midtown and downtown Atlanta to Town Center north of the I-75/I-575 interchange in Cobb County, and a set of potential transit station locations. The alternatives consisted of a No-Build Alternative, an enhanced express bus alternative using both existing and planned HOV lanes on I-75, two bus rapid transit (BRT) alternatives, three light rail transit (LRT) alternatives, one heavy rail alternative, two automated-guideway alternatives, and a commuter rail alternative. Based on comments received from the public and agencies, the 11 conceptual alternatives were narrowed down to three candidate alternatives, referred to as Alternatives A, B, and C:

- Alternative A: Express Bus/HOV Alternative – This alternative represented a refinement of two conceptual alternatives (2 and 4). Express buses would operate in the existing and proposed extended HOV lanes along I-75 from the Metropolitan Atlanta Rapid Transit Authority (MARTA) Arts Center Station, downtown, Midtown, and north to the existing Busbee park-and-ride lot near Town Center.
- Alternative B: LRT – This alternative represented a refinement of Conceptual Alternative 7, one of three LRT alternatives considered. The refinements consisted of truncating the rail service at North Marietta Parkway and changing station locations to better serve adjoining communities. LRT would be routed from the MARTA North Avenue Station north along Northside Drive, I-285, I-75, and North Marietta Parkway in Marietta.
- Alternative C: BRT/HOV – This candidate alternative represented a refinement of Conceptual Alternative 3, combined with the alignment of LRT Conceptual Alternative 5 south of the Cumberland-Galleria area. This concept would better address the project goals and objectives related to land use. In this Alternative, the BRT operates from the MARTA Arts Center Station north along Northside Drive, I-285, US 41, I-75, and terminates at Kennesaw.

The No-Build Alternative also was included in the analysis. This alternative assumed all existing services and currently planned transit services would be implemented consistent with the RTP.

The initial screening results and evaluation methodology were documented in the *Northwest Connectivity Study, Conceptual Alternatives Memorandum* (GRTA, 2003b). The intermediate screening process is fully documented in the *Northwest Connectivity Study, Alignments and Modes Memorandum* (GRTA, 2003a).

The three candidate alternatives and the No-Build Alternative were carried forward from the intermediate screening process and were evaluated further to support selection of a Locally Preferred Alternative (LPA) for transit improvements in the Northwest Corridor. The results of this evaluation are documented in the *Northwest Connectivity Study*, *Candidate Alternatives Memorandum* (GRTA, 2004b) and *Environmental Inventory* (GRTA, 2004a).

The candidate alternatives were evaluated against the study's goals and objectives, environmental impact assessment, cost, and cost effectiveness. Alternative C, BRT/HOV, was the highest rated with respect to overall goal achievement. Alternative B, LRT, rated second. Alternative A, Express Bus/HOV rated third. All alternatives were determined to achieve the study goals and objectives. Alternative A was identified to have the fewest and least intensive environmental impacts, and Alternative C was identified to have the most concerns for potential environmental impacts. Alternative B was found to have the highest cost because of the additional rail systems elements required for light rail, such as electrification and signaling, and was determined to be the least cost effective. Alternative A was found to have the lowest cost because the HOV lanes already exist south of I-285 and they would be built north of I-285 in conjunction with the proposed extension of the HOV lanes on I-75. This alternative also was determined to be the most cost effective. It was determined that by using the existing HOV lanes on I-75 south of I-285, Alternative A would achieve almost the same benefits as Alternative C, but at a substantially lower cost. Alternative A, Express Bus/HOV, was selected as the LPA based on its achievement of the study goals and objectives, cost effectiveness, and lowest potential impact on the environment.

The GRTA Board adopted Alternative A as the LPA, though they described it as "a bus rapid transit facility operating within high-occupancy vehicle (HOV) lanes along I-75 with associated stations and a coordinated bus." Essentially the GRTA Board selected the Alternative A alignment, but upgraded the mode from express bus to BRT. Subsequent to this decision, the ARC approved the proposed improvement for inclusion in the *Mobility 2030* RTP (ARC, 2004).

2.1.2 Scoping and Public Involvement

With selection of the HOV lanes and the BRT services for further study on the Northwest Corridor, scoping for the AA/DEIS was officially initiated on May 19, 2004. Through meetings with the public and agencies, comments were solicited on the proposed alternatives, as well as the design options. The alternatives presented during scoping included the No-Build Alternative, an HOV Alternative, an HOV/Transit TSM Alternative, and an HOV/BRT Alternative. All of these build alternatives extended HOV lanes on I-75 and I-575, with the only difference between them being the type of transit improvements. The HOV/BRT Alternative incorporated the transit mode selection by the GRTA Board based on the results of the Northwest Connectivity Study. The HOV/Transit TSM Alternative was presented as required by both Federal Transit Administration (FTA) and Federal Highway Administration *(*FHWA) for alternatives analysis. A TSM alternative is generally defined as the best that can be done to address identified transportation problems without a major capital investment, e.g., BRT stations. The HOV Alternative provided GDOT with the ability to advance only the HOV element of the proposed project in the event the HOV/BRT Alternative would not be financially feasible. The TSM Alternative provided for only a minimum expansion of transit services and facilities over the No-Build Alternative.

A transit-only alternative without the extension of the HOV lanes was not included in the group of alternatives. This alternative was considered and eliminated because implementation of transit-only improvements without extension of the HOV lanes on I-75 would not meet the project's purpose and need. Without the HOV lanes, the highway network would be the same as the No-Build Alternative. Travel times would remain unreliable for those traveling in HOVs or by bus between activity centers because they would have to travel in congested general-purpose lanes alongside SOV traffic. Thus, conditions would be similar to those under the No-Build Alternative, but with no major improvement in mobility.

2.1.3 Additional Alternatives Considered During Scoping

Members of the public and agencies identified additional alternatives at the several scoping meetings held during 2004. These alternatives are described in the sections below. Only the suggestion to consider HOT lanes was accepted as a reasonable project alternative. All other additional alternatives were eliminated from further consideration.

2.1.3.1 HOT Lanes

During scoping, the concept of HOT lanes was identified as an additional alternative to be considered in the AA/DEIS. HOT lanes are a type of managed lane that allows lower-occupancy vehicles, including SOVs, to pay a toll that permits use of the facility. These managed-lane systems use tolls to control congestion levels and reduce project costs in order to meet regional objectives. As applied to the proposed HOV lanes on I-75/I-575, HOT lanes would allow SOVs to access the proposed HOV lanes under each of the proposed alternatives for a fee. The use of HOV lanes as HOT lanes addresses the project purpose and need to improve the transportation system to meet growing travel demand and to offer additional transportation choice that improves mobility and increases capacity. Implementation of HOT lanes could potentially increase usage of the HOV lanes and the overall throughput of the I-75/I-575 transportation corridor. For these reasons, this operational option to implement tolling was carried forward for evaluation in the AA/DEIS.

2.1.3.2 Elevated HOV Lanes in the Median of I-75

The concept of elevated HOV lanes on a structure placed in the median of I-75 from Akers Mill Road north to the I-75/I-575 interchange was suggested during scoping. The existing median on I-75 between Akers Mill Road and I-575 has inadequate width to accommodate the required structure foundations for elevated HOV lanes. The implementation of such an alternative would require additional space for construction material staging. Therefore, the existing median would have to be widened for the entire length of this segment and the existing general-purpose lanes would need to be re-constructed to the outside of the widened median.

The cost of the elevated HOV lanes would be substantially higher than the BRT/HOV Alternative under consideration because the HOV lanes and all BRT components would have to be entirely on structures. The higher cost of the elevated HOV lanes in the median would not result in any significant lessening of potential environmental impacts nor would it produce any additional operational benefits over the BRT/HOV Alternative. For these reasons, this concept was eliminated from further consideration.

2.1.3.3 Reversible HOV Lanes

A reversible lane concept was suggested as an alternative during scoping, but was initially eliminated from consideration in the AA/DEIS since it was determined that the right-of-way needed for a reversible lane section is not substantially different from that needed for a conventional lane section.

Reversible lanes generally merit consideration if the forecast peak period volume is shown to exceed a 65/35 directional split, with 65 percent of the total highway volume in the peak direction and 35 percent in the off-peak direction (AASHTO, 2004). In the project corridor, existing traffic volumes were shown to be fairly directional during the peak periods with over 70/30 in the morning peak period and nearly 65/35 in the evening peak period. However, using the Atlanta Regional Commission (ARC) 2004 Travel Demand Forecasting Model, the directional demand was forecast to become more balanced in the future. A review of the 2030 travel demand model projections in the I-75 corridor indicated that the directional split would be 60/40 or less during both peak periods. This split would make the corridor a less than desirable candidate for reversible lanes, based on the ARC 2004 regional model. Additionally, the reverse commute and buses returning from the extremities of the system to pick up additional passengers for the peak direction commute would be hindered by the lack of an off-peak system and would of necessity be required to travel in the general-purpose system under less than optimum conditions. This would require additional buses at a significantly increased cost to maintain bus system headways and move the same number of passengers during the peak period.

Following the publication of the AA/DEIS, in 2008 ARC adopted a new regional model, and the results of an analysis using the ARC 2008 regional model revealed that the ratios of the peak to off-peak traffic volumes in the peak periods were substantially different from the results using the ARC 2004 model. This new information prompted renewed interest in a reversible configuration, which was evaluated in the SDEIS. See Section 2.1.8 for a discussion of the ARC 2008 Travel Demand Forecasting Model.

2.1.3.4 Conversion of Existing General-Purpose Lanes to HOV

Another alternative eliminated was conversion of existing general-purpose lanes, one in each direction, into HOV lanes. The existing general-purpose lanes on I-75 are currently congested and were projected to be at unacceptable levels of service (LOS) (LOS E and LOS F) in 2030. The conversion of general-purpose lanes for use as an HOV lane would substantially decrease reliability for those traveling in HOVs and by bus in the general-purpose lanes. Travel times would increase for SOVs. Thus, conditions would be similar to those under the No-Build Alternative with no improvement in mobility. Therefore, the alternative was not considered to be a practical alternative.

2.1.3.5 Travel Demand Management Strategies

Lastly, an alternative raised during scoping consisted of a series of travel demand management strategies (TDM). Types of TDM strategies include: ride sharing and guaranteed ride home programs; telecommuting and alternate work schedules; growth management through restrictive land use policies and zoning ordinances; pricing (e.g., HOT lanes); parking management; trip reduction ordinances; park-and-ride lots; and traveler information systems.

While the alternatives under consideration in the AA/DEIS already included some TDM measures, such as HOT lanes and park-and-ride lots, an alternative comprised of these improvements alone would not meet the project's purpose and need.

2.1.4 Refinements to Alternatives Following Scoping

The formal scoping for the AA/DEIS concluded in February 2005 with the identification of three build alternatives. The build alternatives consisted of all of the initial alternatives: (1) the HOV Alternative, (2) the HOV/TSM Alternative, and (3) the HOV/BRT Alternative. Four options for the location of the HOV lanes on I-75 south of I-575 (center median, split to each side, west side, and east side of I-75) also were carried forward for detailed evaluation.

The detailed evaluation of the build alternatives and public involvement activities continued through August 2005. Based on the results of these technical studies and comments from the public, refinements were made to the alternatives and included:

- Addition of truck-only lanes (TOLs). In August 2005, GDOT decided to include TOLs largely in response to a Public-Private Initiative that was received in November 2004. A study prepared by SRTA in 2005 that evaluated the effectiveness of TOLs in reducing traffic congestion in the region also influenced the decision at GDOT.
- Location of the HOV lanes. The GDOT decided the HOV lanes that split to the outside or to one side of I-75 should be eliminated in favor of the option with the HOV lanes in the center of the roadway.
- Location of the TOLs. The GDOT decided to locate the TOLs either in the center of the roadway, between the HOV lanes, with the general-purpose lanes located to the outside; or, split the TOLs to the outside of the roadway between the general-purpose lanes and the outside edge of the right-of-way.
- Number of HOV and TOLs. On I-75, GDOT decided two HOV lanes in each direction south of I-575 and one lane in each direction would be needed north of I-575. For I-575, GDOT confirmed the need for only a single HOV lane in each direction. Regarding the TOLs on I-75, GDOT decided on two lanes in each direction. No TOLs were proposed for I-575.
- Extension of northern terminus of HOV lanes. GDOT decided to shift the northern terminus from Wade Green Road to Hickory Grove Road, including a new HOV interchange. One reason for this change was to provide a terminus at a location without general-purpose access ramps. This reasoning was based on a GDOT HOV implementation strategy for the region that avoided adding more traffic to already congested general-purpose interchanges on the I-75 corridor.
- Reduced-BRT Alternative. In the event that FTA New Starts funding is not available for a five-station HOV/TOL/BRT Alternative, GDOT decided to also evaluate a three-station HOV/TOL/Reduced BRT alternative in the AA/DEIS. This was a reduced-cost version and was envisioned as the first phase of a phased implementation of the BRT system.

A Public Information Open House was held on November 15, 2005 to present the refined alternatives to the public. Most of the comments were positive for the inclusion of a TOL system. Positive support also was received for the decision to locate the HOV lanes in the center of I-75. The refined alternatives were presented to state and federal natural resource agencies for comment at a GDOT interagency meeting held on January 25, 2006. As a result of the meetings with the public and agencies following scoping, and the comments received, GDOT and GRTA decided no further revisions were needed to the build alternatives under consideration.

The AA/DEIS evaluated the five alternatives and five options listed in Table 2-1. All of the build alternatives included HOV and TOL components and included options for the design and operation of those components.

Under the HOV/TOL Alternative, there was an option to operate the HOV lanes as HOT lanes. With the HOT lane option, the proposed HOV lanes would be restricted to buses and vehicles with three or more occupants (HOV3+). Vehicles with one and two persons would be permitted to use the HOV lanes by paying a toll. The HOV/TOL Alternative, as did all build alternatives, included an option for tolling the TOLs, commonly referred to as truck-only-toll (TOT) lanes.

Table 2-1. Alternatives and Options Evaluated in the AA/DEIS

Alternatives	Build Alternative Options
No-Build Alternative	**Design Options:**
Build Alternatives:	Inside TOL Option
HOV/TOL Alternative	Allgood Flyover Option
HOV/TOL/TSM Alternative	SR 3 Conn/Roswell Road interchange Alignment Option
HOV/TOL/BRT Alternative	**Operational Options:**
HOV/TOL/Reduced BRT Alternative	HOT Lane Option
	TOT Lane Option

Notes: HOV = high-occupancy vehicle; HOT = high-occupancy toll; BRT = bus rapid transit; TOL = truck-only lane; TOT = truck-only toll; TSM = transportation systems management.

2.1.5 Summary of Significant AA/DEIS Comments

Since the publication of the AA/DEIS in May 2007, a number of events have occurred that have affected moving forward with the environmental review of the project. In particular, review of the comments on the AA/DEIS identified substantial opposition to elements of the build alternatives. By the close of the AA/DEIS comment period, GDOT had received over 850 comments, including duplicate comments. These were received from government agencies, stakeholders, and members of the public. These comments are reproduced in Appendix K of this FEIS, which can be accessed at regional libraries, the project website, and by contacting GDOT. Table 2-2 summarizes the key issues of concern.

2.1.6 Project Financial Feasibility Re-Evaluated

After publication of the AA/DEIS, the financial feasibility of the Northwest Corridor Project was re-evaluated. The following sections discuss recent changes in financial funding opportunities, congressional balancing, and GDOT funding.

2.1.6.1 New Analysis of Financial Funding Opportunities

Financial market conditions in the United States have deteriorated substantially over the past few years and have affected virtually all sources of debt and equity capital as well as cost of capital. Some financial products have even disappeared from the market and previously active equity investors and debt lenders are no longer viable market players. Tightening credit terms are also now the norm in the market for taxable debt, primarily commercial bank loans.

Following the publication of the AA/DEIS, GDOT evaluated project funding opportunities (GDOT, 2007). A range of financial scenarios were evaluated to assist in deciding on the best plan to complete project financing by May 2010. The GDOT evaluated toll revenue bonds, general obligation bonds, general obligation bonds with refinancing (e.g., using toll revenue bonds), a concession, and system-backed financing.

After a thorough review of the procurement options, budget constraints and 2009 state legislation (Senate Bill 200), GDOT determined that a public-private partnership (P3) procurement would be the best approach to deliver the project. A P3 procurement would leverage limited transportation funds by partnering with the private sector to provide supplemental funding. Private industry partners are also able to bring innovative approaches, both in terms of funding and project delivery methods.

Table 2-2. Summary of Significant AA/DEIS Comments

No.	Comment Issues
Alternatives	
1	Georgia Motor Trucking Association as well as numerous individual regional trucking firms submitted comments in opposition to separate truck-only facilities alleging they provided negligible benefit to either truck or other general-purpose traffic using I-75.
2	TOL or TOT elements of the project were not part of the adopted *Mobility 2030* RTP (ARC, 2004) or the FY 2006-2011 TIP (ARC, 2006a) at the time of the publication of the AA/DEIS in May 2007.
3	Proposed operating plans for the bus service for either the BRT or Reduced BRT element of the proposed project were considered unreasonable and provided exceptionally high transit service.
4	Agencies, major stakeholders, and members of the public either voiced concern that the AA/DEIS did not evaluate the HOV element of the project as a stand-alone build alternative and/or provided support for consideration of HOV or HOT lanes.
5	The proposed HOV/HOT element of the proposed project was inconsistent with the FY 2006-2011 TIP (ARC, 2006a). At the time the AA/DEIS was published, the adopted TIP called for an HOV system with no tolling component.
Impacts of the Alternatives	
1	The large footprint of the proposed project (including two HOV and two truck-only lanes in each direction on I-75) would result in substantial adverse effects on adjacent neighborhoods and property owners.
2	Proposed increased number of buses traveling to the Metropolitan Atlanta Rapid Transit Authority (MARTA) Arts Center Station, particularly in the HOV/TOL/BRT and HOV/TOL/Reduced BRT alternatives, would cause substantial adverse effects on traffic in Midtown Atlanta.
Financial Feasibility of the Alternatives	
1	The very high cost of constructing and operating any of the proposed build alternatives was considered potentially infeasible and/or an inappropriate allocation of public funds for a single project.
2	The proposed mandatory use and required tolling of the truck-only lanes was strongly opposed by major trucking industry stakeholders.
3	The exceptionally high level of transit service proposed particularly in the HOV/TOL/BRT and HOV/TOL/Reduced BRT alternatives contributed to making the entire project financially infeasible long-term.

Notes: HOV = high-occupancy vehicle; HOT = high-occupancy toll; BRT = bus rapid transit;
TIP = transportation improvement program; TOL = truck-only lane; TOT = truck-only toll.

Under the P3 procurement process, GDOT would sign an agreement with the P3 Developer who would be responsible for the design, construction, operation, maintenance, and financing of the project over the performance period. The P3 Developer would provide private funds that contribute to the design, construction, operation, maintenance, and financing in return for the right to retain toll revenues collected from users of the facility over the performance period. This approach shifts a significant portion of the funding burden from taxpayers statewide to users of the proposed facility.

The GDOT also conducted analysis of different tolling policies to determine the amount of private funding that could be expected. Preliminary analyses focused on two common approaches – the HOT3+ and express toll lane (ETL) tolling policies. Both would restrict the types and occupancy of vehicles permitted to use the managed-lane system. Both the HOT3+ policy and ETL policy would allow use by SOVs, but the HOT3+ would not require vehicles with three or more people to pay a toll while the ETL policy would require all vehicles to pay a toll. Preliminary analysis conducted by GDOT indicated that an ETL tolling policy would generate significantly more revenue than a HOT3+ tolling policy, thereby reducing the level of public funding required. An ETL tolling policy would also reduce the risk of lost revenue and reduce the cost of enforcement. More detailed discussion of possible financing scenarios is presented in Section 2.7.

2.1.6.2 Congressional Balancing

Since passage of legislation in 1999, the Georgia State Transportation Board has been struggling with required balancing of state and federal infrastructure expenditures in Georgia's 13 congressional districts instead of applying funds where they are needed most. The balancing requirement applies to all state public transportation funds plus federal funds used for public road and other public transportation funds. The legislative requirements were amended in 2000 to require 85 percent of the expenditures be balanced over a five-year period. In 2005, the requirements were further reduced to 80 percent balanced over a five-year period. Still, the balancing requirement continues to complicate the planning of funding for large transportation improvements.

Funding for the Northwest Corridor Project has been affected by this legislative requirement. Planning activities associated with the update of the ARC *Envision6* RTP indicated that funding allocations for the project had changed. The amount of funding was declining and the year of funding delayed.

2.1.6.3 Decline in Available GDOT Funds

In addition to the deterioration in the national economy and weakening of the debt market, GDOT's funding sources have declined. Motor fuel tax collections have been declining while debt service repayments have been increasing. Personal spending and sales tax revenues to the state government also have declined due to the recent recession, loss of jobs, and high unemployment, preventing the possibility of additional financial assistance from the State to GDOT. As a result, GDOT's forecast availability of construction and operation funding for the Northwest Corridor Project has declined. In fact, the *Northwest (I-75/I-575) Corridor, Feasibility Report for the Development Phase* (GDOT, 2007) indicated that all of the build alternatives evaluated in the AA/DEIS exceeded GDOT's funding capabilities. As a result, GDOT committed to move forward with the proposed project, but needed to consider lower-cost alternatives than those evaluated in the AA/DEIS. One reason GDOT is intending to implement tolling is to help defray both construction and operational costs for the Northwest Corridor Project.

2.1.7 A New Transportation Planning Framework for the Corridor

After the publication of the AA/DEIS, a number of principles guiding transportation planning for the corridor changed. The following sections discuss Georgia's 2008 regional freight mobility plan, planning studies on the use of TOLs, and a region-wide managed lane system plan for the Atlanta metropolitan area.

2.1.7.1 The Regional Freight Mobility Plan

In late 2005, concurrent with planning studies for the Northwest Corridor Project, the Atlanta Regional Freight Task Force, ARC, and GDOT initiated activities to develop the *Atlanta Regional Freight Mobility Plan* (ARC, 2008a). The goal of this planning effort was to enhance regional economic competitiveness by providing efficient, reliable, and safe freight transportation while maintaining the quality of life in the region's communities. The plan objectives were to:

- Facilitate an understanding of the importance of freight mobility to the region's economy and quality of life,
- Develop a dialogue between public decision makers and private sector freight stakeholders regarding freight needs and strategies,

- Integrate freight considerations in the public planning processes,
- Identify a regional freight transportation subsystem that is recognized as essential to continued regional economic growth, and
- Develop a goods movement action plan that is data driven and stakeholder informed.

The findings and results of this freight mobility planning effort were published in the *Atlanta Regional Freight Mobility Plan* (ARC, 2008a). This report documented the importance of the I-75 corridor for freight traveling both north and south of the Atlanta region, the very congested traffic conditions in this corridor, and specific bottlenecks in this corridor at the I-285 and I-575 interchanges. Among a number of alternatives, the report presented analysis on the feasibility of a system of TOLs in the Atlanta region to improve freight mobility. This planning effort, however, concluded that the construction of TOLs would not be cost effective. In 2009, ARC followed up with the *Atlanta Strategic Truck Route Master Plan* (ARC, 2009b) to ensure that truck traffic is directed to roadways whose physical and operational characteristics can effectively accommodate truck traffic.

2.1.7.2 Changed GDOT Policies on Truck-Only Lanes

Following the publication of the AA/DEIS, GDOT completed a comprehensive study on truck lanes called the *Statewide Truck Lanes Needs Identification Study* (GDOT, 2008). This effort concluded that the construction of a stand-alone TOL network in metro Atlanta is not recommended.

This study was initiated due to the importance of commerce to Georgia and the Port of Savannah, the forecast growth in freight tonnage, and the dominant use of trucks to distribute goods. The study evaluated TOLs as complementary treatments to current interstate highway facilities and key state routes. It assumed TOL use would be voluntary and tolling would not be implemented.

The analysis clearly showed that TOLs would provide increased mobility, provide greater travel time savings, and improve reliability for trucks using the special lanes compared to continued use of highway general-purpose lanes. However, the study identified that approximately 60 percent of truck travel occurs outside of the peak travel periods in metropolitan Atlanta. GDOT traffic counts indicate trucks average 10 to 15 percent of traffic volumes on Atlanta interstate highways, and heavy trucks comprise only 6 percent of the Atlanta region’s peak period traffic volumes. The cost-benefit analysis indicated that the benefits exceeded costs. However, the estimated cost to provide a TOL system was estimated to exceed $13 billion for benefits to a small fraction of the traveling public. Moreover, due to latent traffic demand of vehicles using area arterials, the TOLs would not alleviate corridor-level congestion, especially considering that a substantial share of the truck traffic would continue to use the highway general-purpose lanes during off-peak periods.

The study concluded that TOLs are not the only strategy to improve freight movement in Georgia and the State’s efforts to develop a managed-lane system for metropolitan Atlanta should provide substantial benefits to all traffic.

2.1.7.3 A Regional Plan for a System of Managed Lanes

Following the publication of the AA/DEIS, the State Transportation Board adopted a resolution on June 21, 2007 providing overall direction and policy regarding congestion pricing, and charging GDOT with the task of developing a regional system-wide plan to be implemented on an incremental corridor by corridor basis. The State Transportation Board and the State Road and Tollway Authority (SRTA) initiated efforts to determine the operational and financial feasibility of managing traffic congestion through the use of occupancy and pricing to provide viable transportation options for Georgia. This combined effort culminated in the signing of a joint resolution by the two agencies on March 26, 2008. The rationale was that their combined efforts could potentially identify fundamentally different strategies to financing and managing highway improvements to address the severe traffic congestion in light of decreased highway funding. In the event that managed lanes are determined to be beneficial and cost-effective, the agency staff will develop governing policies for managed lanes, including occupancy and pricing. Agency staff will also develop a plan for a system of managed lanes separated from the general-purpose lanes with strategic access points along the transportation corridors.

Through coordination with all of its transportation planning partners, GDOT adopted the *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a) in December 2009 and published the plan in January 2010. The purpose of this plan was to develop a system-wide approach to implement managed lanes consistent with the ARC *Managed Lanes Policy for the Atlanta Region* (ARC, 2007a). The implementation strategy allows for corridor-specific consideration of revenue and funding options, construction, demand, and impact issues. Key guidance reflected in the plan includes:

- Consideration for converting general-purpose lanes to managed lanes,
- Types of vehicles that would be permitted to use the managed-lane system,
- Occupancy of vehicles that would be allowed to use the managed-lane system,
- Comparison of system operations based on maximized revenue versus system operations based on maximized transportation efficiency, and
- Operations flexibility to make adjustments based on financial goals.

The *Atlanta Regional Managed Lane Systems Plan* (GDOT, 2010a) was approved by the State Transportation Board as a guide for GDOT to use in developing individual managed-lane projects in the metropolitan Atlanta area. The Preferred Alternative was identified in that document as a corridor-specific incremental step to implement the overall regional managed-lane concept identified in the plan. This project is consistent with the overall policy direction articulated in the regional managed lane plan for both construction and operations.

2.1.7.4 A Regional Plan for Transit Services

Anchored by MARTA and served by three additional providers, the regional transit system offers alternative choices for commuters. Transit has a rich history and serves a key role in the Atlanta Region. The Transit Planning Board was created to focus on the development of a regional transit plan, improve regional system coordination, system performance measurement, and act as an advocate for increased federal funding for the region’s transit system. Established in January 2010, the Transit Implementation Board is guiding the implementation of Concept 3, the long-range transit vision for the Atlanta region developed by the board's predecessor, the Transit Planning Board. Concept 3 is the Atlanta region's official long-range transit vision. It was developed through a collaborative, multi-year effort. The vision was officially adopted in 2008 and now serves as the transit element of the Aspirations Plan of the *Envision6, Volume I: 2030 Regional Transportation Plan* (*Envision6* RTP) (ARC, 2007b). Concept 3 establishes a broad array of multi-modal transportation options in the Atlanta region, including expansion of the MARTA heavy rail system, new light rail and streetcar, commuter rail, expressway bus and arterial bus service. Planning efforts are underway for the implementation of several of the Concept 3 options in corridors throughout the region. Alternatives analysis studies have been funded to evaluate major transit projects in both Cobb and Gwinnett Counties. In addition, the City of Atlanta is moving towards implementing streetcar service in the heart of Midtown.

In the project study area, Cobb County is initiating an Alternatives Analysis to evaluate enhanced transit in the US 41/I-75 corridor. Light rail is one concept under consideration to connect the MARTA Arts Center Station and the Kennesaw area. In addition, feasibility planning and a Tier 1 NEPA document are underway to use the I-75 corridor for high-speed rail service connecting Atlanta to Chattanooga, Nashville, and the Midwest.

2.1.8 An Updated Travel Demand Forecasting Model

The AA/DEIS discussed a number of traffic design and operational issues to be addressed using an updated Travel Demand Forecasting Model. Traffic analysis in the AA/DEIS used the ARC 2004 Travel Demand Forecasting Model developed for the 13-county Atlanta region. The model, however, was in the process of being updated at the time the AA/DEIS was published.

The Atlanta Regional Commission initiated steps to develop the new model in response to the US Environmental Protection Agency (USEPA) designation of metropolitan Atlanta as an area in non-attainment for fine particulate matter ($PM_{2.5}$). The new non-attainment designation covered a 20-county Atlanta region. As a result, the travel demand model boundary was expanded to include all 20 counties to meet the federal requirements for performing air quality conformity analysis. As part of this effort, the mode choice model was re-evaluated to improve the model performance for suburban intra-county trips. In addition, a new commercial vehicle and truck model was added.

The updated Travel Demand Forecasting Model was released for public use in November 2008. Initial analysis indicated that travel behaviors encompassing the 20-county region are somewhat different from travel behaviors reflected in the data produced by the ARC 2004 Travel Demand Forecasting Model.

As expected, the new 2008 Travel Demand Forecasting Model showed long-term increased traffic volumes for the No-Build Alternative for 2035 compared to the No-Build Alternative for 2030 using the old model. The five extra years included in the planning horizon showed increased traffic volumes were consistent with projected urban development – both residential land uses with supporting commercial services as well as employment growth in the Northwest Corridor in part due to an anticipated shift in employment growth in the suburbs. The magnitude of the increase was substantial. For example, the 2004 Travel Demand Forecasting Model showed total 2030 average daily traffic (ADT) on I-75 near Allgood Road to be about 269,600. In contrast, the 2008 model forecast total 2035 ADT for the approximate same location to be about 295,000, an increase of almost 10 percent. This type of information only confirmed again that implementation of TSM projects, including highway and parallel arterial improvements and improved transit services, would not be able to slow the growth in traffic in the Northwest Corridor. Increased highway capacity, not TSM improvements, would be required to alleviate forecast congested conditions. Therefore, a TSM alternative as an option to the proposed Two-Lane Reversible Alternative was eliminated from further consideration.

2.1.9 Refining the HOV Concept

Since the transit improvements and the truck only lanes were removed from the build alternatives in the AA/DEIS, the managed-lane element was the only portion of the Northwest

Corridor Project that remained for continued study following the evaluation of the AA/DEIS comments. However, preliminary analysis using the new ARC 2008 Travel Demand Forecasting Model indicated that an earlier concept that had been eliminated, the reversible managed-lane concept, also could be appropriate for the corridor (see Section 2.1.3.3).

During the summer and early fall 2009, the project study team conducted a number of travel demand modeling analyses using the new 2008 Travel Demand Forecasting Model (ARC, 2008b). The first objective was to use the new model to examine 2035 forecast traffic volumes and LOS on I-75 and I-575 for the No-Build Alternative. The modeling also incorporated planned transportation improvements in the 2007 adopted *Envision6* RTP, which included somewhat different roadway and transit improvements through 2035.

Second, the traffic modeling effort needed to evaluate the HOV element of the four build alternatives evaluated in the AA/DEIS as a stand-alone alternative. The HOV element in the AA/DEIS was generically a bi-directional managed-lane system. Key attributes included extending the existing I-75 HOV lanes that terminate just south of the I-285 from Akers Mill Road northwards to Hickory Grove Road. On I-575, the managed-lane system would extend northeast from the I-75/I-575 interchange to Sixes Road. The southern and northern termini of this project would be the same as defined for the project in the AA/DEIS. The concept would accommodate system-to-system connections with the proposed managed-lane system for I-285. The HOV element evaluated included two lanes in each direction south of the I-75/I-575 interchange, one lane in each direction north on I-75 to Hickory Grove Road, and one lane in each direction north on I-575 to Sixes Road.

The initial modeling for the No-Build Alternative and this HOV concept from the AA/DEIS, however, indicated slightly different traffic patterns than previously identified using the old ARC 2004 Travel Demand Forecasting Model. The new model indicated stronger directional flows during peak periods. This means that during the peak commute periods, a higher proportion of the total traffic using the highways is traveling in the peak period direction (i.e., southbound in the morning and northbound in the evening). These modeling results indicated potential opportunities to implement a reversible managed-lane system, not just a bi-directional managed-lane system. In a reversible managed-lane system, the number of lanes could be reduced by half by adding highway capacity to serve only the peak period major direction of traffic flow.

To comprehensively investigate this idea, traffic modeling was conducted on the No-Build Alternative and three different managed-lane concepts using the new ARC 2008 Travel Demand Forecasting Model. These concepts included:

Concept A – a two-lane bi-directional HOV system between I-285 and I-575, and a single bi-directional HOV system northwards to Hickory Grove Road and Sixes Road (same as in the AA/DEIS);

Concept B – two reversible lanes between I-285 and I-575, and a single reversible lane northwards to Hickory Grove Road and Sixes Road; and

Concept C – three reversible lanes between I-285 and I-575, two reversible lanes on both I-75 and I-575 north to Big Shanty Road, and a single reversible lane further north to Hickory Grove Road on I-75 and Sixes Road on I-575.

The purpose in modeling both two- and three-lane reversible-lane systems was to determine the correct number of lanes needed to accommodate the forecast directional flow. Concept B essentially would have the same number of lanes as Concept A during peak periods. Concept C would have an additional lane, which could accommodate a larger share of the traffic using parallel arterials due to the heavy congestion on the highways. The access points were assumed to be basically the same for all three concepts.

The traffic modeling analysis is presented in an appendix to the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i). As a result of the analysis, Concepts A and C were dropped from further consideration for the reasons described below, and Alternative B was retained for further study.

Concept A – The analysis for this concept indicates that the concept would result in unused capacity in the off-peak direction flow, which translates into little-used travel lanes serving non-peak traffic. In addition, the concept would require additional right-of-way and would result in additional potential environmental impacts, particularly with regard to streams such as Hope Creek.

Concept C – The analysis for this concept indicates the additional cost of a third lane is not warranted by the traffic analysis, and renders this concept less cost effective than Concept B.

Based on this analysis, conceptual engineering plans were developed for Concept B, which was renamed the Two-Lane Reversible Alternative. This is the alternative that was evaluated in detail as the SDEIS Build Alternative.

2.1.10 Evaluation of the Two-Lane Reversible Alternative in the SDEIS

Consistent with the substantive comments on the AA/DEIS and reconsideration of the financial feasibility of the alternatives evaluated in the AA/DEIS, GDOT determined that the alternatives for the proposed Northwest Corridor Project evaluated in the AA/DEIS needed to be refined in response to changed conditions.

Elements of the alternatives evaluated in the AA/DEIS were eliminated from further consideration. First, the TOL element, included in all four of the build alternatives evaluated in the AA/DEIS, was eliminated due to lack of public support and changes in GDOT approaches to freight mobility in the Atlanta region. Second, the BRT element of two alternatives evaluated in the AA/DEIS was eliminated from further consideration due to lack of public support, concern about meeting the FTA New Starts cost-effectiveness criteria, increasing competition for federal funding, and a lack of local funding to complete even the Reduced-BRT element of the project. Furthermore, without the BRT transit component of the build alternatives, FTA cost-effectiveness no longer applied to the project. As such, there was no longer a need for GDOT to continue to evaluate the TSM transit element of the project.

Continued GDOT consideration of the HOV element, which was included in all four of the build alternatives evaluated in the AA/DEIS, needed to be consistent with newly adopted GDOT policies on managed lanes (ARC, 2007a). The identification of the best managed-lane concept also needed to demonstrate its transportation effectiveness considering anticipated financial constraints.

These decisions were embodied in Amendment 7 of the *Envision6* FY 2008-2013 Transportation Improvement Program (FY 2008-2013 TIP). This amendment, formally adopted on December 2, 2009, dropped the TOL and BRT elements of the proposed transportation improvements on I-75 and I-575. Instead, one to two reversible-lanes were proposed for I-75 between I-285 and Hickory

Grove Road and one reversible lane was proposed for I-575 between I-75 and Sixes Road. The refined build alternative, the Two-Lane Reversible Alternative, does not include any new or expanded transit services for the Northwest Corridor Project. As such, transit services under the proposed Build Alternative would be the same as proposed for the No-Build Alternative.

In 2010, GDOT undertook an SDEIS to evaluate the Two-Lane Reversible Alternative in comparison with the No-Build Alternative. The SDEIS was published in September 2010.

Following publication of the SDEIS, FHWA and GDOT fine-tuned the Two-Lane Reversible Alternative, which was referred to as the Build Alternative in the SDEIS. Minor modifications were made to the project design to further minimize potential impacts, particularly traffic congestion. Additional changes were made to reduce costs based on the completion of the Value Engineering Study (GDOT, 2009b and 2010c). These minor modifications included:

- Adding auxiliary lanes to facilitate northbound managed-lane traffic merging with the general-purpose lanes at both northern termini.
- Adding turning lanes at ramp terminals at several managed-lane interchanges.
- Reconfiguring several local roadways adjacent to the managed-lane interchanges.
- Shifting the horizontal and vertical alignment of the managed-lane system south of I-575.

GDOT subsequently identified the modified SDEIS Build Alternative as the project's Preferred Alternative because it is substantially less expensive to build and operate, and would have substantially lower adverse environmental impacts when compared with the previously considered AA/DEIS build alternatives.

Table 2-3 provides a summary of the key attributes and potential environmental consequences of the AA/DEIS build alternatives compared with those of the SDEIS Build Alternative as modified in the Preferred Alternative.

2.2 Description of the No-Build Alternative

This section describes the No-Build Alternative for the Northwest Corridor Project. This alternative is defined to include the highway and transit facilities and services that are likely to exist in 2035 without any additional proposed highway or transit improvements. The No-Build Alternative has served as the baseline for evaluation of the environmental effects of earlier build alternatives in the AA/DEIS and the SDEIS, and now the Preferred Alternative. All of the improvements in the No-Build Alternative are included in the Preferred Alternative. Table 2-4 presents a summary of the improvements under the No-Build Alternative.

2.2.1 Highway System

The highway system network under the No-Build Alternative is assumed to consist of all existing highways defined by the ARC 2008 Travel Demand Forecasting Model plus improvements from the *Envision6* RTP (ARC, 2007b). The RTP identifies the transportation improvements to be implemented in the Atlanta metropolitan area and the Northwest Corridor over the next 25 years through 2030. Improvements programmed and funded for implementation over the first five years of the plan are identified in the *Envision6, Volume II: FY 2008-2013 Transportation Improvement Program* (FY 2008-2013 TIP) (ARC, 2009d). The remaining improvements in the RTP are referred to as planned long-range improvements. The RTP was prepared by the ARC and is in conformance with the emissions budgets contained in the State Implementation Plan

Table 2-3. Summary of Alternative Attributes and Environmental Impacts

Attributes	Preferred Alternative	HOV/TOL Alternative	HOV/TOL/TSM Alternative	HOV/TOL/BRT Alternative	HOV/TOL/Reduced BRT Alternative
Highway					
Additional GP Lanes	None	None	None	None	None
Additional HOV Lanes & Managed-Lane Access Points	• 2 reversible lanes on I-75 from I-285 north to I-575 • 1 reversible lane on I-75 north to Hickory Grove Road • 1 reversible lane on I-575 north to Sixes Road • 9 access points (6 ML interchanges & 3 slip ramp accesses)	• 4 lanes (2 in each direction) on I-75 north to I-285 • 2 lanes (1 in each direction) on I-75 to Hickory Grove Road • 2 lanes (1 in each direction) on I-575 to Sixes Road • 10 access points (all HOV interchanges)	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative
Additional TOL Lanes	• None	• 4 lanes (2 each direction) on I-75 from I-285 north to Hickory Grove Rd	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative
Tolled Lanes	• ETL	• HOT Option (HOT3+) • TOT Option	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative
Park-and-Ride Lots	• Planned lots	• Planned lots • Minor expansion	• Planned lots • Major expansion	• Planned lots • Major expansion	• Planned lots • Major expansion
Transit					
Additional Transit Services	• Planned services Recent GRTA expansion of express bus services and new park-and-ride lots provide superior service to previous assumptions in the AA/DEIS (GRTA, 2009).	• Planned services	• Planned services • Expanded local and express	• Planned services • Expanded local and new BRT services and 5 BRT stations (Town Center, Marietta, Franklin, Terrell Mill, Cumberland)	• Planned services • Expanded local and new BRT services and 3 BRT stations (Town Center, Marietta, Franklin)
Transit Centers	• Marietta • Cumberland	• Marietta • Cumberland	• Marietta • Cumberland • Town Center • Franklin	• Marietta	• Marietta • Cumberland

Table 2-3. Summary of Alternative Attributes and Environmental Impacts (continued)

Attributes	Preferred Alternative	HOV/TOL Alternative	HOV/TOL/TSM Alternative	HOV/TOL/BRT Alternative	HOV/TOL/Reduced BRT Alternative
MARTA Arts Center Station Expansion	• None	• None	• New bus bays	• New bus bays	• New bus bays
Cost Estimate					
Capital Cost Estimate	$ 0.968 Billion	$ 3.52 Billion	$ 3.92 Billion	$ 4.07 Billion	$ 3.80 Billion
Key Environmental Impacts (other environmental impacts result in little or no differences between alternatives)					
Acquisition of Right-of-Way (I-75 between I-285 and I-575)	• West side – 0 to 145 ft. • East side – 0 ft.	• West side – 0 to 300 ft. • East side – 0 to 140 ft.	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative	• Same as HOV/TOL Alternative
Displacements	• 13 full & 63 partial acquisitions, affecting 76 parcels • 6 residences and 12 businesses • 18 displacements	• 93 full and 197 partial acquisitions, affecting 290 parcels • 294 residences and 46 businesses • 340 displacements	• 95 full &195 partial acquisitions, affecting 290 parcels • 302 residences and 46 businesses • 348 displacements	• 109 full and 195 partial acquisitions, affecting 304 parcels • 328 residences, 48 businesses, 1 other • 377 displacements	• 111 full and 190 partial acquisitions, affecting 301 parcels • 328 residences and 48 businesses, 1 other • 377 displacements
Economic Impacts	• Construction spending would generate 9,705 person years of employment • 33 employee displacements • $105,000 annual reduction in property taxes due to acquisitions	• Construction spending would generate 22,300 person years of employment • 99 employee displacements • $5,687,000 annual reduction in property taxes due to acquisitions	• Construction spending would generate 20,600 person years of employment • 99 employee displacements • $5,687,000 annual reduction in property taxes due to acquisitions	• Construction spending would generate 27,700 person years of employment • 121 employee displacements • $5,808,000 annual reduction in property taxes due to acquisitions	• Construction spending would generate 24,400 person years of employment • 121 employee displacements • $5,645,000 annual reduction in property taxes due to acquisitions
Environmental Justice	• 6 residential displacements in low-income and minority block groups • 12 commercial displacements (on 7 parcels) in low-income and minority block groups	• 274 residential displacements in low-income and minority block groups	• 282 residential displacements in low-income and minority block groups	• 306 residential displacements in low-income and minority block groups • Enhanced transit access	• Same as HOV/TOL/BRT Alternative

Table 2-3. Summary of Alternative Attributes and Environmental Impacts (continued)

Attributes	Preferred Alternative	HOV/TOL Alternative	HOV/TOL/TSM Alternative	HOV/TOL/BRT Alternative	HOV/TOL/Reduced BRT Alternative
Hazardous Materials	• 8 acquired sites are rated Medium or High	• 22 acquired sites are rated Medium or High	• 24 acquired sites are rated Medium or High	• 26 acquired sites are rated Medium or High	• 24 acquired sites are rated Medium or High
Noise *	• Road traffic would affect 1,590 Category B dwellings, 486 Category C properties, and 59 Category E properties	• Road traffic would affect 686 Category B properties and 55 Category C properties	• Same HOV/TOL Alternative	• Same HOV/TOL Alternative	• Same HOV/TOL Alternative
Water Resources	• 3,025 linear ft. of surface waterways impacted • 0.3 acres of wetlands impacted • 17 acres of 100-year floodplain impacted	• 16,182 linear ft. of surface waterways impacted • 4.2 acres of wetlands impacted • 52.98 acres of 100-year floodplain impacted	• 16,182 linear ft. of surface waterways impacted • 4.35 acres of wetlands impacted • 52.98 acres of 100-year floodplain impacted	• 16,353 linear ft. of surface waterways impacted • 4.35 acres of wetlands impacted • 53.28 acres of 100-year floodplain impacted	• 16,182 linear ft. of surface waterways impacted • 4.2 acres of wetlands impacted • 53.08 acres of 100-year floodplain impacted

Notes: HOV = high-occupancy vehicle; BRT = bus rapid transit; TOL = truck-only lane; ETL = Express Toll lanes; GP = General-purpose lanes.
* The GDOT noise policy was changed in July 2011 and this change accounts for much of the difference between the Preferred Alternative noise impacts when compared to the other alternatives that were evaluated under the old noise policy.

Table 2-4. Planned Highway Capacity Improvements in the Study Area

Map No.	Project	Roadway Segment	Length (miles)	Status	Included in No-Build?
1	Northwest Corridor (I-75 and I-575) Managed Lanes	Akers Mill Rd to Town Center Area on I-75 and I-75 to SR 20 on I-575	20.0	Programmed	No
2	I-575 Widening (+2 lanes)	I-75 North to SR 5 Business in Cherokee County	20.1	Long Range	Yes
3	I-285 North Managed Lanes (+4 lanes)	I-75 North in Cobb County to I-85 North in DeKalb County	13.2	Programmed	No
4	I-285 West Managed Lanes (+4 lanes)	I-20 West in Atlanta to I-75 North in Cobb County	9.6	Long Range	No
5	I-20 West Managed Lanes (+4 lanes)	From SR 280 (H.E. Holmes Drive) in Atlanta to SR 6 (Thornton Road) in Douglas County	8.1	Long Range	No
6	Shiloh Rd/Shallowford Rd (+2 lanes)	From Cherokee St/Wade Green Rd to Canton Rd	4.8	Programmed	Yes
7	Bells Ferry Rd Widening (+2 lanes) – 3 projects	Southfork Way to North of Sixes Rd	5.2	Programmed	Yes
8	I-575 at Ridgewalk Pkwy	New Interchange	N/A	Programmed	Yes
9	US 41 Cobb Pkwy Widening (+4 lanes) and Grade Separation at Windy Hill Rd – 5 projects	Windy Ridge Pkwy to SR 120 (North Marietta Pkwy)	5.9	Long Range	Yes
10	US 41 Cobb Pkwy Widening (+2 lanes)	Bridge over Chattahoochee River to Akers Mill Rd	1.2	Programmed	Yes
11	Big Shanty Rd Widening (+2 lanes)	Busbee Pkwy to Chastain Meadows Pkwy	0.7	Programmed	Yes
		Chastain Meadows Pkwy to Bells Ferry Rd	0.4	Long Range	Yes
12	Big Shanty Rd Extension (4 lanes) – 2 projects	Busbee Pkwy to Chastain Rd	0.9	Programmed	Yes
13	I-75/I-85 Bridge and Managed Lanes and Interchange	At 15th St in Atlanta	0.5	Long Range	Yes
14	I-75 Improvements	I-285 North to Delk Rd	N/A	Programmed	Yes
15	South Barrett Pkwy Reliever – Greers Chapel Rd Widening (+2 lanes)	US 41 (North Cobb Pkwy) to Shiloh Valley Dr	1.0	Programmed	Yes
16	South Barrett Pkwy Reliever – New Alignment (4 lanes)	Greers Chapel Rd South of Intersection with Barrett Pkwy to Bells Ferry Rd	1.6	Long Range	Yes
17	Sixes Rd Bridge Widening (+2 lanes)	At I-575	N/A	Programmed	Yes
18	Sixes Rd Widening (+2 lanes)	I-575 to Old SR 5 (Holly Springs Pkwy)	0.3	Programmed	Yes
19	Leland Dr Extension (+2 lanes widening, 4 lanes new)	Windy Hill Rd to Terrell Mill Rd	0.8	Programmed	Yes
20	Windy Hill Rd Westbound Widening (+1 lane)	East of Powers Ferry Rd to Spectrum Cir	0.2	Programmed	Yes
21	Powers Ferry Rd Northbound Widening (+1 lane)	Wildwood Pkwy to Terrell Mill Rd	0.3	Programmed	Yes
22	Jiles Rd (+2 lanes)	Cherokee St/Wade Green Rd to US 41 (North Cobb Pkwy)	3.3	Programmed	Yes
23	SR 92 (Lake Acworth Dr/Cowan Rd) (+2 lanes)	US 41 (North Cobb Pkwy) to Cowan Rd at I-75 North	3.9	Programmed	Yes

Notes: The length of Project 1 was not correctly reflected in the *Envision6* TIP through Amendment 7. The correct project length is 29.7 miles. See sections 2.3.1.1 and 2.3.1.5.

N/A = Not Applicable.
Source: ARC, 2009d.

developed by the Georgia Environmental Protection Division (EPD) and approved by the USEPA.

The planned transportation improvements in the RTP are incorporated in the traffic modeling and analysis for the proposed project. Among the RTP highway improvements for the study area that are assumed to be included in the No-Build Alternative are a new interchange on I-575 at Ridgewalk Parkway, improvements on I-75 northbound from I-285 to Delk Road, and the widening of several arterial roads, including SR 92, Bells Ferry Road, Big Shanty Road, and US 41.

The RTP also includes the widening of I-575 from four to six lanes (one lane in each direction). This proposed third lane improvement on I-575 is included in the modeling because it is a general-purpose lane project and would be expected to reduce the usage of the proposed managed lane on I-575. With more free capacity on I-575, there would be less demand for the use of a lane that would require payment to use. As such, this improvement has been included in both the No-Build and Preferred Alternatives in order to avoid overstating the benefits of the Preferred Alternative.

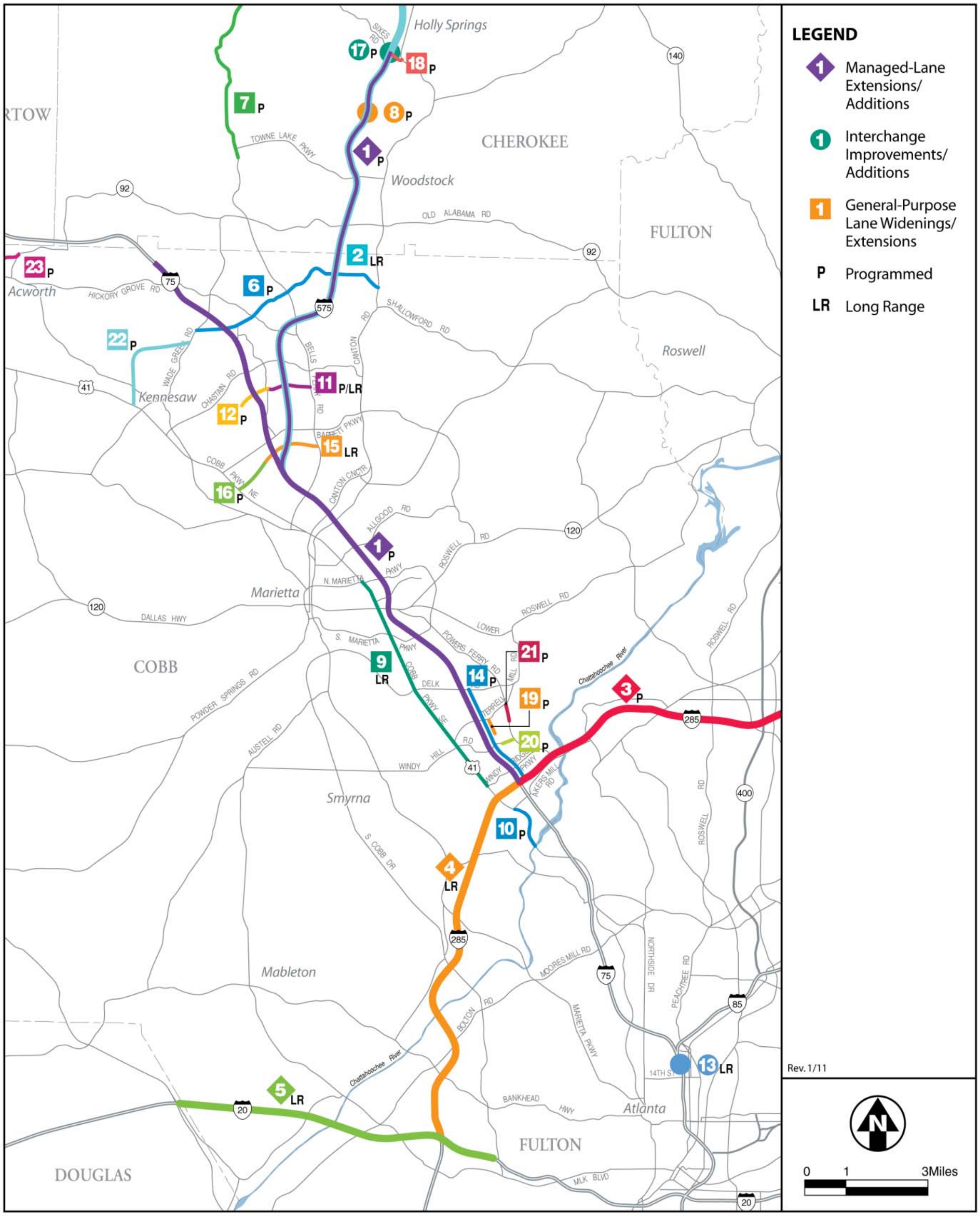
In addition, the No-Build Alternative incorporates highway improvements included in the RTP (ARC, 2007b) that are located outside of the study area. The exceptions are the planned long-range managed-lane improvements to I-285 and I-20 West. The two I-285 projects and the I-20 West project are not included in the No-Build Alternative because they are managed-lane projects and they would be expected to increase usage of the proposed managed lanes on I-75. The I-285 and I-20 West projects would allow users of the I-75 managed lanes to continue in a free-flowing managed-lane system to farther destinations without having to merge into congested general-purpose lanes. As such, these long-range improvements are excluded from the No-Build Alternative because they affect the benefits of the proposed improvements to I-75 and there is risk that implementation of the improvements may not occur as planned.

Table 2-4 lists the planned study area highway improvements included in the RTP and the FY 2008-2013 TIP. All of these projects add capacity. Those projects that do not add capacity are excluded. These improvements are shown in Figure 2-2 and individual projects shown are keyed to the table.

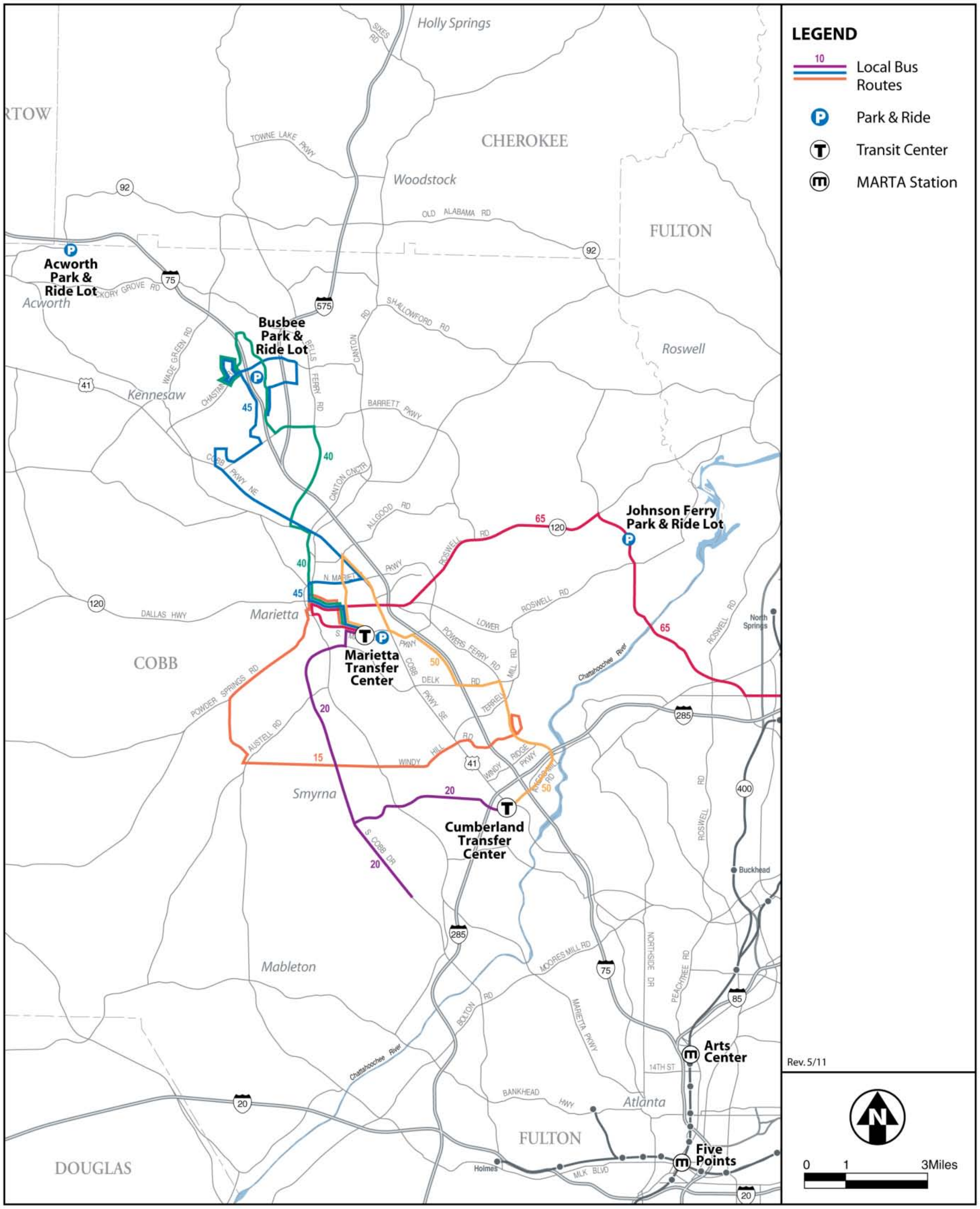
2.2.2 Transit System

The transit system network under the No-Build Alternative consists of all of the transit services and facilities defined by the ARC existing transit network plus the short-range and long-range transit improvements from the RTP. The description of these transit services is summarized from AA/DEIS Section 2.4.1.2 starting on page 2-32 and updated based on *Xpress Financial and Service Plan* (GRTA, 2009).

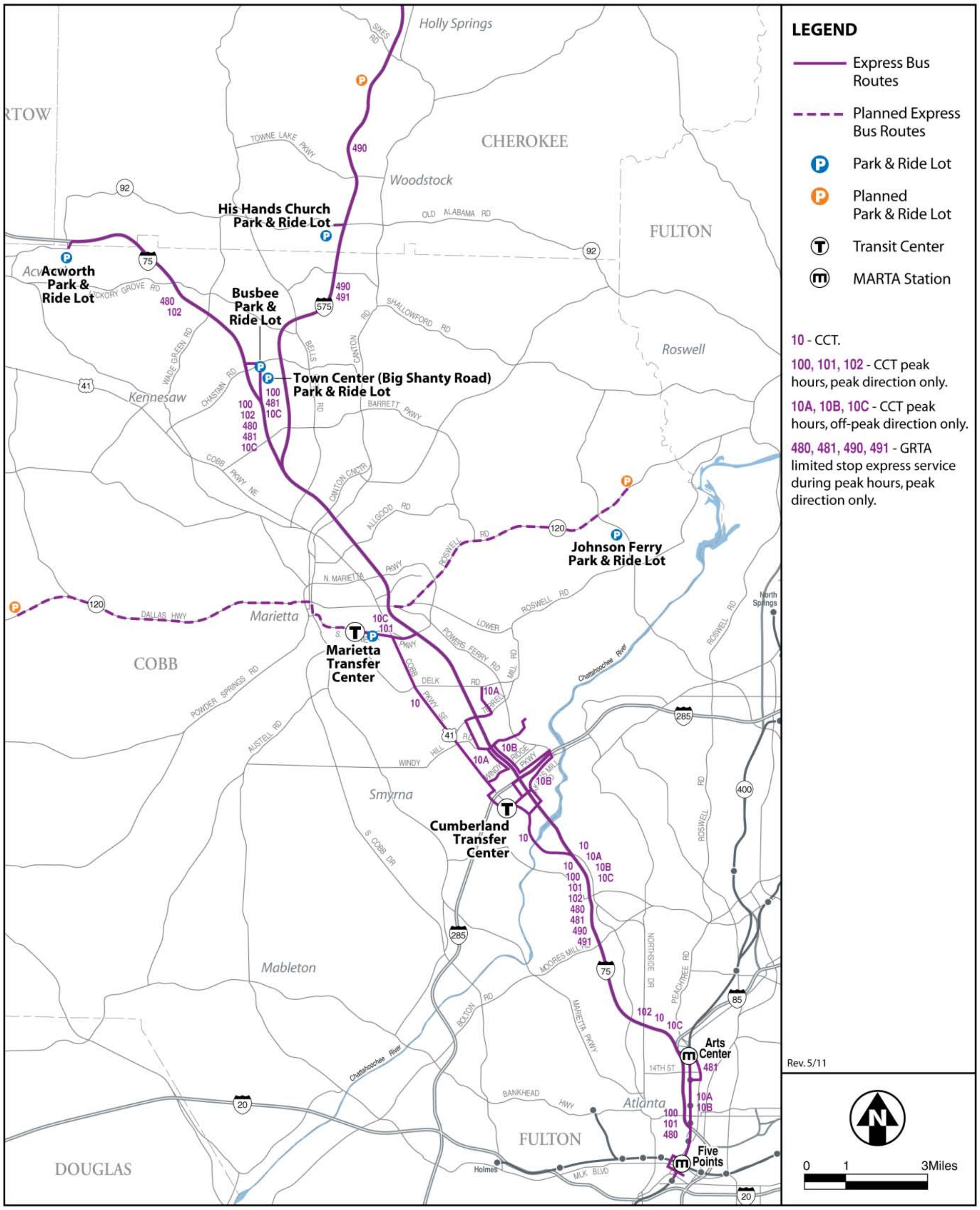
Both local and express transit services would operate in the I-75 corridor under the No-Build Alternative. Transit services are planned to expand substantially through 2015. Cobb Community Transit (CCT) operates six local routes (15, 20, 40, 45, 50 and 65) in the study area (see Figure 2-3). In addition, CCT operates one express route (10) throughout the day, three express routes (100, 101 and 102) in the peak-hours peak direction and three routes (10A, 10B and 10C) that serve the reverse – peak-hours off-peak direction. GRTA operates four limited-stop express routes (480, 481, 490 and 491) on I-75 and I-575 (see Figure 2-4).



Source: ARC, 2009d.



Source: CCT, 2011.



Sources: GRTA, 2009; CCT, 2011.

Between 2010 and 2015, the number of express bus routes operated by GRTA is planned to increase from four to six routes, 11 to 24 vehicles during peak periods, and 925 to almost 1,400 daily boardings. The express bus service operating on I-75 through the corridor would originate at the existing Acworth, Busbee, Town Center, and Woodstock park-and-ride lots and stop at the Marietta and Cumberland Transfer Centers. New park-and-ride lots are also planned for South Cherokee County, East Cobb County, and West Cobb County (see Table 2-5). These transit improvements would provide service to destinations in Midtown, downtown Atlanta, and the MARTA rail stations (see Figure 2-4). Three other GRTA express bus routes would operate in the study area, but not on I-75. These include routes 470 between Hiram and downtown Atlanta via US 278, SR 6 and I-20 West; route 477 between Hiram and Midtown and downtown Atlanta via US 278, SR 6 and I-20 West; and route 475 between Austell and downtown Atlanta via I-20.

Table 2-5. Existing and Planned Express Transit Services for the I-75 Corridor

Park-and-Ride Lot	Year of Opening	Number of Parking Spaces	Bus Routes
Existing Service			
His Hands Church P&R (Woodstock)	2009	400	490/491
Acworth P&R	2005	496	480/C102
Busbee P&R	2004	364	480/C100
Marietta Transfer Center P&R	N/A	287	C101/C10C
Town Center P&R	2010	646	481/C100/C10C
Subtotal		2193	
Planned Service			
South Cherokee P&R (nr. Rope Mill Rd)	2012	750	490/491
West Cobb P&R **	2012	500	485 (new)
East Cobb P&R **	2013	500	484 (new)
Subtotal		2250	
TOTAL		4443	

Notes: P&R = park-and-ride lot; C = CCT express bus route. All the other bus routes are provided by GRTA.
N/A = denotes the park-and-ride facilities are old and were not part of the initial GRTA express bus services.
** = These park-and-ride lots are located distant to the study area.
Sources: GRTA, 2009; CCT, 2011.

Express bus services would be frequent with buses departing from the park-and-ride lots roughly every seven to ten minutes for downtown Atlanta. Other peak period express services would be about every 15 minutes. The GRTA limited-stop express buses would have only limited numbers of buses, perhaps three to five departures in both the morning and evening peak periods. During off-peak periods, local bus frequency would be every 60 to 90 minutes, or possibly not at all.

2.3 Preferred Alternative

This section describes the Preferred Alternative evaluated in this FEIS. Table 2-4 presents a summary of the improvements under the Preferred Alternative as well as the improvements under the No-Build Alternative, which are also incorporated in the Preferred Alternative. The roadway typical sections under the Preferred Alternative are provided in Appendix G. The proposed highway improvements are illustrated on the conceptual plan drawings contained in Appendix H. These conceptual design drawings were used for the purposes of developing cost estimates and identifying environmental effects. The drawings are subject to refinement as the project is advanced through future phases of preliminary engineering and final design.

Under the Preferred Alternative, the existing managed lanes (i.e., HOV lanes) would be extended north of Akers Mill Road on both I-75 and I-575. The proposed managed lanes would terminate just north of Hickory Grove Road and south of Sixes Road, respectively, and would be tolled reversible lanes. The tolling policy for the managed lanes would be ETL where all non-exempt vehicles would pay a toll to use the managed lanes regardless of occupancy (see Section 2.3.1.4 for more information). No additional transit improvements would be implemented to address existing and future 2035 transportation needs in the Northwest Corridor. The transit services would be the same as those described for the No-Build Alternative, except express bus routes operating during peak periods would use the new reversible lanes on I-75. Table 2-6 shows the anticipated directional split in ADT volumes under the Two-Lane Reversible Alternative in the opening (2015) and design (2035) years. The table indicates that during the morning peak period, the southbound traffic would have the higher split with 60 to 62 percent of the total traffic (including general-purpose and managed lanes) in 2015 and 62 to 67 percent under 2035 conditions. During the evening peak period, the northbound traffic would have the higher split with 55 to 62 percent of the traffic (including general-purpose and managed lanes) in 2015 and 60 to 65 percent under 2035 conditions.

Table 2-6. Anticipated Direction Split for Preferred Alternative

	2015 Build				2035 Build			
	AM		PM		AM		PM	
Location	SB	NB	SB	NB	SB	NB	SB	NB
I-75 just South of the I-75/I-575 Interchange	62%	38%	40%	60%	65%	35%	38%	62%
I-75 at Vicinity of SR 3 Conn/Roswell Road	62%	38%	42%	58%	65%	35%	35%	65%
I-75 North of the I-75/I-575 Interchange	61%	39%	38%	62%	62%	38%	37%	63%
I-575 North of the I-75/I-575 Interchange	60%	40%	45%	55%	67%	33%	40%	60%

Notes: AM = morning peak period; PM = evening peak period; NB = northbound; SB = southbound.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

2.3.1 Highway System Improvements

The highway system network under the Preferred Alternative would be the same as described for the No-Build Alternative. The improvements to the highway network would consist of constructing new managed lanes (reversible lanes) on I-75 and on I-575. New managed-lane interchanges, separate from the existing general-purpose interchanges, or slip ramps would be constructed to provide access to the new reversible lanes. The following sections describe the highway system improvements under the Preferred Alternative.

2.3.1.1 Overview of Improvements

The Preferred Alternative would extend the existing managed-lane system on I-75 south of I-285 (Akers Mill Road) north through the Northwest Corridor. This extension of managed lanes on I-75 would provide system-to-system connections to the existing I-75 managed lanes (HOV lanes, one in each direction terminating at Akers Mill Road), the planned managed lanes on I-285, and the proposed managed lane extending north along I-575 that is part of this project. The managed lanes would end north of Hickory Grove Road on I-75 and south of Sixes Road on

I-575. These improvements are part of GDOT's adopted *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a) for the Atlanta metropolitan region.

Under the Preferred Alternative, two new managed lanes would be constructed on I-75 between Akers Mill Road and the I-75/I-575 interchange. A single managed lane would continue north on I-75 from the I-75/I-575 interchange to Hickory Grove Road. Similarly, a single managed lane would continue north on I-575 from the I-75/I-575 interchange to a point north of Ridgewalk Parkway and south of the Sixes Road interchange. The length of the managed-lane segment on I-75 is approximately 16.8 miles, and approximately 11.3 miles on I-575. Connecting the I-75 managed lanes to I-285 would require an additional approximately 1.6 miles of construction on I-285 for a total project length of 29.7 miles. The new managed lanes south of the I-75/I-575 interchange would be designed for highway speeds of 55 mph, while the new managed lanes north of the I-75/I-575 interchange would be designed for highway speeds of 65 mph. Figure 2-5 shows the location and number of managed lanes proposed on I-75 and I-575. Table 2-7 identifies the number of lanes and access points by highway segments.

Table 2-7. Characteristics of the Preferred Alternative by Highway Segment

Corridor Segment	Preferred Alternative
Segment 1 (I-75 South Section)	2 R lanes 4 MLI accesses
Segment 2 (I-75 Middle Section)	1 R lane 1 MLI access
Segment 3 (I-75 North Section)	1 R lane 1 MLI access
Segment 4 (I-575 Section)	1 R lane 3 SR accesses

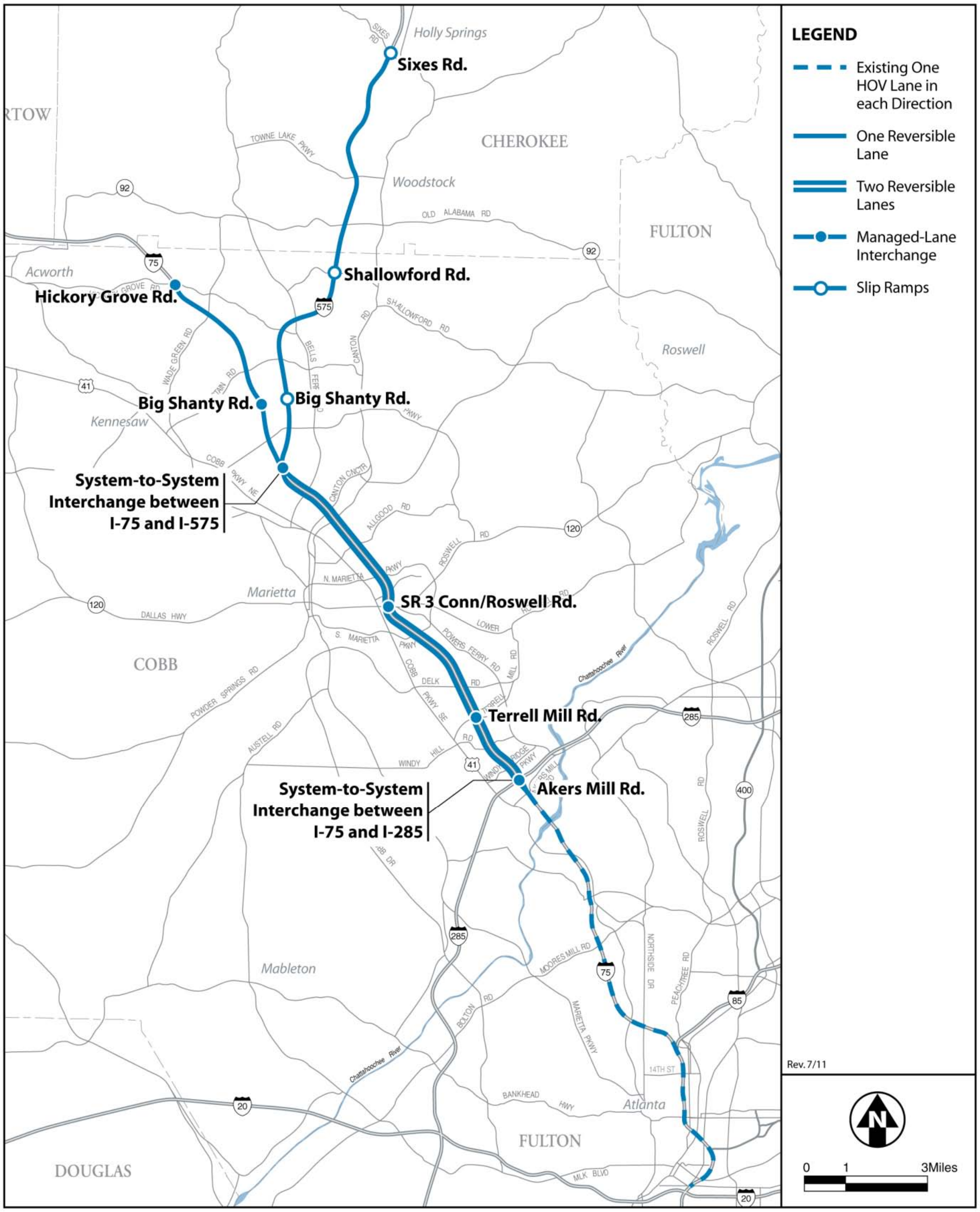
Notes:
Segment 1 – I-75 South Section extends from Akers Mill road north to the I-75/I-575 interchange.
Segment 2 – I-75 Middle Section extends from north of the I-75/I-575 interchange north to Big Shanty Road.
Segment 3 – I-75 North Section extends from Big Shanty Road to Hickory Grove Road.
Segment 4 – I-575 Section extends from just northeast of the I-75/I-575 interchange north to Sixes Road.
R = reversible lanes.
MLI = managed lane interchange.
SR = slip ramp accesses.

Unlike the existing HOV lanes on I-75 south of I-285, the new managed lanes on I-75 would be reversible lanes. The directional flow of the lanes would change during the day. During the morning peak commute period, the lanes would only accommodate southbound traffic. During the evening peak commute period, the directional flow of the traffic would be reversed to accommodate only northbound traffic. Like the two reversible lanes on I-75, the single reversible lanes north of the I-75/I-575 interchange would only accommodate peak period directional flows.

To maximize use of the reversible lanes, analysis would be conducted to identify the specific times of day directional flow of the reversible lanes would change. Following typical operational patterns, it would be expected the reversible lanes would likely operate in a southbound direction from very early in the morning to about mid-day. The operational flow would change to northbound and continue from mid-day through to the early hours of the morning. As such, the reversible lanes would be operational all day (with the exception of the two periods each day when the direction of operation of the lanes is switched), not just during the peak periods.

Location and Number of Reversible Lanes

Figure 2-5



During peak periods, contra-flow traffic (i.e., morning northbound traffic, evening southbound traffic) would not be able to use the proposed reversible-lane system in the Northwest Corridor. The contra-flow traffic would have to use existing highway general-purpose lanes or alternate arterial roadways. Mechanical arms and/or barriers would prevent contra-flow traffic from accessing the managed-lane system. These barriers would be raised and lowered manually, and would be observable through the real-time video cameras.

Vehicles would use both managed-lane interchanges and slip ramps to access the reversible lanes (see Figure 2-5). A total of six new managed-lane interchanges would be constructed on I-75. These new managed-lane interchanges would be separately located from the existing general-purpose interchanges. In contrast, three pairs of slip ramps would be constructed to provide access to the reversible lane on I-575. These slip ramps would allow traffic in the inside general-purpose lanes to merge to the median area of the highway where the new reversible lane would be constructed. Separate slip ramps would be used for northbound and southbound traffic to prevent contra-flow traffic entering the reversible lane.

The new managed-lane interchanges at Terrell Mill Road, SR 3 Conn/Roswell Road, Big Shanty Road, and Hickory Grove Road would be constructed on the west side of the I-75 managed lanes. This would permit right-side exit and entrance in the morning peak period (southbound) and left-side entrance and exit in the evening peak period. A single ramp on either side of the cross roadway would be provided and intersect at a single signalized intersection. The exception is Hickory Grove Road, which would only have a south-facing ramp due to its close proximity to the north terminus on I-75. The ramps would operate in the direction of flow for the managed lane; southbound exit and entrance in the morning peak period, and northbound exit and entrance in the evening peak period. The other side of the ramp would be physically gated at several locations and would not operate at the time the adjacent ramp does. In the morning peak period, the ramp lane on the north side of the cross street would operate as an exit ramp, and the ramp on the south side would operate as an entrance ramp. The adjacent lane(s) would be gated. In the evening peak period, the ramp south of the cross street would be an exit ramp for the managed lanes; and north of the cross street, would be an entrance ramp to the managed lanes. The adjacent lane(s) again would be gated. Figure 2-6 illustrates a managed lane interchange as proposed at SR 3 Conn/Roswell Road on I-75.

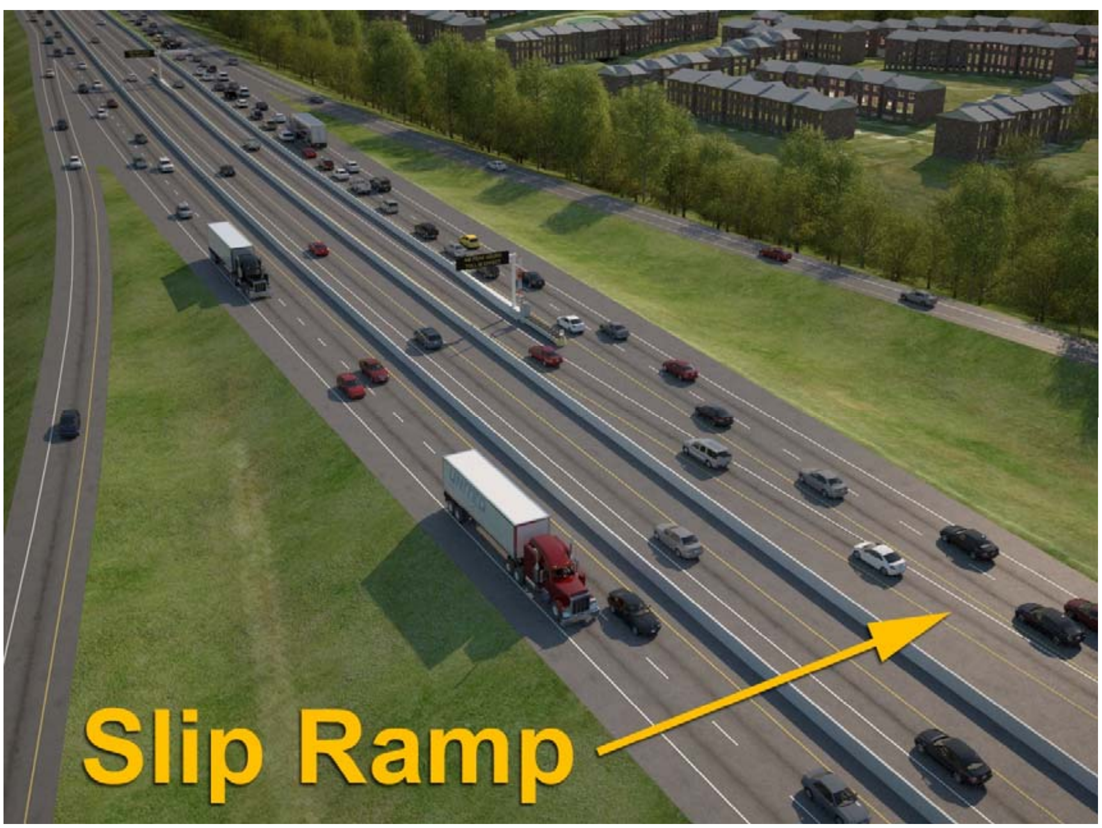
The slip ramps on I-575 include three ramps in each direction, northbound and southbound. The slip ramps would operate as left-side ramps between the managed lane and the general-purpose lanes. They would only be open in the direction of operation of the managed lane – southbound in the morning and northbound in the evening. A taper would be provided along the inside lane of I-575 in each direction, southbound as an exit from the general-purpose lanes and northbound as an entrance to the general-purpose lanes. A respective taper would be provided at the connection of the slip ramp to the managed lane, southbound as an entrance to the managed lane and northbound as an exit from the managed lane. Figure 2-7 illustrates a southbound slip ramp as proposed on I-575.

2.3.1.2 Reversible Lanes on I-75

Under the Preferred Alternative, the two new reversible managed lanes on I-75 would generally be horizontally aligned on the west side of the existing travel lanes between Akers Mill Road and the I-75/I-575 interchange. This alignment would minimize adverse effects to various natural and man-made environmental resources located on the east side of the highway including streams, wetlands, and two cemeteries. North of the I-75/I-575 interchange, a single reversible lane continuing north on I-75 would be constructed in the highway median.

Figure 2-6. Managed-Lane Interchange Concept at SR 3 Conn/Roswell Road on I-75

Figure 2-7. Slip Ramp Concept for I-575 (southbound)



Considering the proposed horizontal alignment, new right-of-way for construction of the reversible lanes would be limited to the I-75 corridor between Akers Mill Road and the I-75/I-575 interchange. This is where the managed lanes would be aligned to the outside of the existing southbound travel lanes. New right-of-way generally would be required on the northwest side of the I-75/I-285 interchange and along the west side of I-75 from Windy Hill Road to a point north of Bells Ferry Road. Table 2-8 identifies the specific width of additional right-of-way requirements by segment along I-75. Except for one segment, no more than 110 feet of right-of-way would generally be anticipated for the new reversible lane system, including the new managed-lane interchanges and slip ramps. However, up to about 150 feet of additional right-of-way would be required between South Marietta Parkway and SR 3 Conn/Roswell Road. Additional right-of-way would be required for the relocation of Frey's Gin Road at its intersection with SR 3 Conn/Roswell Road. No additional right-of-way would be required along I-75 between the I-75/I-575 interchange and Hickory Grove Road. These values reflect the conceptual design shown in Appendix H. This design has been reviewed for constructability and accounts for the land needed to construct the project, including the land needed for bridge crane placement, retaining wall construction, and grading.

Table 2-8. Approximate Additional Right-of-Way Requirements for I-75 for the Preferred Alternative

I-75 Segment	Width in Feet	
	East	West
North of Barrett Pkwy	0	0
I-575 to Barrett Pkwy	0	0
Bells Ferry Rd to I-575	0	0 to 39
SR 5 Connector to Bells Ferry Rd	0	0 to 81
Allgood Rd to SR 5 Connector	0	0 to 31
N Marietta Pkwy to Allgood Rd	0	0 to 25
Gresham Rd to N Marietta Pkwy	0	0 to 17
SR 3 Conn/Roswell Rd to Gresham Rd	0	32 to 108
S Marietta Pkwy to SR 3 Conn/Roswell Rd	0	0 to 145
Delk Rd to S Marietta Pkwy	0	0 to 28
Windy Hill Rd to Delk Rd	0	0 to 74
I-285 to Windy Hill Rd	0	0 to 78
Akers Mill Rd to I-285	0	0

The vertical alignment for the reversible lanes would change for different segments of the highway. From Akers Mill Road to just north of Windy Ridge Parkway, two new bi-directional lanes would be at-grade in the median of I-75. A fly-over ramp beginning in the median would tie this system to the managed lane system to the west of I-75. This configuration would allow the connection of the reversible lanes to the existing at-grade HOV lanes as well as connecting the reversible lanes to both westbound and eastbound directions of the planned I-285 managed lanes via elevated ramps. The two reversible lanes would remain on elevated structures to pass over the southbound lanes of I-75, merge to a single lane, and continue northward on the west side of the highway.

From Windy Hill Road north to about Bells Ferry Road, the two reversible lanes would generally be constructed on an elevated structure on the west side of the existing highway lanes. As the alignment proceeds northwards, it would encounter both overpasses crossing I-75 as well as below-grade roads where I-75 crosses over cross-streets. To minimize project costs and reconstruction of every existing overpass across I-75, the elevated managed lanes also would be constructed over the existing overpasses and bridge structures. In certain locations, where the geometry of the existing bridges permits, the proposed managed lanes would go under existing overpasses. Where below-grade cross streets are encountered, the reversible lanes would be basically at-grade in relation to the I-75 general-purpose lanes, but on a bridge structure over the below-grade cross-streets. However, because the construction of structures is expensive, the reversible lanes would be elevated on mechanically-stabilized earthen walls or retaining walls when appropriate. To facilitate construction, the proposed reversible lanes would typically be built with an 18- to 25-foot offset from the outside shoulder of the existing southbound I-75 general-purpose lanes. The existing shoulders on I-75 would remain at their current widths.

As a result, the proposed reversible lanes on I-75 would not require the reconstruction of any of the existing bridge structures across the highway, including the Georgia Northeastern Railroad bridge south of the Canton Road Connector. South of the I-75/I-575 interchange, the two reversible lanes would be constructed on structures that would go over the west approaches of the existing general-purpose interchanges. These include the existing interchanges at I-285, Windy Hill Road, Delk Road, South Marietta Parkway, North Marietta Parkway, and the Canton Road Connector. At South Marietta Parkway the proposed lanes would go over the existing southbound entrance ramp, but under South Marietta Parkway and under the southbound exit ramp.

At about Bells Ferry Road, the two reversible lanes west of the highway would descend to grade level in the highway median and continue north. South of the Barrett Parkway interchange, a single reversible lane would continue north in the highway median to Hickory Grove Road. North of the I-75/I-575 interchange, the single reversible lane would be constructed in the median under existing bridges at Barrett Parkway, Chastain Road, and Wade Green Road. At Hickory Grove Road, traffic on the single reversible lane could either continue northwards by merging into the general-purpose lanes or the traffic would exit the managed lane system at the new managed-lane interchange.

In fact, except for the north terminus access to the proposed I-75 managed-lanes, access would only be permitted via new managed-lane interchanges. For safety reasons and to avoid confusion and congestion, traffic would not be able to access the managed lanes via the existing general-purpose interchanges. The six new managed-lane interchanges would be at the following locations: I-285, Terrell Mill Road, SR 3 Conn/Roswell Road, I-575, Big Shanty Road, and Hickory Grove Road. These special interchanges would control access for both northbound and southbound traffic during evening and morning commute periods, respectively.

At the access points, a mechanical barrier would be installed to prevent peak-period contra-flow traffic from entering the reversible lanes. For example, during the morning peak period the barrier would prevent northbound traffic at I-285 from entering the I-75 reversible lanes serving southbound commuters. Between the two peak periods, the mechanical barriers would be changed. So, in the example above, only the northbound traffic would be permitted to enter the reversible lanes during the evening peak period at I-285. Similarly, barriers would be used at both the south and north termini of the managed lanes on I-75 to prevent contra-flow traffic from entering the system. Additionally, barriers would be installed to separate the managed lanes from the general-purpose lanes.

The proposed typical cross-section for the I-75 improvements from the I-285 system to the I-75/I-575 interchange provides for two 12-foot reversible lanes with an outside (west side) 10-foot shoulder and an inside (east side) 2-foot shoulder. Concrete barriers approximately 42 inches in height would be located on either side of the managed-lane shoulders for the two-lane reversible sections. Figure 2-8 and Figure 2-9 show typical cross-sections proposed on I-75 south of I-575. North of I-575, the single reversible lane would be located in the median of I-75 between the existing travel lanes as shown in Figure 2-10. The reversible lane would be 12 feet wide and would have an outside (west) 10-foot shoulder and an inside (east) 4-foot shoulder. The single reversible lane sections would have a 42-inch high concrete barrier separating it from the adjacent northbound general-purpose lanes. The northbound general-purpose lanes would have an 8-foot paved inside shoulder. Figure 2-11 shows a profile drawing of how the elevated structures would pass over existing I-75 overpasses and bridge structures, such as the Windy Hill Road bridge and the Georgia Northeastern Railroad bridge.

2.3.1.3 Reversible Lanes on I-575

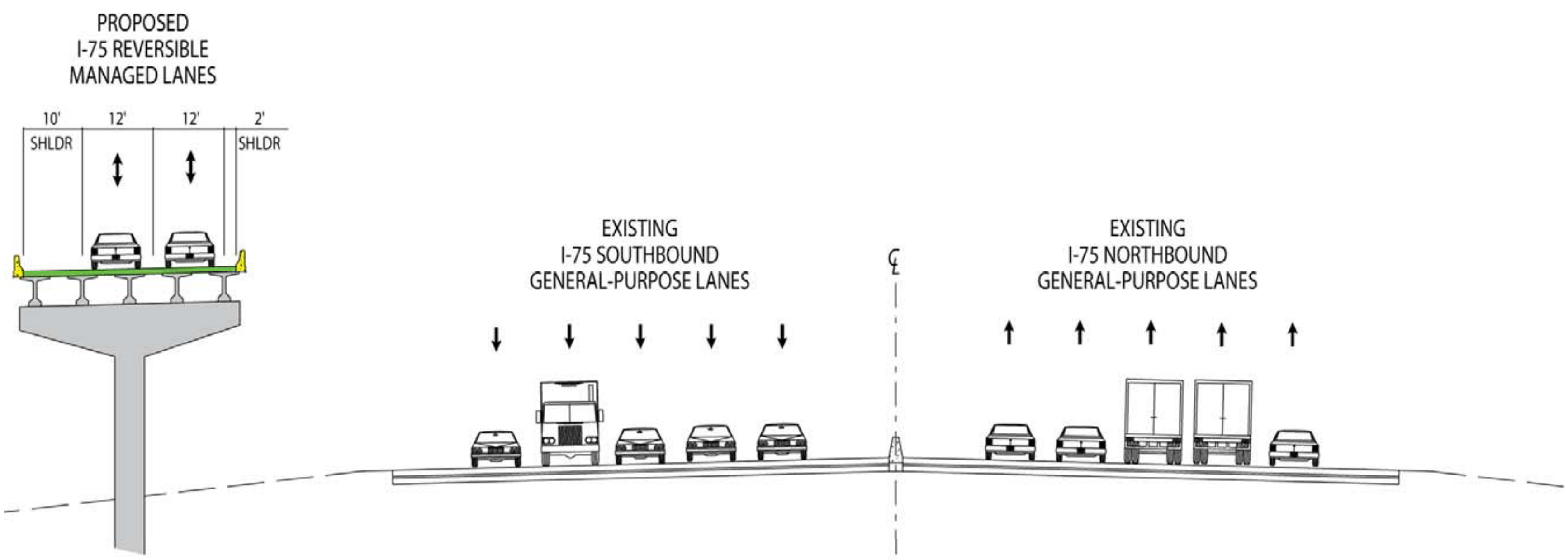
Similar to I-75 north of I-575, a single at-grade reversible managed lane is proposed on I-575 from I-75 to the project terminus south of Sixes Road. The reversible lane would be 12 feet wide and would have an outside (west) 10-foot shoulder and an inside (east) 4-foot shoulder. The single reversible lane sections would have a 42-inch-high concrete barrier separating it from the adjacent northbound general-purpose lanes. The northbound general-purpose lanes would typically have an 8-foot paved inside shoulder. The number of existing general-purpose lanes would remain unchanged, although there is a planned widening of I-575 in the RTP (ARC, 2007b) that would occur following the completion of the construction of the Northwest Corridor Project.

The existing median width and the bridge configurations along I-575 from the I-75 interchange north to Sixes Road are sufficient to accommodate one reversible lane without having to make any changes to existing bridge structures over the highway. Figure 2-12 shows the typical cross-section for the managed lane on I-575. In addition, no modifications would be made to the existing general-purpose interchanges.

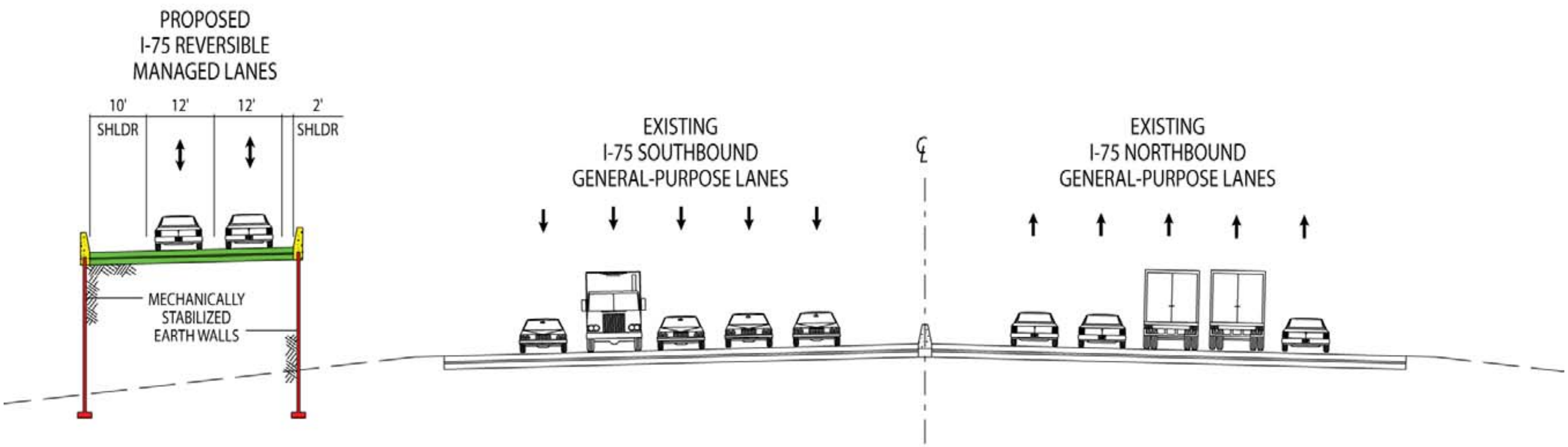
As mentioned earlier, slip ramps rather than managed-lane interchanges would provide access to the single reversible lane in the median of I-575 (see Figure 2-13). At the north terminus, the reversible lane is proposed to lose its managed lane designation approximately 1 mile south of the Sixes Road interchange and transition as an auxiliary lane through to that interchange. The auxiliary lane would become the general-purpose lane north of Sixes Road as the outside general-purpose lane transitions into a second exit ramp lane at Sixes Road. The intent of this design is to minimize safety concerns associated with the slip ramp forced left merge from the reversible lane to the northbound general-purpose lanes.

On I-575, three pairs of slip ramps would provide access to the reversible-lane facility. These slip ramp accesses would be generally located at Barrett Parkway, Shallowford Road, and Sixes Road (see Figure 2-14). The slip ramps are in slightly different locations depending on whether the traffic is southbound or northbound. For southbound traffic, the slip ramp access points would be south of Barrett Parkway (though traffic entering I-575 southbound from Barrett Parkway would not be able to access the managed lane), south of Shallowford Road, and just south of Sixes Road. For the northbound traffic, the slip ramp access points would be located south of Big Shanty Road, north of Shallowford Road, and south of Sixes Road. Note that the southbound access points only allow vehicles to enter the managed-lane system and the northbound access points only allow vehicles to exit the managed-lane system.

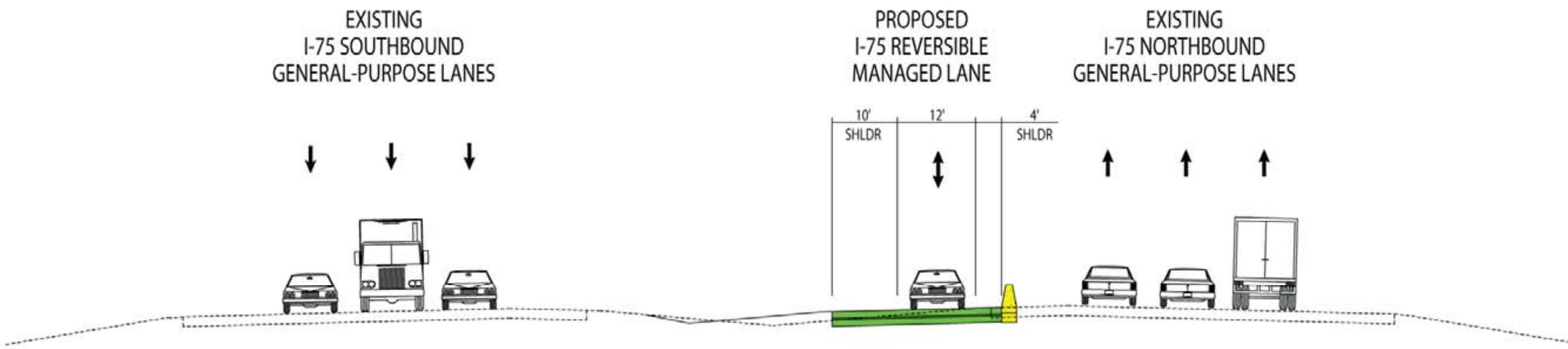
To access the reversible lane on I-575, vehicles would enter the highway via an existing highway general-purpose interchange. As the reversible lanes would be aligned in the highway median, vehicles would change lanes and move to the inside general-purpose lane. Then, vehicles would leave the general-purpose lane and use the slip ramp to access the reversible lane system.



I-75 TYPICAL SECTION
BETWEEN SOUTH MARIETTA PARKWAY AND NORTH MARIETTA PARKWAY
ON BRIDGE



I-75 TYPICAL SECTION
BETWEEN SOUTH MARIETTA PARKWAY AND NORTH MARIETTA PARKWAY
ON WALLS



I-75 TYPICAL SECTION
NORTH OF I-575


MANAGED LANES
WINDY HILL ROAD
EXISTING GROUND
UNDER MANAGED LANES
I-75
I-75
I-75 PROFILE
AT WINDY HILL ROAD
(LOOKING WEST)

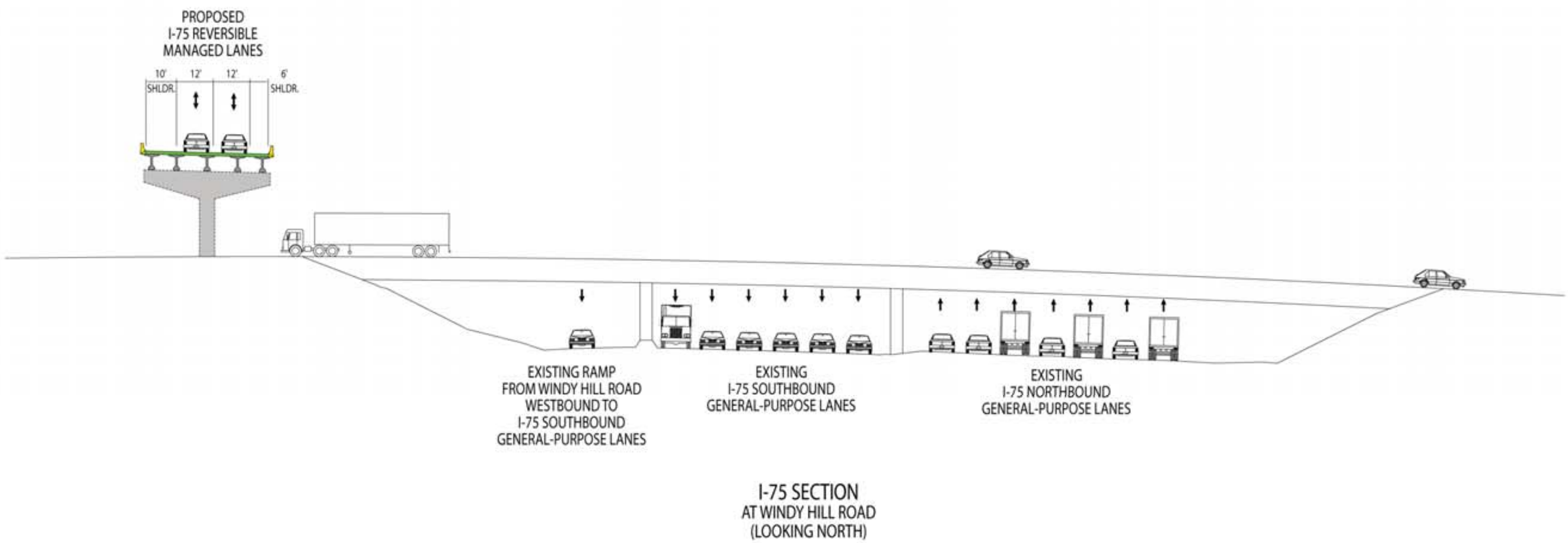

PROPOSED
I-75 REVERSIBLE
MANAGED LANES
10'
12'
12'
6'
SHLDR.
SHLDR.
EXISTING RAMP
FROM WINDY HILL ROAD
WESTBOUND TO
I-75 SOUTHBOUND
GENERAL-PURPOSE LANES
EXISTING
I-75 SOUTHBOUND
GENERAL-PURPOSE LANES
EXISTING
I-75 NORTHBOUND
GENERAL-PURPOSE LANES
I-75 SECTION
AT WINDY HILL ROAD
(LOOKING NORTH)

Figure 2-12. I-575 Typical Section North of I-75

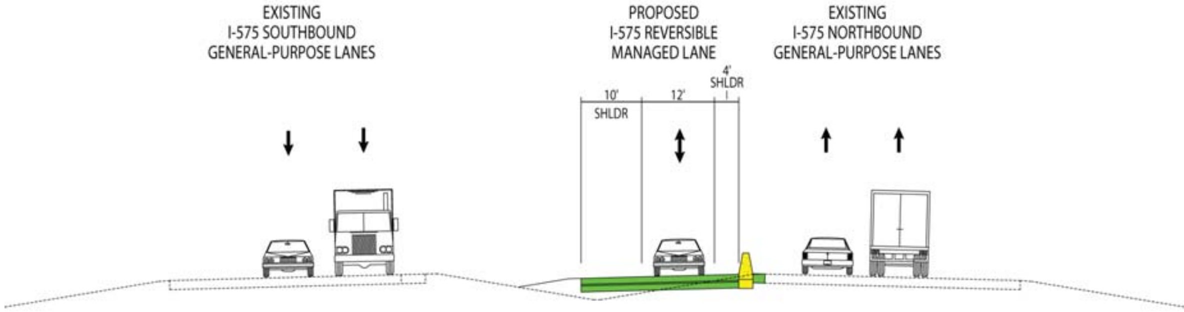
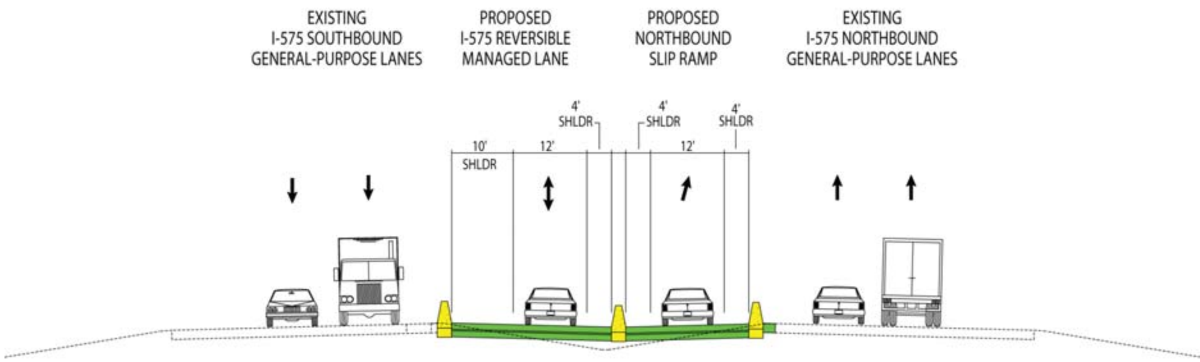
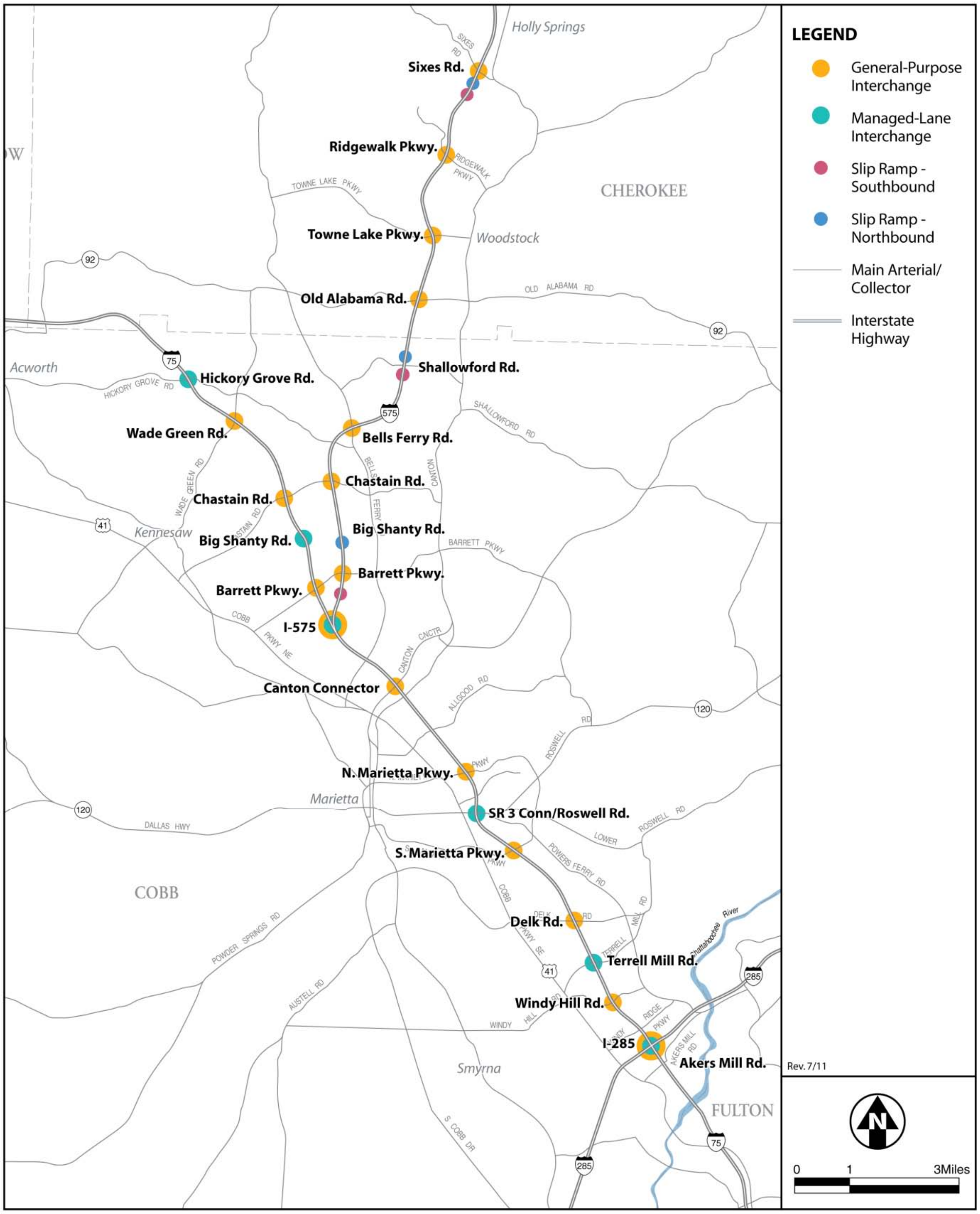


Figure 2-13. I-575 Typical Section of Slip Ramp




LEGEND
General-Purpose Interchange
Managed-Lane Interchange
Slip Ramp - Southbound
Slip Ramp - Northbound
Main Arterial/ Collector
Interstate Highway
Rev. 7/11
0 1 3Miles
Sixes Rd.
Ridgewalk Pkwy.
Towne Lake Pkwy.
Old Alabama Rd.
Shallowford Rd.
Hickory Grove Rd.
Wade Green Rd.
Bells Ferry Rd.
Chastain Rd.
Chastain Rd.
Big Shanty Rd.
Big Shanty Rd.
Barrett Pkwy.
Barrett Pkwy.
I-575
Canton Connector
N. Marietta Pkwy.
SR 3 Conn/Roswell Rd.
S. Marietta Pkwy.
Delk Rd.
Terrell Mill Rd.
Windy Hill Rd.
I-285
Akers Mill Rd.
Holly Springs
Woodstock
CHEROKEE
Acworth
Kennesaw
Marietta
COBB
Smyrna
FULTON

2.3.1.4 Operation of the Reversible Lanes

Background for Tolling

The proposed operation of the Preferred Alternative uses tolling to manage the reversible lanes. The operation is partly based on previous analysis on a tolled managed-lane system presented in the AA/DEIS (see AA/DEIS Section 2.4.2.1, page 2-43). Additionally, in January 2010, GDOT published the *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a) that provides statewide guidance on tolling of planned managed lanes.

Implementing tolling for the Preferred Alternative would expand mobility and increase the use of the proposed reversible managed lanes. The use of HOT lanes (managed by occupancy and tolls) compared to HOV lanes (managed by occupancy only) would be more effective in improving transportation mobility in the Northwest Corridor. Overall, the travel demand modeling showed the traffic volumes and daily vehicle miles of travel (VMT) throughput would be higher with managed lanes and the LOS would be improved. Because traffic volumes could be controlled through dynamic tolling, the toll rate could vary in response to demand. Travel times also would be lower for the managed lanes.

Toll pricing is used both as an incentive and disincentive to ensure a desirable flow of traffic (minimum LOS D) on the managed-lane system. The structure of the tolling can depend on several variables. The statewide guidance generally recommends implementation of the HOT3+ tolling policy, but also recognizes that a project-specific analysis is necessary to determine the preferred tolling policy for an identified project.

In the spring of 2010, GDOT completed preliminary toll revenue analysis for the Northwest Corridor Project and determined “through the due diligence process and the public subsidy ceiling establishment that a HOT3+ policy would not achieve the financial goals for the project” (GDOT, 2010b). As a result, GDOT staff requested concurrence from the P3 Steering Committee to implement an ETL tolling policy for the Northwest Corridor Project. This draft ETL policy was approved by the P3 Steering Committee on December 16, 2010 (GDOT, 2010f) (see Appendix D).

ETL Tolling

Under the ETL tolling policy, every vehicle using the managed lanes would pay a toll regardless of occupancy, including SOVs, HOVs, and certified alternative-fuel vehicles. The only exceptions would be exempt vehicles as defined by the tolling policy.

The use of the reversible managed lanes would restrict the types of vehicles that could use the facility. Typically, they are restricted to private vehicles (cars and pick-up trucks), light commercial trucks, registered transit vehicles (public buses and van pools), and emergency response vehicles. Heavy and medium trucks, such as those with more than two axles, and other vehicles would be prohibited. As such, drivers of these prohibited vehicles using the managed lanes would receive a police citation and would be required to pay a fine.

Variable pricing can be implemented for the different categories of users to further manage traffic flow on the managed lanes. Under a fixed schedule, pricing could change by time of day based on a published schedule. The tolls also could vary by time period with lower prices during off-peak periods when traffic volumes are lower. Alternatively, the price could vary by highway segment, with lower prices for segments with lower traffic volumes and congestion. If used, the schedule would be developed based on historical congestion levels. Traffic modeling would be used to determine appropriate pricing to manage the traffic congestion and maintain desirable traffic flow conditions in the managed lanes. Variable pricing could also be implemented based on real-time feedback of traffic levels using the managed-lane system. The toll price would change throughout the day according to actual traffic congestion conditions to ensure desirable LOS conditions. Tolls for various types of vehicles and occupancy would be posted on an electronic message board near the entrance to the managed-lane system.

Operation of the managed-lane system for either fixed or variable pricing schedules would require construction of various structures along the managed-lane system corridor. Improvements could include variably priced automated electronic toll collection (ETC) and real-time traffic surveillance systems. At access points to the managed-lane system, electronic message boards would post current toll rates. Such equipment would allow tolls to be collected in an efficient manner, enable real-time toll pricing, maintain free-flow conditions in the managed lanes, and communicate cost and travel information to motorists.

Implementing tolling would be less of a financial burden because capital and/or maintenance costs would be offset by toll revenues. Compared to a HOT3+ tolling policy, the approved ETL tolling policy is expected to generate substantially more revenue, thereby reducing the level of public funding required. An ETL tolling policy also would reduce the risk of lost revenue and reduce the cost of enforcement.

Approved Toll Guidelines

The draft ETL tolling guidelines approved for the Northwest Corridor Project state:

- Tolls shall be charged to Permitted Vehicles, except Exempt Vehicles.

  Permitted Vehicles mean vehicles with up to two axles and six tires, including the following: sedans, coupes, sports utility vehicles, station wagons, ambulances, hearses, pickup trucks, and panel vans.

  Exempt Vehicles mean the following: Military Vehicles, Registered Transit Vehicles, Emergency Vehicles, school buses, and P3 Developer Vehicles.

  Military Vehicles mean any vehicles containing a person belonging to the organized militia in uniform with an order for duty that is allowed to travel without charge under Official Code of Georgia Annotated (OCGA) §38-2-273.

  Registered Transit Vehicles mean a bus or vanpool registered by or through a public transportation agency within the 20-county limits of the ARC.

  Emergency Vehicles mean any authorized, marked emergency vehicles, as designated under OCGA § 40-8-92. These vehicles are usually operated by designated agencies, often part of the government commercial companies. Typically Emergency Vehicles include State Highway Patrol or Police, hazardous material response, ambulance and medical response vehicles, civil emergency, public utility (e.g., gas, electricity, water, etc.), and recovery vehicles.

- Tolls shall be dynamically priced to maintain a minimum average operating speed of not less than 45 mph.

- Tolls shall be collected through the use of electronic tolling systems, via transponders and video tolling initially; however, remote cash payment options will also be provided. The tolling collection technology will be periodically reviewed to ensure that tolls are collected in as efficient and effective a manner as practicable and could include the use of systems interoperable with other states, among other measures.

Setting the specific tolling rates is a financial and operational matter, and therefore is not evaluated in this FEIS. As part of this process, however, GDOT will develop a financial plan for the Northwest Corridor Project. This plan must be approved by the FHWA. Within these constraints, the proposed tolling rates and any future adjustments to those rates would be developed and proposed by the selected P3 Developer. The rates, however, will require approval by the Georgia State Road and Tollway Authority. In addition, the approval of the tolling rates will specify how toll revenues can be used by the P3 Developer to pay off construction financing and operation costs. As the P3 Developer will sign a contract with GDOT to design, build, operate, maintain, and finance the managed-lane system for a set period of time, the P3 Developer accounting related to the Northwest Corridor Project will be subject to GDOT audits.

2.3.1.5 Advance Toll Signage

As described above, the proposed operation of the Preferred Alternative would use tolling to manage the reversible lanes. Variable (dynamic) toll rates would be used to meter traffic entering the managed lanes in order to maintain a minimum average operating speed. The variable toll rates would be changeable, but not more frequently than once every five minutes. Since the rates are variable, changeable message signs that communicate the current toll rate to potential managed lane users are required in advance of the entry points to the system. They are a critical component of the project. As a necessary, integral part of the project, any potential environmental impacts related to the placement of the signs are considered along with the impacts of the proposed managed lanes in this FEIS.

Including the distance associated with the advance toll signage, the length of the corridor associated with the Preferred Alternative would be 19.1 miles on I-75, 12.5 miles on I-575 and 5.7 miles on I-285, for a total of 37.3 miles. As such, the length of the corridor capturing the advance toll signage is 7.6 miles longer than the 29.7 miles of highway improvements.

2.3.2 Transit System Improvements

The transit system under the Preferred Alternative would include the same transit services and facility improvements described for the No-Build Alternative (see Section 2.2.2). The transit services for the Preferred Alternative would have the same types and frequency of bus service operating on I-75 and I-575 as described for the No-Build Alternative. Buses operating as express service would travel in the existing HOV lanes on I-75 south of Akers Mill Road and would use the proposed new reversible lanes on I-75 from I-285 north to Hickory Grove Road and on I-575 north to Sixes Road during peak periods. The express routes would be modified to use the proposed managed-lane interchanges on I-75 between Akers Mill Road and Hickory Grove Road. The routes would be similarly modified to use the proposed slip ramps on I-575.

The operation of the reversible-lane system would implement tolls. The transit vehicles would always be permitted to use the reversible lanes at no cost to ensure good travel time for transit passengers. The fare costs on express routes using the reversible lanes would not differ from other express services offered by either CCT or GRTA. In addition, the operation of the transit services, vehicles and, routes would not be affected by potential variable toll rates. For additional information, please see the discussions of transit services and the AA/DEIS HOT Lane Option in the following sections:

- AA/DEIS Section 2.4.2 High-Occupancy Vehicle Lane/Truck-Only Lane Alternative (HOT Lane Option starting on page 2-43),
- AA/DEIS Chapter 4 Transportation Impacts starting on page 4-1, and
- AA/DEIS Section 7.4.6 Trade-Offs between HOV and HOT Lanes starting on page 7-32.

The frequency of non-peak period and local bus services would be the same as described for the No-Build Alternative. These transit services, however, would not use the proposed reversible lanes on either I-75 or I-575.

2.4 Project Termini

This section explains the objectives of the project termini analysis and how the project end points for the proposed reversible-lane improvements meet the requirements of 23 *Code of Federal Regulations* (CFR) 771.111(f). For the proposed project, these end points are shown in Figure 2-1. The proposed managed-lane improvements would not change the capacity of existing general-purpose lanes or interchanges, but would add capacity to the highway system. The discussion below is more detailed than the summary information presented in Section 1.5.3, Project Logical Termini.

2.4.1 Development of Logical Termini

Under current conditions, the existing Northwest Corridor highways operate at marginal or unacceptable LOS. Forecasts for opening (2015) and design (2035) year conditions without the proposed improvements reflect saturation traffic flows and unacceptable levels of service. The Preferred Alternative would not provide sufficient general-use capacity to resolve all forecast congestion in the I-75 and I-575 corridors. Rather, the Preferred Alternative would help to ease congestion on both the interstate highways and parallel facilities, improve average travel times through the corridor, and maintain the continuity and integrity of the interstate highway system.

Due to these forecast congested conditions, the focus of the project termini analysis has been to assess and develop strategies to ensure the termini for the project would minimize any degradation of service at the merge locations and are logical in the context of existing and anticipated conditions. The added capacity provided by the managed lane facilities allows traffic to shift from the parallel arterial system into the general-purpose lanes of both I-75 and I-575. This shifted traffic creates some difficulty in merging the managed lane into the general-purpose lanes at both northern termini at an acceptable LOS. To ensure the evaluation of meaningful alternatives and to avoid commitments to transportation improvements before they are fully evaluated, each EIS shall (23 CFR 771.111(f)):

- Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
- Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and,
- Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

To achieve these goals, the managed-lane system termini at the north ends of the project on both I-75 and I-575 should provide reasonable opportunities for traffic to merge into the general-purpose lane traffic. Similarly, the traffic on the managed-lane system should have reasonable opportunities to merge with general-purpose lane and HOV lane traffic on both I-285 and I-75. The analysis also must document that the proposed improvements do not depend on or preclude the planned managed lanes on I-285 that are part of the regional managed-lane system. In this way, the analysis can show the planned project improvements have independent utility.

The I-75 and I-575 corridors would be heavily congested in the No-Build Alternative in both opening and design years and would operate at an unacceptable LOS. As noted above, the Preferred Alternative would attract some traffic from parallel facilities. In recognition of these conditions, the termini for the project were developed to achieve a reasonable LOS and to reduce impacts, particularly on the general-purpose lanes.

The I-75 project corridor encompasses improvements between I-285 and northern termini on both I-75 and I-575. The north-south I-75 corridor exchanges traffic with I-285 at the “Cobb Cloverleaf” interchange, which presents a natural southern termini location for the north-south I-75 highway improvements. Traffic patterns at this interchange result in a lower volume on I-75 inside the I-285 “outer beltway” and the merge of southbound managed lane traffic onto the southbound I-75 general-purpose lanes south of I-285 can operate at acceptable LOS through the 2035 design year (as described in a later section). I-285 has its own independent congestion issues that extend between I-75 and I-85. This I-285 segment is the subject of the Revive I-285 study, currently in the alternatives evaluation stage of the NEPA process. The need for improvements in the I-285 corridor is independent and not the result of traffic issues on the I-75 Northwest Corridor.

At the north end of the corridor, the AA/DEIS identified the Hickory Grove Road and Sixes Road interchanges as the logical end points on I-75 and I-575, respectively. To the north of these interchanges, modeling at the time indicated that traffic was abated at these locations such that no additional improvements would be required to achieve acceptable operating conditions through the 2035 design year. However, between AA/DEIS completion and preparation of this FEIS, an updated and expanded ARC model was prepared in response to air quality analysis requirements. The new transportation model indicated that the Sixes Road termini on I-575 could still achieve acceptable operating conditions on the mainline; however, with the addition of Bartow County to the north, higher traffic volumes were forecast on I-75 beyond the Hickory Grove Road interchange.

2.4.2 Logical Termini Analysis Methodology

To evaluate traffic conditions, the severity of roadway congestion is measured by a rating system referred to as LOS. This rating system describes the quality of traffic flow using national standards published in the *Highway Capacity Manual* (TRB, 2000). Level of service is reported using letter designations from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions.

For the Northwest Corridor, the reversible lanes would serve the peak-period flow and thus the LOS analysis for the managed lanes and how they affect the general-purpose lanes at the proposed project termini is only appropriate for the lanes in the peak period direction. Therefore, LOS analysis at the south terminus on I-75 was conducted for the morning peak period, and the level of service analysis for the north termini on I-75 and I-575 was conducted for the evening peak period.

In addition, detailed analysis for future conditions in 2035 under the No-Build and Preferred Alternatives was conducted using FHWA's traffic simulation modeling software CORSIM. The CORSIM model allows for comprehensive evaluation of traffic operations including: speeds, density, queuing, and bottlenecks both upstream and downstream of the proposed logical termini points and provides a more accurate LOS analysis than the generalized LOS provided in the regional ARC 2008 Travel Demand Forecasting Model.

2.4.3 Analysis of the Three Project Termini

The sections below summarize the analysis conducted to confirm the logical termini for the proposed managed-lane system for the Northwest Corridor. These termini include the following: a south terminus on I-75 at I-285, a north terminus on I-75 near Hickory Grove Road, and a north terminus on I-575 near Sixes Road.

2.4.3.1 South Terminus on I-75

For the freeway segments on I-285 west of I-75, both the No-Build and Preferred Alternatives would operate at acceptable LOS through 2035 with no adverse traffic effects by the reversible lanes. Table 2-9 summarizes the CORSIM model results including: a one-LOS grade improvement on the general-purpose ramp from I-75 southbound to I-285 westbound (LOS C to LOS B); a one LOS grade degradation on westbound I-285 between US 41 and Paces Ferry Road (LOS B to LOS C); and a two-level degradation on westbound I-285 upstream of the I-75 general-purpose lane merge (LOS B to LOS D). However, all of these segments (and all other highway segments that remain unchanged) would operate with an acceptable LOS through the 2035 design year. No bottleneck or queuing conditions were observed in the CORSIM model results. For this analysis, the reversible-lane ramp was modeled to connect to the inside (median) lanes on I-285 west. This is where the ramps could be converted to connect directly to the planned I-285 West Managed Lanes Project (see Figure 2-15 and Table 2-9).

For the freeway segments on I-285 east of I-75, both the No-Build and Preferred Alternatives would operate at LOS F conditions between the I-75 ramp and Northside Drive. Here, forecast traffic volumes would exceed 10,000 vehicles per hour as vehicles travel towards Perimeter Center, Buckhead, and other employment centers east of the I-75/I-285 interchange. This level of traffic congestion is greater than the roadway capacity. In fact, this condition is present today and is expected in the opening year under the No-Build Alternative. Conditions would not be exacerbated under the Preferred Alternative. Average speed through this segment is forecast to be slightly greater than 27 mph under the No-Build Alternative compared to less than 25 mph under the Preferred Alternative. This reflects the additional delay of approximately 21.5 seconds to travel the entire one-mile section. The managed-lane ramp eastbound is planned to connect to the outside (right) general-purpose lanes on I-285 east and would be converted to connect to the planned I-285 Managed Lanes Project.

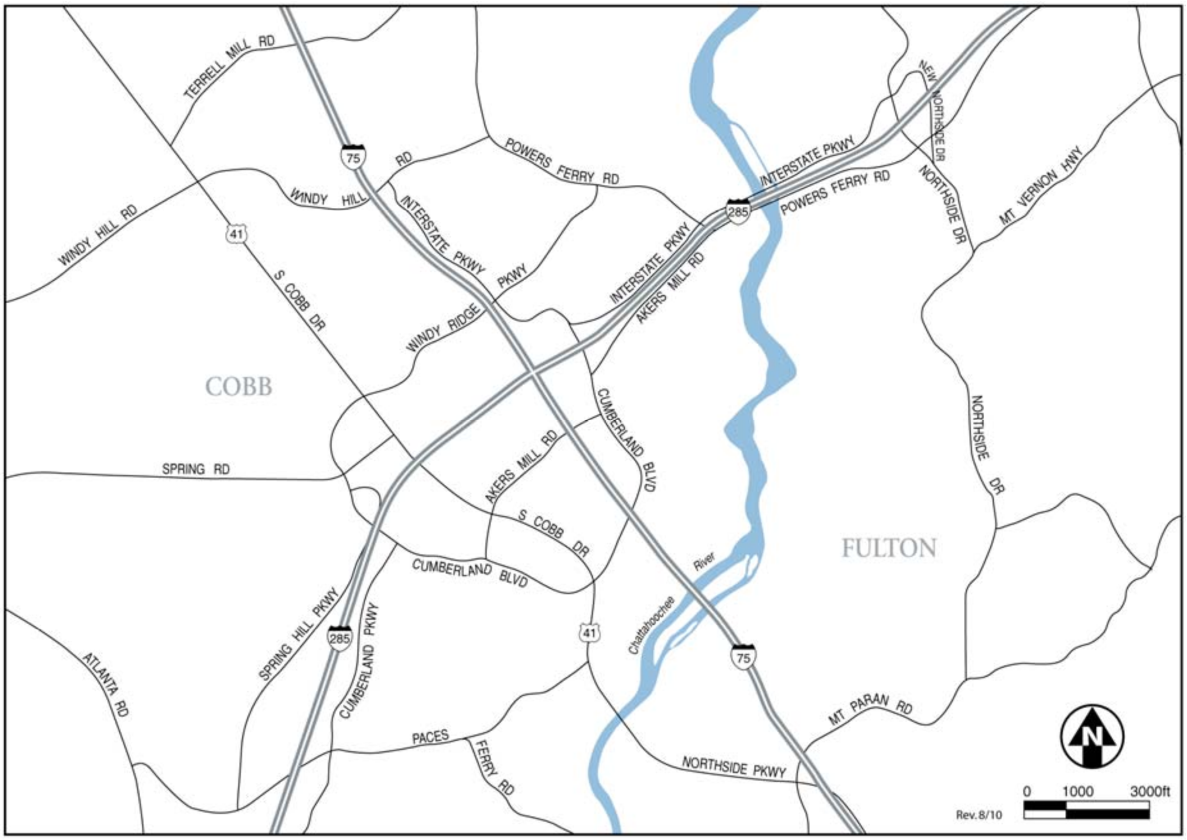
The environmental study for the I-285 Managed Lanes Project is currently underway and will evaluate several managed-lane alternatives for I-285. With a project that adds managed lanes on I-285 from I-75 east to I-85, the proposed I-75 managed lanes would operate at an acceptable LOS and the general-purpose traffic between I-75 and Northside Drive would experience improved operations over the No-Build Alternative. The Northwest Corridor Project is independent of this future I-285 Managed Lane Project, and yet also compatible with those planned highway improvements.

Table 2-9. I-75 South Terminus Analysis (AM Peak Period)

Segment	Length (ft.)	Density (vpmpl)	Ave. Speed	2035 LOS
No-Build Alternative				
EB I-285 W of OFR to I-75 South	1,000	23.7	65.3	B
EB I-285 W of I-75	1,000	23.3	63.3	B
EB I-285 upstream of I-75 GP ONR	1,000	23.6	62.3	B
EB I-285 downstream of I-75 GP ONR	850	26.9	61.5	B
EB I-285 upstream of I-285 CD ONR	600	26.9	61.3	B
EB I-285 west of Northside Drive	6,000	63.8	27.7	F
EB I-285 east of Northside Drive	1,500	55.8	35.0	F
SB I-75 GP upstream of merge onto EB I-285	1,000	31.6	60.8	C
WB I-285 upstream of I-75 GP ONR	1,200	22.7	63.7	B
WB I-285 upstream of I-75 ML ONR	600	18.3	63.9	B
WB I-285 downstream of I-75 ML ONR	1,200	18.4	63.3	B
WB I-285 upstream of US 41 ONR	1,500	16.6	62.9	B
WB I-285 W of US 41	2,250	21.7	61.8	B
WB I-285 upstream of Paces Ferry OFR	1,500	22.6	59.8	B
WB I-285 between Paces Ferry Ramps	2,000	17.0	62.9	B
Preferred Alternative				
EB I-285 W of OFR to I-75 South	1,000	23.7	63.4	B
EB I-285 W of I-75	1,000	23.3	63.3	B
EB I-285 upstream of I-75 GP ONR	1,000	23.6	62.4	B
EB I-285 upstream of I-75 ML ONR	850	25.5	61.8	B
EB I-285 upstream of I-285 CD ONR	600	25.4	60.2	B
EB I-285 west of Northside Drive	6,000	71.1	24.9	F
EB I-285 east of Northside Drive	1,500	58.0	33.9	F
SB I-75 GP upstream of merge onto EB I-285	1,000	28.0	61.6	B
SB I-75 ML upstream of merge onto EB I-285	1,000	21.3	60.5	B
WB I-285 upstream of I-75 GP ONR	1,200	36.5	62.2	D
WB I-285 upstream of I-75 ML ONR	600	24.1	62.0	B
WB I-285 downstream of I-75 ML ONR	1,200	22.2	61.1	B
WB I-285 upstream of US 41 ONR	1,500	22.8	61.3	B
WB I-285 west of US 41	2,250	28.3	60.8	C
WB I-285 upstream of Paces Ferry OFR	1,500	29.5	58.7	C
WB I-285 between Paces Ferry Ramps	2,000	24.4	61.8	B

Notes: AM = morning peak period; LOS = level of service; EB = eastbound traffic; SB = southbound direction of travel; WB = westbound traffic; GP = general-purpose lane; ML = managed lane; CD = collector/distributor road; OFR = off-ramp; ONR = on-ramp; vpmpl = vehicles per mile per lane.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Figure 2-15. Highway Configuration at the South Terminus on I-75



2.4.3.2 North Terminus on I-75

At the north terminus on I-75, the CORSIM model results show that in the 2035 No-Build condition, northbound I-75 would operate at LOS C and D through the proposed logical termini area (see Table 2-10). The exception would be the segment just north of the SR 92 on-ramp merge, which would operate at LOS F under the No-Build Alternative. This is due to the merging traffic from the SR 92 ramp, and the corridor would operate at LOS D.

Under the 2035 Preferred Alternative, I-75 would operate at LOS C and LOS D conditions with the exception of the segments in the vicinity of the managed-lane ramp merge in the evening peak hour. This is due to the overall higher traffic volumes in the combination of general-purpose and managed lanes. These short segments perform poorly (LOS E and F), but once the turbulence of the merge is calmed, there is a mile-long northbound segment of similar LOS to for the No-Build Alternative. LOS conditions again deteriorate in comparison in the vicinity of the SR 92 merge points with LOS E and F as traffic slows and weaves for the exit ramps and merges for the entrance ramps. North of the SR 92 merge points, LOS E and F conditions would exist for short segments as under the No-Build Alternative. North of SR 92 beyond the entrance ramps, LOS E conditions exist with only a modest increase in segment density (45.9 compared to 41.9 vehicles per hour per lane [vphpl]) and a modest reduction in speed (51.1 compared to 53.7 mph). The density threshold for LOS D conditions is 45.0 vphpl and the projected LOS E operations are at a density only 0.9 vphpl higher than that threshold.

Table 2-10. I-75 North Terminus Analysis (PM Peak Period)

Segment	Length (ft.)	Density (vpmpl)	Ave. Speed	2035 LOS
No-Build Alternative				
I-75 S of Hickory Grove Road	2,000	36.3	61.6	D
I-75 S of Hickory Grove Road	1,000	36.8	60.1	D
I-75 N of Hickory Grove Road	1,500	37.0	59.8	D
I-75 S of SR 92	1,000	37.2	59.5	D
I-75 S of SR 92	5,280	37.4	59.2	D
I-75 S of SR 92	3,000	37.5	59.1	D
No-Build Alternative (continued)				
I-75 S of SR 92	2,000	38.7	57.2	D
I-75 S of SR 92 exit	1,500	35.8	52.8	C
I-75 between SR 92 ramps	3,600	29.5	59.6	C
I-75 N of SR 92 merge	1,500	50.4	38.3	F
I-75 N of SR 92	2,000	41.9	53.7	D
Preferred Alternative				
I-75 S of Hickory Grove Road ML	2,000	28.5	62.9	C
I-75 N of Hickory Grove Road GP	1,000	89.7	22.7	F
I-75 N of ML merge	1,500	75.6	26.8	F
I-75 S of SR 92	1,000	52.7	45.2	F
I-75 S of SR 92	5,280	44.0	54.2	D
I-75 S of SR 92	3,000	48.5	50.0	E
I-75 S of SR 92	2,000	57.4	41.7	F
I-75 S of SR 92 exit	1,500	42.5	47.3	D
I-75 between SR 92 ramps	3,600	41.3	45.6	D
I-75 N of SR 92 merge	1,500	70.4	28.5	F
I-75 N of SR 92	2,000	45.9	51.1	E

Notes: PM = evening peak period; LOS = level of service; GP = general-purpose lane; ML = managed lane; OFR = off-ramp; ONR = on-ramp; vpmpl = vehicles per mile per lane.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

To minimize the impact of the managed-lane ramp merge, the Preferred Alternative includes a 2,000-foot auxiliary lane plus taper. The purpose of this auxiliary lane would be to improve merging opportunities for traffic in the managed lanes along this segment and minimize disruption of the general-purpose lanes.

2.4.3.3 North Terminus on I-575

At the I-575 north terminus at Sixes Road, the CORSIM results summarized in Table 2-11 indicate that the 2035 No-Build Alternative on I-575 is forecast to be LOS D south of Sixes Road and LOS C north of Sixes Road. The entire segment of I-575 within the logical termini area is within the acceptable range of operating conditions though the 2035 design year. This is a clear indication that highway improvements as part of the Northwest Corridor Project are needed along I-575 only as far north as the Sixes Road interchange. Consistent with the RTP, this analysis assumes the planned third lane in each direction on I-575 would be constructed prior to 2035.

Table 2-11. I-575 North Terminus Analysis (PM Peak Period)

Segment	Length (ft.)	Density (vpmpl)	Ave. Speed	2035 LOS
No-Build Alternative				
I-575 S of Ridgewalk Parkway	2,500	36.5	61.2	D
I-575 S of Ridgewalk Parkway OFR	1,500	31.5	59.7	C
I-575 S of ML merge	1,850	34.5	60.0	C
I-575 N of ML merge	1,000	34.6	59.8	C
I-575 N of Ridgewalk Parkway ONR	1,500	30.7	59.3	C
I-575 S of Sixes Road	3,000	36.5	58.6	D
I-575 S of Sixes Road OFR	1,500	34.2	53.0	C
I-575 S between Sixes Road ramps	2,650	34.7	56.1	C
I-575 N of Sixes Road ONR	1,500	22.8	60.9	B
I-575 N of Sixes Road	2,500	26.3	60.9	B
Preferred Alternative				
I-575 S of Ridgewalk Parkway GP	2,500	36.8	61.2	D
I-575 S of Ridgewalk Parkway ML	2,500	26.5	63.3	B
I-575 S of Ridgewalk Parkway OFR	1,500	26.5	63.3	B
I-575 S of ML merge	1,850	31.7	59.8	C
I-575 N of ML merge	1,000	34.2	60.2	C
I-575 N of Ridgewalk Parkway ONR	1,500	32.6	60.2	C
I-575 S of Sixes Road	3,000	29.7	60.0	C
I-575 S of Sixes Road OFR	1,500	36.1	55.7	D
I-575 S between Sixes Road ramps	2,650	33.4	57.6	C
I-575 N of Sixes Road ONR	1,500	30.7	59.6	C
I-575 N of Sixes Road	2,500	27.5	60.2	B

Notes: PM = evening peak period; LOS = level of service; GP = general-purpose lane; ML = managed lane; OFR = off-ramp; ONR = on-ramp; vpmpl = vehicles per mile per lane.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

The Preferred Alternative includes freeway improvements on I-575 between the managed lane termini (just south of the Little River Bridge) and Sixes Road. The improvements include extending the managed lane north to Sixes Road as a fourth general-purpose lane and providing a two-lane exit at the northbound I-575 off-ramp to Sixes Road. At Sixes Road, the rightmost (outside) general-purpose lane would become an exit-only lane and the second lane from the right would allow drivers to either exit to Sixes Road or remain traveling northbound on I-575. The two remaining (furthest to the left) general-purpose lanes would continue north. Under the Preferred Alternative configuration, all LOS measures for I-575 segments within the logical termini area would be acceptable (LOS D or better).

2.4.3.4 Summary of Analysis

In summary, the Preferred Alternative would provide similar traffic operation conditions in 2035 as the No-Build Alternative. The Preferred Alternative segment termini meets the requirements of 23 CFR 771.111(f) in the context of long-term corridor operations. The Preferred Alternative would not require immediate transportation improvements on the remainder of the interstate facilities to achieve acceptable LOS, nor would the Preferred Alternative restrict foreseeable transportation improvements that may be considered for the corridor or beyond the project termini. The proposed logical termini for the reversible-lane improvements have independent utility even if no additional highway improvements are implemented.

2.5 Construction Schedule

Construction of the Preferred Alternative is anticipated by GDOT to be advanced using an innovative design-build process using a P3 procurement process. The P3 Developer would be competitively selected and would be responsible for the design, construction, operation, maintenance, and financing of the project. This is different from the traditional low-bid public procurement process wherein GDOT completes all of the engineering design, prepares construction documents (plans, specifications, and estimates [PS&E]), solicits construction bids, selects a contractor, and issues a notice to initiate construction activities. At the end of construction, the operation and maintenance of the transportation project is turned over to GDOT. The advantages to GDOT of using the P3 delivery model include but are not limited to: access to private funds to construct the project, lower cost to prepare construction plans due to a combined engineering and contractor team (the P3 Developer), shorter duration of both engineering and construction due to overlapping the activities, earlier use of the facility, and greater cost certainty.

Using the P3 design-build approach, the proposed project delivery schedule for the Northwest Corridor Project is anticipated to take less than four years - approximately 44 months (GDOT, 2010c). GDOT is expected to select the P3 Developer by April 2012. Early activities would include right-of-way acquisition, utility relocations, and engineering design. Actual construction would begin several months later, with the issuance of a Notice to Proceed in April 2013. To expedite the schedule, construction could be simultaneously ongoing at the I-75/I-285 interchange, along I-75, and along I-575. Traffic management and detours would be used to avoid adverse effects on traffic and minimize complete closure of the highways or local roadways. Construction is estimated to be completed by November 2016.

2.6 Capital Cost Estimate

The capital cost estimate prepared for the Preferred Alternative and the methodology used to develop this estimate is presented in this section.

2.6.1 Methodology

The cost of the highway system improvements proposed under the Preferred Alternative reflects the estimated cost for preliminary and final engineering design, right-of-way, construction (including utility relocations and construction traffic control), environmental mitigation, hazardous material remediation, and other professional services. The cost estimate used a bottom-up approach in that independent material quantities and conceptual cost estimates were prepared. The quantity estimates were based on the conceptual engineering plans and independently verified. Unit cost estimates were developed for material costs, means and methods of construction, production rates, crew analyses, labor costs, and equipment ownership and operational costs. The estimate also considered historical cost and quantity data with similar highway projects, including GDOT projects. No capital cost estimate was prepared for transit improvements as the Preferred Alternative does not include changes to transit services. The Preferred Alternative does include transit services, but as part of those proposed under the No-Build Alternative, which are not specifically part of the proposed project. The capital cost estimate was based on the conceptual engineering plans prepared for the improvements.

The FHWA, GDOT, and their consultants conducted a workshop to review the capital cost estimate for the Northwest Corridor Project on February 7-10, 2011. The workshop is a standard mandatory review by FHWA for projects with projected costs over $500 million and that meet certain other FHWA criteria. The objective of the review was to verify the accuracy and reasonableness of the current project total cost estimate and schedule and to develop a probability range for the total project cost based on a "snapshot" of the project's current stage of development. The cost estimate review yielded a risk-based probabilistic capital cost estimate in year of expenditure (YOE) dollars.

2.6.2 Capital Cost Estimate

Based on the capital cost workshop, the risk analysis resulted in the 70 percent total YOE project costs as $968.3 million. This means that based on the state of the project and risk factors at the point in time of the workshop, there is a 70 percent probability that the total project cost would be less than or equal to $968.3 million.

Note that due to ongoing changes in the FHWA process for these workshops and reviews, the reporting on the estimated project cost is limited to a perspective on the total project cost stated above and does not accurately reflect to the individual cost estimate section or item level.

2.7 Financial Feasibility

As discussed in Section 2.1.10, the Two-Lane Reversible Alternative was identified as the Preferred Alternative, with modifications, largely because it has a substantially lower cost compared to the several build alternatives evaluated in the AA/DEIS. The Preferred Alternative has a conceptual capital cost estimate of $968.30 million YOE compared to the capital costs for the AA/DEIS alternatives (see AA/DEIS Section 2.5.2, pages 2-69), which ranged from $3.52 billion to $4.07 billion.

Despite its much lower cost, the Preferred Alternative would still require substantial financial resources. The financing structure includes the use of facilities and terms consistent with similar, precedent potential P3 projects. The GDOT anticipates the P3 Developer Agreement would obligate the P3 Developer to design, construct, operate, maintain, and finance the Northwest Corridor Project in return for the right to retain toll revenues from the users of the tolled portions of the Northwest Corridor Project.

The estimated construction cost of the Preferred Alternative is $968,298,699. On behalf of the proposers competing for the opportunity to design, construct, operate, maintain, and finance the Northwest Corridor Project, GDOT submitted a letter of interest requesting Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance in the form of a TIFIA loan and was invited to submit an application for TIFIA credit assistance in calendar year 2011. If a TIFIA loan in the amount applied for is available to the project, the sources and uses of funds proposed for the Preferred Alternative is estimated to be as presented in Table 2-12. If a TIFIA loan is not available, it is anticipated that contributions of public and/or private funds would need to be increased accordingly.

Table 2-12. Sources and Uses of Funds (Year of Expenditure)

Sources	$000s	Uses	$000s
TIFIA loan	270,000	Construction costs	968,299
P3 Developer Equity Capital / Loan / Debt	398,299		
Public Funds Amount	300,000		
Total*	**968,299**	**Total***	**968,299**

Note: * Figures may not add exactly due to rounding.

It is important to note that these estimated sources and uses are subject to change with time and market conditions. The following provides a description of the sources and uses of funds presented in Table 2-12.

- TIFIA Loan – The TIFIA provides federal credit assistance in the form of direct loans, loan guarantees and standby lines of credit to finance transportation projects of national and regional significance. The form of TIFIA credit assistance planned for this project is a direct loan. The private-sector P3 Developer is the borrower of the loan and is responsible for its repayment. This funding source would be repaid through tolling and other revenues.
- P3 Developer Equity Capital/Loan/Debt – This is non-debt or debt funding from the P3 Developer. The P3 Developer is anticipated to evaluate all potential sources, including but not limited to private activity bonds, private bond placements, term loans (short and long term), interest income, and other debt tools. The most efficient plan of finance would be determined by the P3 Developer at the time proposal is submitted. This funding source would be repaid through tolling and other revenues.
- Public Funds Amount – This is funding provided by the State of Georgia and FHWA.
- Construction Costs – This includes the cost of design, construction, right-of-way, utility relocation, and all other cost required to construct the project.

CHAPTER 3
AFFECTED ENVIRONMENT

3. AFFECTED ENVIRONMENT

This chapter describes the existing built and natural environment in the Northwest Corridor Project study area. It also establishes the baseline conditions for the impacts analysis of project impacts in Chapter 4, Transportation Impacts and Chapter 5, Environmental Consequences.

The chapter addresses the following topics: land use; population and employment; neighborhoods and community facilities; transportation services and facilities; safety and security; visual quality and aesthetics; parklands; historic and archaeological resources; air quality; noise; ecosystems; water resources; geology and soils; and hazardous materials. To help the reader understand the context of detailed discussions in this chapter, a map of study area highways and streets is contained in Appendix F.

3.1 Land Use

This section describes existing land use patterns and local plans and policies affecting land use in the study area.

3.1.1 Existing Land Use

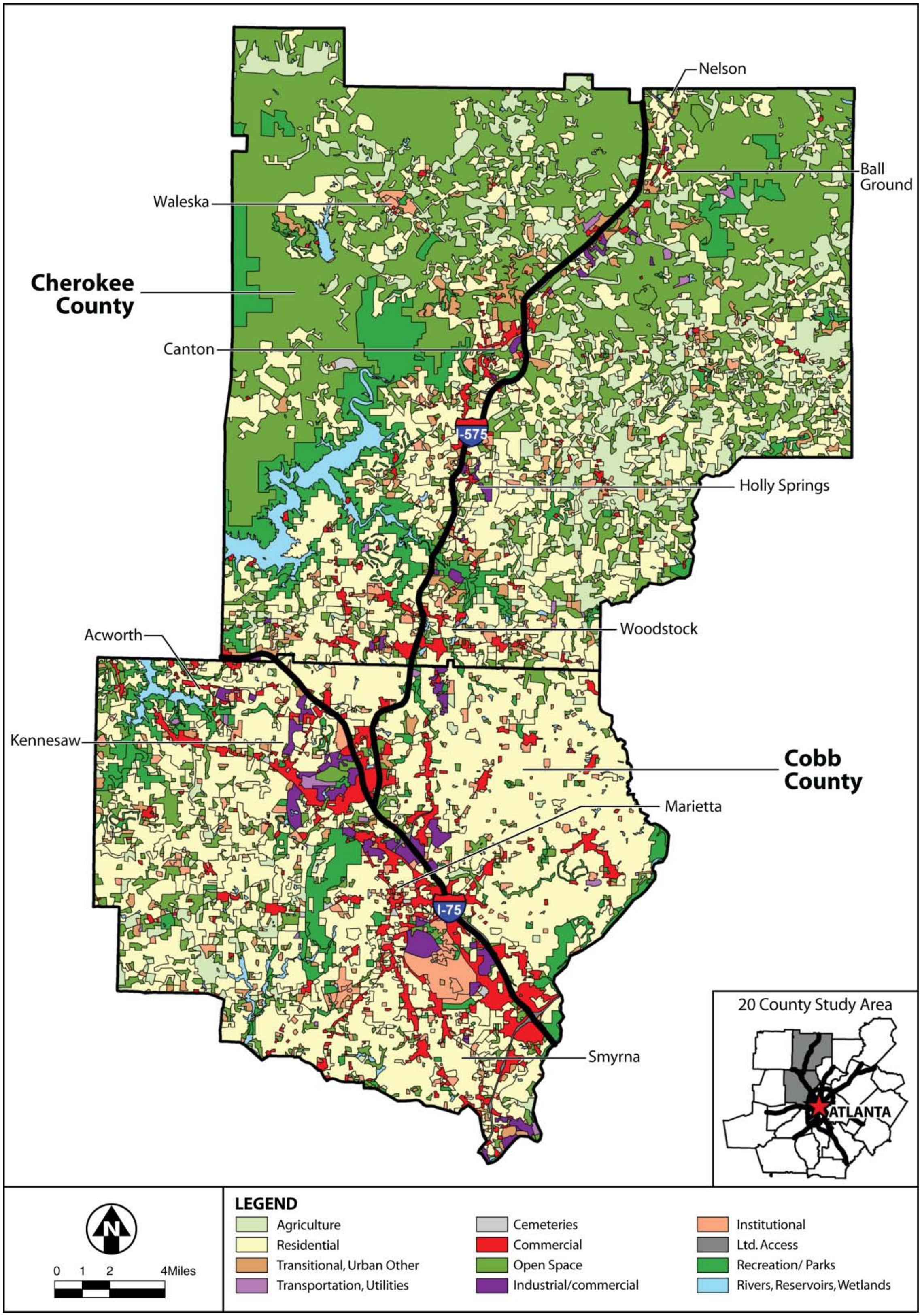
3.1.1.1 Study Area Overview

The study area is located northwest of downtown Atlanta. Over the past 20 years, and despite the recent recession, the metropolitan region has been one of the fastest growing regions in the nation, accommodating substantial population and employment growth. This growth has brought many benefits to the region, including a leadership role as an emerging major international business center, a higher median income for residents, and increased cultural amenities in the metropolitan area.

Existing land use in the two-county study area is shown in Figure 3-1 and tabulated in Table 3-1. The land uses are very diverse. The largest category of land use has become residential, which comprises 38 percent of the total land area. Open space is the second largest category with approximately 32 percent. Together, these statistics reflect the suburban character of the study area. In 2009, the Atlanta Regional Commission (ARC) reported that Cobb County as a whole has the highest percentage of residential land in the region, more than 60 percent. In contrast, only 28 percent of Cherokee County is residential (ARC, 2009a).

A total of 15 regional transportation analysis districts (aggregates of the individual traffic analysis zones [TAZs]) comprise the study area (see Figure 3-2). These districts encompass most of Cobb County and all of Cherokee County and represent the geographic area that would substantially derive transportation benefits from the proposed project improvements to the Northwest Corridor. As such, the area is also referred to as the benefit area. The land use character of these districts is described in the paragraphs below.

The study area on the Interstate 75 (I-75) corridor begins at the southern terminus of the proposed project (near Cumberland-Galleria) and extends north to the I-75 project terminus (Northwest Cobb). Subsequent sections describe the land use character from the I-75/I-575 interchange area (Northeast Cobb) to the northern terminus on I-575 (East Central Cherokee). The regional traffic analysis districts are used to analyze population and employment in Section 3.2.



Source: ARC, 2009a.

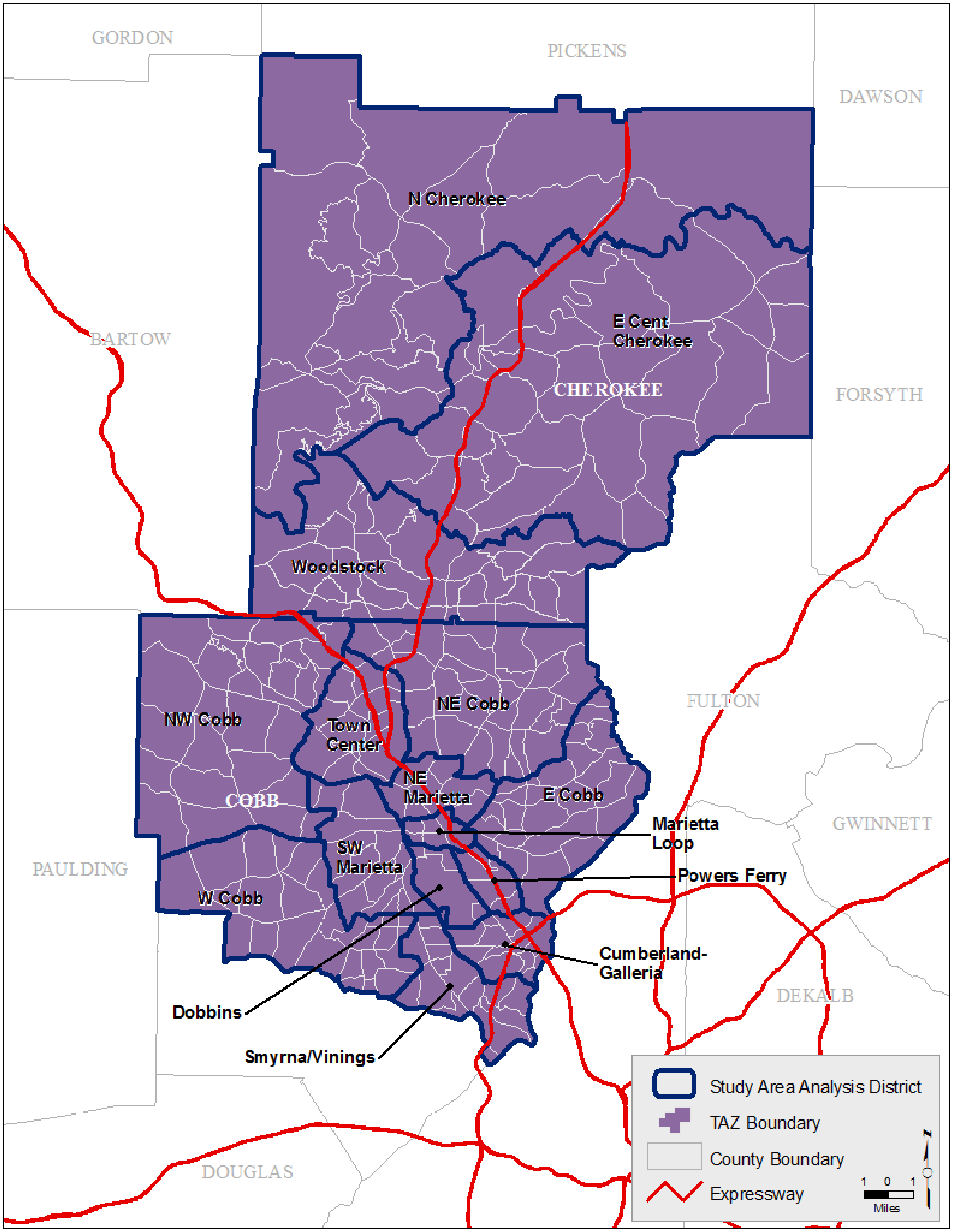

GORDON
PICKENS
DAWSON
BARTOW
FORSYTH
FULTON
GWINNETT
PAULDING
DEKALB
DOUGLAS
CHEROKEE
COBB
N Cherokee
E Cent Cherokee
Woodstock
NW Cobb
Town Center
NE Cobb
NE Marietta
E Cobb
SW Marietta
W Cobb
Marietta Loop
Powers Ferry
Cumberland-Galleria
Dobbins
Smyrna/Vinings
Study Area Analysis District
TAZ Boundary
County Boundary
Expressway
1 0 1
Miles

Table 3-1. Study Area Land Uses (Cobb and Cherokee Counties)

Land Use Type	Acres	Percent of Total
Agriculture	43,273	7.5%
Residential	218,815	38.1%
Transitional, Urban Other	13,680	2.4%
Transportation, Utilities	1,267	0.2%
Cemeteries	769	0.1%
Commercial	20,287	3.5%
Open Space	181,476	31.7%
Industrial/Commercial	5,847	1.0%
Institutional	8,919	1.6%
Limited Access	4,562	0.8%
Recreation/Parks	57,685	10.0%
Rivers, Reservoirs, Wetlands	17,557	3.1%
Total	574,135	100.0%

Source: ARC, 2009a.

3.1.1.2 Cumberland-Galleria District

The Cumberland-Galleria district is centered on the interchange of I-75 and I-285. The focus of this district is the Cumberland-Galleria mall and the surrounding commercial district. Home Depot, Coca-Cola Enterprises, and the Weather Channel are major commercial/office tenants in the area. A Livable Centers Initiative (LCI) grant was awarded by the ARC in 2001 to prepare a mixed employment and high density housing land use plan for the area. The ARC's *Livable Centers Initiative (LCI) Transportation Program Implementation Progress Report* (ARC, 2009c) notes that the LCI study preceded several new developments, including the 2,750-seat Cobb Energy Center for the Performing Arts on Akers Mill Road and a new multi-use trail connecting the community to the Chattahoochee River National Recreation Area. To date, the Cumberland Community Improvement District (CCID) has completed over 10 miles of streetscapes and multi-use trails that connect to the regional network.

Additional projects leveraged by money from the CCID monies are intended to promote walkable, livable communities in the district. These projects include new streetscape sections along Cumberland Boulevard, Interstate North Parkway, and Circle 75, as well as gateway signage and landscaping for four interchanges around I-75 and I-285. The CCID has also committed funding for the replacement of the Cobb Parkway/US 41 bridge and initiated various intersection, minor road widening and safety improvements in four different corridors.

3.1.1.3 Powers Ferry and Dobbins Districts

Cobb Parkway (US 41) forms the boundaries of the Powers Ferry and Dobbins districts, but influences land uses on either side of the arterial. The Cobb Parkway commercial corridor is intensely developed and is one of Marietta's largest and busiest commercial centers. The arterial roadway is among the heaviest traveled roadways in the county.

The area between I-75 and Cobb Parkway, to the west, is comprised of a mix of multi-family residential, office park, industrial, and strip commercial development. Large developments include the Marietta Trade Center, Six Flags White Water waterpark, and the large campuses of Life

College and Southern Polytechnic State University. Dobbins Air Reserve Base and the Lockheed Martin Corporation complex are located between Cobb Parkway and Atlanta Road to the west.

The area between I-75 and Powers Ferry Road, to the east, is predominantly multi-family residential and includes both rental and condominium residences. Other land uses in the area include commercial businesses, restaurants, hotels, and motels.

The City of Marietta foresees non-residential uses will continue to dominate the city center and residential neighborhoods will surround the downtown area.

On the west side of I-75, the Franklin/Gateway Tax Allocation District (TAD) is engaged in active redevelopment of underused property between Delk Road and South Marietta Parkway. As a result of a LCI grant in 2003 and subsequent adoption of the *Redevelopment Plan for the Franklin/Gateway Tax Allocation District* (Marietta Redevelopment Corporation, 2004), the TAD proposes to revitalize the area with increased density and mixed-use development in an effort to provide greater community economic stability.

3.1.1.4 Smyrna/Vinings District

The Smyrna/Vinings District is predominantly residential. Commercial land uses follow State Route 5 (SR 5), SR 280, and I-285. A CSX rail line traverses the district.

3.1.1.5 Marietta Loop District

The SR 120 Marietta Parkway is comprised of the South Marietta Parkway and North Marietta Parkway, both of which have interchanges with I-75 and serve as key entry points for the City of Marietta. The Parkway encompasses the downtown commercial core of the city, including the Cobb County and Marietta government offices. Land use in the area includes business and industrial parks, "big box" retailers, as well as small commercial businesses. There is a growing industrial node at Gresham Road and Wallace Road. Single-family residential neighborhoods are located north and south of Roswell Street, which is characterized by older shopping centers, multi-family residential complexes, and older single-family neighborhoods. The Marietta Redevelopment Corporation is working to expand residential housing to support new local retail businesses.

3.1.1.6 Northeast Marietta District

The Northeast Marietta District is characterized by interspersed industrial and residential development. Industrial and business parks on both sides of I-75 are accessed by Cobb Parkway, Canton Road, and Allgood Road, all major arterials. Rail and roadway networks east of I-75 support light manufacturing, warehouse distribution facilities, and commercial offices. A light industrial business park was built in the southeast corner of Canton and Sandy Plains Roads. These uses abut residential neighborhoods that were constructed in the 1950s and 1960s. The Kennestone Hospital medical complex is a major regional employer. Development densities generally decrease approaching the transitional residential corridor along Sandy Plains Road. Single-family residential neighborhoods are located in the western, northern, and eastern quadrants of the Canton Connector/I-75 interchange.

3.1.1.7 Southwest Marietta District

The predominant land use feature in the Southwest Marietta District is the Kennesaw Mountain National Battlefield Park, which is under the jurisdiction of the National Park Service. The park encompasses 2,923 acres. Land uses east of the park are predominantly residential with some commercial development located along the major arterials, such as Powder Springs Road.

3.1.1.8 Town Center District

Three major employers dominate the Town Center district: Town Center Mall, Kennesaw State University, and the Cobb County Airport/McCollum Field. Town Center Mall is situated between I-75 and I-575 north of the highway interchange. It is the center of a developing retail and office business district that extends along Barrett Parkway from Cobb Parkway to Bells Ferry Road. The 22,500-student Kennesaw State University is on 384 acres at the I-75/Chastain Road interchange. The University continually adds to its facilities and services, including campus housing for 913 students that opened in 2008 and increased total residential housing to 3,000 students. The Cobb County Airport/McCollum Field is west of I-75 and has approximately 185 employees. The airport and the adjacent large, open pit quarry are industrial land uses occurring within the area. Large tracts of undeveloped industrial-zoned land are north along Williams Drive. A neighborhood commercial center at Williams Drive supports the surrounding medium- to high-density residential land uses. Bells Ferry Road is transitioning from commercial land uses as long-time commercial tracts are rezoned for residential development.

3.1.1.9 Northwest Cobb District

Cobb Parkway traverses the Northwest Cobb District. Commercial land uses are along Cobb Parkway and residential and forest land uses abut these commercial areas. The city of Acworth commercial district is along Southside Drive. The Hickory Grove and Baker Road areas include a mix of industrial, forest, residential, agricultural and commercial uses. Lake Acworth is in the northwest corner of the Northwest Cobb District.

3.1.1.10 West Cobb District

The West Cobb District is predominantly residential. Parks, forest land, and commercial uses are also present within the district. Many of the commercial uses are along SR 120 and SR 5.

3.1.1.11 Northeast Cobb District

The Northeast Cobb district is predominantly residential. A mixture of parks, forest land, and residential land use is prevalent in the district and extends northwards into Cherokee County. Commercial land uses are along SR 92. Agricultural and forest land use is scattered in the northern portion of Cobb County.

3.1.1.12 East Cobb District

Land use in the East Cobb District is predominantly residential. Commercial land uses are primarily along SR 120 and Johnson Ferry Road. The Chattahoochee River National Recreation Area, which is under National Park Service jurisdiction, forms the southeastern border of this district.

3.1.1.13 East Central Cherokee and Woodstock Districts

The land use character of the East Central Cherokee and Woodstock districts along I-575 is very similar. It includes predominantly low-density residential properties with substantial open spaces. Commercial development is near several interchanges on I-575. The cities of

Woodstock, Canton, and Ball Ground each have a small commercial downtown area. Lake Allatoona covers a large portion of the two districts. Except for limited lakefront residential properties, much of the surrounding land is forested. Agricultural uses increase somewhat in the northeast portion of these districts, though northern Cherokee County is predominantly forested. However, the ARC's recent study of land development trends in the Atlanta region noted that Cherokee County has been one of the top four counties in the region for conversion of land (ARC, 2009a).

3.1.1.14 North Cherokee District

The North Cherokee District is characterized by rugged, highly dissected terrain that is predominantly forested. Residential land use tends to be low-density single family. Agricultural land use is predominantly located in the northern section of the district. Lake Allatoona forms the southern boundary of the district.

3.1.2 Developments of Regional Impact

The Georgia Planning Act of 1989 authorized the Department of Community Affairs (DCA) to establish procedures for the review of Developments of Regional Impact (DRI), which are large-scale developments that are likely to have regional effects beyond their local government jurisdiction. The DCA established thresholds by size and type of development for determining whether a development qualifies as a DRI. Local governments within the Atlanta region must submit every potential DRI under consideration to the ARC for review and comment. The ARC, with input from neighboring local governments and other agencies, reviews such projects and makes a finding whether or not the DRI is in the best interest of the region and, therefore, the state. A list of the most current DRIs is shown in Table 3-2.

The procedures are designed to improve communication between affected governments and to provide a means of revealing and assessing potential effects of large-scale developments before conflicts relating to them arise. At the same time, local government autonomy is preserved since the host government maintains the authority to make the final decision on whether a proposed development will go forward.

3.1.3 Land Use Plans, Policies and Zoning

Within the study area, land use controls and policies are governed by municipal agencies including Cobb and Cherokee Counties and the cities of Acworth, Kennesaw, Marietta, Smyrna, and Woodstock. The local regional planning organization is ARC, which is responsible for reviewing local government comprehensive plans. Local government plans and zoning ordinances regulate land use and development. Other institutions and programs also influence land use and development. For example, the ARC funds the development of land use plans supporting regional growth policies. In addition, Community Improvement Districts (CIDs) guide development and future capital improvements in the region.

Adopted comprehensive planning and zoning documents, LCI plans, and CIDs were reviewed to identify key land use policies, goals, and objectives. The following is a summary of important land use goals and planned improvements.

Table 3-2. Developments of Regional Impact, 2002-2010

DRI Number	Review Year	DRI Name	Project Description	Activity Center/City	Project Status
1933	2008	Riverview	200,000 SF of office; 105,000 SF of retail; and 240 Residential Units	Cumberland/Galleria	Zoned; development status unknown
1594	2008	The Avenue at Ridgewalk	348,760 SF of retail; and 4,240 SF of office	Woodstock	Unknown at this time
1327	2007	Galleria Parkway Mixed Use Project	Mixed-use development consisting of 400,000 SF of office; 65,000 SF of condominiums (50 units); 155,000 SF of hotel; and 35,000 SF of retail	Cumberland/Galleria	Under construction
1352	2007	City Side at Town Center	Mixed-use project consisting of 4.1 million SF of office, retail, hotel, restaurants, and residential	Town Center	Overall project completion (2015)
1509	2007	LaFarge Building Materials, Inc.	Concrete batch plant	Town Center	Removed after re-paving of I-75 (Glade Road north)
1271	2007	Breezy Hill Farm	Mixed-use project consisting of 900,000 SF (gross); 87.5 acres	Woodstock	Unknown at this time
1245	2007	Woodstock West	1,500,000 SF mixed-use development	Woodstock	No activity
928	2006	Colonial Power Center	Large-scale power center with approximately 367,133 SF of retail and office	Holly Springs	Partially constructed
743	2005	Regent Riverwood	Mixed-use community consisting of 210 residential units; 21,500 SF of bank, retail, and restaurant; and 525,000 SF of high-rise office.	Cumberland/Galleria	No activity
824	2005	Cumberland Boulevard	614 mid- and high-rise residential units (400 condominium units and 214 rental multi-family units	Cumberland/Galleria	No activity
681	2005	Cobb Galleria Performing Arts Center	Mixed-use development consisting of a 2,500-seat performing arts center; 375,000 SF of office; and 300 residential units	Cumberland/Galleria	Constructed
608	2004	Circle 75 Project	1,885 high-rise, mid-rise, and townhouse-style condominiums	Cumberland/Galleria	Partially constructed
288	2002	Atlanta Operations Center	Master planned office campus with four buildings (594,500 SF)	Town Center	Partially constructed

Note: SF = square feet.
Source: Beall, 2010.

3.1.3.1 Regional Development Plan

The ARC is the agency responsible for developing a regional development plan. In 2004, the ARC Board directed the staff to develop new long-range land use and transportation scenarios for the Regional Transportation Plan (RTP) update – *Envision6, Volume I: 2030 Regional Transportation Plan* (*Envision6* RTP) (ARC, 2007b). The purpose was to integrate regional land use and transportation planning initiatives to better accommodate forecast population and employment growth. Through local government and public input and substantial technical analysis, the ARC Board approved a resolution in May 2006 to adopt the *Envision6* Regional Development Plan Land Use Policies, Atlanta Region Unified Growth Policy Map, and the Regional Plan and Development Matrix. The *Envision6* RTP was adopted by the ARC Board on September 26, 2007.

The integrated land use and transportation policies express support for growth management. Land use policies are grouped into four categories: developed area policies, housing and neighborhood policies, open space and preservation policies, and coordination policies. Listed below are key policies from each category that establish the ARC's commitment to growth management.

- Developed Areas – "Encourage development within principal transportation corridors, the Central Business District, activity centers and town centers."
- Housing and Neighborhood – "Promote new communities that feature green space and neighborhood parks, pedestrian scale, support transportation options and provide an appropriate mix of uses and housing types."
- Open Space and Preservation Policies – "Through regional infrastructure planning, discourage growth in undeveloped areas."
- Coordination Policies – "Assist local governments to adopt growth management strategies that make more efficient use of existing infrastructure."

The regional land use policies help to guide future development decisions and integrate land use decisions with other public investment decisions. The policies serve as recommendations to local governments for endorsement or implementation as part of their own local planning efforts.

Starting in early 2010, the ARC initiated efforts to develop an updated regional long-range development plan. This five-year planning effort is called *PLAN 2040* and adopted documents replace the *Envision6* planning documents. On July 27, 2011, *PLAN 2040 Regional Transportation Plan* (*PLAN 2040* RTP) (ARC, 2011b) and the associated *FY 2012-2017 Transportation Improvement Program* (FY 2012-12017 TIP) (ARC, 2011c) and *Conformity Determination Report* (ARC, 2011d) were adopted by ARC. The *PLAN 2040* RTP and the FY 2012-2017 TIP were approved by the Georgia Regional Transportation Authority on August 18, 2011 and the FHWA issued a conformity determination on September 6, 2011.

3.1.3.2 Northwest Atlanta Corridor Alternatives Analysis

Cobb County has been awarded $1.3 million from the Federal Transit Administration (FTA) through the Alternatives Analysis Grant Program to conduct an Alternatives Analysis for a potential light rail transit project along US 41/I-75 from the Metropolitan Atlanta Rapid Transit Authority (MARTA) Arts Center Station in Atlanta to Acworth. This route is directly parallel and close to the Preferred Alternative. This study is anticipated to commence in the late summer or early fall of 2011 and be completed in 2012. This evaluation of a proposed project has not yet begun; therefore, it was not considered in this Final Environmental Impact Statement (FEIS).

3.1.3.3 Local Government Comprehensive Plans and Zoning

Each local government in Georgia is required to prepare and implement a comprehensive plan consistent with Georgia Planning Act of 1989. This State law encourages the preparation of coordinated, comprehensive plans at local, regional and state levels of government. Once adopted, governments are required to keep the plans current through periodic updates. Local government zoning ordinances prescribe permitted and conditional land uses and development regulations for the private property in the community consistent with the adopted comprehensive plan. The key study area land use plans are summarized below.

Cobb County

The Cobb County Comprehensive Plan*, 2030 Comprehensive Plan: Mapping Cobb County's Future* (Cobb County, 2010a*)* guides growth and development over a 20-year planning horizon. Key land use policy objectives include:

- Consider the existing and planned transportation system when making land use decisions.
- Encourage the establishment and use of public-private partnerships for cooperation in the planning, design and financing of improved transportation facilities and services.
- Provide sufficient opportunities for each land use type to serve the needs of the community, maintain the tax base, and sustain a desired mix of residential units.
- Address compatibility between land uses when making land use decisions.
- Promote land use transportation linkages to ensure an adequate transportation system for anticipated future populations and their corresponding travel behaviors.

The *Official Code of Cobb County, Chapter 134, Zoning*, as amended through September 2010 (Cobb County, 2010b), regulates land use and development. The Code identifies a total of 44 different zoning districts. Nearly all of these zoning districts are present within the study area, though residential zones are predominant.

Cherokee County

Cherokee County's comprehensive plan, *Plan Cherokee: Community Agenda* (Cherokee County, 2008) was prepared jointly with the cities of Ball Ground and Waleska. The guiding principles in the plan include:

- Guide growth to preserve and enhance the county's unique character.
- New development should not cause undue burden on public services, infrastructure and community facilities.

The Zoning Ordinance of Cherokee County (Cherokee County, 2009) is the implementing tool that frames land use development within the county. In total, there are 22 different zoning districts. Nearly every land use zone is present within the study area, but again residential zoning is the predominant designation.

City of Marietta

The *City of Marietta Comprehensive Plan 2006-2030*, *The Roadmap to Marietta's Future* (Marietta, 2006) outlines the City's policy for urban growth and development. The plan presents a series of goals and objectives to foster development. It establishes a vision for the transportation system to serve the best interests of the City and those traveling to, through, and within the city. It integrates the county and state transportation systems, including transportation alternatives. Plan implementation strategies also encourage pedestrian-friendly development. The Plan is intended to guide "smart" residential, commercial and industrial growth for the next ten years. Among other priorities, the Plan calls for greater use of transportation alternatives to automobiles, congestion mitigation, and creation of transit-oriented development.

The *City of Marietta Zoning Ordinance* (Marietta, 2008) applies to all future land development within the city limits. The ordinance has 28 zoning districts. Along I-75, the zoning includes districts for mixed industrial, office institutional, office high-rise, neighborhood retail commercial, planned commercial development, regional retail commercial, detached single-family residential, and multi-family residential uses.

City of Smyrna

The *Community Agenda, City of Smyrna Comprehensive Plan 2005-2030* (Smyrna, 2007) was adopted in August 2007. The Community Assessment portion of the Plan describes the city's multi-modal transportation infrastructure provided by Cobb Community Transit and future plans for bicycle and pedestrian facilities. It also calls for transportation planning coordination with neighboring communities and Cobb County.

The City of Smyrna *Code of Ordinances – Appendix A: Zoning* (Smyrna, 2010a) defines permitted land uses within 21 designated land use districts. Residential land uses are the predominant use within the study area.

City of Acworth

The *City of Acworth 2006-2026 Comprehensive Plan* (Acworth, 2006) was adopted in August 2006. It includes the Community Assessment, the Analysis of Supporting Data to the Community Assessment and Community Participation Program. The document establishes planning procedures and uses innovative methods to guide future growth and development in the city. The plan and its supporting documents promote orderly growth and development based on the community's physical, social and economic needs. They also support the development of diverse types of housing to meet existing and future needs. The plan provides for the development of commercial services and facilities to support the city and neighborhoods. Using the 2001 LCI study as a base, Acworth is planning for walkable, mixed-use developments in the downtown area. The plan notes that over 89 percent of the city's work force commutes to jobs located outside the community. Furthermore, the City is encouraging land use and densities that would take advantage of regional transit services.

The *Zoning Ordinance and Unified Development Code of the City of Acworth* (Acworth, 2010) established 16 land use districts, with residential zones predominant within the study area.

City of Kennesaw

The *2006-2026 City of Kennesaw Comprehensive Plan Community Agenda* (Kennesaw, 2007) guides development for this medium-sized community of 30,000 residents. The Plan encourages greater cooperation and communication with the Cobb County Department of

Transportation on local transportation issues, especially considering Kennesaw's heavy reliance on automobiles. The Plan encourages mixed-use development that would make transit more feasible. The Plan also calls for improved pedestrian safety, context-sensitive transportation solutions, and improved connectivity and capacity for and increased use of public transportation.

There are 30 land use districts established by the *City of Kennesaw Code of Ordinances, Appendix A: Zoning* (Kennesaw, 2010). Residential uses are the predominant use within the study area.

City of Woodstock

The Woodstock *Comprehensive Town Plan 2030* (Woodstock, 2008a) was adopted in April, 2008. The Plan's key objective is to balance residential development pressures for this bedroom community with community needs to increase local retail businesses, services, and employment opportunities. The City's vision is for Woodstock to develop into a full-service community that would accommodate growth, create a "sense of place," and preserve the natural environment. The core plan goals are to promote a unique community identity, create a range of economic development opportunities, promote a spirit of inclusiveness, and provide opportunities and choices.

Recent revisions to the *City of Woodstock Code of Ordinances, Chapter 50, Land Development Code* (Woodstock, 2009) include new Parkway, Gateway, and Technology Park Overlay Zoning Districts. All of these zoning districts are within one mile of I-575. These zoning districts seek to preserve the historic landscape and character of the city. The Parkway Zoning District along SR 92 has stringent requirements for landscaping and building design. The Gateway Zoning District encompasses the historic Old Towne Woodstock area. The Technology Park Overlay District has development standards designed to create a 24-hour community with office, high-tech, and commercial uses combined with medium- and high-density residential development.

3.1.3.4 Livable Centers Initiatives

The ARC Board adopted policies in the regional transportation plan in May 1999 to provide funding for investment studies and transportation projects located in activity and town centers in the region. Over the past decade, this program of studies and projects has become known as the LCI. The program encourages increased residential development, mixed-use projects and increased connectivity in activity and town centers. A description of the initial LCI studies within Cobb and Cherokee Counties are presented in Appendix F.

Due to the success of the initial 2000-2004 program, the ARC Board authorized extension of the LCI program. This extension expanded the focus of the LCI to include transportation corridors, emerging centers, as well as the town center and other activity centers. The *2009 Livable Centers Initiative (LCI) Transportation Program Implementation Progress Report* (ARC, 2009c) notes that the LCI program was honored by the American Planning Association's National Planning Excellence Award in 2009, as well as US Environmental Protection Agency's (USEPA's) 2008 National Award for Smart Growth. Since 1990, the LCI program has sponsored a total of 1,148 projects, which have added: over 84,000 residential units; 12,000 hotel units; 19,000,000 square feet of commercial space; and 38,000,000 square feet of office space. The program clearly has had an impact on development in the region.

3.1.3.5 Community Improvement Districts

Within the study area, there are two community improvement districts – the Town Center Area CID and the Cumberland CID (see Figure 3-3). Property owners within the boundaries of these districts assess themselves additional ad valorem real estate taxes to address critical local issues. Only commercial properties zoned for office/industrial or retail use are taxed. Residential properties are excluded from the ad valorem real estate tax.

Town Center Area Community Improvement District

The Town Center Area Community Improvement District (TCACID) was established in 1997 to support the construction of infrastructure improvements. In 2000, a resolution was passed to expand the purpose of the TCACID to address public services, parks and recreation facilities, land use planning and development and/or improvements consistent with Cobb County planning efforts. In 2006, the TCACID updated a master plan for the 4,000-acre Town Center area to integrate transportation, land use, market conditions and implementation guidelines for the Town Center area (TCACID, 2007). The plan was again updated in 2010 (TCACID, 2010). The boundaries of the TCACID lie roughly to the north of Chastain Road, south of Barrett Parkway, east to Bells Ferry Road, and west to US 41/Cobb Parkway.

The area originated as a regional activity center with the opening of Town Center Mall in 1996. The mall spurred development, including restaurants, strip malls, banks, hotels, “big box” retailers, and a movie theater. This development helped change the regional perception of the area from that of a semi-rural community outside Atlanta to a regional shopping destination and bedroom community. According to the *Town Center Area Roadmap Update* (TCACID, 2010), industrial uses now comprise nearly 30 percent of the land area in TCACID, while retail, service commercial, residential, and offices uses represent 13, 9, 12 and 12 percent, respectively. The remaining land area is comprised of institutional uses (Kennesaw State University), undeveloped land or open space.

In 2009, commercial properties in the TCACID paid an additional 5 mils on their property tax bill to advance road projects, sidewalks, and other improvements to increase accessibility and mobility within Town Center area.

Cumberland Community Improvement District

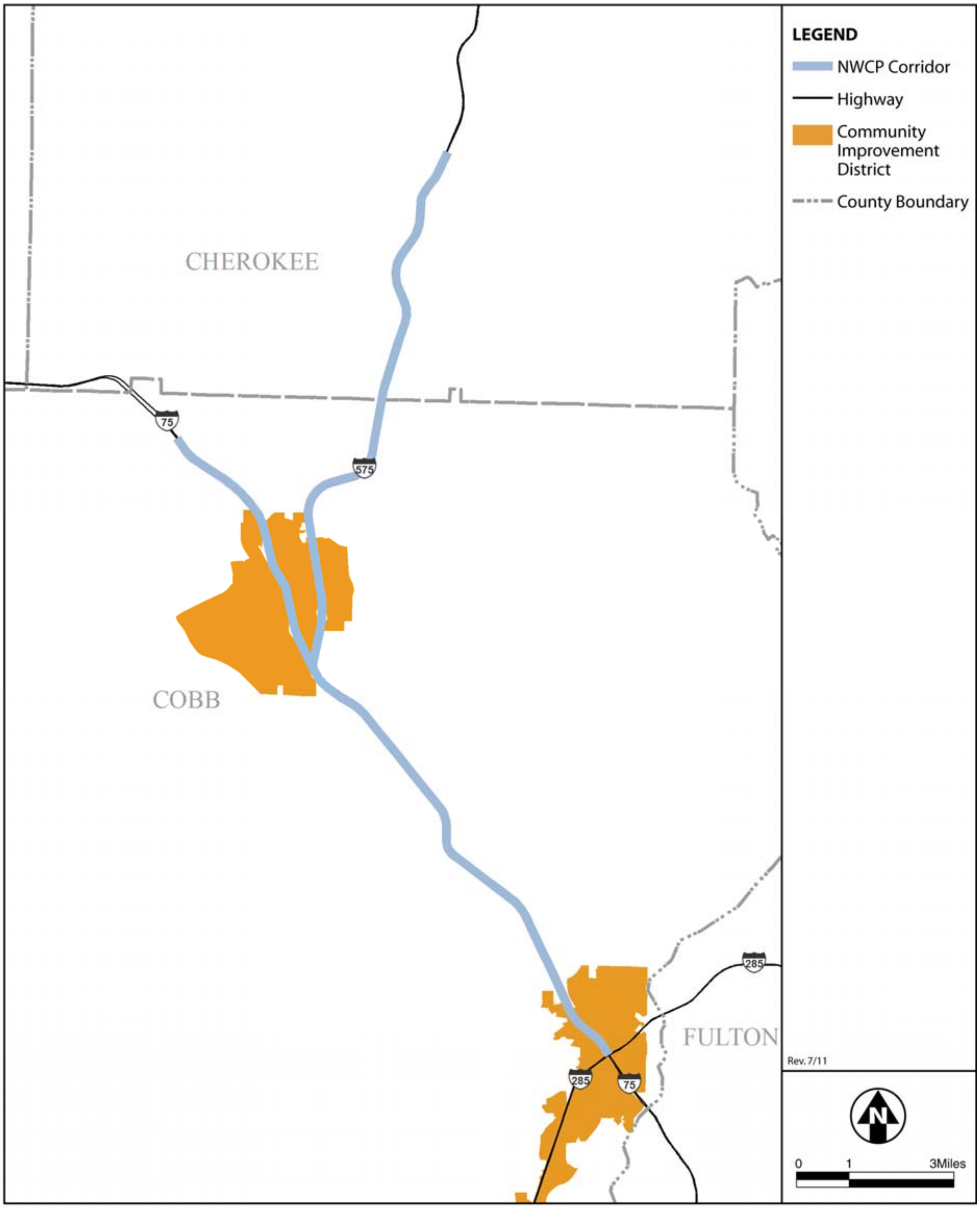
The CCID was formed in 1987 to provide benefits for businesses and residents in an area of roughly 5.5 square miles. According to the CCID 2008 Annual Report, the District has raised $75 million in assessments and attracted over $500 million in development projects since inception. With this funding, the District has made substantial progress implementing land use development and transportation projects. In addition, the funding has been leveraged for community improvements, including transportation infrastructure and planning studies. As with the TCACID, the CCID prepared a LCI plan called *Blueprint Cumberland Strategic Plan* (CCID, 2001).

3.1.3.6 Other Plans and Initiatives

In addition to the above referenced local government plans, there are several other planning efforts that have affected land use and development within the study area. These include the Cobb County Enterprise Zones, the Canton Road Corridor Study, and the Woodstock Downtown District Master Plan. Each of these is described below.

Community Improvement Districts in Cobb County

Figure 3-3



Source: CCID, 2006.

Cobb County Enterprise Zones

Enterprise zones are used to stimulate economic activity within a specific geographic area, to encourage existing companies to expand and create new jobs and to provide communities with increased management of community growth. Cobb County has established enterprise zones in the Canton Road, Atlanta Road, Six Flags Road, and Veterans Memorial Highway communities (see Figure 3-4). The Canton Road enterprise zone is about 2 miles east of the I-75/I-575 interchange. The Atlanta Road enterprise zone is approximately 1 mile west of the I-75 corridor and encompasses the Dobbins Air Reserve Base and properties west of Atlanta Road. The Veterans Memorial Highway enterprise zone is approximately 5 miles southwest of the I-75/I-575 interchange north of I-285. This zone encompasses portions of Six Flags Drive and areas to the south across I-20 to the Douglas County line.

The purpose of these enterprise zones is to designate land for development or redevelopment. To promote economic activity, job creation and capital investment in the community, qualifying businesses locating or expanding within the enterprise zones are eligible for tax incentives and other economic benefits. In particular, the Cobb County enterprise zones have the following incentives: (1) 10-year graduated tax abatement of county ad valorem taxes; (2) caps on building permit and business license permit fees; and (3) assistance with other state incentives such as free training, job creation tax credits, and access to development authority financing.

Cobb County Bicycle and Pedestrian Improvement Plan

The Cobb County Department of Transportation recently prepared a *Bicycle and Pedestrian Improvement Plan* (Cobb County, 2009). The Plan included a countywide Safe Routes to Schools Plan. It also included recommendations to extend the popular Silver Comet Trail, a paved 61-mile trail from Smyrna to the Georgia/Alabama state line. The 12 miles in Cobb County provide pedestrian and bicycle linkage from the Cumberland-Galleria area west to Paulding County. The Plan proposes criteria for infrastructure investment, including proximity to schools, parks, transit facilities, shopping areas, and a mix of commercial and residential land uses.

Canton Road Corridor Study

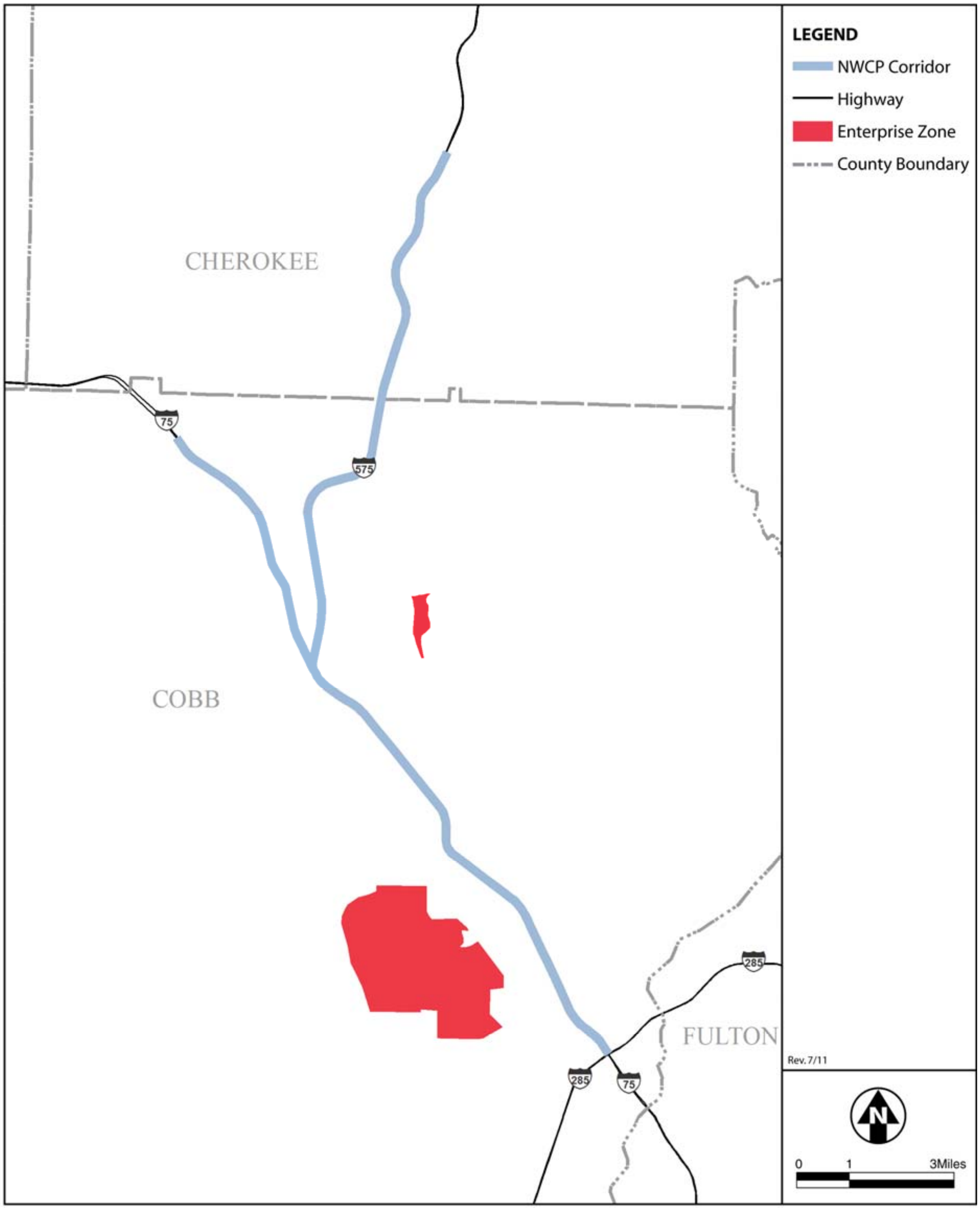
The Cobb County Community Development Agency completed a corridor study for Canton Road in 2005 (Cobb County, 2005). This arterial is parallel to Bells Ferry Road through northeastern Cobb County and connects Cobb and Cherokee Counties. The study objective is to promote redevelopment to create a more livable, pedestrian-friendly area. The Agency has focused on the neighborhood's commercial business districts and designated three special districts along the corridor:

- Campus District – from New Chastain Road/Blackwell Road to Cherokee County line.
- Commerce District – from Piedmont Road to New Chastain Road/Blackwell Road.
- Loft District – from Canton Road Connector to Piedmont Road.

Woodstock Downtown District Master Plan

In May 2005, the City of Woodstock adopted the *Downtown District Master Plan* (Woodstock, 2005). The goals of the Plan are to:

- Preserve, protect and enhance the downtown's historic and future role as the civic and economic center of Woodstock.



Source: Cobb County, 2011b.

- Create an environment where residents and visitors can live, work, meet, and play.
- Encourage a balanced mix of retail, professional, residential, civic, entertainment, and cultural uses.
- Encourage the use of alternative modes of transportation.
- Promote pedestrian safety.
- Provide adequate and accessible parking.
- Enhance Woodstock's historic character.
- Provide increased vehicular and pedestrian access.

3.1.4 Transportation Plans and Policies

In addition to local government land use planning, the region has adopted specific plans to address needed improvements to the transportation system. Two major planning efforts related to the Northwest Corridor Project are the ARC *Envision6* RTP (ARC, 2007b) and the Georgia Department of Transportation's (GDOT) *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a).

3.1.4.1 Regional Transportation Planning

In 2005, the ARC formed a Managed Lane Planning Team to provide input and foster discussion on the existing and future Atlanta region managed-lane system. The Team was tasked to develop managed-lane policies to be used in the development of regional transportation plans and programs. The resulting policy document recognizes managed lanes as a tool to provide and maintain mobility and travel options for the citizens and travelers in the Atlanta region. The policies are divided into key areas of: efficiency, revenue, regional goals, transit and accessibility. In June 2007, the ARC Board adopted the managed-lane policies (ARC, 2007a). This resolution was incorporated into the RTP as Appendix M (see Appendix F).

The ARC adopted the RTP in September 2007 as a guide for the transportation needs of the Atlanta area, with emphasis on matching transportation needs with development policies. This plan strongly encourages increased development, infill development and redevelopment in the Atlanta metropolitan region. The plan provides support for transit system expansion and development. In addition, the plan supports transportation systems, such as the managed-lane concept, to increase the capacity of the region's highways.

Implementation of the *Envision6* RTP is guided by the *Envision6, Volume II: FY 2008-2013 Transportation Improvement Program* (FY 2008-2013 TIP), as amended (ARC, 2009d). Amendment 7 to the TIP specifically included funding for the proposed managed lanes for the Northwest Corridor (Project AR-930). *Envision6* RTP was updated by *PLAN 2040* RTP as this FEIS document was in the final stages of completion. The Northwest Corridor Project is incorporated into the *PLAN 2040* RTP and FY 2012-2017 TIP as Project AR-ML-930. Technical analysis in this FEIS document, however, is based on the *Envision6* RTP and its supporting components unless specifically noted.

3.1.4.2 State Planning for Managed Lanes

In January 2010, GDOT published the *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a). Adopted by the State Transportation Board on December 10, 2009, this plan was developed at the direction of the State Transportation Board's resolution of June 21, 2007. It committed that "all new capacity lanes within limited access corridors in Metro-Atlanta shall be managed lanes." The Plan's specific goals and objectives serve as a guide to develop individual managed-lane projects in metropolitan Atlanta.

In December 2010, the GDOT public-private partnership (P3) Steering Committee approved express toll lanes (ETL) as the tolling policy specifically for the Northwest Corridor. As such, this decision does not necessarily apply to other corridors in the region.

The types of managed lanes studied in the report include high-occupancy vehicle (HOV), high-occupancy toll (HOT), ETL, truck-only lanes (TOL) and truck-only toll lanes (TOT). Based on traffic analysis, the report recommended implementation of the high-occupancy-toll with three or more persons (HOT3+) tolling policy whereby vehicles with three or more occupants would be permitted in the managed lanes at no charge along with motorcycles, alternative-fuel vehicles, registered transit vehicles, and emergency vehicles. However, the report identifies a funding shortfall in implementing the managed-lane system. The revenue collected from tolls is expected to cover only part of the construction and maintenance of the managed lanes.

The plan recommends the managed lanes be divided into five tiers as a way to prioritize the projects. This tiering reflects the State's understanding that there would not be sufficient resources available to construct the entire system at one time, but rather the managed-lane system would gradually expand into a fully realized network over time. The tiers are based on a number of criteria including: ease of implementation, recently completed and ongoing environmental analysis and design activities, the level of public contribution necessary to cover project costs, system connectivity, and regional equity. The projects that best met these criteria were targeted for earlier tiers (highest priority). Tier 1, the earliest tier, includes HOT3+ managed lanes along I-75 from I-285 to Hickory Grove Road and along I-575 from I-75 to Sixes Road. With managed lanes, the travel time delay is forecast to be reduced by 83 percent. In addition, the managed lanes should provide the public with an 8 percent system-wide reduction in vehicle delay. The managed lanes are predicted to increase accessibility to and from the downtown Atlanta employment center to the surrounding area.

3.2 Population and Employment

This section discusses existing and forecast population and employment characteristics of the study area. It addresses population trends, demographic characteristics, low-income and minority populations, housing, and employment. For comparison with the study area, statistics for Cobb and Cherokee Counties and the Atlanta 20-county metropolitan region are also provided. The study area is defined by 15 traffic analysis districts (see Figure 3-2) and encompasses all of Cherokee and Cobb Counties, except for the southwestern portion of Cobb County. This geographic area is described as the "benefit" area for the project corridor. This is the geographic area that substantially captures the travel trips along the project corridor. As such, trip origins or destinations within this area would experience improved transportation services with implementation of the proposed project.

Much of the analysis is based on the American Community Survey 2006-2008 Three-Year Estimate (US Census Bureau, 2009), which represents an estimate of the average demographic statistics for cities and counties over a three-year period based on sample surveys conducted by the US Census Bureau. This provides the most current demographic data available, though it is not as comprehensive and detailed as the census tract and block group data that was published in 2000. Moreover, some demographic statistics are only published in the decennial census. For this reason, data presented in this section presents information from several sources using the best available historical data. Detailed information for small geographic areas from the 2010 census will be published in mid-2011. The 2010, 2015, and 2035 population forecasts are estimates developed by the ARC for the 2008 Travel Demand Forecasting Model (ARC, 2008b).

3.2.1 Population Trends

The Atlanta metropolitan area and particularly the Northwest Corridor, has experienced tremendous growth in population since 1990. Table 3-3 identifies population growth for each of the 15 traffic analysis districts in the study area for 1990 and 2000 along with the 2008 forecast increases in population for 2010, 2015, and 2035. Note, due to the recent recession, the 2010 population forecasts for some of the 15 traffic analysis districts are nearly the same as the 2000 estimated population. Between 1990 and 2010, the population of the study area grew from about 468,000 to 747,000, while the total region grew from 3.04 to almost 5.0 million. During this period, the population increased in the study area by 59 percent, somewhat slower than the rate at which the region grew, but still very substantial over the past 20 years. Population growth accounted for slightly more than 14 percent of the regional population increase between 1990 and 2010.

Despite the recent recession, the long-term population growth trends are expected to continue to be strong though more moderate for the coming 25 years. The population of the study area is projected to increase from about 747,000 in 2010 to approximately 1,026,000 in 2035, a 37 percent gain. Most of the population growth is projected to occur in the northern portions of Cobb County. These growth rates indicate a continuation of urban sprawl into the outlying areas of the study area. In comparison, the population of the region during this same period is projected to increase from about 5 million to 7.24 million, by roughly 45 percent. The somewhat slower pace of population growth is because the study area includes large areas that are already substantially urbanized, especially in the southern portion. In contrast, the 20-county region includes large areas of undeveloped land.

3.2.2 Demographic and Socioeconomic Characteristics

The sections below describe the age, race and ethnicity, linguistic isolation and socioeconomic characteristics of the study area population. In these sections, the study area was expanded to include the remainder of Cobb County. This expanded area includes portions of the county south and southwest of Smyrna/Vinings. This is because census tract boundaries do not exactly match boundaries of the traffic analysis districts of the benefit study area discussed in Section 3.2.1. In addition, the updated 2008 demographic information is only published for counties, not smaller divisions of the county. The demographic and socioeconomic character of the benefit study area, however, is assumed to be very similar to the data presented for the two counties. For comparison purposes, the demographic and socioeconomic characteristics of the Atlanta Metropolitan Statistical Area (MSA) 28-county region (Atlanta Region) are also provided. The Atlanta MSA includes the ARC 20-county area and eight additional counties: Butts, Dawson, Haralson, Heard, Jasper, Lamar, Meriwether, and Pike.

3.2.2.1 Population by Age

Table 3-4 identifies the number and percentage of persons by age group for the two-county area and the Atlanta Region. A total of 65 percent of the two-county area population is in the 18- to 64-year-old age group, which is the largest percentage of any age group. Persons under 18 years of age comprise an estimated 27 percent of the population and 8 percent is 65 years or older. These age characteristics reflect the typical suburban growth generated by young families who move outside of the urban core to purchase more affordable housing. The age characteristics of the two-county area for each of the age groups are the same as the age characteristics of the

Table 3-3. Population Growth for Study Area and Region

Study Area Traffic Analysis Districts	Population					Percent Change		
	1990	2000	2010	2015	2035	1990-2010	2000-2010	2010-2035
Cumberland-Galleria	25,965	29,829	30,054	30,845	35,142	16%	<1%	17%
Dobbins	3,128	2,616	2,385	2,490	3,043	-24%	-9%	28%
E Central Cherokee	36,057	52,970	83,818	96,570	169,546	132%	58%	102%
East Cobb	60,943	69,031	67,977	68,507	77,961	12%	-2%	15%
Marietta Loop	6,525	8,268	8,168	8,474	10,553	25%	-1%	29%
North Cherokee	10,790	13,709	22,861	27,405	63,258	112%	67%	177%
Northeast Cobb	88,760	103,773	105,450	106,343	113,396	19%	2%	8%
Northeast Marietta	14,123	17,343	17,846	18,232	20,215	26%	3%	13%
Northwest Cobb	38,353	88,174	115,140	125,095	146,337	200%	31%	27%
Powers Ferry	21,370	27,464	25,840	25,844	29,847	21%	-6%	16%
Smyrna/Vinings	30,768	40,431	43,523	43,752	48,626	41%	8%	12%
Southwest Marietta	33,787	40,235	41,029	41,897	46,322	21%	2%	13%
Town Center	11,287	19,864	24,225	25,692	26,900	115%	22%	11%
West Cobb	43,331	64,097	64,827	70,865	79,350	50%	1%	22%
Woodstock	43,235	74,488	93,645	104,483	155,666	117%	26%	66%
Study Area Total	468,422	652,292	746,788	796,494	1,026,162	59%	15%	37%
Remaining Region	2,572,524	3,576,200	4,252,603	4,597,180	6,217,468	65%	19%	46%
Total 20-County Region	3,040,946	4,228,492	4,999,391	5,393,674	7,243,630	64%	18%	45%

Sources: US Census Bureau, 1990 and 2000; ARC, 2008b.

Table 3-4. Population by Age, 2008

Age Group	Two-County Area		Atlanta Region	
	Number of Persons	Percent of Total	Number of Persons	Percent of Total
Under 18 Years	239,085	27%	1,419,446	27%
18 to 64 Years	580,478	65%	3,401,667	65%
65 Years and Over	71,495	8%	421,904	8%
Total	891,058	100%	5,243,017	100%

Notes : The 2006-2008 American Community Survey reports average statistics for three years. Due to non-response or repression of data for confidentially, the sample survey data universe totals, particularly for the Atlanta Region, may or may not be equal to the total population reported. For age of population, the universe totals are the same.
Source: US Census Bureau, 2009.

Atlanta Region. Specifically, there is no more concentration of elderly population in the two-county area than the Atlanta region. For the purposes of this analysis, the elderly population is not anticipated to be a population of environmental justice concern.

3.2.2.2 Population by Race and Ethnicity

Table 3-5 presents the racial and ethnic composition of the two-county area, which is approximately 35 percent minority. The largest minority group is non-Hispanic African-Americans, which comprises approximately 19 percent of the total population. Non-Hispanic Whites constitute the largest racial group comprising 65 percent of the population. The two-county area is approximately 11 percent Hispanic. The racial and ethnic composition is similar to the Atlanta region composition for most groups, except non-Hispanic Whites and African Americans. The two-county area has a higher percentage of non-Hispanic White population than the Atlanta region (65 percent versus 52 percent) and a lower percentage of non-Hispanic African American population than the Atlanta region (19 percent versus 31 percent).

Table 3-5. Population by Race and Ethnicity, 2008

Race	Two-County Area		Atlanta Region	
	Number of Persons	Percent of Total Population	Number of Persons	Percent of Total Population
White, Non-Hispanic	578,703	65%	2,572,085	52%
Total Minority Population	312,355	35%	2,366,123	48%
African American, Non-Hispanic	166,543	19%	1,549,082	31%
Asian, Non-Hispanic	31,288	3%	214,272	4%
Other Races, Non-Hispanic	19,354	2%	86,676	2%
Hispanic or Latino	95,170	11%	515,992	11%

Notes: The total minority population includes Hispanics of any race and non-Hispanics of any race except the non-Hispanic White population. Also, the 2006-2008 American Community Survey reports average statistics for three years. Due to non-response or repression of data for confidentially, the sample survey data universe totals, particularly for the Atlanta Region, may or may not be equal to the total population reported. For Hispanic or Latino by race statistics, the universe total for the Atlanta Region is different than the total population. To avoid confusing the reader, these totals have not been presented.
Source: US Census Bureau, 2009.

The study area also has a community of Portuguese-speaking households, primarily from Brazil based on public input received at a kiosk event in March 2010. In fact, the 2000 census reported that more than 1,800 Brazilians reside in the two-county area, and more than 2,000 persons over 5 years of age speak Portuguese in the home. More current data is not available.

3.2.2.3 Limited English Proficient Population

Because Executive Order 13166 requires federal agencies to improve access to federal programs and activities for persons with limited English proficient (LEP), language demographic characteristics were collected for the study area. The Executive Order defines this population as persons who as a result of national origin are limited in their English proficiency. The US Department of Transportation (USDOT) guidelines define LEP persons as individuals with a primary language other than English who, due to limited fluency in English, must communicate in their primary language in order that they have an equal opportunity to participate effectively in or benefit from federal services. The US Census Bureau publishes statistics that can be used to identify such populations in the study area. These statistics include: nativity, language spoken at home, ability to speak English, and linguistic isolation.

Table 3-6 presents the statistics for households of the two-county area and the Atlanta 20-county region that are linguistically isolated, one of the key indicators of the presence of LEP populations. Linguistically isolated households are defined as those where no member 14 years of age and over (1) speaks only English or (2) speaks a non-English language and speaks English “very well” (US Census Bureau, 2008). In other words, all members of the household 14 years of age and over have at least some difficulty with English. According to the 2006-2008 American Community Survey, the percentage of households that are linguistically isolated is approximately 4 percent in the two-county area and approximately 5 percent in the Atlanta region. The primary language spoken in the two-county area by the largest portion of these linguistically isolated households is Spanish; and statistics are substantially higher than in the Atlanta Region.

Table 3-6. LEP Households, 2008

	Two-County Area		Atlanta Region	
Characteristic	**Number of Households**	**Percent of Total**	**Number of Households**	**Percent of Total**
Not Linguistically Isolated	313,833	96%	1,742,040	95%
Linguistically Isolated *	12,564	4%	85,473	5%
Spanish Speaking	*9,017*	*72%*	*57,065*	*67%*
Asian Languages Speaking	*1,365*	*11%*	*14,479*	*17%*
Other Languages Speaking	*2,182*	*17%*	*13,929*	*16%*

Notes : The percent of specific language isolated populations is calculated for only those linguistically isolated, not the entire population. Also, the 2006-2008 American Community Survey reports average statistics for three years. Due to non-response or repression of data for confidentially, the sample survey data universe totals may or may not be equal to the total population reported. For linguistic isolated household statistics, the universe total for both the two-county area and the Atlanta Region are different than the total population. To avoid confusing the reader, these totals have not been presented.
Source: US Census Bureau, 2009.

As described in the previous section, there also is a Portuguese-speaking population in the study area. In 2000, this population comprised more than 2,000 persons based on nativity statistics (US Census Bureau, 2000). Although this number is small, it is the most common foreign language spoken in the home in the study area after Spanish. Similar statistics are not available through the American Community Survey published in 2008.

3.2.2.4 Household Income and Poverty

Table 3-7 presents the household income and poverty statistics for residents of the two-county area. In 2008, the two-county area per capita income was reported to be $24,751, which is slightly higher than the per capita income for the Atlanta MSA. The median household and family incomes were higher than the median household and family incomes for the Atlanta Region at $67,570 and $80,316 compared to $62,565 and $72,517. The percentage of individuals living below the poverty level was estimated to be 9 percent, while the percentage of families living below the poverty level was approximately 6 percent. For comparison, the Atlanta MSA percentages of persons and families living below the poverty level (12 percent and 8 percent, respectively) were higher than the two-county area percentages. The US Census Bureau poverty thresholds for 2008 are shown in Table 3-8.

Table 3-7. Household Income and Poverty, 2008

Characteristic	Two-County Area	Atlanta Region
Per Capita Income (2008 dollars)	$24,751	$22,076
Median Household Income (2008 dollars)	$67,570	$62,565
Median Family Income (2008 dollars)	$80,316	$72,517
Percent of Persons Below Poverty Level	9%	12%
Percent of Families Below Poverty Level	6%	8%

Notes:
"Households" are defined by the Census Bureau to include all of the people who occupy a housing unit as their usual place of residence. They are classified by type according to the sex of the householder and the presence of relatives, including children.
"Families" are defined by the Census Bureau to be a group of two or more people who reside together and who are related by birth, marriage, or adoption.
Source: US Census Bureau, 2009.

Table 3-8. U.S. Census Poverty Thresholds, 2008

Household Size	Income Thresholds
One-Person	$10,991
Two-Person	$14,051
Three-Person	$17,163
Four-Person	$22,025
Five-Person	$26,049
Six-Person	$29,456
Seven-Person	$33,529
Eight-Person	$37,220
Nine-Person	$44,346

Source: US Census Bureau, 2010.

3.2.3 Housing

Table 3-9 presents housing occupancy characteristics for the two-county area. Based on 2008 American Community Survey 2006-2008 three-year estimate, the majority of the housing units within the two-county area are owner-occupied. Of the approximately 162,497 occupied housing units within the study area, 70 percent were owner-occupied. This is typical for a suburban area.

Table 3-9. Housing Characteristics, 2008

	Two-County Area		Atlanta Region	
	Number of Units	**Percent of Total**	**Number of Units**	**Percent of Total**
Occupancy				
Occupied	162,497	88%	1,686,110	88%
Vacant	21,606	12%	230,857	12%
Total	184,103	100%	1,916,967	100%
Ownership				
Owner-Occupied	113,450	70%	1,148,969	68%
Renter-Occupied	49,047	30%	537,141	32%
Total	162,497	100%	1,686,110	100%

Source: US Census Bureau, 2009.

Research was conducted on the types of residential land use found in the study area. Approximately 36 percent of the land in the study area is residential. About one-third of the residences are single-family housing, with older small homes located closer to the highway corridor. Historically, several adjacent subdivisions were affected by property acquisition associated with the original construction of I-75 during the 1960s. Newer housing has been developed along the I-575 corridor.

A substantial amount of multi-family housing, both rental and owner-occupied, is in the study area. In fact, a number of apartment complexes are adjacent to I-75. They include some very large rental complexes comprised of multi-unit buildings, particularly in the Marietta area. The Marietta Housing Authority, which serves Cobb County, confirmed that none of the housing immediately adjacent to the highway corridor is publicly owned or operated (Cuevas, 2010). There is one large mobile home park in the study area that is adjacent to the highway and north of SR 3 Connector/Roswell Road (SR 3 Conn/Roswell Road). Additional information about the vacancy and cost of study area and regional housing is contained in Chapter 5 in a discussion of the availability of replacement housing.

3.2.4 Employment

Study area employment trends, labor force characteristics and employment by industrial sector are described in the following paragraphs. The statistics are consistent with the ARC 2008 Travel Demand Forecasting Model (ARC, 2008b).

3.2.4.1 Employment Trends

Employment in the study area increased from 194,000 to a forecast 342,000 (76 percent) between 1990 and 2010 (see Table 3-10). As the forecast was prepared in 2008, the actual 2010 employment is somewhat less due to the nationwide recession. In comparison,

Table 3-10. Employment Growth for the Study Area and Region

Analysis District	Employment (number of persons)					Percent Change		
	1990	2000	2010	2015	2035	1990-2000	2000-2010	2010-2035
Cumberland-Galleria	32,732	56,989	55,121	59,260	73,781	74%	-7%	34%
Dobbins	17,697	20,823	19,064	19,708	21,539	18%	-8%	13%
E Central Cherokee	8,494	17,557	26,338	32,259	65,752	107%	50%	150%
East Cobb	15,625	29,824	29,106	32,000	43,203	91%	-2%	48%
Marietta Loop	12,051	14,174	12,711	13,361	15,882	18%	-10%	25%
North Cherokee	1,018	1,925	2,691	3,280	9,619	89%	40%	257%
Northeast Cobb	12,161	21,657	23,232	24,622	32,439	78%	7%	40%
Northeast Marietta	14,527	22,221	22,547	22,945	24,213	53%	1%	7%
Northwest Cobb	6,820	16,697	23,798	27,053	41,123	145%	43%	73%
Powers Ferry	26,911	24,941	23,225	24,710	30,783	-7%	-7%	33%
Smyrna/Vinings	15,654	17,508	16,847	18,160	25,398	12%	-4%	51%
Southwest Marietta	9,924	10,602	12,392	13,664	22,400	7%	17%	81%
Town Center	9,264	32,778	41,277	42,257	46,579	254%	26%	13%
West Cobb	4,658	6,969	8,799	10,524	19,598	50%	26%	123%
Woodstock	6,464	16,268	25,056	31,105	61,918	152%	54%	147%
Study Area Total	194,000	310,933	342,204	374,908	534,227	60%	10%	56%
Remaining Region	1,411,588	1,837,373	2,222,770	2,472,390	3,623,388	30%	21%	63%
Total 20-County Region	1,605,588	2,148,306	2,564,974	2,847,298	4,157,615	60%	19%	62%

Sources: US Census Bureau, 1990 and 2000; ARC, 2008b.

employment in the Atlanta metropolitan area is forecast to increase by an estimated 60 percent. Employment increases in the study area were expected to continue to account for more than 15 percent of the regional employment growth during this period.

Over the next 25 years, study area employment is conservatively projected to continue to expand, albeit at a slower rate than demonstrated over the past 20 years. It is forecast long term to increase to an estimated 534,000, or a 56 percent increase, between 2010 and 2035. This forecast accounts for temporary short-term growth rates that may be less than or more than the projected long-term growth. Compared to the anticipated regional growth, employment in the study area is projected to account for about 12 percent of the total increase as employment continues to increase in the outlying areas of the region. The study area is nearly built out, particularly in the southern portion of the I-75 corridor. Like forecast population growth, much of the employment growth is anticipated to occur in northwest and western Cobb County and the Woodstock and east central and north areas of Cherokee County.

3.2.4.2 Labor Force

In 2000 when growth was strong in the region, the US Census Bureau reported the total civilian labor force for Cobb and Cherokee Counties was 343,473 and 77,415, respectively. The Cobb County civilian labor force accounted for approximately 16 percent of the Atlanta metropolitan area, while the Cherokee County civilian labor force accounted for about 4 percent. More recently, the Georgia Department of Labor reported the 2008 labor force for the two counties had increased from 382,081 and 110,276 since 2000, respectively. Both counties had a decreased share of the total regional labor force – 13.9 and 4.0 percent, respectively.

With economic growth strong in 2000, the unemployment rate was lower in Cobb and Cherokee Counties than for the Atlanta metropolitan area. At that time, it was reported to be about 4 percent for Cobb County and 3 percent for Cherokee County, compared to 5 percent for the Atlanta metropolitan area. In 2008 and the onset of the nationwide recession, unemployment in the two counties and the region increased to 5.6, 5.3, and 6.1 percent, respectively. These unemployment rates near or below 6 percent reflect the region's still growing economy. The continuation of the recession, however, pushed the 2009 average annual unemployment rates even higher with reported rates of 8.8, 8.6, and 9.6 percent, respectively (BLS, 2009).

3.2.4.3 Employment by Industry

The annual employment for all industries in 2008 was 315,994 for Cobb County, 46,965 for Cherokee County and 2,327,209 for the Atlanta metropolitan area. For Cobb County, the retail trade, administrative, waste management, and health care sectors of the economy had similar numbers of employees, which together accounted for over 30 percent of the totals. The retail trade and accommodation/food services industries were the largest employment sectors in Cherokee County as well as the Atlanta metropolitan area with approximately 27 and 20 percent of total employment, respectively. The four largest industries for Cobb and Cherokee Counties and the Atlanta metropolitan area were:

- Professional, Scientific, Management, Administrative and Waste Management Services;
- Health Care and Social Assistance;
- Retail Trade; and
- Manufacturing.

3.3 Neighborhoods and Community Facilities

This section describes the neighborhoods and community facilities and services located in the study area. Because federal policies protect minority and low-income populations, a focused discussion of these neighborhoods is also included. The analysis of social conditions, as required by National Environmental Policy Act of 1969, as amended (NEPA) and 23 United States Code (USC) Section 128, will be used in Chapter 5 to evaluate potential effects on the social environment.

3.3.1 Neighborhoods

Neighborhoods are areas where people reside. They may be areas that are predominantly residential in character, or mixed-use areas. A sense of community may or may not exist, depending upon factors such as how long residents have lived in the area, whether friends and family live nearby and the extent of shared activities within the neighborhood. Neighborhood cohesion is likely in areas where residents have engaged in the neighborhood planning process, organized a neighborhood association, and/or have a well-known or long-established identity with the area.

No formal neighborhood boundaries are used by planning departments in the municipalities located within the study area. However, many single-family residential areas that are organized by the names of major subdivisions function as independent neighborhoods. Some are formally organized through neighborhood associations that act as umbrella organizations for several subdivisions in the same area. Similarly, multi-family complexes including apartments and condominiums may have renter or homeowner associations.

The following sections describe identifiable neighborhoods in the study area. The discussion is organized by major segments in the project corridor from south to north. The I-75 segments are East Cobb, Delk Road to South Marietta Parkway, South Marietta Parkway to Allgood Road, and Northeast Cobb. The I-575 neighborhoods are described in the corridor segment identified as Cherokee County and the City of Woodstock. The location of these neighborhoods is shown in Figure 3-5.

3.3.1.1 East Cobb

Eastern Cobb County contains a number of low-density residential neighborhoods, subdivisions, apartment communities, townhouse developments and condominium communities. These neighborhoods are primarily known by their subdivision names. The East Cobb Civic Association (ECCA) serves as an umbrella organization formally representing the interests of citizens living in the entire area.

The Highlands at Akers Mill is a residential community south of I-285 on Akers Mill Road. Communities between I-285 and Windy Hill Road include the Oaks of Cumberland and Waterford. A newly constructed apartment complex, Belmont Place, is located near Windy Hill Road and Leland Drive east of I-75.

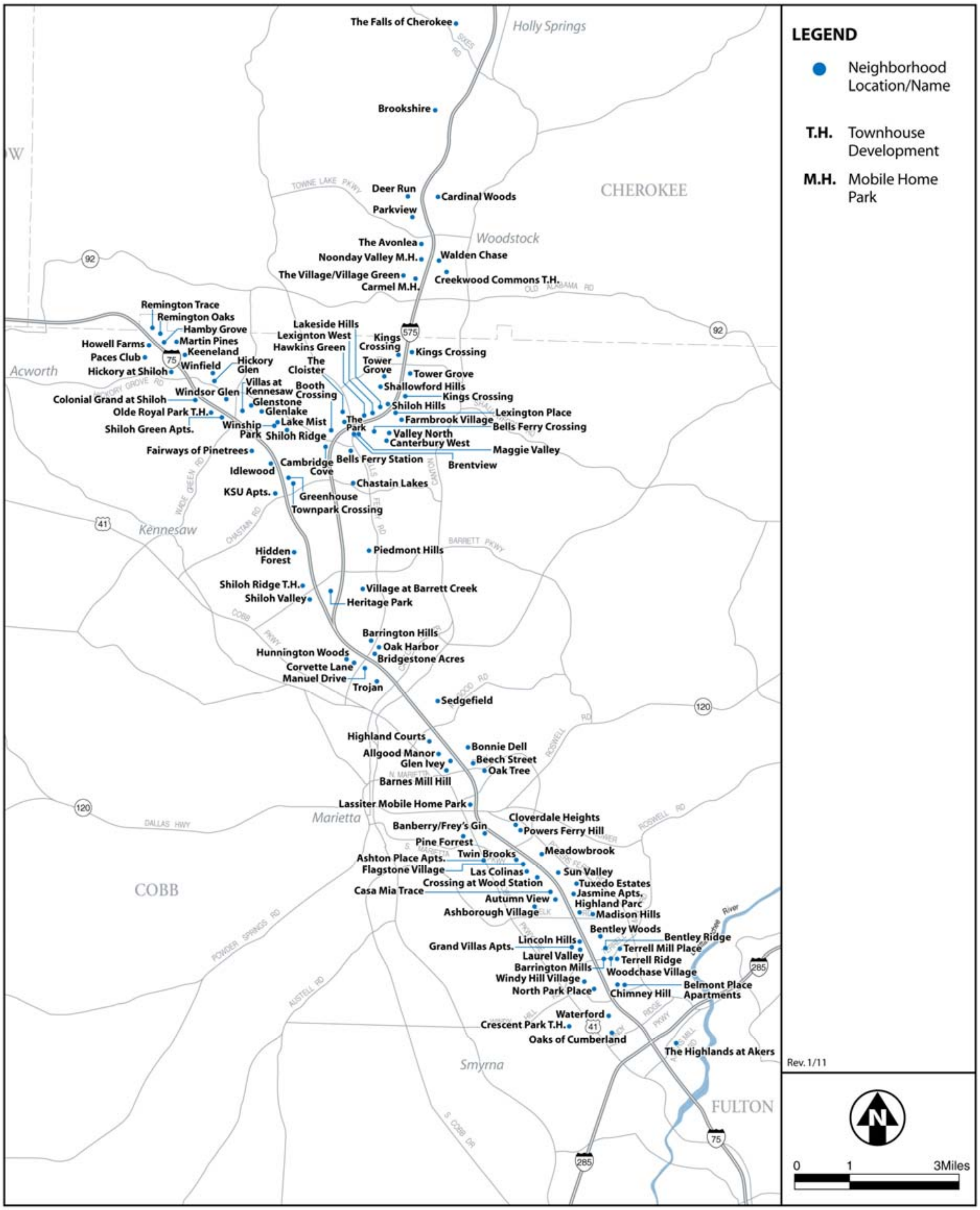
Neighborhoods off of Terrell Mill Road and Bentley Drive west of I-75 include Terrell Ridge, Woodchase Village, Terrell Mill Place, Bentley Ridge, and Bentley Woods. The Laurel Valley Apartments and Lincoln Hills Apartments are adjacent to the west side of I-75. The Madison Hills and Barrington Mills Apartment complexes are located along I-75 just south of Delk Road.

3.3.1.2 Delk Road to South Marietta Parkway

In this segment of the corridor, there are numerous large apartment complexes. The Franklin Road area located off of Delk Road and immediately west of I-75 is characterized by older multi-family apartment homes with a largely mobile population. High vacancy rates, estimated between 5 and 30 percent, are common. The Autumn View Apartments are located east of the Franklin Square Shopping Center.

Several residential developments are located along west I-75 between Delk Road and South Marietta Parkway: Twin Brooks Townhomes, Flagstone Village Apartments, and Ashton Place Apartments. Marietta is focusing redevelopment efforts along the Franklin Road corridor and desires to replace the aging apartment stock with new owner-occupied multi-family units. A newer apartment community, Highland Park Apartments, is on the east side of I-75.

Most residential development on the east side of this corridor segment is comprised of single-family detached subdivisions. These subdivisions have no identified signage or name associated with them. These neighborhoods adjacent to I-75 developed in the late 1960s and early 1970s. Many of the homes are still occupied by their original owners, contributing to a large population of senior citizens in the area. The owner-occupied townhouse and condominium community along the corridor, Twin Brooks, is well organized and represented by the Franklin Road Community Association.



LEGEND
Neighborhood Location/Name
T.H. Townhouse Development
M.H. Mobile Home Park
The Falls of Cherokee
Holly Springs
Brookshire
CHEROKEE
Deer Run
Cardinal Woods
Parkview
The Avonlea
Noonday Valley M.H.
Walden Chase
Woodstock
The Village/Village Green
Carmel M.H.
Creekwood Commons T.H.
Remington Trace
Remington Oaks
Hamby Grove
Howell Farms
Martin Pines
Paces Club
Keeneland
Hickory at Shiloh
Winfield
Hickory Glen
Acworth
Lakeside Hills
Lexignton West
Hawkins Green
Kings Crossing
The Cloister
Tower Grove
Villas at Kennesaw
Booth Crossing
Colonial Grand at Shiloh
Windsor Glen
Glenstone
Glenlake
Olde Royal Park T.H.
Shiloh Green Apts.
Winship Park
Lake Mist
Shiloh Ridge
The Park
Shallowford Hills
Shiloh Hills
Farmbrook Village
Lexington Place
Bells Ferry Crossing
Valley North
Canterbury West
Maggie Valley
Fairways of Pinetrees
Cambridge Cove
Idlewood
Bells Ferry Station
Brentview
Chastain Lakes
KSU Apts.
Greenhouse
Townpark Crossing
Kennesaw
Hidden Forest
Piedmont Hills
Shiloh Ridge T.H.
Shiloh Valley
Village at Barrett Creek
Heritage Park
Barrington Hills
Oak Harbor
Bridgestone Acres
Hunnington Woods
Corvette Lane
Manuel Drive
Trojan
Sedgefield
Highland Courts
Allgood Manor
Glen Ivey
Barnes Mill Hill
Bonnie Dell
Beech Street
Oak Tree
Lassiter Mobile Home Park
Marietta
Banberry/Frey's Gin
Cloverdale Heights
Powers Ferry Hill
Pine Forrest
Ashton Place Apts.
Twin Brooks
Meadowbrook
Flagstone Village
Las Colinas
Sun Valley
Casa Mia Trace
Crossing at Wood Station
Tuxedo Estates
Jasmine Apts.
Autumn View
Highland Parc
Ashborough Village
Madison Hills
COBB
Bentley Woods
Bentley Ridge
Lincoln Hills
Terrell Mill Place
Grand Villas Apts.
Laurel Valley
Terrell Ridge
Barrington Mills
Woodchase Village
Windy Hill Village
North Park Place
Chimney Hill
Belmont Place Apartments
Waterford
Crescent Park T.H.
Oaks of Cumberland
The Highlands at Akers
Smyrna
FULTON
Rev. 1/11
0 1 3Miles

3.3.1.3 South Marietta Parkway to Allgood Road

Residential development between South Marietta Parkway and SR 3 Conn/Roswell Road east of I-75 is primarily single-family detached housing. These neighborhoods have no identified signage or name associated with them. These residential areas are characterized by single-family homes that pre-date the construction of I-75 in the 1960s and 1970s. Many homes abut I-75. A small cluster of approximately 60 single-family homes is on the west side of I-75 at Banberry Road, Frey's Gin Road, and Kasandra Road.

There are no neighborhoods or residential developments adjacent to I-75 on the east side between SR 3 Conn/Roswell Road and Gresham Road. West of I-75 between SR 3 Conn/Roswell Road and Gresham Road is the Lassiter Mobile Home Park.

Most of the residential development on both the east and west side of I-75 is off of Barnes Mill Road, which was divided by the highway's construction. The area is primarily older moderate-density, single-family home neighborhoods, with some owner-occupied and some rental units. The Beech Street neighborhood is a collection of single-family homes that span both sides of the I-75 corridor. The new Glen Ivy townhouse community stretches along Barnes Mill Road immediately west of I-75.

The Allgood Road area is characterized by single-family residential subdivisions built in the 1970s and 1980s. The Highland Court Apartment complex is at the southwest corner of the intersection of Allgood Road and I-75.

3.3.1.4 Northeast Cobb

The Northeast Cobb Homeowners Group formed in 1998 and represents the interests of homeowners in this portion of the county. Along the Bells Ferry Road and immediately east of I-75 are the Barrington Hills, Bridgestone Acres, and Oak Harbor communities. On the west side of I-75, Dickson Road provides a residential connection under I-75 to the Canton Road Connector. Other neighborhoods include the Trojan and Hunnington Woods and the Manuel Drive and Corvette Drive residential areas that abut I-75. The Bells Ferry Civic Association represents homeowner interests in the immediate area.

Located in the vicinity of the I-75/I-575 interchange, Town Center is a major activity center and destination at the north end of the study area. The area is primarily a commercial center and employment district, but some newer multi-family and low- to moderate-density single-family subdivision development is ongoing. The Town Center Area Community Improvement District works with employers and property owners in the development of a subarea master plan that includes future residential development.

The Shiloh Valley Subdivision is immediately west of I-75 near the I-575 interchange. The subdivision includes single-family as well as multi-family residences. A mixture of single-family and multi-family communities is located between Chastain Road and Wade Green Road. There are also several residential developments between Wade Green Road and the project terminus on I-75.

3.3.1.5 Cherokee County and the City of Woodstock

Most of the I-575 portion of the project corridor is in Cherokee County including incorporated Woodstock. Many of the nearby neighborhoods are newer master planned communities that have a mixture of housing types. Large residential areas proximate to the study corridor include

Towne Lake, Falls of Cherokee, and Chastain Lakes. There are several residential developments that occur along I-575 between the I-75/575 interchange and Sixes Road including apartments, townhouses/condominiums, and single-family subdivisions.

Towne Lake is west of I-575 in southwest Cherokee County. It was the first master planned community in Cherokee County and is one of the largest residential developments in the state of Georgia. It was constructed in the 1980s when Cherokee County was primarily rural. Each subdivision within the Towne Lake community has its own homeowners association. The entire community is unified by an “umbrella” homeowners association.

3.3.2 Minority and Low-Income Neighborhoods

As described above, the two-county study area represents the diverse demographic characteristics of a metropolitan area. As such, some minority and/or low-income populations could be affected by the proposed project. As the proposed project is partially-funded by federal monies, the environmental review of the proposed project must include an analysis of potential disproportionate impacts on these populations. This section describes these populations of concern that reside in the area immediately adjacent to the project corridor and are most likely to be adversely affected by potential property acquisition, increases in noise, decreased air quality, and construction effects. Discussions of travel time for subareas of the study area address potential effects on minority and low-income populations residing in the benefit area (see Chapter 7).

3.3.2.1 Regulatory Requirements

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (USEO, 1994), directs federal agencies to “promote nondiscrimination in federal programs substantially affecting human health and the environment and provide minority and low-income population access to public information on and an opportunity for public participation in, matters relating to human health or the environment.” It also defines the terms “minority” and “low-income.” Analysis of compliance with this federal policy is commonly referred to as environmental justice analysis.

The Council on Environmental Quality (CEQ) has oversight responsibility for and has written guidance regarding, the federal government's compliance with Executive Order 12898 and the NEPA process. In response to Executive Order 12898, the USDOT issued Order 6640.23, Federal Highway Administration (FHWA) Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (Federal Register Volume 62, Number 72) (USDOT, 1998). This order, issued in 1998, sets guidelines to ensure that all federally-funded transportation-related programs, policies, or activities that have the potential to adversely affect human health or the environment involve a planning and programming process that explicitly considers the effects on minority and low-income populations. The USDOT and the USEPA also have guidelines regarding compliance with environmental justice requirements. As a result of Executive Order 12898, NEPA requires a discussion of environmental justice related to federally funded projects.

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (USEO, 1997), directs federal agencies to “identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.”

In addition, Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency (USEO, 2000), requires federally assisted programs to identify any need for services to those persons with LEP; and develop and implement a plan to provide services to LEP persons. Executive Order 13166 has a two-fold purpose. First, it provides enforcement and implementation of an existing obligation under Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from discriminating based on national origins by failing to provide meaningful access to LEP individuals. Secondly, Executive Order 13166 sets forth a new obligation, which requires that all federal agencies meet the same standards as federal financial assistance recipients, to provide meaningful access to LEP individuals to federally conducted programs. Additionally, like Executive Order 12898, each federal agency must develop a plan to provide this access. Meaningful access can include availability of vital documents, printed, and Internet-based information in one or more languages depending on the location of the project and translation services during public meetings. For the purposes of this analysis, a discussion of the outreach efforts that were made during the planning and environmental process would address compliance with Executive Order 13166.

The Age Discrimination Act of 1975 prohibits the discrimination of individuals based on age from having meaningful access and participating in federally funded programs. As discussed earlier, there is no greater concentration of elderly population in the two-county area than the region. Therefore, the elderly population is not anticipated to be a population of environmental justice concern.

3.3.2.2 Criteria

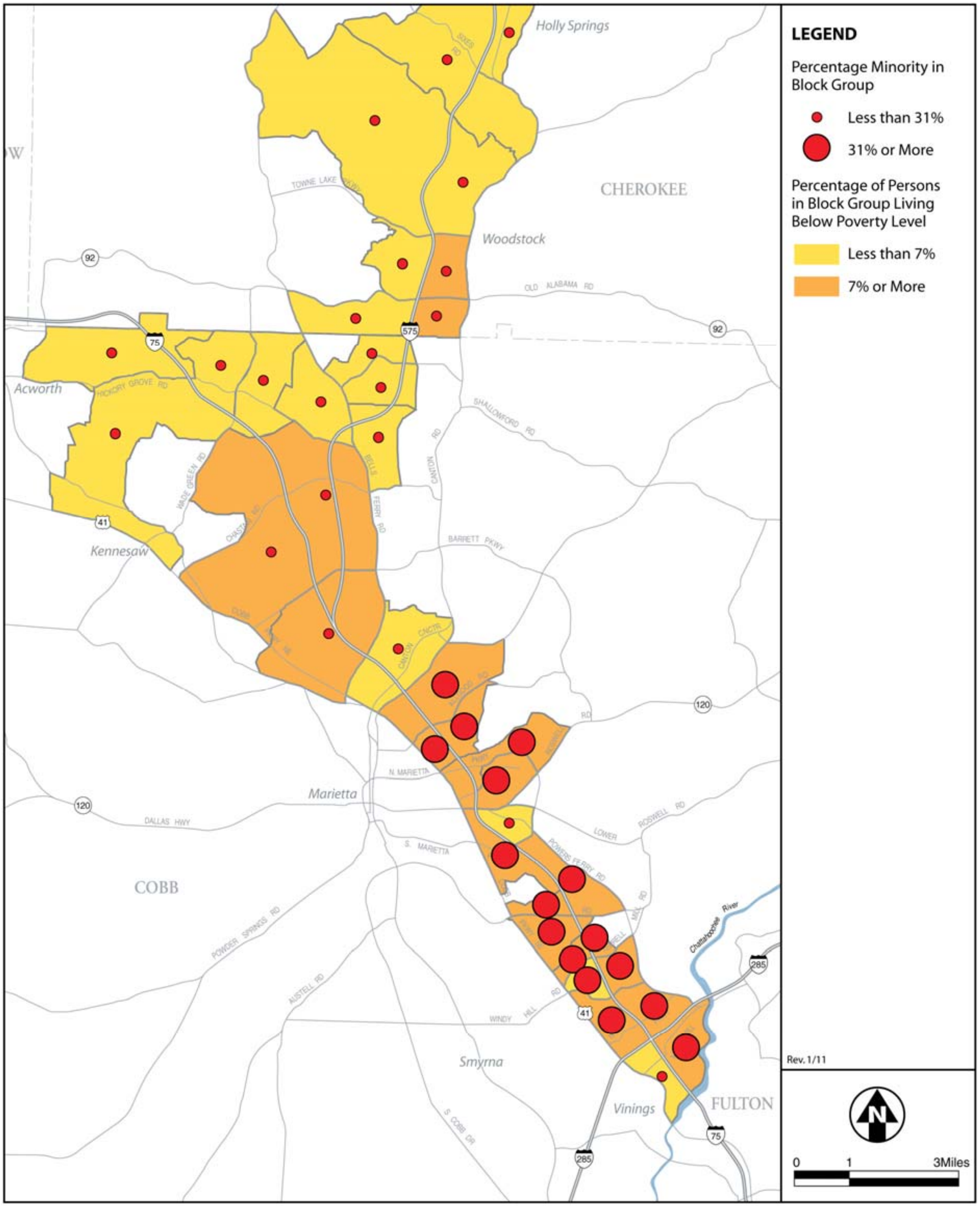
Minority and low-income populations were identified based on the following environmental justice terms:

- Minority populations are individuals who are a member of any one of the following population groups: Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; some other race alone; and two or more races. White Hispanic/Latinos also are included.
- Low-income populations are identified using the annual statistical poverty thresholds developed by the US Census Bureau. These thresholds account for income by household size.

3.3.2.3 Environmental Justice Study Area Demographics

Statistics for all census tract block groups adjacent to the project corridor were analyzed for the presence of minority and low-income populations. The colored area shown in Figure 3-6 includes all of these census tract block groups. Because this analysis looks at just the adjacent block groups, this study area is different than the discussion of study area above, which encompasses a nearly two-county area and reflects the benefit area. This geographic area coincides more directly to the area affected by the project's potential adverse impacts, particularly related to construction. For this reason, this study area is referred to as the environmental justice study area. In addition, because the analysis examined demographic characteristics for a small geographic area adjacent to the project corridor, the most recent available data is the 2000 census. For comparison purposes, the discussion of statistics for the study area cities and counties also uses the 2000 census data. Current information from the April 2010 census will not be published until mid-2011.

To determine whether or not a particular geography was predominantly minority or low-income, the populations residing in each block group were analyzed and thresholds for analysis were established. This was done by comparing the population characteristics with the population data



Source: TAHA, 2010.

for the 28-county Atlanta MSA, Cherokee and Cobb Counties, Marietta, and Georgia. Marietta was included as most of the property acquisitions would occur within or near the city and study area block groups have high minority and low-income populations.

According to the U.S. Census 2000, the most recent data available, the population of the Atlanta MSA is 45 percent minority (see Table 3-11). Cobb and Cherokee Counties are a part of the region, but minorities comprise a smaller proportion of the population at 31 percent and 10 percent, respectively. Marietta has a high minority population with over 50 percent of the city's population identified as minority. In comparison, minorities comprise 31 percent of the population residing in the study area immediately adjacent to the project corridor.

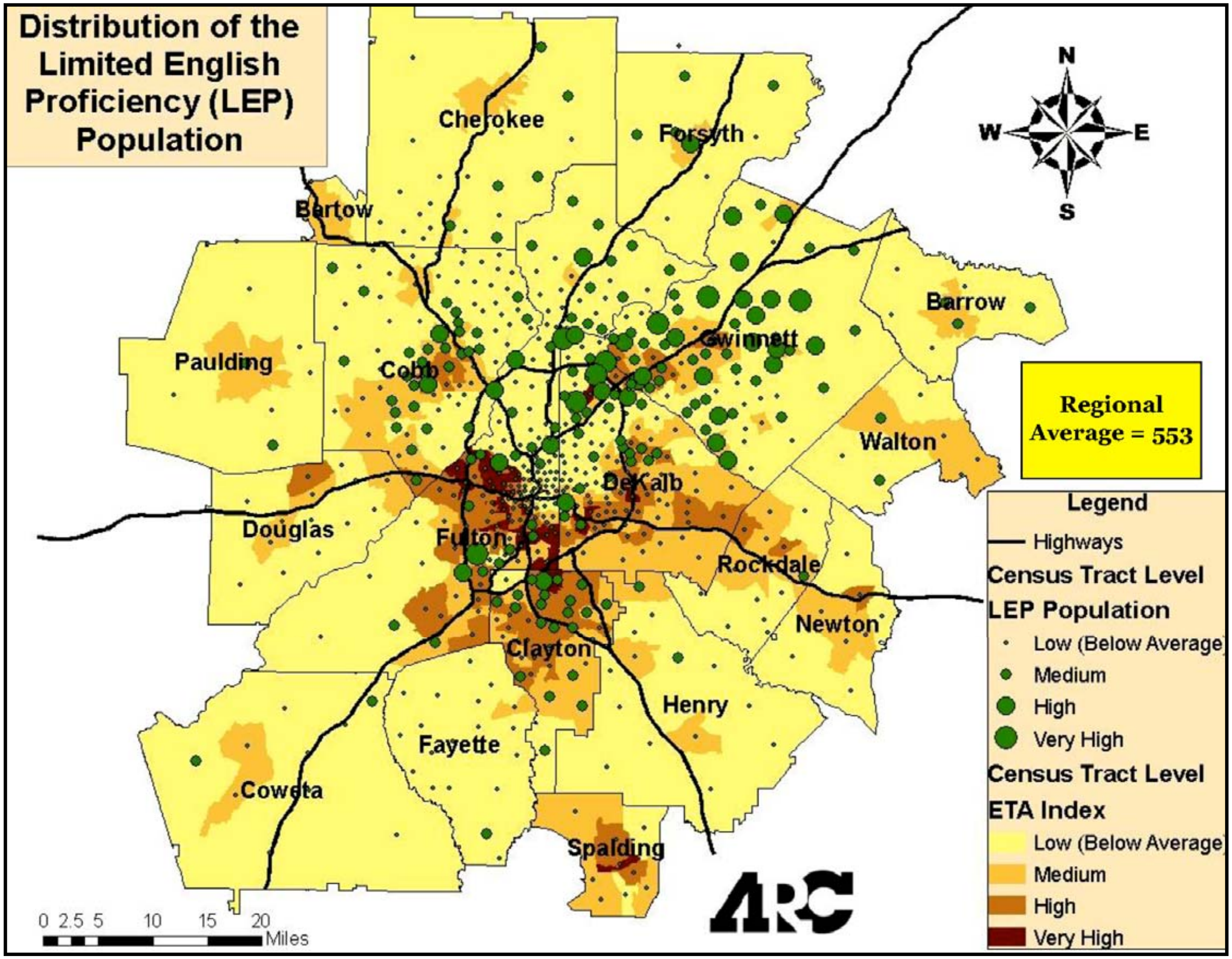
Table 3-11. Minority, Hispanic, and LEP Populations, 2000

Geography	Total Population	Total Minority Population	Percent Minority	Hispanic	Percent Hispanic	LEP Population	Percent LEP
State of Georgia	8,186,453	2,859,172	35%	463,653	6%	374,251	5%
Atlanta MSA	3,429,379	1,529,773	45%	247,294	7%	49,821	1%
Study Area	891058	312355	35%	95170	11%	12564	4%
Cherokee Co.	*141,903*	*14,415*	*10%*	*7,902*	*6%*	*4,975*	*4%*
Cobb Co.	*607,751*	*189,826*	*31%*	*46,944*	*8%*	*39,521*	*7%*
City of Marietta	*58,374*	*30,145*	*52%*	*9,929*	*17%*	*8,182*	*14%*
Environmental Justice Study Area	*116,050*	*36,060*	*31%*	*8,980*	*8%*	*1,895*	*2%*

Note: The 2000 Hispanic data may or may not include the Brazilian population identified during project public outreach activities.
Source: US Census Bureau, 2000.

The LEP population can broadly be represented by US Census Bureau statistics on language spoken at home and ability to speak English. Persons who cannot speak English or those who cannot speak it very well should be considered part of the LEP population. According to the 2000 census, this population comprises about 2 percent of the environmental justice study area population. This is similar to the regional percentages, as well as the percentage in Cherokee County. However, both Cobb County and Marietta have larger LEP populations (7 percent and 14 percent, respectively). The 2006-2008 American Community Survey collected similar data, but only at the state level. For Georgia, an estimated 5.7 percent of the population did not speak English very well in 2008. Lacking data, though, the LEP populations likely have increased some since 2000 in the Atlanta MSA, Cherokee and Cobb Counties, as well as in Marietta. In 2011, ARC mapped the distribution of the LEP population as part of its regional transportation plan update. Figure 3-7 shows the distribution of the LEP population as shown in that study.

The average median household income in the study area was $55,008 in 1999 dollars (see Table 3-12). This is less than each of the two counties, but more than the City of Marietta and the Atlanta MSA. A total of 9 percent of the population in the Atlanta MSA lives below the poverty level. Cherokee and Cobb Counties have lower poverty rates compared to the state and the region. A total of 16 percent of the population of Marietta is low-income, which is higher than any other geography. The block group data indicates the low-income population comprises 7 percent of the study area population, which is slightly higher than in Cobb and Cherokee Counties, but less than the poverty levels of the region.



Source: ARC, 2011.

Table 3-12. Low-Income Population, 2000

Geography	Median Household Income (1999 Dollars)	Percent Below Poverty
State of Georgia	$42,433	13%
Atlanta Metropolitan Area	$51,948	9%
Cherokee Co.	$60,896	5%
Cobb Co.	$58,289	6%
City of Marietta	$40,645	16%
Environmental Justice Study Area	$55,008	7%

Source: US Census Bureau, 2000.

3.3.2.4 Minority and Low-Income Neighborhoods

Minority and low-income neighborhoods were defined as those census tract block groups where the percentage of minority and/or low-income populations equaled or exceeded that of the study area as a whole. The threshold values of 31 percent and 7 percent were used to identify minority and low-income block group neighborhoods, respectively. Based on these thresholds, approximately 42 percent of the study area census tract block groups are considered to have neighborhoods with populations of concern that were analyzed for the environmental justice evaluation. Subsequently, these neighborhoods were mapped (see Figure 3-6). The majority of the low-income or minority neighborhoods are in the southern half of the Northwest Corridor.

Moreover, most of the block groups with disproportionately high minority characteristics also have a disproportionately high number of low-income residents. Outside of the southern portion of the project corridor, there are three block groups that have disproportionate low-income and/or minority populations: one large block group in Cobb County near the I-75/I-575 interchange and two block groups in southern Cherokee County just north of the Cobb County boundary.

In general, these low-income/minority neighborhoods are clustered in two areas in the study area. The highest concentration is along Franklin Road between Delk Road and the South Marietta Parkway west of I-75. Based on census statistics, a high proportion of the population also is of Hispanic heritage. There are many specialty goods and services that cater to the area's Hispanic residents of the nearby Ashborough Village, Sheffield North, Savannah Oaks, Spanish Trace, and Twin Brooks nearby neighborhoods. Many of these shops are located at the Franklin Plaza Shopping Center, including the Supermercado Iguala Meat & Fish Market and the Iguala Mexican Restaurant. This cluster of block groups located southeast of Marietta clearly appears to be a low-income and minority (particularly Hispanic) community.

A second large concentration of low-income and minority block groups is found in the area west of I-75 near SR 3 Conn/Roswell Road due east of downtown Marietta. This area encompasses the affordable housing found at the Lassiter Mobile Home Park located west of I-75 and north of SR 3 Conn/Roswell Road. Modest single-family residences also are along Banberry Road and Frey's Gin Road in the Lake View Neighborhood. The Gospel Light Community Church at Frey's Gin Road and Wylie Drive immediately to the south of SR 3 Conn/Roswell Road and adjacent to I-75 also provides community outreach to the area homeless persons through a weekly lunch program. The church is used by a Hispanic congregation that holds Spanish-speaking religious services. This second cluster of block groups also appears to be a low-income and minority (particularly Hispanic) community. Many of the employees at a nearby poultry factory are known to be Hispanic.

In addition to the project-specific analysis above, ARC recently updated its regional transportation plan – *PLAN 2040* RTP (ARC, 2011b). For the plan update, ARC developed the Equitable Target Area (ETA) Index to identify environmental justice communities in the Atlanta region (ARC, 2011a). The ETA index compiles environmental justice characteristics to measure the impacts of regional plans such as *PLAN 2040* RTP to ensure the proportionate distribution of programs and investments. The index is based on five parameters:

- Age (seniors 65 years and older)
- Education (25 years and older with no high school degree)
- Median housing values
- Poverty rates (based on household size and household composition)
- Race (distribution of minorities)

Graphics prepared by ARC for their analysis and shown in their February 2011 presentation *Comparative Analysis of PLAN 2040 Investments in Equitable Target Areas* (ARC, 2011a) are shown in Figure 3-7 through Figure 3-10.

3.3.3 Community Facilities and Services

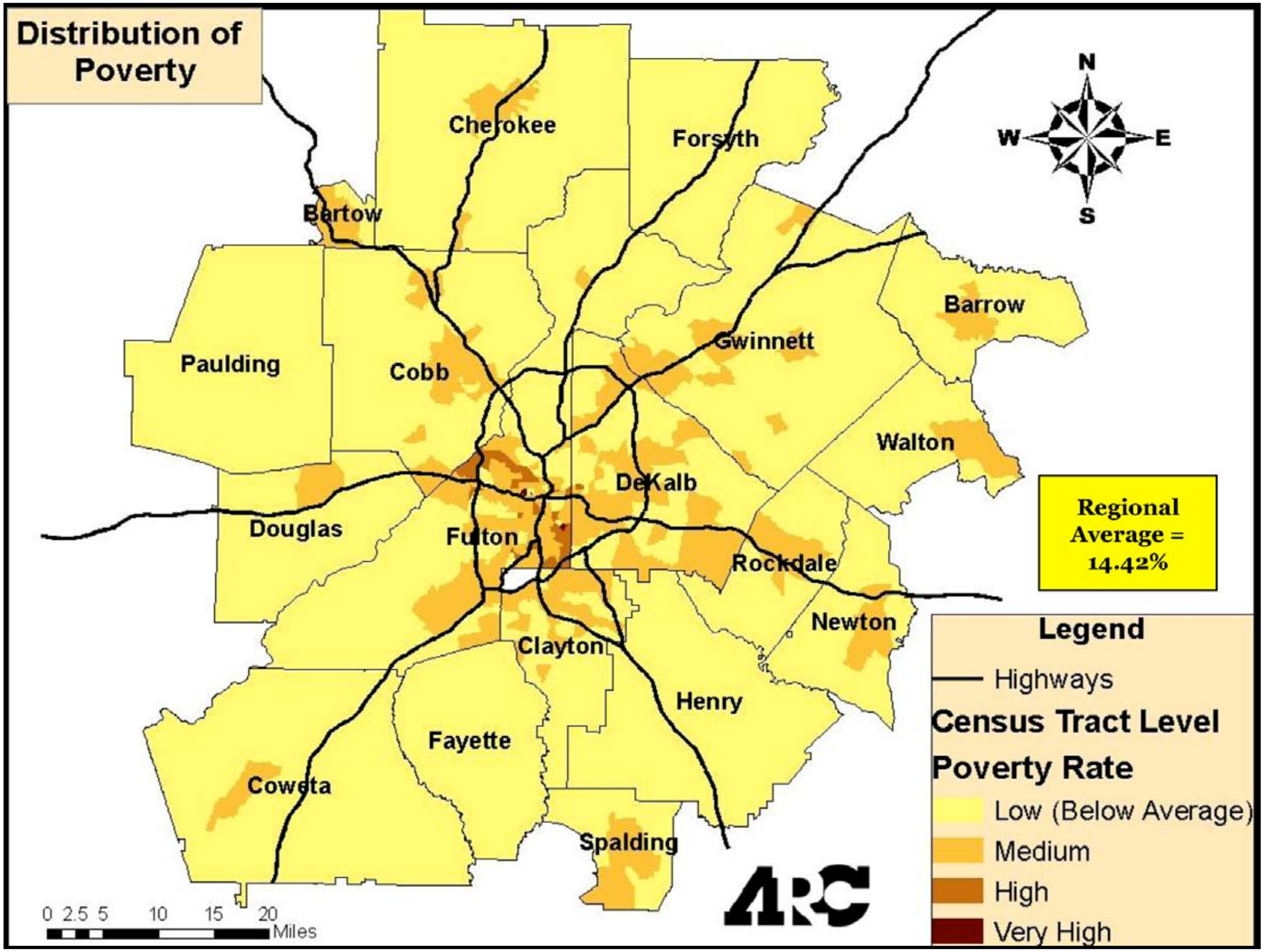
As an urbanized area, there are many community facilities and services within the study area. These include educational institutions, health care clinics, hospitals, libraries, senior centers, and recreation centers. Other community facilities and public services are addressed in other sections of this document. Police, fire, and emergency services are discussed in Section 3.5. Parks are identified and described in Section 3.7. All of these facilities and services contribute to community identity, neighborhood cohesion, and the general social welfare of local communities. The locations of key community facilities within the study area are shown in Figure 3-11. A complete list of these community facilities and services and their addresses are included in Appendix F.

3.4 Transportation

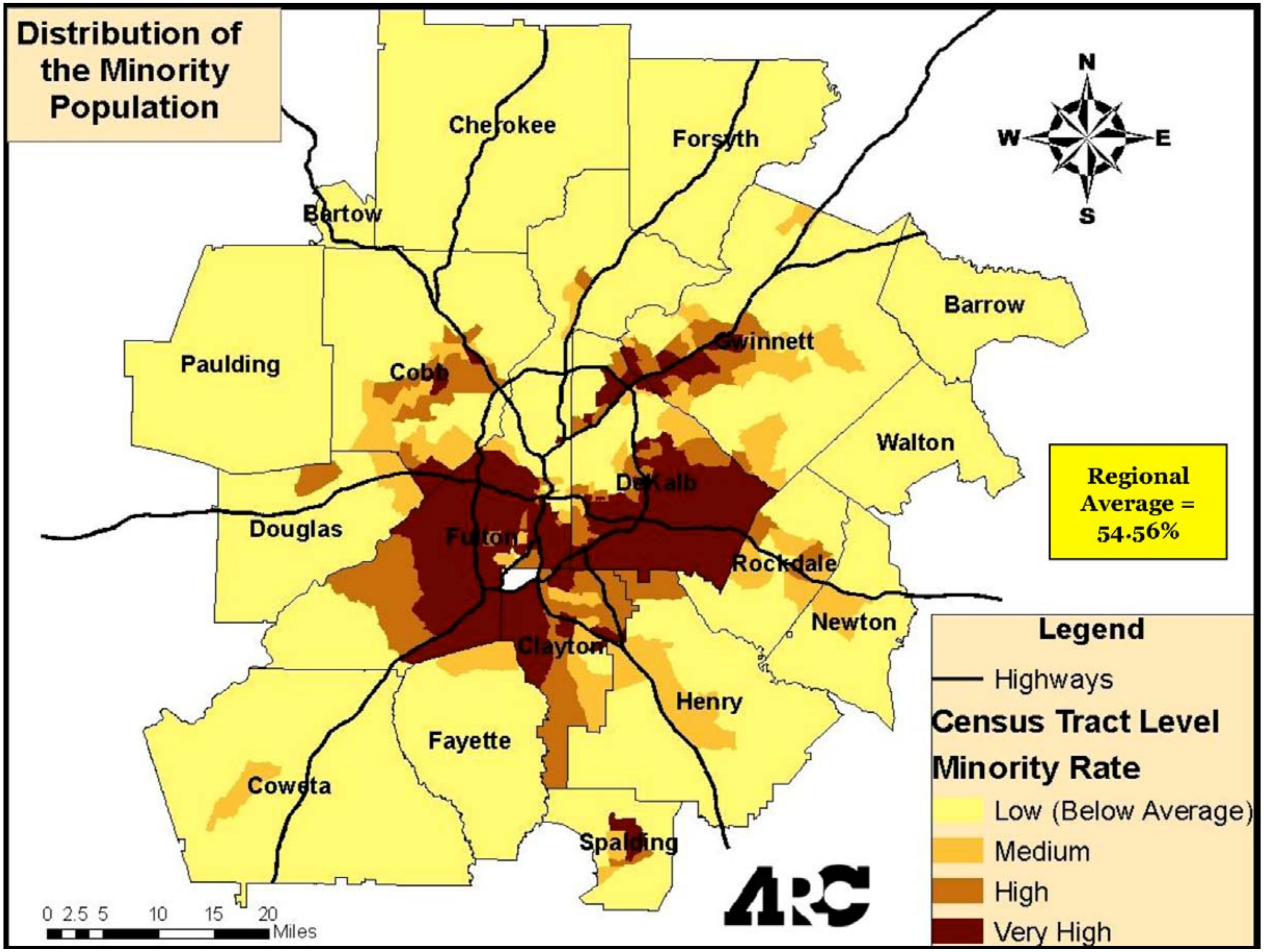
The Northwest Corridor is served by a transportation system that has an extensive highway network as well as a bus system with local, express and limited express service connecting to the MARTA heavy rail public transit system serving downtown Atlanta.

3.4.1 Existing Roadway System

The study area roadway network consists of I-75, I-575, major arterials, collectors and local streets. Figure 3-12 shows these highways, their interchanges and major arterials. The I-75 highway extends from southeast Cobb County to the northwestern portion of the county and is the principal freeway serving the Northwest Corridor. At the southern end of the study area, I-75 intersects I-285, the major Atlanta regional “beltway.” The number of lanes on I-75 varies from six to 15 lanes, but is consistently only six lanes north of Barrett Parkway. There are ten interchanges along I-75 within the study area. The I-575 highway is a four-lane highway that connects with I-75 just south of Barrett Parkway and extends northeasterly through Cherokee County. In the study area, I-575 has seven interchanges. Both I-75 and I-575 have an average of about one interchange every 1.5 miles.

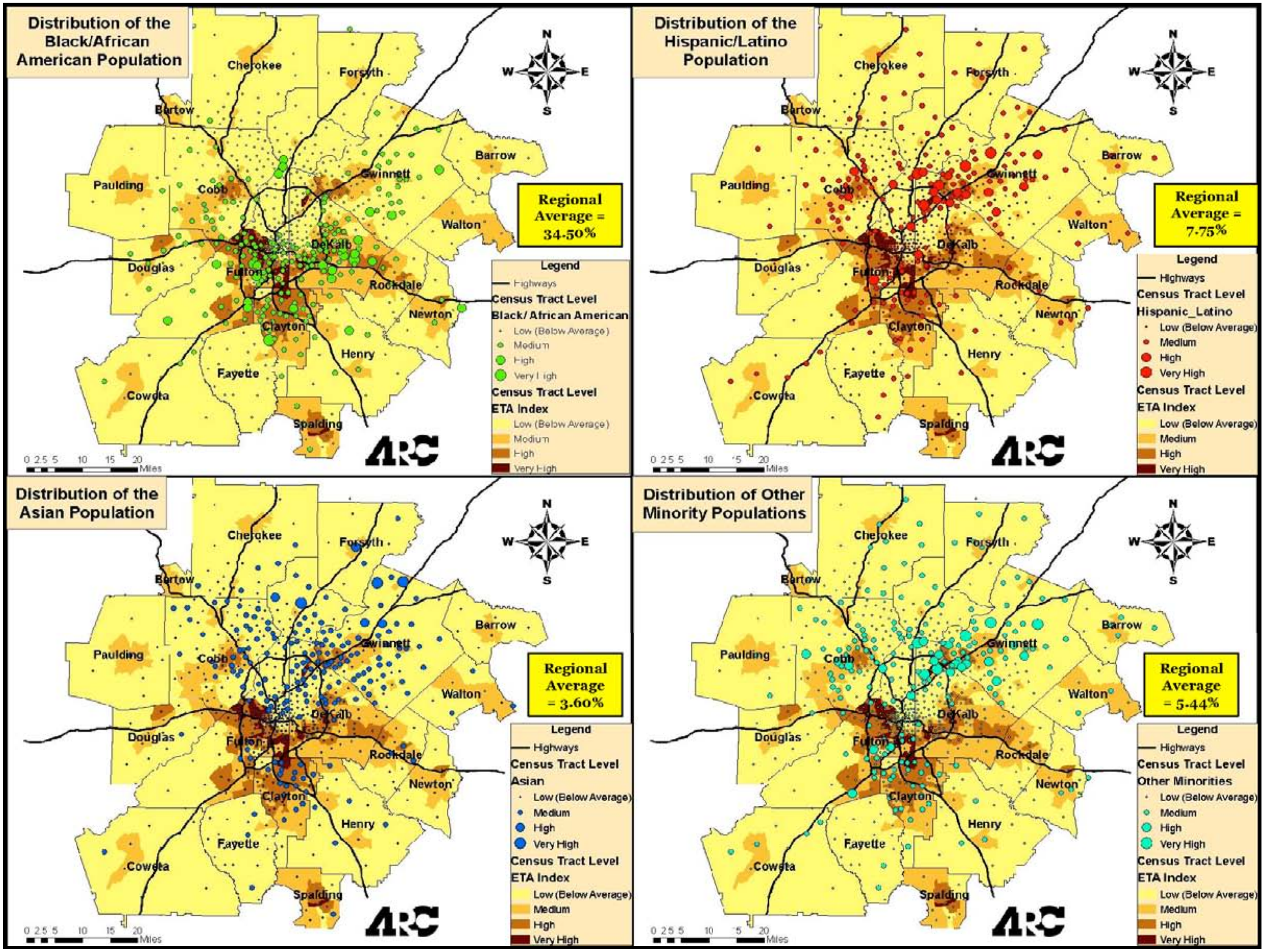


Source: ARC, 2011.

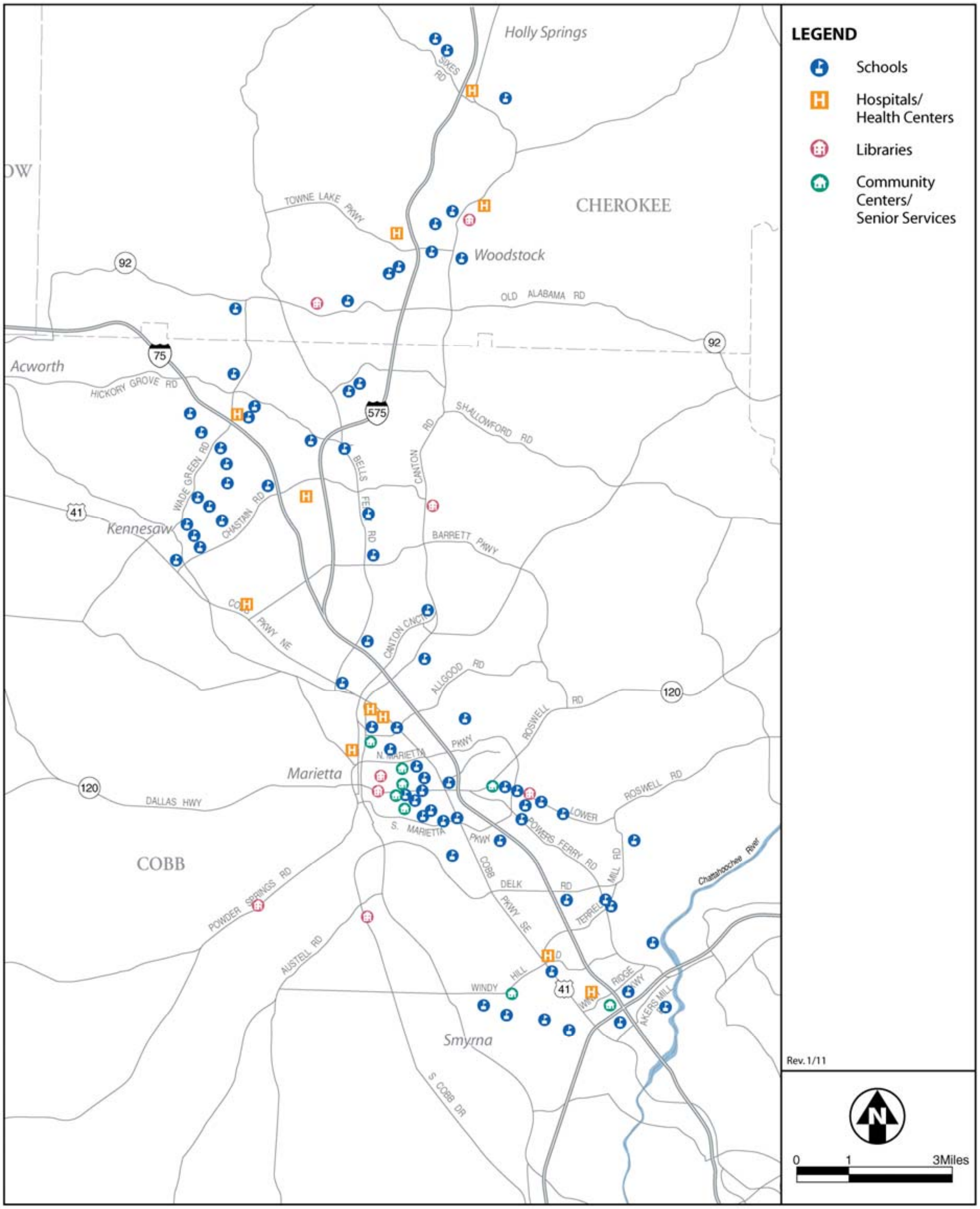


Source: ARC, 2011.

Distribution of Specific Minority Populations



Source: ARC, 2011.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HICKORY GROVE RD
WADE GREEN RD
CHASTAIN RD
BELLS FERRY RD
CANTON RD
SHALLOWFORD RD
BARRETT PKWY
CANTON CNCTR
ALLGOOD RD
ROSWELL RD
DALLAS HWY
N. MARIETTA PKWY
S. MARIETTA PKWY
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POWERS FERRY RD
TERRELL MILL RD
DELK RD
COBB PKWY SE
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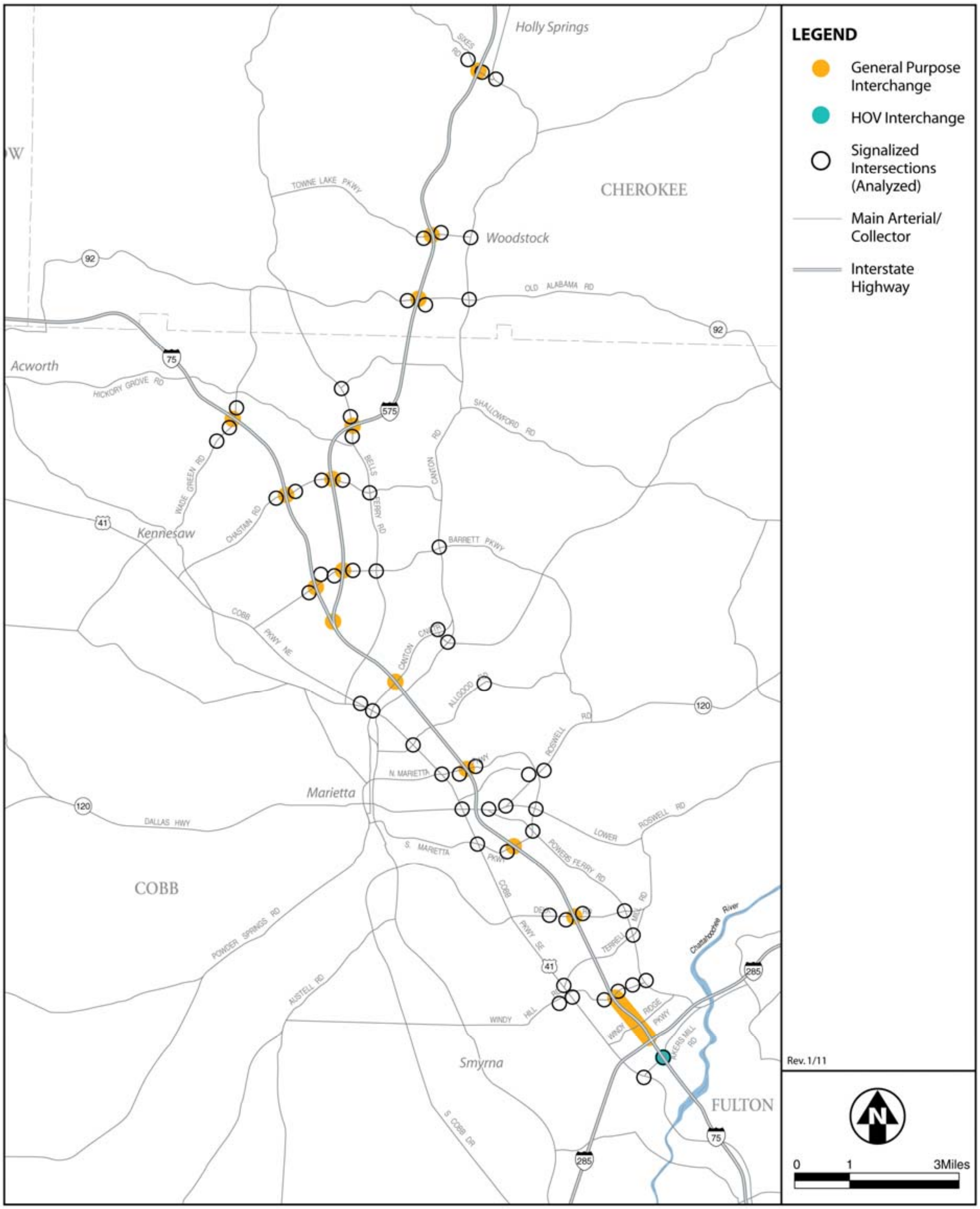


Source: Parsons Brinckerhoff, 2011i.

A number of other highways parallel or cross the Northwest Corridor. US 41, known as North and South Cobb Parkways, parallels I-75 on the west side. In Cherokee County, Old Highway 5 extends along the east side of I-575 from Woodstock to Canton. Major east-west arterials include SR 120 and SR 92. The North Marietta Parkway and South Marietta Parkway, known locally as the Marietta Loop, partially form a "beltway" around the city of Marietta and provide access to a number of major employment centers in the city.

3.4.2 Use of 2005 Traffic Count Data for Existing Conditions

The traffic data for the Northwest Corridor that was used in the Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) to analyze existing conditions was collected in 2004 and 2005. Several years have passed since the collection of that data, and comprehensive updated traffic data on interstate, ramp and intersection traffic volumes have not been published.

However, GDOT collects traffic count data at fixed locations on a regular basis across the state. Not all locations are collected each year, but for those locations where data is not collected, traffic volume estimates are prepared. The last year data of this kind was published was in 2009. Traffic volumes were shown to be significantly down on I-75, down on the northern end of I-575, and flat or slightly higher south of Bells Ferry Road on the southern end of I-575. Table 3-13 summarizes the GDOT traffic count data since 2005 for the Northwest Corridor and for US 41.

The cause of this general decline in traffic volumes appears to be the current national economic recession. The recession has affected the Atlanta region and has slowed overall growth substantially, particularly in employment. The ARC notes that core areas have seen more substantial impacts than suburban areas, such as the Northwest Corridor (ARC, 2010b). Nevertheless, growth in both employment and population has slowed considerably in Cobb and Cherokee Counties.

The ARC estimated the population increase in Cobb County between 2000 and 2009 was 11.4 percent (ARC, 2009a). However population growth between 2008 and 2009 was estimated at 0.4 percent. For comparison, the Cobb County population grew by 34 percent between 1990 and 2000. Historic population growth in Cherokee County has reflected a similar trend. In the nine years between 2000 and 2009 Cherokee County grew by 47.2 percent. However, between 2008 and 2009, the increase was estimated to be only 1.4 percent. Growth in population was much more rapid in the early part of the decade for both counties.

There has been a similar trend in employment growth patterns for both of these counties. Cobb County contains substantial employment concentrations, particularly in the southern part of the I-75 Corridor. The ARC estimated employment growth in Cobb County between 2000 and 2009 to be -0.9 percent and -3.1 percent between 2006 and 2009 (ARC, 2010b). For comparison, employment growth in Cobb County between 1990 and 2000 was 57 percent. In Cherokee County employment growth between 2000 and 2009 was estimated at 23.8 percent, and yet between 2006 and 2009 it was a -11.3 percent.

These trends in both population and employment conditions are reflected in the traffic volumes in the corridor. There have been substantial volume reductions along I-75, though lower reductions and even some modest increases on I-575. It should be noted that these conditions are temporary and business space and residential units have continued to be developed, albeit at a substantially slower rate. As the regional and sub-regional economy recovers that space will be the first to be occupied and ultimate traffic volumes should return to their 2005 levels and increase as new development occurs.

Table 3-13. Changes in ADT in the Study Area, 2005-2009

Segment		ADT Count Year					% Change 2005-09	% Annual Change
From	To	2005	2006	2007	2008	2009		
I-75								
North of Wade Green Rd		125,570	112,290	109,180	97,180	106,730	-15.0%	-3.8%
Wade Green Rd	Chastain Rd	163,390	139,380	137,960	117,040	116,030	-29.0%	-7.2%
Chastain Rd	Barrett Pkwy	168,970	146,880	144,160	123,970	122,620	-27.4%	-6.9%
Barrett Pkwy	I-575	182,440	166,470	172,600	143,370	151,120	-17.2%	-4.3%
I-575	Canton Rd Connector	258,940	245,410	248,010	217,560	223,340	-13.7%	-3.4%
Canton Rd Connector	N Marietta Pkwy	254,300	254,190	256,540	215,970	228,940	-10.0%	-2.5%
N Marietta Pkwy	S Marietta Pkwy	252,130	255,710	257,230	211,550	225,510	-10.6%	-2.6%
S Marietta Pkwy	Delk Rd	291,030	291,460	296,550	244,100	259,870	-10.7%	-2.7%
Delk Rd	Windy Hill Rd	320,650	322,440	321,610	268,200	281,480	-12.2%	-3.1%
Windy Hill Rd	I-285	309,850	294,040	284,770	238,500	240,910	-22.2%	-5.6%
I-285	Cumberland Blvd	196,610	185,280	182,510	143,430	146,030	-25.7%	-6.4%
I-575								
Sixes Rd	Towne Lake Pkwy	93,740	90,830	90,270	90,050	91,090	-2.8%	-0.7%
Towne Lake Pkwy	SR 92	85,110	83,290	83,070	85,140	80,080	-5.9%	-1.5%
SR 92	Bells Ferry Rd	85,110	83,280	83,070	85,140	84,280	-1.0%	-0.2%
Bells Ferry Rd	Chastain Rd	92,770	94,630	94,500	95,310	95,480	2.9%	0.7%
Chastain Rd	Barrett Pkwy	72,270	78,660	78,040	79,100	78,080	8.0%	2.0%
Barrett Pkwy	I-575	73,140	73,540	73,350	72,570	72,700	-0.6%	-0.2%
I-285								
East of I-75		183,350	184,560	184,080	182,130	182,400	-0.5%	-0.1%
West of I-75		149,790	147,630	147,240	145,680	141,290	-5.7%	-1.4%
US 41								
Barrett Pkwy	SR 5	33,590	32,060	27,840	26,200	34,880	3.8%	1.0%
SR 5	N Marietta Pkwy	33,080	32,620	33,780	31,800	33,560	1.5%	0.4%
S Marietta Pkwy	SR 120	32,450	30,290	32,800	30,880	30,410	-6.3%	-1.6%
S Marietta Pkwy	Delk Rd	33,020	33,190	35,580	31,800	31,010	-6.1%	-1.5%
Delk Rd	Windy Hill Rd	42,760	46,100	39,020	36,680	36,110	-15.6%	-3.9%
Windy Hill Rd	I-285	39,120	37,140	39,320	37,750	40,920	4.6%	1.2%
I-285	Chattahoochee River	28,230	24,480	21,000	20,150	19,830	-29.8%	-7.4%

Notes: ADT = average daily traffic.
Sources: GDOT, 2010d; Parsons Brinckerhoff, 2011i.

Based on GDOT traffic count data, recent traffic volumes have been substantially below the volumes reported in the 2005 traffic counts used in the AA/DEIS (see Table 3-13). Depending on the highway segment, traffic volumes on I-75 in 2009 declined between 6 and 9 percent compared to 2005, while I-575 average daily traffic (ADT) volumes have been flat or declining at the north and south ends with modest increases in the center portion of the corridor. The traffic volumes showed a slight decrease in volumes for several years followed by recent increases to near 2005 levels. Given the relatively small change between 2005 and 2009 traffic volume levels and the fact that no major transportation improvements or other developments affecting traffic flows have been implemented in the corridor during the period, it has been assumed that the 2005 traffic volume conditions reported in the AA/DEIS can be used to characterize the 2010 existing conditions.

3.4.3 Directional Traffic Volumes

Directional traffic volumes on I-75 were determined based on the regional transportation model for each roadway segment. The model directional volumes were verified using traffic count data obtained from the GDOT Office of Statistics. Review of the directional splits, or percentages of traffic in each direction, is useful in determining imbalances in traffic flows during different periods of the day.

Generally, directional traffic is fairly evenly distributed along I-75, despite unequal numbers of lanes in various segments along the I-75 corridor as reflected in Figure 3-13. The morning and evening peak periods (6:30 a.m. to 9:30 a.m. and 4:00 p.m. to 7:00 p.m., respectively) carry approximately 60 percent of the traffic. As is typically the case on most roadways nationally the morning peak period is more directional than the evening peak period along all I-75 segments. This reflects non-work and non-home based travel in the non-peak direction (southbound in the evening).

3.4.4 Vehicle Classification

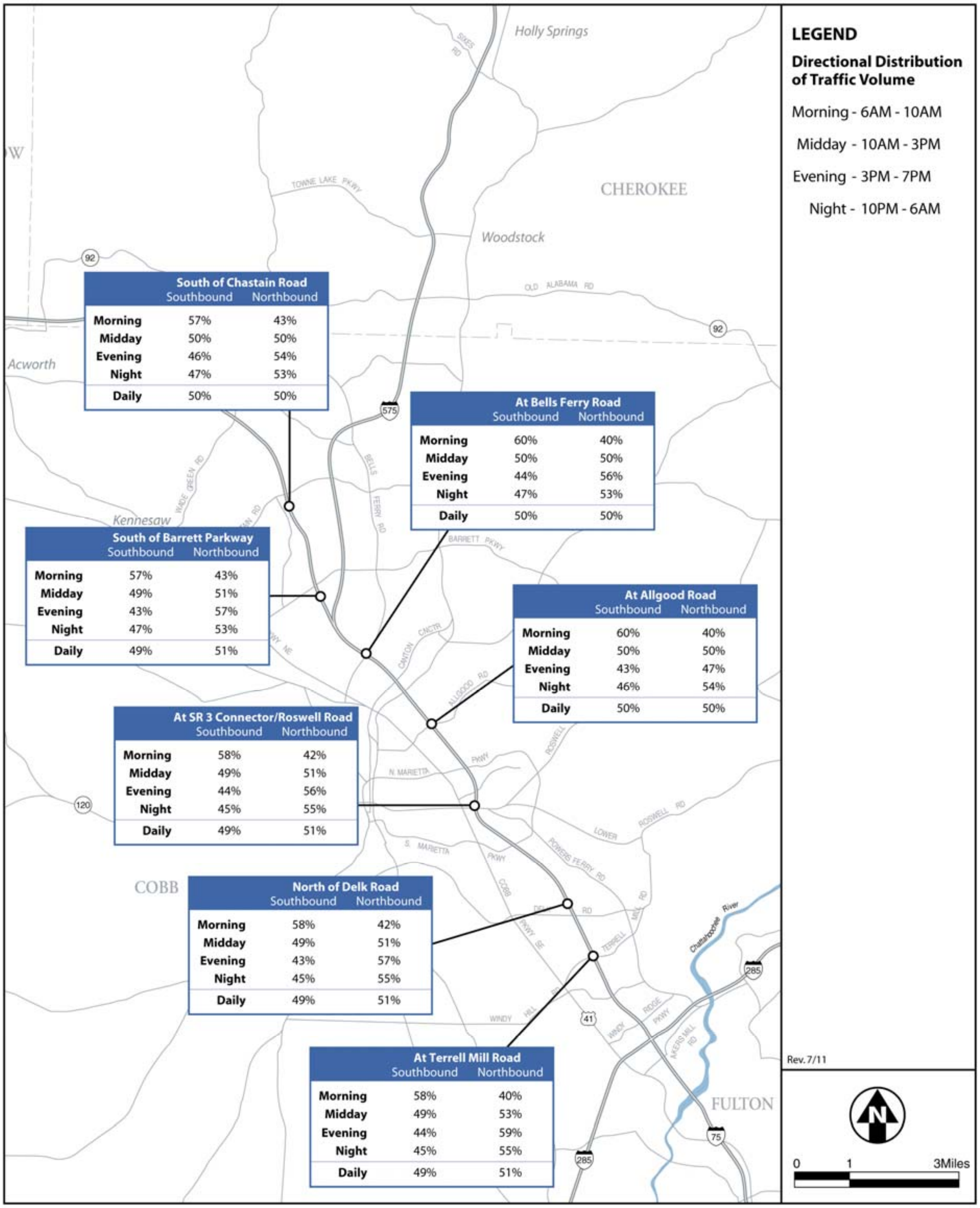
Within the project corridor, the vast majority of vehicles using the highways are passenger cars. Table 3-14 shows the distribution of vehicle class during peak periods. Data collected at two locations on I-75 and one on I-575 in January 2006 during peak periods indicate that passenger cars comprise a minimum of 84 percent of all vehicles. Medium- and heavy-duty trucks comprise the remaining portions. Medium-duty trucks are defined to include single-unit trucks with three or more axles, and heavy-duty trucks are single and multi-trailer trucks with four or more axles. The proportion of traffic that is trucks is important when evaluating roadway capacity and congestion.

Table 3-14. Vehicle Class Distribution During Peak Periods

Location	Peak Period	Direction	Passenger Cars/ Non-Trucks	Medium-Duty Trucks	Heavy-Duty Trucks	Total
I-75 north of Wade Green Rd	AM	SB	84%	1%	15%	100%
	PM	NB	86%	1%	13%	100%
I-75 north of I-285	AM	SB	95%	0%	5%	100%
	PM	NB	93%	1%	6%	100%
I-575 north of I-75	AM	SB	97%	1%	2%	100%
	PM	NB	99%	0%	1%	100%

Notes: SB = southbound; NB = northbound; AM = morning; PM = evening.
Sources: Southern Traffic Counts, Inc., 2006; Parsons Brinckerhoff, 2011i.

Based on these data, medium-duty trucks comprise approximately 1 percent of total traffic throughout the project corridor. However, the peak-period heavy-duty truck traffic on I-75 north of Wade Green Road accounts for 13 and 15 percent of total traffic.



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

It is estimated that 71 to 91 percent of the heavy-truck traffic in the southbound direction during the morning peak period is through trips; and an estimated 84 to 98 percent of heavy-truck traffic in the northbound direction during the evening peak period is through trips (Parsons Brinckerhoff, 2007d). But, the percentage of heavy-duty trucks north of I-285 was measured to be only 5 to 6 percent of total traffic. The percentage declines because: (1) the volume of passenger car traffic greatly increases as the number of general-purpose lanes increases in this segment of the freeway; and (2) the addition of new heavy-duty trucks joining the traffic is low relative to the heavy-duty truck volumes. The percentage of trucks reduces even further south of I-285 because through trucks are prohibited from using I-75 south of I-285.

3.4.5 Levels of Service

A major measure used to determine if highway improvements are required is level of service (LOS). A LOS analysis was performed for segments of I-75 and I-575, arterial road segments, as well as at key arterial intersections. The LOS is determined through measurable traffic characteristics such as delay, speed, density, and volume-to-capacity ratios.

3.4.5.1 Freeway Levels of Service

The LOS rating for a freeway is reflective of the traffic density, operating speed, and flow rate. Traffic density measures effectiveness and is expressed as the average number of vehicles per 1-mile segment of traffic lane, or the percentage of available roadway space occupied by vehicles. Traffic density relates mathematically to both speed and volume when traffic flows without interruption. This means that the LOS rating provides general speed information and an approximation of how heavily the roadway is used and indicates where traffic exceeds roadway capacity and causes congestion and delays. For this reason, LOS ratings are measured for the peak hour of travel and not an average for the several hours that comprise the peak period.

The LOS rating system uses the letters A through F to describe traffic conditions. LOS A represents little to no congestion, while LOS F represents stop-and-go congested conditions; LOS D is the boundary between stable traffic flow at moderate densities and unstable flow with unpredictable delays. Research has shown that for densities below 40 passenger cars per lane per mile, vehicles generally move at or close to normal freeway speeds.

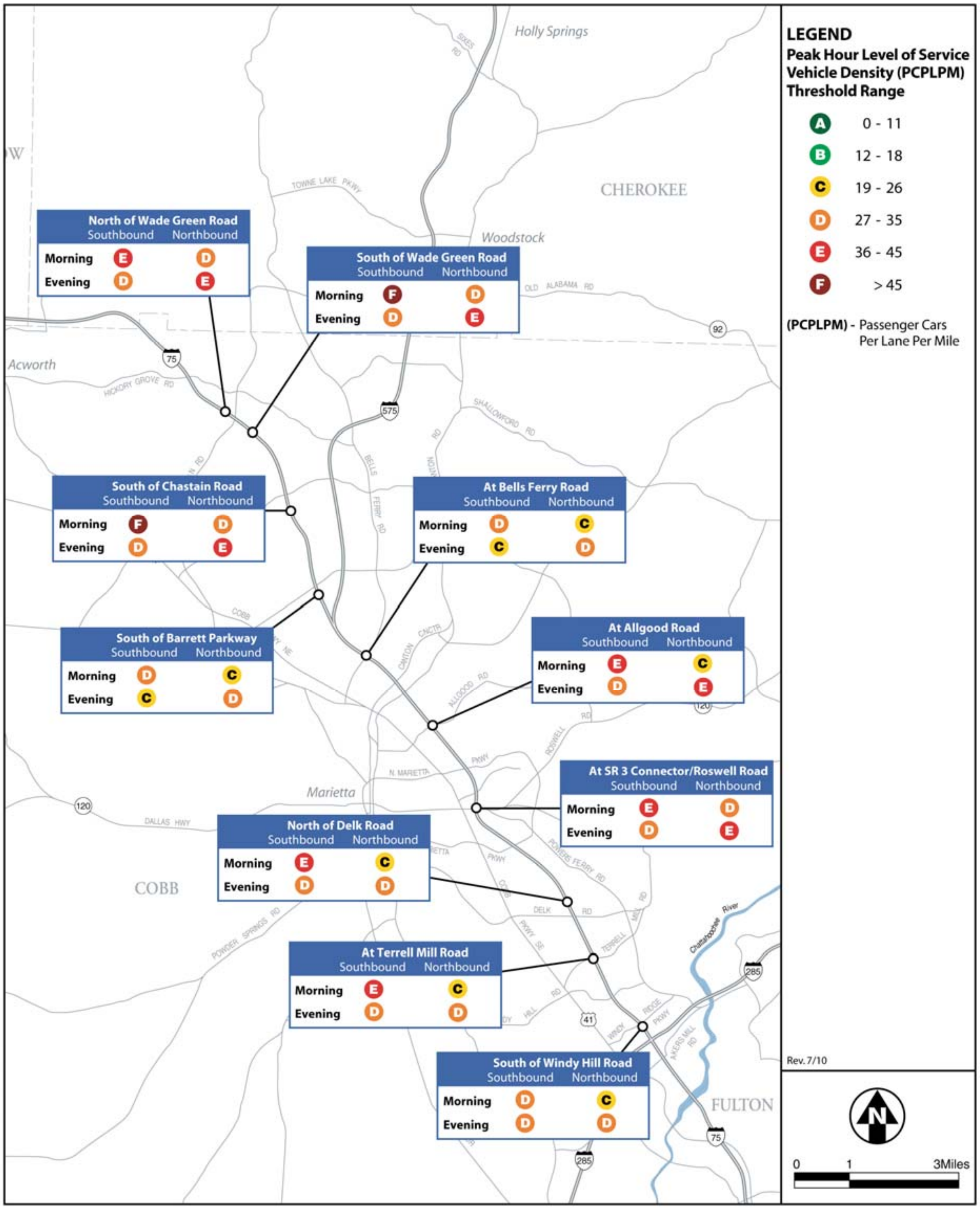
Levels of Service on I-75

Under existing conditions, the LOS analysis for I-75 confirms over-capacity or near capacity (LOS D or lower) conditions in the traditional directional movements for peak periods (i.e., southbound in the morning and northbound in the evening). In particular, it indicates under existing conditions that more highway segments operate at a LOS F during the morning peak hour compared to the evening peak hour (see Figure 3-14).

Despite higher evening peak period volumes attributable to more overall trips, the generally higher inbound directional volumes occurring in the morning peak hour have more effect on freeway operating conditions. This is because there are fewer lanes on southbound I-75 compared to northbound I-75 south of South Marietta Parkway and this constraint contributes to the increased congestion levels during the morning peak period. The proportion of work-based trips to non-work trips is generally higher during the morning. The congestion and poor LOS on I-75 cause traffic to use adjacent arterials. This is especially true for non-work based trips, which tend to be shorter in length and to rely more on the arterial system to provide access to the final destination. During the morning peak hour southbound I-75 experiences LOS E and LOS F

Existing Peak Hour Levels of Service on I-75

Figure 3-14



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

north of Barrett Parkway. Below-standard LOS also occurs during the morning peak hour for southbound I-75 between the Canton Connector and Windy Hill Road. During the evening peak period LOS E conditions exist between the South Marietta Parkway and Canton Connector interchanges and north of Barrett Parkway. With poor operating conditions during both morning and evening peak periods, traffic congestion spreads across a longer period of time and traffic diverts to alternate routes, thereby causing longer peak periods and congestion on local and secondary routes.

Levels of Service on I-575

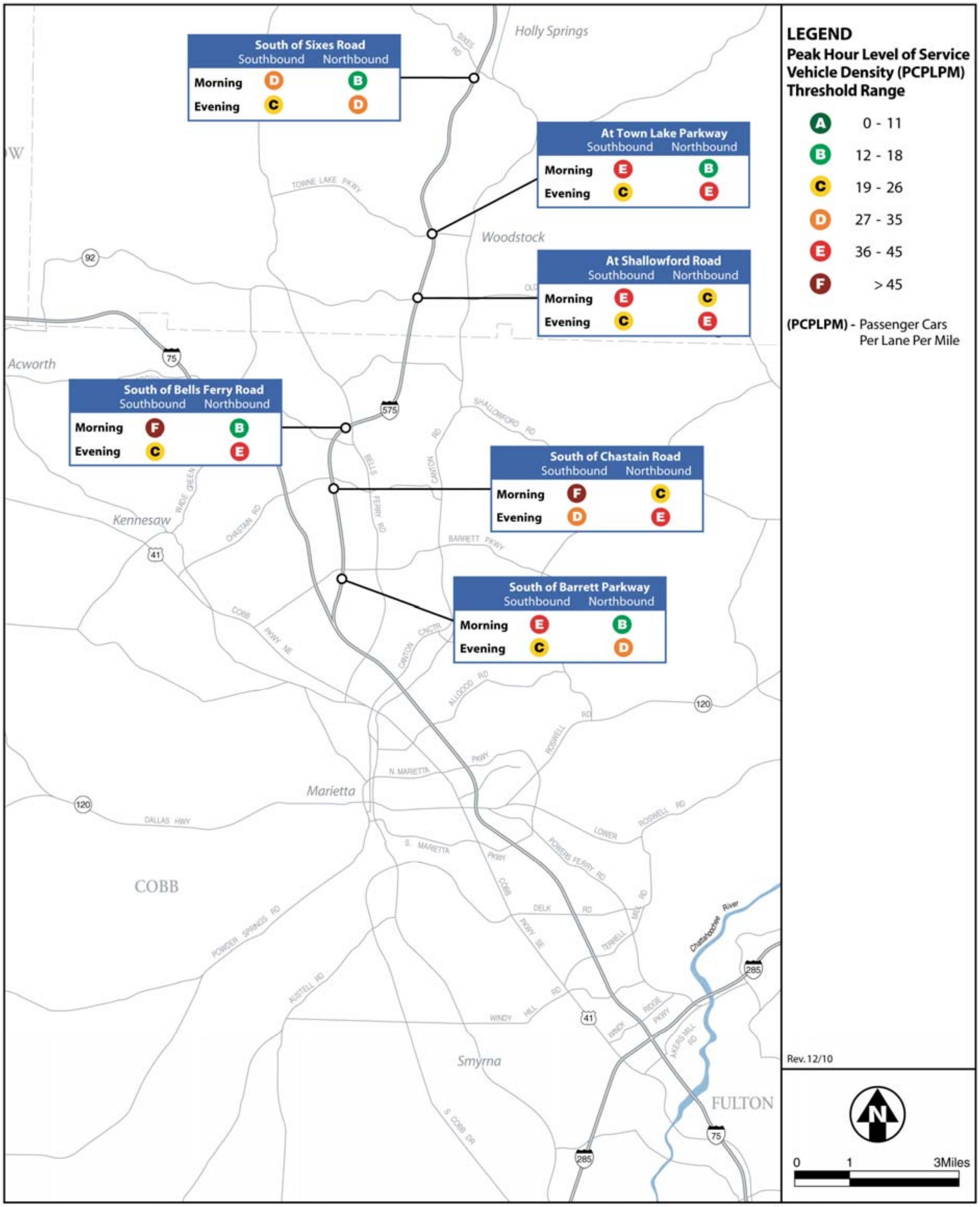
Similar congested conditions are found on I-575 under existing conditions (see Figure 3-15). During the morning peak hour, all segments south of Towne Lake Parkway operate at LOS E or LOS F in the southbound direction, indicating over-capacity conditions and high vehicle densities on the highway. The segments between Barrett Parkway and Towne Lake Parkway in the middle of the corridor operate at LOS F, indicating some shorter trips within the I-575 corridor. However, during the evening peak hour those same segments operate slightly better at LOS E. North of Towne Lake Parkway, I-575 operates at LOS D conditions.

3.4.5.2 Arterial Intersection Levels of Service

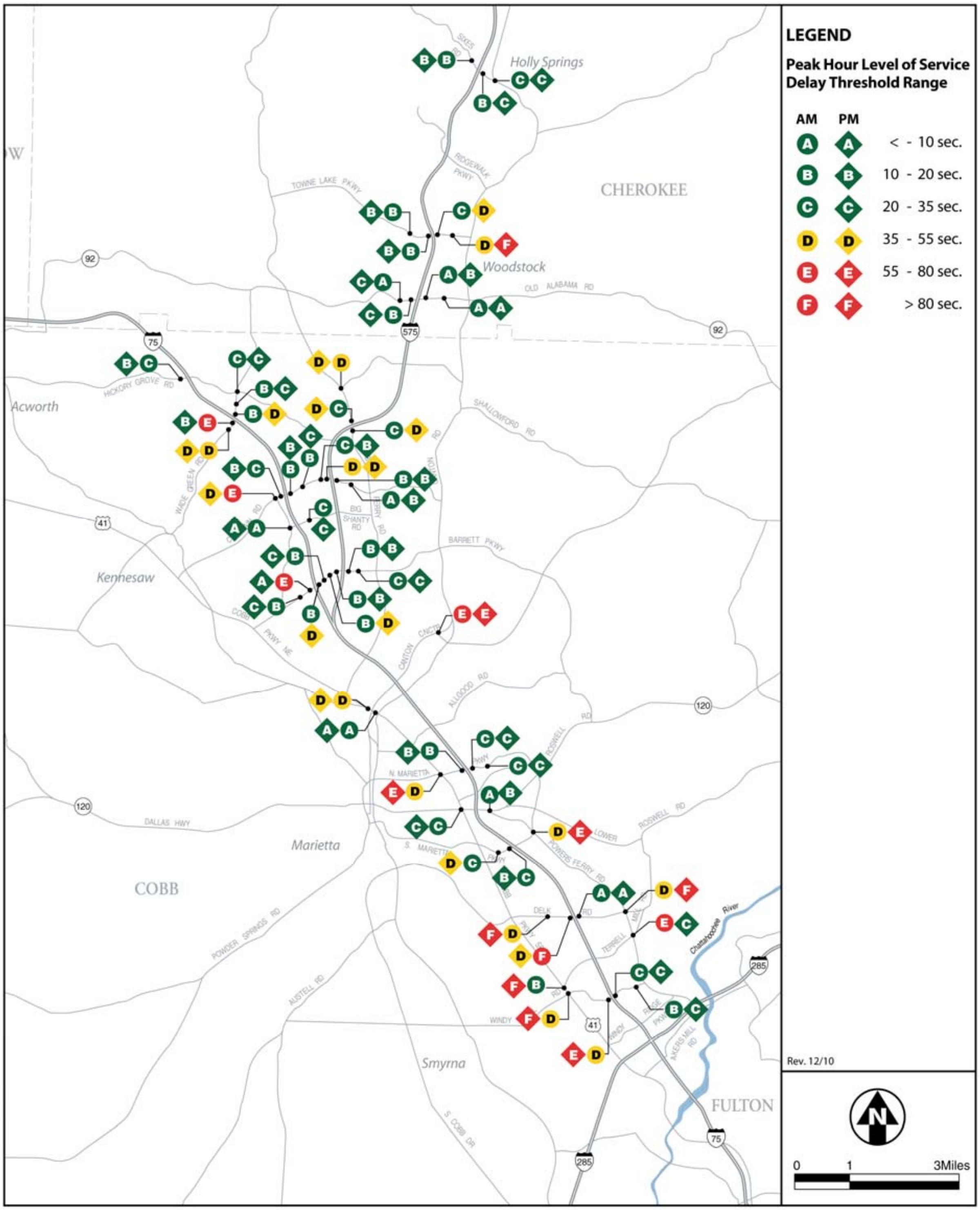
The LOS analysis also examined key signalized arterial intersections within the study area. The key to this analysis is the amount of delay motorists experience traveling through arterial intersections. As with the freeway analysis, LOS A conditions are still best and LOS F conditions are the worst. When LOS F occurs, substantial queues form at arterial intersections and multiple signal changes are required to pass through an intersection. The definition of arterial intersection LOS conditions is as follows:

- LOS A − Progression is extremely favorable, most vehicles arrive during the green phase and many vehicles do not stop at all.
- LOS B – Good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
- LOS C – Fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
- LOS D – Influence of congestion more noticeable. Combination of unfavorable progression, long cycle lengths and high traffic volume/highway capacity (V/C) ratios contributes to longer delays. Many vehicles stop, proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
- LOS E – Poor progression, long cycle lengths and high V/C ratios. Individual cycle failures are frequent.
- LOS F – Considered unacceptable to most drivers, arrival flow rates exceed the capacity of lane groups. High V/C ratios, with many individual cycle failures, poor progression and long cycle lengths.

A total of 59 intersections were analyzed (see Figure 3-16). The analysis determined that under existing conditions, arterial intersections range from LOS A to LOS F and intersections operating at capacity are scattered throughout the study area. The intersections with heavy congestion are concentrated along the parallel arterials, Cobb Parkway and Powers Ferry Road, south of



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



Sources: ARC 2008b; Parsons Brinckerhoff, 2011i.

Delk Road in the southern portion of the corridor. Most of the freeway ramp intersections with arterials operate with an acceptable LOS during both the morning and evening peak hour. Of the 59 arterial intersections analyzed, 19 percent operate near capacity (LOS D) during the morning peak hour, but only 10 percent operate with an unacceptable LOS (LOS E or F). During the evening peak hour, 20 percent operate near or at capacity, while 14 percent operate over capacity.

3.4.6 Safety Analysis

The crash history for the project corridor was investigated to identify safety concerns for I-75 and I-575. Crashes specifically involving trucks were also examined. The analysis reviewed crash records from January 2006 to December 2008 (GDOT, 2010e), which was the most recent published crash data, and focused on crashes located on the freeway and at locations at or near freeway ramps.

3.4.6.1 Corridor Crash Rates

Crash rates estimate the number of crashes that have occurred for every 100 million vehicle miles of travel (VMT). The analysis examined freeway segments along both I-75 and I-575 as defined by major interchanges. Total injury and fatal crash rates for both I-75 and I-575 are summarized in Table 3-15 and are provided in detail by roadway segment in the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i).

Table 3-15. Average Crash Rates for I-75 and I-575 Corridors, January 2006 – December 2008

Segment Data		Crash Rates (crashes per 100 mvm)				
I-75 Segment	Segment Length (miles)	Total Crashes	Injuries	Injury Crashes	Fatalities	Fatal Crashes
Study Corridor (January 2006-2008)						
I-75 Corridor Total	16.32	141.4	38.0	26.0	0.34	0.29
I-575 Corridor Total	11.43	123.3	34.9	24.9	**1.40**	**1.00**
Georgia Statewide Averages (for comparison)						
2006 Urban Interstates	n/a	200	69	46	0.73	0.66
2007 Urban Interstates	n/a	186	63	43	0.58	0.52
2008 Urban Interstates	n/a	187	63	43	0.62	0.56

Notes: mvm = million vehicle miles of travel; n/a = not applicable.
1. Corridor totals were summarized for three-year period for statistical reasons. The Georgia statewide averages for each three-year period are provided as a reference. Crash data and traffic volumes are collected based on pre-defined segmentation. This causes a slight variance in total corridor length for this analysis from the exact project published length of 29.7 miles (16.8 miles on I-75, 11.3 miles on I-575 and 1.6 miles on I-285). See Sections 2.3.1.1 and 2.3.1.5.

Sources: GDOT, 2010e; Parsons Brinckerhoff, 2011i.

The major conclusions of this analysis are:

- The I-75 average crash rates for total crashes, injuries/injury crashes and fatalities/fatal crashes are all under statewide averages for the overall corridor and most freeway segments.

- The I-575 average crash rates for total crashes and injuries/injury crashes rates are under statewide averages for the corridor. Fatality rates, however, are higher than the statewide average for the overall corridor.

3.4.6.2 Segment Crash Rates

In addition to examining crash rates through the entire I-75 and I-575 corridors, analysis of crash rates was conducted for segments of the corridor defined by major interchanges and is summarized in Table 3-16 and Table 3-17 . These results indicate specific locations where crash rates are higher than the corridor or statewide averages.

Table 3-16. Average Crash Rates by Segment for I-75, January 2006 to December 2008

Segment Data			Crash Rates (crashes per 100 mvm)				
I-75 Segment	Average ADT (vpd) 2006-2008	Segment Length (miles)	Total Crashes	Injuries	Injury Crashes	Fatalities	Fatal Crashes
2006 Urban Interstates – Georgia Statewide Averages.	n/a	n/a	200	69	46	0.73	0.66
2007 Urban Interstates – Georgia Statewide Averages.	n/a	n/a	186	63	43	0.58	0.52
2008 Urban Interstates – Georgia Statewide Averages	n/a	n/a	187	63	43	0.62	0.56
From Cumberland Boulevard to I-285	170,500	1.11	172.7	37.6	29.4	0.00	0.00
From I-285 to Windy Hill Rd	272,400	1.09	132.9	38.4	26.1	0.00	0.00
From Windy Hill Rd to Delk Rd	304,100	1.59	142.4	37.4	24.4	0.38	0.19
From Delk Rd to S Marietta Pkwy	277,400	1.72	118.3	30.4	22.8	0.00	0.00
From S Marietta Pkwy to N Marietta Pkwy	241,500	1.74	121.9	35.6	23.0	0.43	0.43
From N Marietta Pkwy to Canton Rd	242,200	1.83	111.5	28.6	17.9	0.62	0.41
From Canton Rd to I-575	237,000	1.74	123.4	35.4	24.6	0.44	0.44
From I-575 to Barrett Pkwy	160,800	0.82	157.9	42.2	32.5	**0.69**	**0.69**
From Barrett Pkwy to Chastain Rd	138,300	1.72	182.7	53.4	34.9	**1.15**	**1.15**
From Chastain Rd to Wade Green Rd	131,500	1.78	**197.9**	44.5	31.6	0.00	0.00
From Wade Green Rd to Hickory Grove Rd	106,200	1.18	**226.6**	**72.1**	**46.6**	0.00	0.00
I-75 Corridor Total	n/a	16.32	141.4	38.0	26.0	0.34	0.29

Notes: ADT = Average Daily Traffic; vpd = volume per day; n/a = not applicable.
1. Rates shown in bold exceed the 2008 statewide average for Urban Interstates.
2. Corridor totals were summarized for three-year period for statistical reasons. The Georgia statewide average for each three-year period is provided as a reference.
3. Crash data and traffic volumes are collected based on pre-defined segmentation. This causes a slight variance in total corridor length for this analysis from the project published I-75 length of 16.8 miles of the total 29.7 project miles. See Sections 2.3.1.1 and 2.3.1.5.

Sources: GDOT, 2010e; Parsons Brinckerhoff, 2011i.

Table 3-17. Average Crash Rates by Segment for I-575, January 2006 to December 2008

Segment Data			Crash Rates (crashes per 100 mvm)				
I-575 Segment	Average ADT (vpd) 2006-2008	Segment Length (miles)	Total Crashes	Injuries	Injury Crashes	Fatalities	Fatal Crashes
2006 Urban Interstates – Georgia Statewide Averages.	n/a	n/a	200	69	46	0.73	0.66
2007 Urban Interstates – Georgia Statewide Averages.	n/a	n/a	186	63	43	0.58	0.52
2008 Urban Interstates – Georgia Statewide Averages	n/a	n/a	187	63	43	0.62	0.56
From I-75 to Barrett Pkwy	73,200	1.22	**194.4**	59.3	34.8	**1.02**	**1.02**
From Barrett Pkwy to Chastain Road	78,600	1.65	152.1	40.8	31.7	**1.41**	**0.70**
From Chastain Rd to Bells Ferry Rd	94,800	1.01	103.0	41.0	26.7	**5.72**	**2.86**
From Bells Ferry Rd to SR-92	83,800	3.00	103.1	26.1	18.5	**0.73**	**0.73**
From SR-92 to Towne Lake Pkwy	90,400	1.21	170.4	35.9	26.7	**0.84**	**0.84**
From Towne Lake Pkwy to Sixes Rd	72,100	3.29	88.6	28.9	22.7	**0.77**	**0.77**
I-575 Corridor Total	n/a	11.43	123.3	34.9	24.9	**1.40**	**1.00**

Notes: mvm = million vehicle miles of travel; ADT = average daily traffic; vpd = volume per day; n/a = not applicable.
1. Rates shown in bold exceed the 2008 statewide average for Urban Interstates.
2. Corridor totals were summarized for three-year period for statistical reasons. The Georgia statewide averages for each three-year period are provided as a reference.
3. Crash data and traffic volumes are collected based on pre-defined segmentation. This causes a slight variance in total corridor length for this analysis from the published I-575 length of 11.3 miles of the total 29.7 project miles. See Sections 2.3.1.1 and 2.3.1.5.

Sources: GDOT, 2010e; Parsons Brinckerhoff, 2011i.

The major conclusions of the analysis of crash rates on specific roadway segments are:

- On the I-75 segment from Wade Green Road to Hickory Grove Road, the total crash rate and injury crash rates exceed state averages. Similarly, on the I-75 segment from Chastain Road to Wade Green Road, the total crash rate exceeds the state average.
- On the I-75 segments from I-575 to Barrett Parkway and Barrett Parkway to Chastain Road, the fatal crash rates exceed state averages.
- On I-575, the fatal crash rates exceed the state average on all segments. On the segment from I-75 to Barrett Parkway, the fatal crash rate (1.02 fatal crashes per 100 million vehicle miles of travel [mvm]) is approximately double the statewide average. The segment from Chastain Road to Bells Ferry Road has the highest fatality rate (2.86 fatal crashes per 100 mvm) at five times the state average for urban interstates. However, a review of the three fatal crashes on this segment indicated unrelated events including a pedestrian related crash, an overturned vehicle (with four fatalities) and a vehicle hitting a tree.

3.4.6.3 Truck Crashes

Truck crashes along I-75 and I-575 were also investigated. The frequency and severity of truck crashes were compared to truck volume percentages to determine if truck crashes were occurring disproportionately. In general, truck crash rates are near or slightly lower than the percentage of trucks on both I-75 and I-575 as shown in Table 3-18. Note, however, that more than 50 percent of fatal crashes on the I-75 corridor involved trucks. On the I-575 corridor, however, none of the fatal crashes involved trucks.

Table 3-18. Percent of Crashes Involving Trucks on I-75 and I-575 Corridors, January 2006 to December 2008

	All Crashes	Involving Trucks & Heavy Vehicles	Percent of Crashes Involving Trucks
I-75 Corridor	Approx. 9% - 12% trucks based on 24-hour volumes		
All Crashes	5,343	591	11.1%
Injury Crash	981	106	10.8%
Fatal Crash	11	6	54.5%
I-575 Corridor	Approx. 5% trucks based on GDOT 24-hour volumes		
All Crashes	1,232	51	4.1%
Injury Crash	249	12	4.8%
Fatal Crash	10	0	0.0%

Sources: GDOT, 2010e; Parsons Brinckerhoff, 2011i.

3.4.6.4 Crash Types

Crash types were investigated to identify the most common types of crashes occurring within the study area. Key findings include:

- Rear-end crashes are the most common type of crashes occurring on both I-75 and I-575 and comprise more than 54 percent of all crashes. This type of crash is typically a result of congested and stop-and-go traffic during the congested peak periods.
- Sideswipe crashes (vehicles are traveling in the same direction) are the second and third most common type of crash in I-75 and I-575, respectively. They occur almost twice as frequently on I-75 as on I-575. This is likely because there are more lanes on I-75 (five or more lanes in each direction south of I-575) than on I-575 (two lanes in each direction). The more lanes within a corridor, the more frequently users change lanes; and each time a lane shift occurs, there is increased risk of a sideswipe crash.
- Due to size, difficult maneuverability and slow acceleration and stopping, trucks may cause a disproportionate share of crashes on I-75. The many lanes comprising this freeway corridor may require trucks to change lanes more frequently and increases the risk of crashes, especially when entering and exiting the freeway.

3.4.7 Existing Public Transit Services

Transit services in the Northwest Corridor are provided by Cobb Community Transit (CCT), the Georgia Regional Transportation Authority (GRTA) and the MARTA. The CCT provides both local and express bus services in Cobb County and also operates the GRTA regional express bus routes. The CCT also operates express routes that connect with the MARTA heavy rail services at the Arts Center Station in Midtown. There are a total of nine local bus routes that serve the study area, some of which use segments of I-75. Two GRTA regional express routes use I-75 to provide service from Acworth and Kennesaw to Midtown and downtown Atlanta. In recent years, two additional routes along I-575 and I-75 beginning at the Canton park-and-ride lot and stopping in Woodstock before traveling to employment centers further south (GRTA, 2009).

3.4.7.1 Cobb County Transit

Most of the CCT local routes operate at 30- to 60-minute headways during both the peak and off-peak periods. One route operates at 15-minute headways from the Marietta Transfer Center to the MARTA Arts Center Station in Midtown. Two other local routes connect the Marietta Transfer Center and the Cumberland Transfer Center with 30-minute headways. The other local routes connect the communities within the study area to the Marietta and Cumberland Transfer Centers or to destinations outside the study area other than downtown Atlanta or Midtown.

The CCT express bus service currently consists of three routes operating on parts of I-75. The routes originate either at the Acworth or Busbee park-and-ride lots in north Cobb County or the park-and-ride lot at the Marietta Transfer Center in central Cobb County. They serve Cumberland-Galleria, downtown Atlanta or Midtown. Three routes provide reverse direction service from downtown Atlanta and the MARTA Arts Center Station to Town Center, the Marietta Transfer Center and Cumberland-Galleria. All of the express routes operate at 15- to 30-minute headways during peak periods. One route provides all-day service and another has off-peak period service. The CCT also operates a paratransit service for persons with disabilities. The service is provided within an area encompassing three-quarters of a mile on either side of CCT bus routes.

The existing CCT transit facilities in the Northwest Corridor consist of two transit centers, four park-and-ride lots and a vehicle maintenance and storage facility. The two transit centers are the Marietta Transfer Center in downtown Marietta and the Cumberland Transfer Center at Cumberland-Galleria.

The four existing park-and-ride lots are in Acworth (496 spaces), on Busbee Drive in Kennesaw (364 spaces), on Roswell Road near Johnson Ferry Road in east Cobb County (239 spaces) and at the Marietta Transfer Center (287 spaces).

The CCT administrative offices and the vehicle maintenance and storage facility are on South Marietta Parkway.

3.4.7.2 Georgia Regional Transportation Authority

One GRTA regional express route travels the I-75 corridor at 30-minute headways from the Acworth park-and-ride lot to downtown Atlanta. The route provides service to the Busbee park-and-ride lot during off-peak times. The other GRTA regional express route travels the I-75 corridor at 30-minute headways from the Town Center park-and-ride lot to downtown Atlanta and Midtown. These two routes are operated by CCT under contract to GRTA.

In recent years, transit services have been expanded to include two additional routes along I-575 and I-75 beginning at the Boling Park park-and-ride lot in Canton (outside the Northwest Corridor) and stopping at the His Hands Church park-and-ride lot in Woodstock before traveling to Midtown and downtown Atlanta. These two routes are operated at 30-minute headways by Professional Transit Management under contract to GRTA.

The existing GRTA transit facilities in the Northwest Corridor consist of a park-and-ride lot at Town Center in Kennesaw (646 spaces) and a park-and-ride lot at His Hands Church in Woodstock (400 spaces).

3.4.7.3 Metropolitan Atlanta Regional Transit Agency

The CCT and GRTA express services operating within the study area connect with the MARTA rail service at the Arts Center Station in Midtown on the Red (North-South) and Gold (Northeast-South) Lines. MARTA trains operate every 15 minutes on weekdays and every 20 minutes on weekends and holidays. Trains operating on the Red (North-South) and Gold (Northeast-South) Lines (North Springs-Airport and Doraville-Airport, respectively) combine to provide 7.5-minute weekday service (10-minute weekend service) on their common alignment between the Lindbergh and Airport Stations. The North-South Line serves the Dunwoody (Perimeter Center) and Buckhead Stations.

The CCT local transit services connect with MARTA rail service at the Hamilton E. Holmes Station on the Blue (East-West) Line. Trains on this line also operate every 15 minutes on weekdays and every 20 minutes on weekends and holidays. The Red (North-South), Gold (Northeast-South) and Blue (East-West) Lines all connect at the MARTA Five Points Station in downtown Atlanta. The CCT services also connect with MARTA at the Five Points Station.

3.5 Safety and Security

The affected environment for safety and security issues includes police, fire, and emergency services. Public safety and security for freeway operations are currently provided through a combination of Georgia State Patrol, Cobb County, City of Marietta, and Cherokee County services. These public services are described below.

3.5.1 Existing Police Services

The existing police services in the study area include those provided by the Georgia State Patrol as well as the sheriff and police departments for Cobb County, Marietta, and Cherokee County. The Georgia State Patrol Post 28 provides police services to Cherokee and Pickens Counties. Post 9 provides police service in Cobb and Fulton Counties (north of I-285) and Post 48 provides police service in Fulton (south of I-285), Cobb, Clayton, DeKalb, and Gwinnett Counties.

The Cobb County Police Department provides police service to I-75 and I-575 with three divisions: Cobb County Special Operations, Cobb County Precinct 3, and Cobb County Precinct 1. Cobb County Special Operations provides police service to all incidents on I-75 and I-575 throughout the county. Cobb County Precinct 3 covers I-75, from its crossing of the Chattahoochee River at the Fulton/Cobb county line north to Delk Road. Cobb County Precinct 1 has policing responsibilities from Bells Ferry Road north on I-75 to the county line.

The Marietta Police Department provides public service along I-75 between Windy Hill Road north to Bells Ferry Road. Zone 1 covers I-75 from Windy Hill Road north to the North Marietta Parkway and Zone 2 provides police services from the North Marietta Parkway interchange north to Bells Ferry Road.

The Cherokee County Sheriff's Office has jurisdiction for the entire length of I-575 through the county. The department has five precincts, several of which have jurisdiction over I-575 between the Cobb County line north to the I-575/Sixes Road interchange.

3.5.2 Existing Fire and Emergency Services

Fire and emergency services within the study area are provided by Cobb and Cherokee Counties and the cities of Marietta and Smyrna. Each generally provides fire and emergency services within the boundaries of the unincorporated counties or city incorporated lands, respectively. For very large incidents or those located on the edges of service territories, however, inter-local agency agreements help to ensure public safety and rapid response by dispatching staff and equipment located closest to incidents.

The Cobb County Fire Department responds to traffic incidents on I-75 and I-575. Station 5, located south and west of I-75, is responsible for fire service from the Akers Mill Road area north to Windy Hill Road. Station 19, located nearby and east of I-75, also covers this same area but its service territory extends north to Delk Road. Station 8 is in the Kennesaw area and provides fire service to the corridor from just south of the I-75/I-575 interchange north to Wade Green Road and the southern portion of I-575 in Cobb County. Station 26 is farther north and has jurisdiction over I-75 from Barrett Parkway north to the county line. Station 16, which is near Chastain Road, responds to fires and emergencies on I-575 from Barrett Parkway north to the county line.

The Marietta Fire Department has three fire stations that provide emergency services to the central portion of the Northwest Corridor. These three stations include: Station 6 (805 Allgood Road), Station 2 (149 Dodd Street), and Station 5 (1160 Franklin Road).

To the south, the Smyrna Fire Rescue Department Emergency Services Unit is also responsible for extinguishing fires and providing emergency rescue services on I-75. The response time is quick because of the strategic location of Smyrna’s four fire stations, one of which is near the intersection of Atlanta Road and Windy Hill Road.

Woodstock’s two fire stations provide fire and emergency response services along the I-575 corridor in the study area. One station is off of Arnold Mill Road with direct access to the I-575/Towne Lake Parkway interchange. The City’s second fire station is on River Park Boulevard, which provides emergency vehicle direct access to the nearby I-575/Sixes Road interchange.

Cherokee County Fire and Emergency Services provides emergency medical and fire protection services along the far northern portion of the I-575 corridor. The department delivers a full range of emergency services, including fire prevention and education, fire suppression, hazardous materials response, emergency medical services, and search and rescue operations. The County’s fire station in Holly Springs can provide backup services to the Woodstock River Park Boulevard station.

3.6 Visual Quality and Aesthetics

An assessment of the existing visual environment is provided in this section to establish a baseline for assessing the project’s potential visual impacts.

3.6.1 Methodology

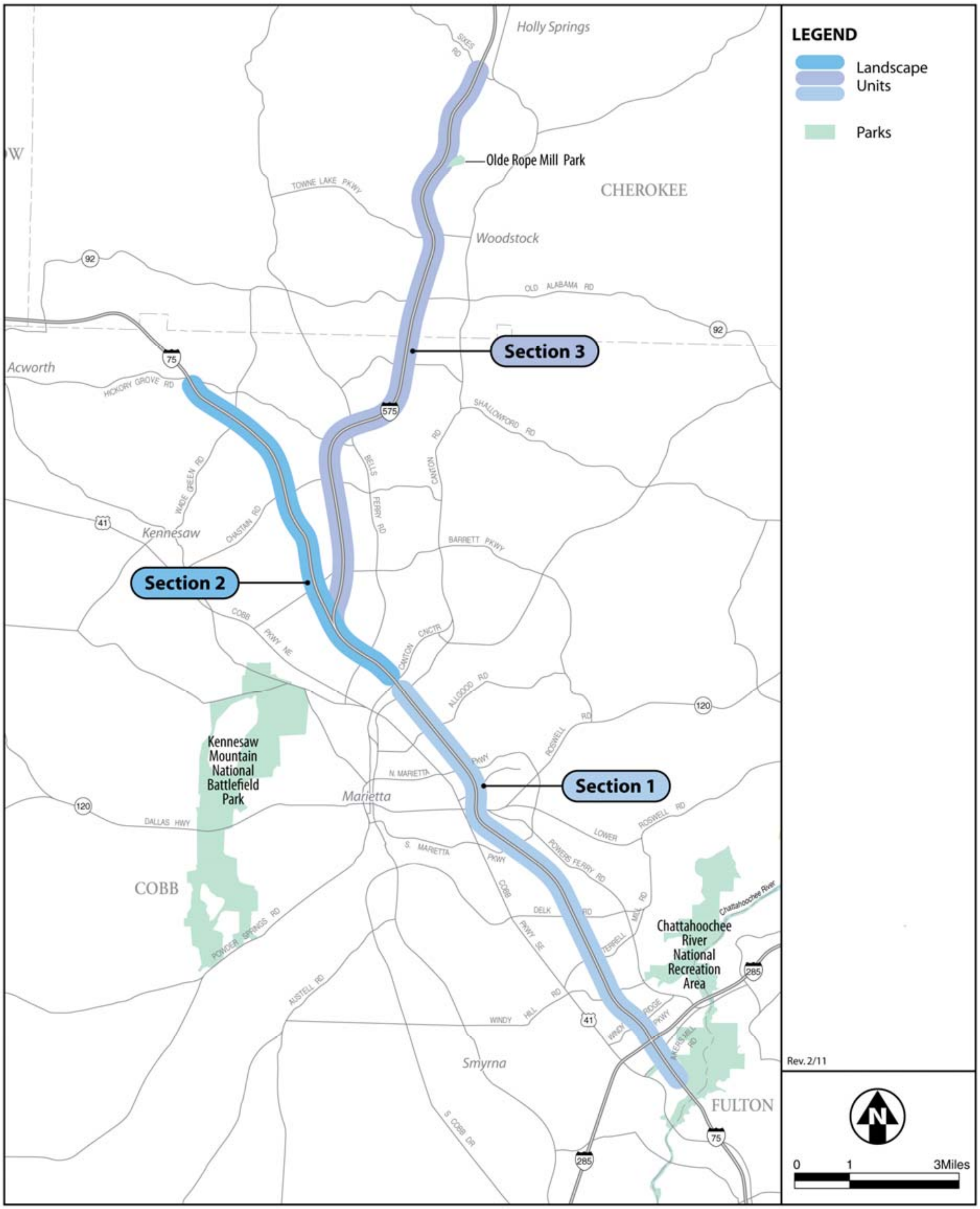
The visual assessment describes the existing visual character, visual quality, visually sensitive resources and viewers. These terms are defined below.

- Visual Character – The character of an area consists of a combination of physical, biological and cultural attributes that make a landscape identifiable or unique. Character gives an area its "visual and cultural image" and includes patterns, colors and textures of vegetation, land and water forms and the built environment.
- Visual Quality – Visual quality of a landscape relates to the relative excellence of a visual experience. The visual quality of the study area has been evaluated using three criteria recommended by the FHWA in their 1981 publication *Visual Impact Assessment for Highway Projects*: vividness, intactness and unity. All three criteria must be high for the landscape to be given a high quality rating. Vividness refers to the visual power or memorability of the landscape components as they combine to form striking and distinctive patterns. These include topographic, water, vegetative and constructed elements. Intactness refers to the visual integrity of the landscape. The fewer the number of encroaching (out-of-character) elements, the higher the visual integrity. Unity refers to the visual coherence and compositional harmony of the landscape when it is considered as a whole, or how all elements fit together.
- Visually Sensitive Resources – Visually sensitive resources are those resources that are visually important for historic, architectural, recreational or community associations. Major natural features that are visually important can also be categorized as visually sensitive resources.
- Viewers – Viewer groups fall into two main categories: persons with a view of the surrounding area from the existing roadway and persons with a view of the existing roadway from the surrounding area.

The visual environment for a proposed transportation project encompasses the highway corridor and all areas that motorists can view from the highway as well as those adjacent areas from which people can view the highway. For the purpose of the visual analysis, the study area has been divided into three landscape units or areas of similar visual characteristics. These landscape units provide a framework for the assessment of visual resources. All three of the landscape units generally have hilly topography and dense trees and other mature vegetation adjacent to the highways, unless development is present. In suburban areas, vegetation is comprised of cultivated lawns, trees and shrubs in open spaces and on private lots. Red pine trees and various species of hardwoods provide natural buffers throughout the study area and contribute to aesthetic quality. The project corridor landscape units are described below and illustrated in Figure 3-17.

- Section 1: I-75 between Cumberland Boulevard and Canton Road – This section encompasses the land in the southeastern end of the study area beginning at Cumberland Boulevard just south of the I-75/I-285 interchange and extending in a northerly direction to Canton Road. In this section, the proposed project follows the western side of existing I-75.
- Section 2: I-75 between Canton Road and Hickory Grove Road – This section encompasses the land in the study area from Canton Road north to Hickory Grove Road. In this section the project follows the western side of existing I-75 until Bells Ferry Road, at which point it transitions to the median until it terminates at Hickory Grove Road.
- Section 3: I-575 between I-75 and Sixes Road – This section encompasses the land in the study area from the I-75/I-575 interchange to Sixes Road. In this section, the project is located in the median until its terminus at Sixes Road.

The existing visual character, visual quality, visually sensitive resources and viewers for each of these landscape units are discussed in the following sections.


LEGEND
Landscape Units
Parks
Section 1
Section 2
Section 3
Holly Springs
Olde Rope Mill Park
CHEROKEE
Woodstock
Acworth
Kennesaw
Kennesaw Mountain National Battlefield Park
Marietta
COBB
Chattahoochee River National Recreation Area
Chattahoochee River
Smyrna
FULTON
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0 1 3Miles

3.6.2 Visual Character

Section 1: I-75 between Cumberland Boulevard and Canton Road. This landscape unit is comprised primarily of high-density suburban development, including residential, commercial and industrial structures. Between Akers Mill Road and Delk Road, the study area is primarily developed and includes suburban commercial and retail buildings on both sides of I-75. Between Delk Road and Gresham Road, there are established single-family neighborhoods on the east side of I-75 with sound barriers and mature vegetation that buffer these residences from the highway. Commercial and industrial buildings become more prominent north of South Marietta Parkway, although pockets of smaller single-family homes and mobile homes remain in the area. Development is primarily industrial between Allgood Road and Canton Road. This segment contains portions of Rottenwood Creek (see Figure 3-18).

Section 2: I-75 between Canton Road and Hickory Grove Road. This landscape unit is comprised primarily of low-density suburban development and woodlands. This segment contains portions of Noonday Creek (see Figure 3-19).

Section 3: I-575 between I-75 and Sixes Road. This landscape unit is comprised primarily of undeveloped woodlands and also contains low-density suburban residential and commercial development. This segment contains portions of Noonday Creek, Hope Creek and Little River (see Figure 3-20).

Figure 3-18. I-75 Between Canton Road and Hickory Grove Road

Figure 3-19. I-75 Between Cumberland Boulevard and Canton Road

Figure 3-20. I-575 Between I-75 and Sixes Road

3.6.3 Visual Quality

The visual quality of each of the three landscape units was assessed based on the three criteria recommended by the FHWA and discussed previously: vividness, intactness and unity. The following ratings were used in the assessment:

- High Quality – The landscape is visually powerful or memorable; it has visual integrity and has a high degree of freedom from encroaching elements/out-of-character elements; and there is visual coherence and a harmonious pattern between the natural and manmade elements. There is a strong visual relationship between manmade and natural pattern elements.
- Moderate Quality – The landscape is not very memorable; visual encroachment is beginning to occur and is noticeable; some visual coherence is present. There is some evidence of unity between the manmade and natural environment.
- Low Quality – The landscape is not memorable; its elements do not combine in striking and distinctive visual patterns and numerous contrasting visual elements work to cancel each other. A visual relationship between manmade and natural pattern elements is not obvious.

<u>Section 1: I-75 between Cumberland Boulevard and Canton Road.</u> The dominant visual elements in this section are building and transportation related. There is no strongly defined form or line. The vegetation lacks a variety of textures and colors. The many contrasting visual elements create a visual clutter and cancel each other, resulting in a scene of low-memorability. There are a number of visual encroachments present, such as the numerous billboards and tangle of large numbers of overhead power lines. There does not appear to be a strong visual relationship to natural landforms or land cover patterns. The components of the landscape in this section do not combine to create striking patterns that convey visual excellence. The visual quality in this section is considered to be low.

<u>Section 2: I-75 between Canton Road and Hickory Grove Road.</u> The dominant visual elements in this section are the transportation elements related to I-75 (broad expanses of pavement, signs, lights, etc.) and large unbroken lines of mature vegetation. Although the landscape components in this section do not combine to create striking patterns that convey visual excellence, the section does exhibit a degree of visual coherence and harmony between the natural and manmade environment. The visual quality in this section is considered moderate.

<u>Section 3: I-575 between I-75 and Sixes Road.</u> The dominant visual elements in this section are the transportation elements related to I-575 (broad expanses of pavement, signs, lights, etc.) and large unbroken lines of mature vegetation. Although the landscape components in this section do not combine to create striking patterns that convey visual excellence, the section does exhibit a degree of visual coherence and harmony between the natural and manmade environment. The visual quality in this section is considered moderate.

3.6.4 Visual Aspects of Transportation Facilities

Transportation facilities within the study area primarily consist of roadways and expressways. These facilities and their associated vehicle types are visible throughout the study area.

The study area consists of a contiguous network of at-grade roadways that provide access to various activity centers and community services, as well as to other transportation facilities. Throughout the study area, roadways are generally at-grade and include many travel lanes. Major arterials primarily run in the east-west direction. These arterials typically are lined with mature trees. The east-west arterials span or cross under I-75 and I-575, as well as provide access to these freeways.

Both I-75 and I-575 are major at-grade freeways. A concrete barrier or grassy median separates the directional travel lanes on these freeways. Each is lined with dense vegetation and mature trees that restrict views into neighboring residential areas, commercial areas and employment centers. However, there are sections along both freeways where open spaces provide full or partial views into adjacent areas. Tubular steel street lights on the edges of the freeways, along with billboards, present a cluttered appearance. A typical view of I-75 is shown in Figure 3-19.

3.6.5 Visually Sensitive Resources

Each landscape unit has been assessed to determine whether visually sensitive resources are present. The results of the analysis for shown below.

- Section 1: I-75 between Cumberland Boulevard and Canton Road. No visually sensitive natural features, cultural/historic resources, or recreational resources exist within this section of the study area.
- Section 2: I-75 between Canton Road and Hickory Grove Road. No visually sensitive natural features, cultural/historic resources, or recreational resources exist within this section of the study area.
- Section 3: I-575 between I-75 and Sixes Road. One visually sensitive recreational resource, Olde Rope Mill Park, is located in this section. The park is adjacent to the I-575 right-of-way and has a view of the project (see Figure 3-21).

Figure 3-21. View of I-575 from Olde Rope Mill Park

3.6.6 Viewers

Viewers from the road include those who use I-75 and I-575. Users of these transportation facilities include: transit customers; daily commuters to office parks, industrial parks and employment centers in downtown Atlanta; as well as persons traveling to various retail, service, recreational, and entertainment destinations. Other users include individuals passing through the study area to reach destinations in the surrounding outlying metropolitan areas or even outside the state. These viewers are typically in a vehicle moving through the corridor, are exposed to a given view for a short period of time, and are exposed at a frequency of once to a few times each day.

The views for each of these viewer groups are limited by topography, mature trees and other vegetation, and existing development along I-75 and I-575. In addition, views of the surrounding areas are limited because the roadways are typically at grade. Elevated overpasses located throughout the study area provide vantage points that allow partial views into neighboring developments.

Those with views of the road include residents from adjacent developments and employees or patrons of various commercial, retail, hospitality, medical, and service-oriented businesses adjacent to the corridor. Viewers also include users of Olde Rope Mill Park, which has views of I-575. Topography, vegetation, and intervening buildings throughout the study area limit the extent of unrestricted views for these groups. These viewers, particularly viewers from residences, are typically stationary, are exposed to a given view for extended periods of time, and are exposed to the view frequently throughout the day.

3.7 Parklands and Other Section 4(f) Resources

3.7.1 Legal and Regulatory Requirements

The USDOT regulates the acquisition or use of parkland by federally funded transportation projects. Section 4(f) of the USDOT Act of 1966, as amended (49 USC 303), prohibits the use of land from publicly owned parks, recreation areas, wildlife or waterfowl refuges, or historic sites unless a determination is made that: (1) there is no feasible and prudent alternative to using such land; and (2) the program or project includes all possible planning to minimize harm to the land resulting from its use. The word "use" means the taking or acquisition of land or property for construction of a permanent transportation facility. When the proximity impacts of a transportation project on Section 4(f) property, even without the acquisition of the property, are so great that the purposes of the property are substantially impaired, Section 4(f) may also apply. Section 4(f) applies only to USDOT projects. A discussion of historic sites is in Section 3.8.

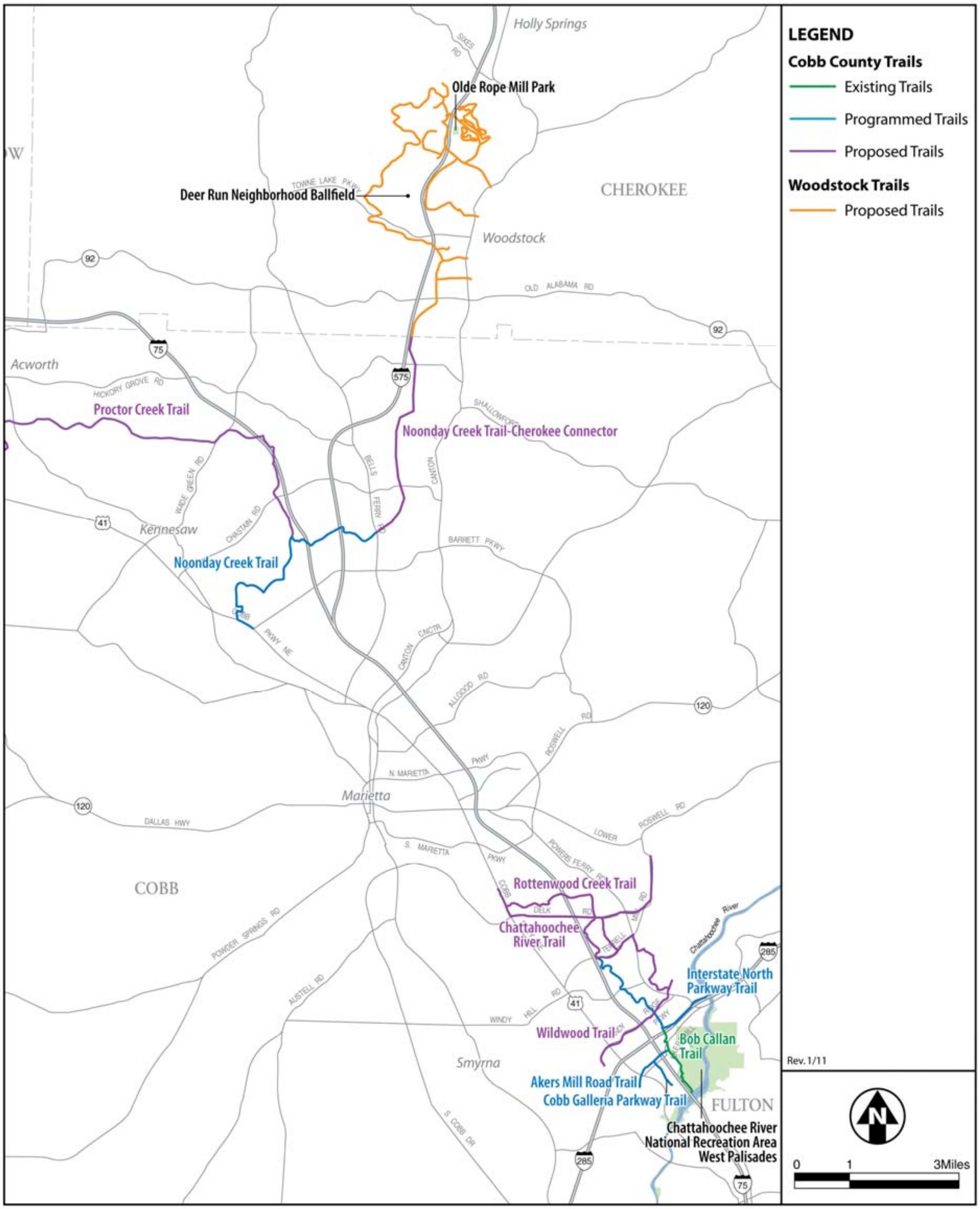
The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) directed USDOT to revise its Section 4(f) regulations to clarify the "feasible and prudent" standard. In March 2008, FHWA and FTA issued new Section 4(f) regulations that clarified the "feasible and prudent" standard and updated the standards for choosing among alternatives that all use Section 4(f) properties ("least overall harm" test). The new regulations were codified in a stand-alone section of the regulations (23 Code of Federal Regulations [CFR] Part 774).

3.7.2 Parklands and Other Section 4(f) Resources

Parklands in the study area include national recreation areas, planned trails, and local government parks. Parklands in close proximity of the project corridor are identified in Volume II of this FEIS, Appendix I, Environmental Constraints Maps.

Several city- or county-owned parks were identified through an on-site review of the study corridor and impact area within approximately 600 feet of the proposed transportation improvements. The records of the Cobb County Parks, Recreation and Cultural Affairs Department, Cherokee County Parks and Recreation Authority, Marietta Parks and Recreation Department, and Kennesaw Parks and Recreation Department were also reviewed.

The Chattahoochee River National Recreation Area, under the jurisdiction of the National Park Service, is the largest park in the study area. It is south of the I-75/I-285 interchange (see Figure 3-22) and the boundaries of the national recreation area abut Cumberland Boulevard, which marks the southern terminus of the proposed project boundary. The West Palisades Recreation Unit and the adjacent Paces Mill Unit are the southernmost recreation areas in the Chattahoochee River National Recreation Area. The West Palisades Recreation Unit is on the east side of I-75 and contains approximately 3.5 miles of easy to difficult trails. The Paces Mill


LEGEND
Cobb County Trails
Existing Trails
Programmed Trails
Proposed Trails
Woodstock Trails
Proposed Trails
Holly Springs
Olde Rope Mill Park
Deer Run Neighborhood Ballfield
CHEROKEE
Woodstock
Acworth
Proctor Creek Trail
Noonday Creek Trail-Cherokee Connector
Kennesaw
Noonday Creek Trail
Marietta
COBB
Rottenwood Creek Trail
Chattahoochee River Trail
Interstate North Parkway Trail
Wildwood Trail
Bob Callan Trail
Smyrna
Akers Mill Road Trail
Cobb Galleria Parkway Trail
FULTON
Chattahoochee River National Recreation Area West Palisades
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0
1
3Miles

Unit is on the west side of I-75, just outside the study corridor. The latter contains the Chattahoochee Outdoor Center, a canoe and raft launch, a picnic area and a trail that connects, under I-75, to the trails in the West Palisades Recreation Unit.

Three local parks, two existing and one planned, are located near I-575. The Olde Rope Mill Park is at the northern portion of South Rope Mill Road and extends to the Little River. This park includes trails, picnic areas, swings, fishing pier and a deck with scenic overlooks of the Little River. The City of Woodstock has plans to develop a greenway system with a number of trails along Little River on both sides of I-575. In addition, the Deer Park neighborhood baseball field is west of I-575 north of Towne Lake Parkway and is maintained by the Deer Park homeowners association.

There are also a number of existing and planned recreational trails in the study area. The Cobb County Bob Callan Trail, formerly known as a portion of the Rottenwood Creek Trail, is located in the study area (see Figure 3-22). The trail is in the southeast quadrant of the I-75/I-285 interchange. The trail originates in the Chattahoochee River National Recreation Area West Palisades Unit and extends north on the east side of I-75, crosses the Interstate North Parkway and connects to the North Interstate Parkway Trail (a programmed trail). In total, the Bob Callan Trail is approximately 2.1 miles in length.

There are three planned Cobb County trails within the study area. The North Interstate Parkway Trail is programmed by Cobb County and would begin at the Chattahoochee River. The trail would traverse west along the north side of I-285 and turn north and parallel I-75 on the east side and terminate at Terrell Mill Road. The Silver Comet Cumberland Connector Trail would follow Cobb Galleria Parkway between Akers Mill Road and Cumberland Boulevard. The Akers Mill Road Trail would extend between Cumberland Boulevard on the southwest side of I-75 and Akers Drive on the northeast side of I-75. Lastly, the Noonday Creek Trail would parallel Noonday Creek and cross I-75 and I-575 just north of where the two highways diverge.

Cobb County has several proposed trails that would cross the study area. The Wildwood Trail is proposed just north of the I-75 at I-285 interchange. One extension to the Rottenwood Creek Trail is proposed, which would parallel I-75 to the east between Delk Road and Terrell Mill Road and cross I-75 just north of Delk Road. Another proposed trail, the Chattahoochee River Trail, would cross I-75 along Delk Road and again just north of Delk Road. The Proctor Creek Trail would begin west of I-75 at the Noonday Creek Trail near Chastain and Wade Green Roads. This trail traverses north paralleling I-75, but at Jiles Road the trail traverses westerly, outside of the study area. The Noonday Creek Trail-Cherokee Connector would parallel I-75 to the east just north of Shallowford Road.

3.8 Historic and Archaeological Resources

This section describes the historic architectural and archaeological resources within the area of potential effect (APE) of the proposed project and provides the basis for the analysis of potential impacts described in Chapter 5, Environmental Consequences. Historic resources may include districts, sites, buildings, structures, or objects. A compendium of all of the technical reports and agency correspondence is found in the *Cultural Resources Report* (Parsons Brinckerhoff, 2011e).

3.8.1 Legal and Regulatory Requirements

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (16 USC Section 470(f)), requires federal agencies to take into account the effects of their undertakings on historic properties, including archaeological sites and to consult with the State Historic Preservation Officer (SHPO) and other parties to develop and evaluate alternatives or modifications to undertaking that could avoid, minimize, or mitigate adverse effects to historic properties. The Advisory Council on Historic Preservation (ACHP) is afforded a reasonable opportunity to comment on such undertakings. The requirements of Section 106 are implemented under Title 36, Section 800 of the CFR (36 CFR 800), "Protection of Historic Properties." Compliance with the NEPA of 1969, (42 USC Section 4321) Section 101(b) is being undertaken concurrently with the Section 106 process.

Archaeological sites are also protected under the Archaeological and Historic Preservation Act of 1974 (16 USC 469a), the Archaeological Resources Protection Act of 1979 and Executive Order 11593.

3.8.2 Area of Potential Effect

Based on the nature and scope of the undertaking and guidance in the *Cultural Resources Survey Guidelines* (GDOT, 1987), the APE for the proposed action was identified through consultation with the SHPO. The APE includes the areas within the proposed right-of-way within which all construction and ground-disturbing activity would be confined, as well as the viewsheds. The APE includes areas that may be affected by increased noise levels, which are generally confined to an area within 500 feet of proposed improvements. The boundary for the APE was agreed by the Georgia Department of Natural Resources (GDNR), Office of Historic Preservation Division (see Appendix D).

3.8.3 Historic Architectural Resources

Information on previously identified historic resources was reviewed to determine if any were located within the APE. This review revealed that no properties listed in, nominated for, or determined eligible for the National Register of Historic Places (NRHP) are located within the project APE. In addition, there are no National Historic Landmarks or bridges determined eligible for inclusion in the NRHP in the updated Georgia Historic Bridge Survey. No properties 50 years old or older were identified within the APE based on review of the SHPO's 1988 Cherokee County survey, 1978 Cobb County Survey, and 1993 survey of the City of Marietta.

In addition, field surveys were conducted to identify potential NRHP-eligible historic architectural resources within the APE. A field survey was initiated in 2003 and updated in 2003, 2004, 2006, and 2009. As a result of these field surveys, 31 properties 50 years of age or older were documented. For each property, a property information form was prepared. This form was accompanied by applicable city and county parcel maps and photographs. The NRHP criteria of eligibility were considered to evaluate each property and make a recommendation regarding the NRHP-eligibility. The recommendations were reviewed by the SHPO and concurrence with the recommendation was obtained June 1, 2010 (see Appendix D). Table 3-19 lists the surveyed historic resources. Of the 31 properties identified and to which the Criteria of Eligibility was applied, none have been recommended eligible for listing in the NRHP. The SHPO concurred with these findings on June 1, 2010 (see Appendix D). No properties determined eligible for the NRHP are located within the APE.

Table 3-19. Surveyed Historic Architectural Resources

Street Address	Date	NRHP-Eligible
150 Bankston Rd	1948-49 house	No, no architectural or known historic significance.
155 Bankston Rd	1946 house	No, altered.
158 Bankston Rd	ca. 1930 house	No, no architectural or known historic significance.
1083 Barnes Mill Rd	ca. 1935 house	No, altered. Originally identified as eligible, but subsequent alterations damaged integrity.
1117 Barnes Mill Rd	ca. 1870-1910 house	No, altered.
1546 Bells Ferry Rd	ca. 1950 house	No, no architectural or known historic significance.
1547 Bells Ferry Rd	ca. 1950 house	No, altered.
1589 Bells Ferry Rd	ca. 1950 house	No, altered.
1605 Bells Ferry Rd	ca. 1945 house	No, no architectural or known historic significance.
1654 Bells Ferry Rd	1947 church	No, no architectural or known historic significance.
1675 Bells Ferry Rd	ca. 1870-1910 house	No, altered.
83 Chert Rd	ca. 1950 house	No, no architectural or known historic significance.
100 Chert Rd	ca. 1950 house	No, no architectural or known historic significance.
110 Chert Rd	ca. 1950 house	No, altered
208 Towne Lake Pkwy	ca. 1900 house	No, not within APE. Originally identified as eligible but now outside of revised APE. Originally in APE of U4.
Marietta & North Georgia Railroad (historic)	ca. 1874-1879 railway	No, not within APE. Linear resource as whole is considered eligible, but portions within APE have been altered.
Additional Properties Identified During 2009 Field Survey		
Banberry Rd., Blanche Dr. and Kasandra Dr. in Marietta	Ca. 1951 – 1960 subdivision	Not eligible –integrity of materials, design, workmanship, feeling, association and setting has been diminished
191 Frey's Gin Rd., Marietta	1956-1966 church	Not eligible – integrity of design, materials, workmanship and setting has been diminished
91 Chert Rd., Marietta	1950 house	Not eligible – integrity of setting has been diminished
101 Chert Rd. Marietta	1942 house	Not eligible – integrity of design, materials, workmanship and setting has been diminished
120 Chert Rd., Marietta	1956 house	Not eligible – integrity of setting has been diminished
130 Chert Rd, Marietta	1954 house	Not eligible – integrity of setting has been diminished
121 Chert Rd, Marietta	1952 American Small House	Not eligible – integrity of design, materials, workmanship and setting have been diminished
Beech St. and Springdale Dr., Marietta	1952 subdivision	Not Eligible – integrity of design, materials, workmanship, feeling and association has been diminished
160 Dickson Ct., Marietta	1960 house	Not Eligible – integrity of setting has been diminished
Manuel Dr. and Manuel Ct., Marietta	1957 – 1960 subdivision	Not eligible – integrity of design has been diminished
1580 Bells Ferry Rd., Marietta	1960 ranch house	Not eligible – integrity of setting has been diminished
36 Manuel Ct., Marietta	1957 ranch house	Not eligible – integrity of setting has been diminished
42 Manuel Ct., Marietta	1959 ranch house	Not eligible – integrity of setting has been diminished
1941 Hickory Grove Rd., Kennesaw	1959, 1996 house	Not eligible – integrity of design, materials, workmanship, feeling and association has been diminished
2014 Hickory Grove Rd., Kennesaw	1960 house	Not eligible – integrity of design, materials, workmanship, feeling and association has been diminished

Sources: Parsons Brinckerhoff, 2007d and 2010d.

3.8.4 Archaeological Resources

The APE was surveyed in 2003, 2004, and again in 2009 to determine the presence of significant archaeological sites (RS Webb & Associates, Inc., 2003, 2007, and 2010). The survey consisted of a review of previous background research, surface inspection, and 100-foot (30-meter) interval shovel testing of selected undisturbed areas of the APE. No archaeological sites listed in or eligible for listing in the NRHP were identified within the APE. However, the records research identified six previously recorded sites within 1 mile of the Wade Green Road to Hickory Grove Road section of the project, but outside of the project's APE. Two of these sites are eligible for the NRHP. The final 2010 GDOT Archaeological Short Form for Negative Findings is in Appendix D. Table 3-20 lists the recorded sites within the project's APE.

Table 3-20. Previously Identified Sites

Site Number	Site Type and Cultural Affiliation	NRHP Status Recommendation	Reference (Recorder/Year)	Distance from APE
9C0102	Middle Archaic lithic scatter	Unknown	Murphy 1995	305 meters
9C0103	Middle Archaic lithic scatter	Unknown	Murphy 1995	490 meters
9C0644	19th century earthwork, unknown prehistoric	Eligible	Banguilan 2002	915 meters
9C0645	Early-Middle Archaic and 19th century artifact scatter	Ineligible	Banguilan 2002	915 meters
9C0646	19th / 20th century mill dam	Eligible	Banguilan 2002	850 meters
9C0703	Site not listed in Georgia Archaeological Site File	NA	NA	180 meters

Note: NA = not available.
Source: RS Webb & Associates, 2010.

3.9 Air Quality

This section describes the existing air quality in the study area. Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or reducing human or animal health. The reader should review the *Air Quality Technical Report* (Parsons Brinckerhoff, 2011d) for additional information.

3.9.1 Legal and Regulatory Requirements

The Clean Air Act Amendments of 1990 (CAAA) and the Final Conformity Rule (40 CFR Parts 51 and 93) direct the USEPA to implement environmental policies and regulations that will ensure acceptable levels of air quality. The Clean Air Act and the Final Conformity Rule affect proposed transportation projects. According to Title I, Section 176 (c) 2: "No federal agency may approve, accept or fund any transportation plan, program, or project unless such plan, program or project has been found to conform to any applicable State Implementation Plan (SIP) in effect under this act."

The Final Conformity Rule defines conformity as consistency with the state implementation plan's purpose to eliminate or reduce the severity and number of violations of the National

Ambient Air Quality Standards (NAAQS) and to achieve expeditious attainment of such standards. In particular, such activities will not:

- Cause or contribute to any new violation of any NAAQS in any area;
- Increase the frequency or severity of any existing violation of any NAAQS in any area; or
- Delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.

3.9.1.1 Ambient Air Quality Standards

The NAAQS have been established for air pollutants that have been identified by the USEPA as being of concern nationwide. These air pollutants, referred to as criteria pollutants, are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3) and sulfur dioxide (SO_2) (see Table 3-21). The sources of these pollutants, effects on human health and the nation's welfare and occurrence in the atmosphere vary considerably.

The NAAQS protect the public health and welfare. The primary NAAQS are established at levels intended to protect public health, including sensitive population groups, with an adequate margin of safety. Secondary NAAQS are set at levels designed to protect the public by accounting for the effects of air pollution on vegetation, soil, materials and elements of the environment that affect general welfare. The standards presented in Table 3-21 represent the official ambient air quality standards for the State of Georgia.

3.9.1.2 Air Quality Levels and Compliance

Section 107 of the 1977 Federal CAAA requires that the USEPA publish a list of all geographic areas in compliance with the NAAQS, as well as those areas not in compliance. The latter are termed non-attainment areas. If data is insufficient to make a determination, an area may be unclassified and treated as being in attainment until proven otherwise. Areas that are designated as non-attainment when the CAAA were implemented, but have since attained compliance, are classified as “maintenance areas.” The designation of an area is made on a pollutant-by-pollutant basis.

The Atlanta area is classified as a moderate nonattainment area for O_3 (eight-hour standard), a nonattainment area for $PM_{2.5}$, and an attainment area for all other pollutants.

3.9.1.3 Mobile Source Air Toxics

In addition to the criteria pollutants for which there are NAAQS, USEPA also regulates air toxics. Toxic air pollutants are those pollutants known or suspected to cause cancer or other serious health effects. Most air toxics originate from human-made sources, including on-road mobile sources (e.g., vehicles), non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the CAAA. MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted into the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

Table 3-21. National Ambient Air Quality Standards for Georgia

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide (CO)	9 ppm (10 mg/m^3)	8-hour [1]	None	
	35 ppm (40 mg/m^3)	1-hour [1]		
Lead (Pb)	0.15 $\mu g/m^3$ [2]	Rolling 3-Month Average	Same as Primary	
	1.5 $\mu g/m^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide (NO_2)	0.053 ppm (100 $\mu g/m^3$)	Annual (Arithmetic Mean)	Same as Primary	
	0.100 ppm	1-hour [3]	0.053 ppm (100 $\mu g/m^3$)	Annual (Arithmetic Mean)
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24-hour [4]	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual [5] (Arithmetic Mean)	Same as Primary	
	35 $\mu g/m^3$	24-hour [6]	Same as Primary	
Ozone (O_3)	0.075 ppm (2008 std)	8-hour [7]	Same as Primary	
	0.08 ppm (1997 std)	8-hour [8]	Same as Primary	
	0.12 ppm	1-hour [9]	Same as Primary	
Sulfur Dioxide (SO_2)	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 $\mu g/m^3$)	3-hour [1]
	0.14 ppm	24-hour [1]		

Notes:
[1] Not to be exceeded more than once per year.
[2] Final rule signed October 15, 2008.
[3] To attain this standard, the three-year average of the 98th percentile of the daily maximum one-hour average at each monitor within an area must not exceed 0.100 parts per million (ppm) (effective January 22, 2010).
[4] Not to be exceeded more than once per year on average over three years.
[5] To attain this standard, the three-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 micrograms per cubic meter ($\mu g/m^3$).
[6] To attain this standard, the three-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 $\mu g/m^3$ (effective December 17, 2006).
[7] To attain this standard, the 3-year average of the fourth-highest daily maximum eight-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).
[8] (a) To attain this standard, the three-year average of the fourth-highest daily maximum eight-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
(c) USEPA is in the process of reconsidering these standards (set in March 2008).
[9] (a) USEPA revoked the one-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1.
Abbreviations: ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter.

Sources: USEPA, 2010b; Parsons Brinckerhoff, 2011d.

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) (*http://www.epa.gov/ncea/iris/index.html*). 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) (*http://www.epa.gov/ttn/atw/nata1999/*). These seven are: benzene, acrolein, formaldehyde, 1,3-butadiene, diesel exhaust, naphthalene and polycyclic organic matter. While FHWA considers these the priority MSATs, 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 USEPA's MOBILE6.2 model, even if vehicle activity (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 (Parsons Brinckerhoff, 2011d).

3.9.1.4 Greenhouse Gases

The issue of global climate change is an important concern that is being addressed in several ways by the federal government. The transportation sector is the second largest source of total greenhouse gases (GHGs) in the United States and the largest source of CO_2 emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all CO_2 emissions in the United States. The principal man-made source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of man-made emissions of carbon worldwide. Almost all, nearly 98 percent, of the transportation-sector emissions result from the consumption of petroleum products such as motor gasoline, diesel fuel, jet fuel, and residual fuel.

Recognizing this concern, FHWA is working with other modal administrations through the Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to GHGs – particularly CO_2 emissions – and to assess the risks to transportation systems and services from climate changes.

There are also several programs underway in Georgia to address GHG emissions. Georgia is a member of the Climate Registry, a nationwide voluntary effort to quantify GHG emissions from all sources and lay the foundation for potential future carbon emissions trading and mitigation efforts.

3.9.2 Ambient Air Quality in the Study Area

Ambient air quality in the study area was assessed based on local meteorological conditions and monitored air quality.

3.9.2.1 Local Meteorology

The National Weather Service of the National Oceanic and Atmospheric Administration (NOAA) maintains information on the meteorology of metropolitan areas around the country. The nature of the surrounding atmosphere is an important element in assessing the ambient air quality of an area.

For the proposed project, the study area is located in the foothills of the southern Appalachians in north-central Georgia. The terrain is rolling to hilly and slopes downward towards the east, west and south. The Gulf of Mexico and the Atlantic Ocean are approximately 250 miles south and southeast of the area, respectively. Both the Appalachian Mountains and the nearby maritime bodies exert an important influence on the region's climate. Temperatures are moderated throughout the year, while abundant precipitation fosters natural vegetation and growth of crops. Summer temperatures in the area are moderated somewhat by elevation, but are still rather warm. However, prolonged periods of hot weather are unusual and 100 degree heat is rarely experienced.

With the mountains to the north tending to retard the southward movement of polar air masses, Atlanta winters are rather mild. Late March is the average date of the last temperature of 32 degrees in the spring, and mid-November is the average date of the first temperature of 32 degrees in the fall (NOAA, 2005).

The Bermuda high pressure area has a dominant effect on the study area's weather, particularly in the summer months. East or northeast winds produce the most unpleasant weather although southerly winds are quite humid during the summer. The generally light wind conditions contribute to the formation of an occasional early morning fog.

During "smog season," May 1 through September 30, sweltering heat, direct sunlight, and stagnant wind conditions serve as catalysts to "cook" man-made and naturally occurring chemical compounds in the air around us, producing elevated levels of O_3.

3.9.2.2 Monitored Air Quality

The GDNR Environmental Protection Division, Air Protection Branch measures air quality throughout the state. The Ambient Monitoring Program (AMP), run by the GDNR, measures concentrations of criteria and non-criteria air pollutants at various locations throughout the State. The AMP also issues daily air pollution forecasts. The GDNR verifies, analyzes and collates all data collected by the monitors. Data collected and reported must meet minimum quality assurance requirements established by the USEPA, as outlined in the *Federal Register* Part 58 and appendices. Ambient air quality data for CO, O_3, NO_2, and $PM_{2.5}$, for 2006 to 2008 within or near the study area is presented in Table 3-22.

Table 3-22. Monitored Ambient Air Quality Data

Air Pollutant	Standard Exceedance	Atlanta 4434 Roswell Rd.			Atlanta Georgia Tech 311			Kennesaw Ga. National Guard		
		2006	2007	2008	2006	2007	2008	2006	2007	2008
Carbon Monoxide (CO)	Max. 1-hr Concentration (ppm)	3.5	2.1	2.2	NM	NM	NM	NM	NM	NM
	Max.8-hr Concentration (ppm)	1.8	1.5	1.4	NM	NM	NM	NM	NM	NM
	# Days>federal 1-hr Std. of >35 ppm	0	0	0	-	-	-	-	-	-
	# Days>federal 8-hr Std. of >9 ppm	0	0	0	-	-	-	-	-	-
Ozone (O_3)	Max. 8-hr Concentration (ppm)	NM	NM	NM	NM	NM	NM	.108	.094	.083
	# Days >federal 8-hr Std. of >0.08 ppm	-	-	-	-	-	-	26	16	3
Nitrogen Dioxide (NO_2)	Max. 1-hr Concentration (ppm)	NM	NM	NM	0.073	0.093	0.067	NM	NM	NM
	Annual Arithmetic Mean (ppm)	NM	NM	NM	0.018	0.017	0.015	NM	NM	NM
Suspended Particulates ($PM_{2.5}$)	Max. 24-hr Concentration (μg/m^3)	NM	NM	NM	32	114	31	38.6	36.7	21
	Annual Mean (μg/m^3)	NM	NM	NM	15.12	15.49	15.12	16.46	15.33	12.42
	# Exceedances>federal 24-hr Std. of >35 μg/m^3	-	-	-	0	0	0	0	0	0
	# of Exc. Fed. Annual Avg. of >15 μg/m^3	-	-	-	1	1	0	1	1	0

Notes: NM = not measured; ppm = parts per million; μg/m^3 = micrograms per cubic meter.
Source: USEPA, 2010a.

3.10 Noise

Transportation projects have the potential to increase noise levels, which can cause undesirable effects on people, animals and/or structures. The principal source of noise in the study area is vehicular traffic, including automobiles, trucks and buses. As an existing transportation corridor, most adjacent land uses are exposed to at least moderate noise levels. Whether an increase in noise is objectionable depends on the level relative to existing community noise. Certain land uses, such as hospitals and places of worship, are also sensitive to noise.

This section presents information on the characteristics of sound and sound levels, the criteria used by FHWA and GDOT to measure noise impacts, and existing noise levels in the study area.

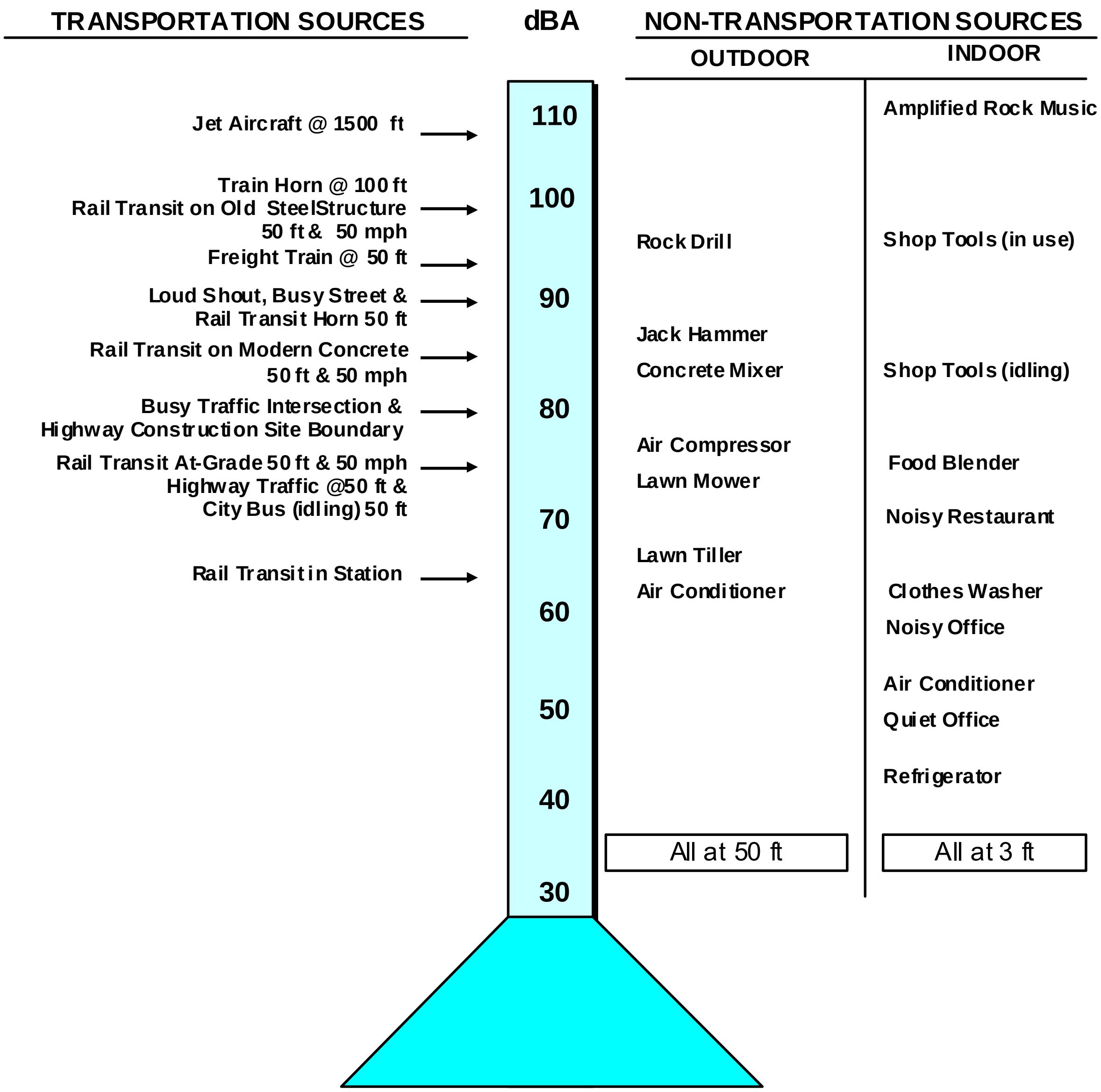
3.10.1 Noise Fundamentals

Noise is typically defined as unwanted or undesirable sound. The basic parameters of noise that affect humans are (1) intensity or level, (2) frequency content, and (3) variation with time. The first parameter is determined by the level of sound, which is expressed in units of decibels (dB). By using this scale, the range of normally encountered sound can be expressed by values between 0 and 120 decibels. On a relative basis, a 3 dB change in sound level generally represents a barely noticeable change. A 5-dB change presents a "just noticeable" change, while a 10 dB change is typically be perceived as a doubling in loudness. Conversely, a 10 dB decrease in noise levels is perceived as a 50 percent reduction in loudness.

The frequency of noise is related to the tone or pitch of the sound and is expressed in terms of cycles per second called hertz (Hz). The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. However, because the sensitivity of human hearing varies with frequency, the A-weighting system is commonly used. Sound levels measured using this weighting system are called "A-weighted" sound levels and are expressed in decibel notation as "dBA." The A-weighted sound level is widely accepted as a proper unit for describing environmental noise.

Because environmental noise fluctuates from moment to moment, it is common practice to calculate the "equivalent" sound level (L_{eq}). The L_{eq} is the level of a steady sound that is equivalent to the sum of individual noise elements over a specified time period (typically 1 hour or 24 hours). Studies have shown that L_{eq} is well correlated with human annoyance to sound, and therefore, this descriptor is widely used for environmental noise impact assessment. The L_{eq} measured over a one-hour period is the hourly L_{eq}, which is used to analyze highway noise impacts and abatement.

Figure 3-23 below provides examples of common noise, typical noise environments and typical subjective reactions in terms of instantaneous noise levels. The range of instantaneous noise levels spans from 0 dBA to 130 dBA. However, noise levels are generally found to range between 55 dBA and 75 dBA in most communities. This spans the range between a typical quiet residential environment and the threshold for an unacceptable residential environment.



Source: FTA, 1995.

3.10.2 Factors Affecting Traffic Noise Levels

In urbanized areas, adjacent land uses are exposed to at least moderate noise levels. Traffic noise depends on site geometry and traffic characteristics (volume, vehicle type, speed) of nearby roadways. For a straight, at-grade roadway with a steady stream of vehicles, the L_{eq} noise level decreases with distance from the roadway. Generally, in areas where the area between the roadway and the receptor is primarily grass, lawn or other sound absorptive material, the noise level decreases at a rate of 4.5 dBA per a doubling of the distance. Conversely, in more urban areas with concrete, the noise level drops off at a much slower rate, typically around 3 dBA per a doubling of distance.

A doubling in traffic volume over a given period of time produces a doubling in the sound energy. A doubling in sound energy corresponds to a barely perceptible 3-dBA increase in noise level. At locations where traffic volumes and noise levels are already high, a large change in traffic volume is required to cause a perceptible change in noise level.

Noise levels from trucks are much greater than levels from automobiles. A heavy truck is approximately 47 times (17 dBA) noisier than an automobile. Consequently, at a given traffic speed, noise levels are more sensitive to the distance to nearby truck lanes and/or to changes in truck volumes than changes in overall traffic flow.

On a roadway that is carrying a given volume of traffic, road traffic noise levels increase by approximately five to six dBA as the speed increases from 30 to 45 mph and by another 3 dBA as the speed increases to 55 mph.

3.10.3 FHWA Noise Criteria

In response to problems associated with highway traffic noise, the USC Part 772 (23 CFR 772) “Procedures for Abatement of Highway Traffic Noise and Construction Noise” establishes standards for the impact determination and abatement feasibility of highway traffic noise. The law requires promulgation of traffic noise level criteria for various land use activities and that FHWA not approve the plans and specifications for a federally aided highway project unless the project includes adequate noise abatement measures to comply with the standards. The FHWA has developed and implemented regulations for the mitigation of highway traffic noise in federally aided highway projects.

The FHWA regulations contain noise abatement criteria that represent the upper limit of acceptable highway traffic noise for different types of land uses and human activities. The regulations do not require that the abatement criteria be met in every instance. Rather, they require that every reasonable and feasible effort be made to provide noise mitigation when the criteria area approached or exceeded.

Due to recent amendments to the noise regulations, the analysis previously conducted for this project has been revised in conformance with the FHWA Final Rule governing these new regulations. The amended regulatory requirements have been adopted under the revised GDOT traffic noise policy guidelines that became effective July 13, 2011.

Table 3-23 provides a summary of the FHWA traffic noise abatement criteria (NAC) for each type of land use Activity Category based on the noisiest hourly L_{eq} value. In accordance with these criteria, noise impacts are predicted to occur when design year build condition noise levels approach or exceed the NAC listed in Table 3-23 for the future build condition or noise impacts are predicted when design year build condition noise levels create a substantial noise level

Table 3-23. FHWA Noise Abatement Criteria (NAC)

Activity Category	Criteria L_{eq} (dBA)	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential.
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities no included in A-D or F.
F	-	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical) and warehousing.
G	-	-	Undeveloped lands that are not permitted.

Notes: These sound levels are only to be used to determine impact. These are the absolute levels above which abatement must be considered. Noise abatement is designed to achieve a substantial noise reduction. Noise abatement is not designed to achieve the noise abatement criteria.
Source: 23 CFR 772, effective July 13, 2011.

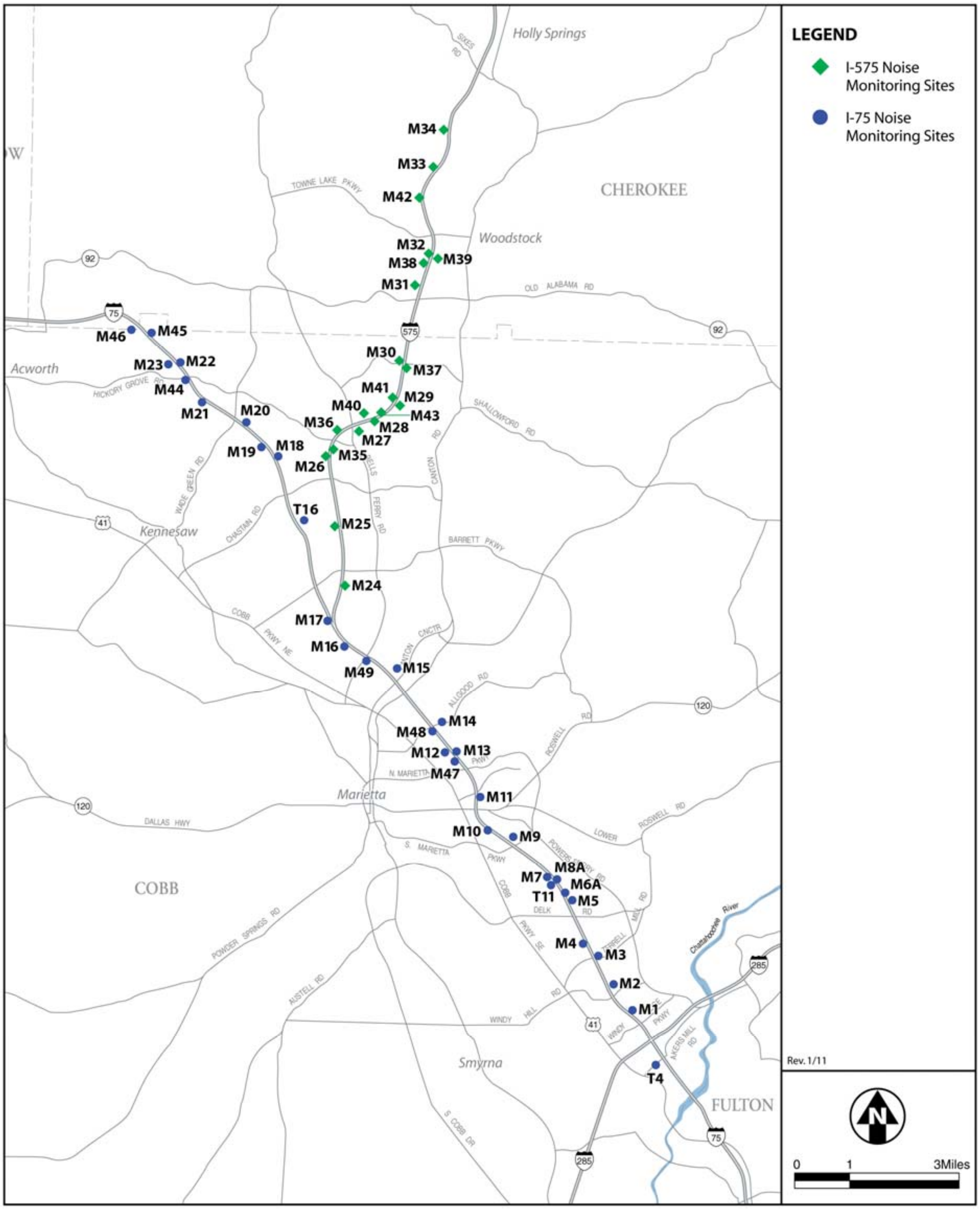
increase over existing noise levels. The GDOT defines approach levels as 1 dBA less than the noise levels shown in Table 3-23 and a substantial noise level increase as being 15 dBA or greater. For example, the approach noise level for Category B land use activities is 66 dBA. The approach noise levels for all NAC categories represent absolute noise impact thresholds, which exceeded constitutes an impact. For example, for NAC land use Category B, a noise level of 65.9 dBA at residential property is not considered an impact, but a noise level of 66.0 dBA or greater is considered a noise impact.

3.10.4 Noise Measurement Program

Existing noise levels within the study area were assessed based on noise measurements taken at noise sensitive sites. Noise measurements were previously conducted in 2005 and 2006 and were updated in June 2009. The updated noise measurements were used to validate the noise prediction model.

3.10.4.1 Noise Measurement Sites

The noise sites for baseline measurements were chosen consistent with FHWA criteria. The noise measurement sites are located along the entire length of the project corridor as shown in Figure 3-24. Some sites are located behind existing sound barriers. The sites include residential dwellings, churches, hotels, a school, and a hospital, and were considered representative of



Source: Parsons Brinckerhoff, 2011h.

typical conditions within the study area. The noise monitoring sites were selected based on an extensive review of the proposed transportation improvements. The criteria for site selection included land use, existing noise levels, number of sensitive receivers in the area, and the site's potential sensitivity to changes in noise levels.

The general location of the noise monitoring sites (M) is consistent with the location of the noise monitoring sites presented in the *Noise and Vibration Technical Report* (Parsons Brinckerhoff, 2007c) and the *Noise Technical Report* (Parsons Brinckerhoff, 2010i). For consistency, the three monitoring sites T4, T11 and T16 presented as part of the transit Transportation Systems Management (TSM) Alternative evaluated in the AA/DEIS were included in the noise measurement program conducted during June 2009 and reported in the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

Noise measurements for each site were performed in accordance with procedures described in *Measurement of Highway-Related Noise* (FHWA, 1996a). The measurements were taken using calibrated Bruel and Kjaer (B&K) sound level meters. All measurements were performed under acceptable climatic and street surface conditions consistent with applicable guidelines.

3.10.4.2 Existing Noise Levels

The principal source of noise in the study corridor is from motor vehicles along I-75 and I-575 and the access ramps to these highways. The study area is a highway corridor so adjacent residential communities and commercial areas are currently exposed to traffic noise levels that approach or exceed the NAC impact thresholds.

In 2009, noise measurements using the FHWA criteria were conducted at a total of 52 noise monitoring sites adjacent to I-75 and I-575 (see Figure 3-24). The measurements were taken during the midday period when noise levels were highest due to free flowing and uncongested traffic. These L_{eq} noise level measurements for each sensitive noise receptor site are reported in the *Noise Technical Report* (Parsons Brinckerhoff, 2011h) and are included in the tables of predicted noise impacts in Appendix F.

Noise levels at the 52 noise monitoring sites ranged from an hourly L_{eq} of 53 dBA at site M31 on I-575 to an hourly L_{eq} of 71 dBA at sites M7 and M17 on I-75. The 52 sites consisted of 46 residential sites, two churches, two hotels, one hospital, and one school. Existing noise levels at 13 FHWA Category B sites approached or exceeded the FHWA NAC. On I-75, these included M3, M6A, M7, M8A, M10, M16, M17, M21, M22, M47 and M49; and on I-575, the sites included M32 and M35. See Appendix F and the *Noise Technical Report* (Parsons Brinckerhoff, 2011h) for additional information.

3.11 Ecosystems

Ecosystems were assessed in accordance with the requirements of NEPA and the Endangered Species Act, as amended. Ecological surveys were conducted to identify protected species, habitat and any other natural communities of ecological significance in 2002, 2005, 2006 and 2009. Please see the *Addendum to June 2010 Ecology Technical Report* (Parsons Brinckerhoff, 2011a) and the *Ecology Technical Report* (Parsons Brinckerhoff, 2011f) for more information. Additional information can also be found in Appendix I, Environmental Constraints Map.

3.11.1 Legal and Regulatory Requirements

The Endangered Species Act of 1973, as amended [16 USC 1531 et seq.] protects threatened and endangered species and the ecosystems on which they depend. Federal and state regulations prohibit the taking, possession, transportation, or sale of any threatened and endangered species.

Executive Order 13186, in furtherance of the Migratory Bird Treaty Act (16 USC 703-711), directs that actions must be taken to avoid or minimize impacts to migratory bird resources and to prevent or abate the detrimental alteration of the environment for the benefit of migratory birds, as practicable.

3.11.2 Natural Communities

The study area is in the urban setting of the Atlanta metropolitan area, which lies entirely within the Piedmont physiographic province of Georgia. Most of the Piedmont has been subjected to extensive agriculture in the past, including most of the study area. The successional forest and planted pine within Cobb and Cherokee Counties have been converted to residential and commercial uses over the last 40 years. Remnants of oak woodlands can still be found along the study corridor such as the old-growth, oak-hickory stand at the abandoned Gresham Cemetery. The natural vegetation communities found within the study area are planted pine forests, open fields, upland hardwood/pine forests, bottomland hardwood forests, scrub/shrub wetlands, and herbaceous wetlands. Common vegetation, faunal species and birds that are likely present within the study area are listed in Table 3-24.

3.11.3 Threatened and Endangered Species

The GDNR maintains a statewide list of threatened and endangered animals and plants and was consulted for information about the occurrence of these species in the study area (see Appendix D). Table 3-25 lists the federal and state status, habitat requirements and a determination regarding the existence of suitable habitat within the study area of protected plant and animal species. There is one federally listed species whose habitat is present within the study area, the Cherokee darter. There is one state-listed species whose habitat is present within the study area, the Chattahoochee crayfish. In addition, suitable habitat for the state-protected lined chub is located just outside of the study area.

3.11.3.1 Wildlife

Brief discussions of the seven federally and/or state-listed wildlife species and their preferred habitat follow.

Cherokee Darter

The Cherokee darter (*Etheostoma scotti*) is a federally listed threatened species found in small- to medium-sized streams with a gravel and cobble substrate. It is endemic to the upper Coosa River system in Georgia. It is also known to occur in about 20 small tributaries of the Etowah River and disjunct populations are found above and below the Allatoona Reservoir. The closest known occurrence that is documented and listed by the GDNR is in an unnamed tributary to Allatoona Reservoir and in Proctor Creek, both of which are located outside of the study area for the Northwest Corridor Project. During the aquatic field surveys, however, the Cherokee Darter was collected in Stream 29, which is one of two study area streams identified with potentially suitable habitat for this species.

Table 3-24. Common Fauna and Flora

Common Name	Scientific Name	Common Name	Scientific Name
Common Mammals, Reptiles and Fishes		**Common Flora**	
White-tailed deer	*Odocoileus virginianus*	Pines	*Pinus taeda; P. echinata*
Beaver	*Castor Canadensis*	Oaks	*Quercus rubra; Q. prinus, Q. Falcate; Q. Alba;Q. Velutina; Q. Stellata; Q. coccinea*
Gray squirrel	*Sciurus carolinesis*		
Southern flying squirrel	*Glaucomys volans*		
Opossum	*Didelphis virginiana*	Hickories	*Carya tomentosa; C. cordifomis; C. glabra*
Norway rat	*Rattus norvegicus*		
Eastern mole	*Scalopus aquaticus*	Tulip poplar	*Liriodendron tulipifera*
Short-tailed shrew	*Blarina brevicauda*	Sweetgum	*Liquidambar styraciflua*
Little brown bat	*Myotis lucifugus*	Beech	*Fagus grandifolia*
Eastern cottontail	*Sylvilagus floridanus*	Chestnut	*Castanea dentate*
Southeastern pocket gopher	*Geomys pinetis*	Sourwood	*Oxydendrum arboretum*
Woodland jumping mouse	*Napaeozapus insignis*	Winged elm	*Ulmus alata*
Mosquitofish	*Gambusia affinis*	Southern red maple	*Acer barbatum*
Common Birds		Dogwood	*Cornus florida*
Canada goose	*Branta Canadensis*	Privet	*Ligustrum sinense*
Mourning dove	*Zenaida macroura*	Dwarf papaw	*Asimina parviflora*
Downy woodpecker	*Picoides pubescens*	*Sweet* shurb	*Calycanthus floridus*
American crow	*Corvus brachyrhynchos*	Spicebush	*Lindera benzoin*
Blue jay	*Cyanocitta cristata*	Poison ivy	*Toxicodendron radicans*
Carolina chickadee	*Poecile carolinensis*	Muscadine	*Vitis rotundifolia*
Brown-headed nuthatch	*Sitta pusilla*	Weeping lovegrass	*Eragrostis sp.*
Carolina wren	*Thryothorus ludovicianus*	Dog fennel	*Eupatorium capillifolium*
Northern mockingbird	*Mimus polyglottus*	Fescue	*Festuca pretens*
American robins	*Turdus migratorius; T. migratorius achrusterus; T. migratorius nigrideus*	Cassias	*Cassia obtusifolia; C. fasciculata*
Common grackle	*Quiscalus quiscula*		
Northern cardinal	*Cardinalis cardinalis*		
Eastern towhee	*Pipilo erythrophthalmus*		

Source: Wharton, 1978.

Table 3-25. Threatened and Endangered Species

Common Name	Scientific Name	Listing Status		Required Habitat	Potential Habitat Present (Yes/No)
		Federal	State		
Birds					
Bald Eagle[1]	*Haliaeetus leucocephalus*	T[2]	E[3]	Extensive wetland areas surrounding open water.	No
Plants					
Georgia Aster	*Symphyotrichum georgianum*	C[4]	T	Post oak savannah/prairie communities.	No
Michaux's sumac	*Rhus michauxii*	E	E	Sandy or rocky open woods, usually on ridges with a disturbance history (periodic fire, prior agricultural use, maintained right-of-way); known population in Cobb County of this species has been extirpated.	No
Monkeyface orchid	*Platanthera integriiabia*	C	T	Red maple-blackgum swamps; also sandy damp stream margins; on seepy, rocky, thinly vegetated slopes.	No
Open-ground whitlow-grass	*Draba aprica*	N/A	E	Shallow soils on granite outcrops, especially beneath eastern redcedar.	No
Indian olive	*Nestronia umbellula*	N/A	T	Dry open upland forests of mixed hardwood and pine.	No
Bay star-vine	*Schisandra glabra*	N/A	T	Twining on sub-canopy and understory trees/shrubs in rich alluvial woods.	No
Fish					
Cherokee Darter	*Etheostoma scotti*	T	T	Shallow water in small to medium warm water creeks with predominantly rocky bottoms.	Yes
Etowah Darter	*Etheostoma etowahee*	E	E	Shallow riffle habitat, with large gravel, cobble and small boulder substrates. Usually found in medium and large cool water creeks or small rivers.	No
Amber Darter	*Percina antesella*	E	E	Gentle riffle areas over sand and gravel substrate that becomes vegetated during summer.	No
Lined Chub	*Hybopsis lineapunctata*	N/A	R[5]	Inhabits small or medium-sized flowing streams with pools and riffles over gravel, sand, or cobble substrate.	No[6]

Table 3-25. Threatened and Endangered Species (continued)

Common Name	Scientific Name	Listing Status		Required Habitat	Potential Habitat Present (Yes/No)
		Federal	State		
Invertebrates					
Gulf Moccasinshell	*Medionidus penicillatus*	E	E	Inhabits clean sand and gravel substrates in areas of slow to moderate current in medium-sized creeks and large rivers.	No
Chattahoochee Crayfish	*Cambarus howardi*	N/A	T	Inhabits rocky substrate in strong current in riffle areas.	Yes
Delicate Spike Mussel	*Elliptio arctata*	N/A	E	Inhabits rivers and creeks with moderate to strong currents in sand, cobble, or gravel substrate.	No

Notes:
[1]Protected under the Bald and Golden Eagle Protection Act
[2]Threatened
[3]Endangered
[4]Candidate
[5]Rare
[6]Stream (Little River) with lined chub habitat is located beyond the proposed project limits.
Sources: GDNR, 2009; CCR Environmental, Inc., 2009; Parsons Brinckerhoff, 2010c and 2011a.

Etowah Darter

The Etowah darter (*Etheostoma etowahae*) is a federally listed endangered species. The preferred habitat of this species is riffles, typically in moderated to strong currents over gravel and cobble substrata. They occur in the main channel of the Etowah River and in larger tributaries to that river. The Etowah darter is restricted to the Etowah River system upstream from the Allatoona Reservoir. The closest known occurrence documented and listed by the GDNR is outside of the study area. No individual Etowah darter specimens or potentially suitable habitat were observed during the aquatic field surveys.

Amber Darter

The amber darter (*Percina antesella*) is a federally listed endangered species that inhabits that main channel of the Canasauga and Etowah Rivers and larger tributaries. They prefer riffle habitats with moderate to swift currents over gravel and cobble that often have patches of sand and riverweed (*Podostemum ceratophyllum*). This species is endemic to the upper Coosa Basin in Georgia and Tennessee. The closest known occurrence documented and listed by the GDNR is in the South Canton area. No individual amber darter specimens or potentially suitable habitat were observed during the aquatic field surveys.

Lined Chub

The lined chub (*Hybopsis lineapunctata*) is a state rare species endemic to the Tallapoosa and Coosa River systems. The lined chub is commonly found in small or medium-sized flowing streams with pools and riffles over gravel, sand, or cobble substrates. The closest known occurrence documented and listed by the GDNR is approximately 1.5 miles south of the study area. No individual specimens were collected during the aquatic field surveys; however, potentially suitable habitat was identified in Stream 60 (Little River).

Gulf Moccasinshell

The Gulf moccasinshell (*Medionidus penicillatus*) is a federally endangered species that inhabits clean sand and gravel substrates in areas of slow to moderate current in medium-sized creeks and large rivers. The range of this species in Georgia is limited to a few locations in the tributaries to the Chattahoochee River and several Flint River tributaries. No individual Gulf moccasinshell specimens or potentially suitable habitat was observed during the aquatic field surveys.

Chattahoochee Crayfish

The Chattahoochee crayfish (*Cambarus howardi*) is a state threatened species endemic to the Chattahoochee River basin in Georgia. It is found in Lumpkin, Hall, Cobb, DeKalb, Douglas, Forsyth, and Fulton Counties. It generally inhabits rocky substrates in strong currents in riffle areas. The closest known occurrences documented and listed by the GDNR are approximately one mile north and 1.5 miles south of the study area in the Chattahoochee River. No individual Chattahoochee crayfish specimens were observed during the aquatic field surveys. However, potentially suitable habitat was observed in Streams 1, 6, 7, and 14. Appendix I in Volume 2 of this FEIS shows the location of these streams. Stream conditions, however, were reported as poor to moderate with a sand, silt, gravel, and cobble substrate. So, it is unlikely that the Chattahoochee crayfish occurs within these streams crossed by the project corridor.

Delicate Spike Mussel

The delicate spike mussel (*Elliptio arctata*) is a state endangered species that inhabits rivers and creeks with moderate to strong currents in sand, cobble, or gravel substrate. It is fairly rare and has possibly been extirpated from portions of its historical range. In Georgia, the mussel may be found in portions of the Flint, Chattahoochee and Conasauga Rivers. The closest known occurrence documented and listed by the GDNR is approximately 1 mile east of the study area in the Chattahoochee River. No individual delicate spike mussel specimens or potentially suitable habitat were observed during the aquatic field surveys.

3.11.3.2 Vegetation

The six federally and/or state-listed plant species and their preferred habitat are described below.

Georgia Aster

The Georgia aster (*Symphyotrichum georgianum*) is a candidate for inclusion on the federal Threatened/Endangered Species List. Known populations of the Georgia aster occur within the Piedmont, Ridge and Valley physiographic provinces. The preferred habitat is dry open woods, roadsides and other openings. It is thought that it is a relict species of the post oak-savanna communities that existed in the region prior to fire suppression and the eradication of large native grazing animals. The closest known occurrence documented and listed by the GDNR is in Kennesaw, approximately 1.5 miles west of the study area. This occurrence of the Georgia aster is believed to be extirpated.

During the September 2002 field surveys, potentially suitable habitat was observed at several utility crossings north of the N. Marietta Parkway (close to Allgood Road) and at the I-75/I-575 interchange. At that time, the utility easements had been cleared and maintained in an herbaceous state as a result of mowing or herbicide application. However, no individual Georgia aster specimens were observed during the survey. Additional field surveys of the entire project corridor conducted in May 2002, August 2005, October 2006 and September and October 2009 did not document any individual Georgia aster specimens or potentially suitable habitat.

Michaux's Sumac

Michaux's sumac (*Rhus michauxii*) is a federally endangered species typically found on the Piedmont Plateau in rocky, open woods, especially in soils high in magnesium. It is also found on sandhills of the inner Coastal Plain. It has been recorded in five counties in Georgia, including Cobb County. No individual specimens or potentially suitable habitat were observed during any of the field surveys. The project corridor is characterized as a highly urbanized area with commercial, industrial, and residential developments adjacent to the existing highway. The vegetation communities are primarily small, fragmented, and disturbed forested tracts (planted pine, upland hardwood/pine and bottomland hardwood forests), old field communities, and scrub-shrub communities. The soils are characterized as acidic residuals and eroded.

Monkeyface Orchid

The monkeyface orchid (*Platanthera integrilabia*) is a federal candidate species recorded in several southeastern states, including Georgia. The monkeyface orchid is typically found in red maple-blackgum swamps along sandy damp stream margins or on seepy, rocky, thinly vegetated slopes. The typical habitat is a seasonally wet, perched, sandy, springhead swamp that is dominated by red maple and blackgum or swamp tupelo. The closest known occurrence is approximately 2.5 miles northeast of the study area in Marietta. However, the GDNR has listed this occurrence as being extirpated. The 2009 field surveys occurred outside of the monkeyface orchid flowering period (mid-July to late August). However, the August 2005 field surveys provided an opportunity to observe the monkeyface orchid during the flowering period. No individual monkeyface orchid specimens were observed during that field survey. Furthermore, no potentially suitable habitat was observed during any of the field surveys.

Open-Ground Whitlow-Grass

The open-ground whitlow-grass (*Draba aprica*) is a state endangered species found on shallow soils on granitic outcrops, especially beneath widely scattered, old-growth eastern redcedar. This species has been recorded is six counties of Georgia, including Cobb County. The closest known documented and listed occurrence is approximately 2.5 miles southwest of the study area in Marietta. The 2009 field surveys were conducted outside of the fruiting period (April to May) of the open-ground whitlow-grass. However, potentially suitable habitat could be observed given the specific nature (granitic outcrops) of the habitat for the open-ground whitlow-grass. No potentially suitable habitat was identified during the 2009 field surveys. Furthermore, no individual specimens or potentially suitable habitat were observed during previous field surveys, including the May 2002 (best search time).

Indian Olive

The Indian olive (*Nestronia umbellula*) is a state threatened species found in dry, open, upland forests of mixed hardwood and pine. It has been recorded in 15 counties in Georgia, including

Cobb and Cherokee Counties. The closest known population documented and listed by the GDNR is located approximately 1.5 miles southeast of the study area. The best search time for the Indian olive is during the growing season. Although the September and October 2009 field surveys were conducted near the end of the growing season, potentially suitable habitat could not be identified. Furthermore, no individual specimens or potentially suitable habitat was observed during previous field surveys conducted in May 2002 and August 2005, at which time, leaves would have been present on the Indian olive to make a positive identification.

Bay Star Vine

The bay star vine (*Schisandra glabra*) is a state threatened species found twining over understory trees and shrubs in rich, forested bottomlands and adjacent lower slopes. It has been recorded in 16 counties in Georgia, including Cobb and Cherokee Counties. The closest known populations documented and listed by the GDNR are approximately 1 mile southeast, 1.5 miles northeast, and 2 miles south of the study area. The best search time to survey for the bay star vine is from late spring to the middle of summer. The 2009 field surveys were outside of the ideal survey period; however, potentially suitable habitat was not observed. Forested bottomlands do occur along the proposed project corridor; however, this forested community is primarily a disturbed forest with a high invasive species component of Chinese privet and Japanese honeysuckle. Furthermore, the forested communities adjacent to the project corridor experience frequent disturbances from roadway maintenance activities and from the continued urbanization along the project corridor and would not be suitable habitat. In addition, the May 2002 (best search time) field surveys did not observe any individual bay star vine specimens.

3.11.3.3 Bald and Golden Eagle Protection Act

The US Fish and Wildlife Service (USFWS) removed the bald eagle (*Haliaeetus leucocephalus*) as threatened under the Endangered Species Act (ESA) on August 8, 2007; and in May 2007 published National Bald Eagle Management Guidelines (Eagle Guidelines) to assist the public in understanding protections afforded to and prohibitions related to the bald eagle under the Bald and Golden Eagle Protection Act (16 USC 668-668d) (Eagle Act), the Migratory Bird Treaty Act (16 USC 703-712), and the Lacey Act (16 USC 3371-3378). The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

In Georgia, the bald eagle finds habitat along inland streams and estuarine areas, selecting areas with low human disturbance, suitable forest structure and abundant prey. The bald eagle typically nests in the largest tree in its chosen territory. Nest sites along rivers are typically close to the shores with large aquatic areas and little forest edge. Lake nest sites are usually near water, with large individual trees and little overall human disturbance. The bald eagle usually forages within approximately 1 mile of its nest site during breeding season.

During field surveys, no bald eagles were observed within the study area. Habitat observed along the proposed project corridor is unsuitable for bald eagle nesting and foraging due to the lack of water resources. According to data gathered by the GDNR, the closest bald eagle nest approximately 5 miles northwest of the study area at the Allatoona Reservoir.

3.11.4 Neotropical/Migratory Birds

Four vegetative communities occur adjacent to and within the proposed project corridor that include planted pine forest, upland hardwood/pine forest, open field, and bottomland hardwood forest. These communities are primarily small, fragmented, and degraded communities that have been substantially disturbed due to the explosive growth in the area, frequent land use changes (e.g., agricultural to residential or to commercial), and ongoing roadway improvements. The frequent disturbances to the edge and within the interior of these vegetative communities have contributed to the lack of native plant species diversity, dense under story of the wooded communities with a high invasive species component, and the proliferation of predatory animals and parasitic bird species. As a result, the vegetative communities are of low quality and are likely of little importance to the migratory bird species using these areas. Furthermore, the Kennesaw Mountain National Battlefield Park (NBP), a designated Important Bird Area, is approximately one mile from the proposed project corridor and would provide more suitable foraging and nesting opportunities for migratory bird species than would these degraded and disturbed vegetative communities.

3.12 Water Resources

Water resources include surface waters, groundwater, floodplains and wetlands. This section describes these water resources within the study area. Background information can be found in the *Hydraulic and Hydrological Technical Report* (Parsons Brinckerhoff, 2011g) and the *Addendum to June 2010 Ecology Technical Report* (Parsons Brinckerhoff, 2011a).

3.12.1 Legal and Regulatory Requirements

A number of federal regulatory requirements pertain to the protection of water resources:

- Sections 401 and 402 of the Clean Water Act (CWA) – This law mandates that state and federal water quality standards be met for activities that result in the discharge of materials to “Waters of the US” Section 401 of the CWA requires that anyone intending to discharge dredge material or fill in a waterway or wetland obtain a Section 401 Certification. The US Army Corps of Engineers (USACE), in accordance with Executive Order 11990 “Protection of Wetlands” and Section 404 of the Clean Water Act regulate the “Waters of the US,” which include wetlands.
- The EPA’s Total Maximum Daily Load (TMDL) Program - This program provides guidelines for identifying impaired waters and determining pollution sources. A TMDL is the amount of pollutant that a water body can assimilate without causing violation of a water quality standard.
- Section 402 of the CWA, the National Pollutant Discharge Elimination System (NPDES) – This program requires issuance of a permit for all construction activities that will result in the disturbance (e.g., grading) of one or more acres, including areas that are part of a larger common plan or development.
- The Rivers and Harbors Act of 1899 – This law regulates activities that affect navigable waters of the US. The USACE is responsible for administering these regulations. Activities regulated under Section 10 include the construction of structures in, under, and over navigable waters, as well as the excavation and deposition of material in navigable waters.

- The National Wild and Scenic Rivers Act of 1968 – This law was enacted to preserve certain rivers with exemplary natural, cultural, or recreational features in a free-flowing condition and to protect them for the benefit and enjoyment of present and future generations.
- Executive Order 11988, Floodplain Management and USDOT Order 5650.2, Floodplain Management and Protection prescribe policies and procedures for the avoidance and mitigation of floodplain impacts.

3.12.2 Surface Waters and Riverine Systems

Surface water includes all waters on the surface of the earth including rivers, streams, ponds, lakes, marshes, wetlands, ice and snow, and transitional coastal and marine waters. Waters of the US are defined as those surface waters that are currently used, were historically used, or may be used in interstate or foreign commerce (USACE, 2007a). This definition also includes all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds.

The major streams within the Northwest Corridor are Rottenwood Creek, Sope Creek, Noonday Creek, and Little River. The locations of these streams are shown in Appendix I, Environmental Constraints Maps. All of these streams have been degraded by the effects of urbanization, including non-point source pollution and altered hydrology.

3.12.3 Groundwater

Groundwater is the water beneath the ground surface that can be collected with wells, tunnels, drainage galleries, as well as seeps and springs. Groundwater is held in the soil and in pervious rocks.

The Piedmont and Blue Ridge provinces in the study area are underlain by relatively impervious crystalline bedrock. The groundwater aquifers are derived from differential weathering of igneous and metamorphic rock. The porosity of the weathered rock, known as saprolite, is associated with the fractures and joints between the different sedimentary layers. Groundwater recharge occurs throughout the uplands, but the groundwater largely flows along faults and fractures. The depth of the water table is typically found between 7 to 20 feet below grade level. The direction of groundwater flow is largely dependent on topographic gradients. In this type of geologic setting, the groundwater is irregularly distributed, highly localized and has limited water-transmitting capacity. Because of its limited availability, groundwater is not presently a major source of municipal water supplies in the study area.

3.12.4 Floodplains

Floodplains are lands bordering rivers and streams that are generally dry. However, these lands are essential part of the rivers and streams as they hold water during the times of flood or high water and release it gradually as the water level returns to normal. For regulatory purposes, floodplains are defined to encompass lands that have a 1 percent chance of being inundated by a flood each year, i.e., the 100-year floodplain.

Protection of floodplains and floodways is required by Executive Order 11988, Floodplain Management; USDOT Order 5650.2, Floodplain Management and Protection; and Title 23, Section 650 of the Code of Federal Regulations. These regulations avoid or minimize encroachments into floodplains and restrict land use that is incompatible with the natural function of floodplains.

Portions of the study corridor are within designated 100-year floodplains along Rottenwood Creek and its tributaries, Sope Creek and its tributaries, Poplar Creek, Poor House Creek, Little River, Noonday Creek and its tributaries, and Tate Creek. These floodplains are shown in Appendix I, Environmental Constraints Maps.

3.12.5 Wetlands

Wetlands are those areas that are inundated or saturated by surface or ground water. Wetlands generally include swamps, marshes, bogs, and other similar areas (40 CFR 230.3 USEPA, 2004). Wetlands help to regulate water levels within watersheds, improve water quality, reduce flood and storm damages, and provide important fish and wildlife habitat.

Sections 401 and 404 of the CWA, as amended, regulate wetlands. Section 404 regulates the discharge of dredge and fill material into waters of the US, including wetlands. The USACE has jurisdiction over wetlands if they are waters of the US, or if they are adjacent to waters of the US. The USACE jurisdiction, however, does not include isolated wetlands or non-tidal waters (USACE, 2007a). Section 401 regulates federal license and permit applicants if proposed activities that may result in discharge into jurisdictional waters. Executive Order 11990 requires federal agencies to avoid and minimize, to the extent possible, the long- and short-term adverse effects associated with the destruction or modification of wetlands.

USFWS National Wetland Inventory (NWI) maps and field surveys were used to identify wetland areas and other stream channels located in the study area. Field surveys conducted in 2009 for the current project study area identified nine wetlands, 55 streams (one ephemeral stream, 27 perennial streams, and 27 intermittent streams), and two open waters impoundments.

3.13 Geology and Soils

The affected environment for geologic and soils issues includes the geologic setting, soil types and faults.

The study area is in the Piedmont plateau of Georgia and consists of moderate- to high-grade metamorphic rocks, such as schists and gneisses, with outcrops of igneous rocks (e.g., granite outcrops and granitic plutons). The landscape consists of rolling ridges to hilly mountains. The area has experienced considerable geologic erosion and agricultural degradation. The major mineral resources include hard crushed stone such as granite and soapstone and kyanite. Local granite was quarried for tombstones, monuments, and building materials.

Piedmont soils are characteristic of the study area. These soils are red-colored and have a clayey texture typical of central Georgia. The soil consists of kaolinite and halloysite (aluminosilicate clay minerals) and iron oxides. This soil type comes from intense weathering of feldspar-rich igneous and metamorphic rocks. Iron oxides and aluminosilicates give the red color and clayey texture to the soil typical of central Georgia.

According to the United States Department of Agriculture (USDA) Soil Conservation Service's *Soil Surveys of Cobb and Cherokee Counties, Georgia* (USDA, 1973), the study area is made up of urban land complexes containing soils that have been altered or covered by structures. The land has been extensively altered by cutting, filling, and grading. Fill material covers the natural soils in many places, but remnants of natural soils can be found in drainage bottoms. There are no designated prime or unique farmlands located within the study area.

In Georgia's piedmont region, the Brevard Fault zone runs southeast to northeast passing through the town of Centralhatchee in Heard County, northwest Atlanta and the cities of Duluth, Buford, and Gainesville. In the study area, the Chattahoochee River follows the path of the Brevard Fault zone. The fault last moved about 185 million years ago and is not considered active.

3.14 Hazardous Materials

Hazardous waste sites may be encountered during construction of the proposed transportation projects. The affected environment for hazardous materials includes the petroleum products, pesticides, organic compounds, heavy metals, and other compounds injurious to human health and the environment that may be encountered by project construction activities. This includes off-site uncontrolled or abandoned hazardous waste sites where pollutants can seep into the ground, flow into rivers and lakes, and contaminate the surrounding soil and groundwater.

The nature and extent of contamination can vary widely. The presence of soil and/or groundwater contamination, or the existence of hazardous substances within the right-of-way, can increase the cost and lengthen the schedule to complete the project. For example, contaminated groundwater drawn into a dewatering system during construction could require special treatment and permitting prior to disposal. Contaminated soil unearthed during construction may require treatment and disposal and could not be used for backfill excavations. Unexpected encounters with hazardous wastes during construction can delay the project schedule.

For this project, level 1 contamination screening studies were conducted in 2005 and 2009. Background information is found in the *Contaminated Screening Evaluation Report* (Parsons Brinckerhoff, 2010k).

3.14.1 Legal and Regulatory Requirements

Hazardous materials are those substances defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) enacted by Congress in 1980. This act was amended by the Superfund Amendments and Reauthorization Act (SARA) in 1986. Hazardous wastes are defined by the Solid Wastes Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Wastes Amendments (HSWA). In general, both hazardous materials and wastes include substances that, because of the quantity, concentration, physical, chemical, or infectious characteristics, may represent substantial danger to public health and welfare or to the environment when released or otherwise improperly managed.

3.14.2 Methodology

3.14.2.1 Overview

A level 1 contamination screening was conducted to determine the potential for contamination from properties located in the study area that may pose contamination risks from right-of-way acquisition and construction activities. The investigation included document and file research; coordination with the GDNR, the Georgia Environmental Protection Division, the GDOT Hazardous Waste Management Branch; and site reconnaissance. The sites were researched for evidence of documented contamination and evaluated for potential contamination issues during project construction. A contamination screening checklist was used to record the findings for each property evaluated.

An environmental database search was performed to identify potential hazardous materials and petroleum contamination sites that have been listed in the various federal and state databases. A search was conducted in May 2005 and October 2009 to identify sites within 0.25 mile of the corridor alignment that contain suspected or documented hazardous materials or petroleum contamination. Cobb County and Cherokee County tax parcel information was reviewed in July 2005 to verify property ownership and the year that property structures were built, if available.

Potential contamination sites were visited in June 2005 and again in December 2009 to determine the location of key features such as fuel dispensers and fill ports for underground storage tanks (USTs).

3.14.2.2 USEPA and GDNR Databases

During late summer and early fall of 2009, a number of key federal and state databases were researched. The federal databases include those listed below:

- National Priorities List (NPL)
- NPL Delisted
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)
- Archived CERCLIS sites with no further remedial action planned (NFRAP)
- Resource Conservation and Recovery Information System Handlers with Corrective Action (RCRA COR ACT)
- The RCRA treatment, storage and/or disposal sites
- The RCRA generators (large quantity generators, small generators and conditionally exempt small quantity generators)
- Federal engineering and institutional controls
- Brownfield management system
- Emergency response notification system
- Toxic chemical release inventory system
- Toxic Substances Control Act (TSCA) database
- Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)/TSCA tracking system
- The FIFRA/TSCA tracking system administrative case listing
- The FIFRA/TSCA tracking system inspection and enforcement case listing
- Section 7 tracking system
- Polychlorinated biphenyls activity database system
- Facility Index system/facility registry system
- The RCRA administrative action tracking system
- Biennial reporting system

- Tribal lands database
- National radon database

The GDNR databases researched include those listed below:

- State/tribal sites hazardous site inventory
- State spills since 1990
- State/tribal solid waste disposal facilities/solid waste transfer stations
- State/tribal leaking underground storage tanks
- State/tribal underground storage tanks
- State-tribal brownfields public record
- National clandestine laboratory register
- Non-hazardous sites.

3.14.3 Potential Hazardous Materials Sites

The nature and extent of contamination on properties can vary widely, but the presence of soil and/or groundwater contamination, or the existence of hazardous substances can increase project cost and the construction schedule. In addition, unexpected encounters with hazardous wastes during construction could substantially delay construction. Therefore, the early identification of contaminated properties can assist in alternatives evaluation, design, right-of-way acquisition, and construction phasing.

In total, the updated hazardous materials study identified 156 sites within 0.25 mile of the corridor alignment as potentially contaminated. These properties included 122 sites along the I-75 corridor and another 34 sites along the I-575 corridor. Information about these potentially contaminated sites is presented in Appendix F of the *Contamination Screening Evaluation Report* (Parsons Brinckerhoff, 2010k).

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CHAPTER 4
TRANSPORTATION IMPACTS

4. TRANSPORTATION IMPACTS

This chapter describes the transportation impacts that would occur under the Preferred Alternative compared to the No-Build Alternative. The impacts are assessed for the 2015 opening year and the forecast year of 2035. Potential transportation impacts include those related to total travel, travel by highway and transit at a regional level, as well as travel that would occur at the corridor or localized level. The corridor-level impacts described include changes in traffic volumes and impacts on level of service (LOS) for I-75 and I-575, the highway interchanges, highway cross streets, and arterials within the Northwest Corridor. To help the reader follow the detailed discussion of traffic issues, a map of study area highways and streets has been included in Appendix F.

The results of the analysis are fully documented in the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i). The findings are considered reasonably representative for the purpose of comparing the No-Build and Preferred Alternatives and evaluating the impacts of the Preferred Alternative.

4.1 Travel Forecasting

This first section describes the basis of the travel modeling that was conducted to compare operations of the No-Build and Preferred Alternatives. The regional travel demand model is described. An explanation is provided as to why a single tolling policy is assumed for the modeling. The last section describes the several software models used to evaluate traffic conditions.

4.1.1 The Regional Travel Demand Forecasting Model

Travel demand forecasts used for the Final Environmental Impact Statement (FEIS) analysis of the Northwest Corridor Project were prepared using the Atlanta Regional Commission (ARC) 20-county Travel Demand Forecasting Model (ARC, 2008b). The ARC model is a trip-based model that represents the state of the practice in travel demand modeling and meets all federal modeling requirements[1]. It consists of several sub-models that calculate travel patterns throughout the Atlanta region, and uses these travel patterns to estimate travel on the region's highway and transit systems.

The model output is in the form of link traffic volumes by four time periods and daily transit riders. The morning period is from 6:00 a.m. to 10:00 a.m. The midday period is from 10:00 a.m. to 3:00 p.m. The evening period is from 3:00 p.m. to 7:00 p.m. The night period is from 7:00 p.m. to 6:00 a.m. on the following day. The primary sub-models for the ARC region are a trip-generation model, a trip-distribution model, a mode-choice model, and a model to estimate external trips to and from outside the region. These sub-models also include a module to estimate commercial vehicles (mainly trucks), a module to estimate air passenger travel within the region, a module to assign the highway trips to the highway links, and a module to assign the transit trips to the transit links.

[1] Requirements are specified by: US Environmental Protection Agency (USEPA) Transportation Conformity Rule (40 CFR Parts 51 and 93); Intermodal Surface Transportation Equity Act of 1991 (ISTEA); 1990 Clean Air Act Amendments (CAAA) and the Transportation Conformity Rule; and the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The model's boundary encompasses the 20 counties that are included in the USEPA-Designated Metropolitan Atlanta Area as nonattainment under the fine particulate matter ($PM_{2.5}$) standard.

The travel demand model was calibrated using 2001/2002 household travel survey data, 2001/2002 on-board transit survey data, and 2001 airport passenger survey data. Calibration assures that the model reasonably replicates existing travel patterns on the basis of existing land use and transportation facilities and services. The resulting travel forecasts cannot be precise predictions, but are considered valid for the purpose of comparing the effectiveness of proposed projects to address the purpose and need at both the regional and corridor levels.

The ARC 2008 Travel Demand Forecasting Model was not designed to be used with a highway network that includes reversible lanes, tolled lanes, or managed lanes. It was, therefore, necessary to modify the model to add these attributes and thereby make the model suitable for analyzing the Preferred Alternative. The output following modification of the model was compared against the original ARC model to assure continued validity of the model.

For additional information about the travel demand modeling for this project, see the *I-75/I-575 NWCP Modeling and Traffic Analysis Methodology Report* (Parsons Brinckerhoff, 2010a).

4.1.2 Sensitivity Analysis for Tolling

During the development of the Supplemental Draft Environmental Impact Statement (SDEIS), the implementation of a specific tolling policy had not been decided for the Northwest Corridor Project, and therefore, the traffic modeling addressed two approaches to tolling currently under consideration. One policy would charge a toll for single-occupancy vehicles (SOV) and high-occupancy vehicles with two or more persons (HOV2+) to use the managed lanes, but would allow high-occupancy vehicles with three or more persons (HOV3+) to travel free. This policy is referred to as a high-occupancy toll (HOT3+). The second tolling policy would allow all HOV and SOV vehicles to use the managed-lane system, and all vehicles would pay a toll. This approach is referred to as express toll lanes (ETL). Trucks with more than two axles and six tires would not be allowed to use the managed-lane system under either tolling policy. Transit, military, and emergency vehicles would be exempt from tolling. Transit vehicles are defined as any vehicles operated or registered by a public transportation agency within the region. This definition would include traditional buses as well as vanpool vehicles.

Both the HOV and tolling capabilities of the ARC 20-county Travel Demand Forecasting Model were substantially modified and enhanced. These modifications are documented in Appendix D of the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i). The modifications allow various HOV occupancies (HOV2, HOV3 and HOV4+) to be modeled as separate modes and provide other changes to model post processors permitting separate discrete modeling of HOV and ETL management policies. The use of the managed lanes and the general-purpose lanes under the respective tolling policies was modeled uniquely for each strategy.

Because these two tolling policies are similar, a sensitivity analysis was performed to assess differences in traffic volumes under each tolling policy. Table 4-1 summarizes the results of this sensitivity analysis. The data for the total traffic volumes under the Preferred Alternative for general-purpose lanes and managed lanes under the HOT3+ and ETL tolling policies are very similar. With the exception of one link in the morning peak period, the traffic volume differences between the two operating policies are less than 5 percent. Only 20 percent of the highway segments show a variation of more than 4 percent under the two tolling policies. In nearly all cases, the HOT3+ volumes produced by the modeling are slightly higher than the ETL volumes.

Table 4-1. Comparison of HOT3+ and ETL Operations, 2035

AM Peak Period (4-hour volumes)									
		ETL Conditions			HOT3+ Conditions			Comparison ETL vs. HOT3+	
Segment	Direction	GP Lanes	Managed Lanes	Total Volume	GP Lanes	Managed Lanes	Total Volume	Volume Differential	Percent Differential
I-75 Segment (all lanes)									
South of Hickory Grove Rd	SB	19,064	4,516	23,580	19,153	5,044	24,197	-617	**-2.6%**
South of Wade Green Rd	SB	19,393	4,516	23,909	19,755	5,044	24,799	-890	**-3.7%**
South of Chastain Rd	SB	19,771	4,778	24,549	20,123	5,355	25,478	-929	**-3.8%**
South of Barrett Pkwy	SB	22,765	4,778	27,543	23,573	5,355	28,928	-1,385	**-5.0%**
South of I-575	SB	39,446	10,293	49,739	40,821	11,379	52,200	-2,461	**-4.9%**
South of Canton Hwy	SB	35,716	10,293	46,009	36,549	11,379	47,928	-1,919	**-4.2%**
South of N Marietta Pkwy	SB	30,881	10,455	41,336	31,540	11,413	42,953	-1,617	**-3.9%**
South of S Marietta Pkwy	SB	38,659	10,455	49,114	39,256	11,413	50,669	-1,555	**-3.2%**
South of Delk Rd	SB	42,776	9,691	52,467	43,752	10,750	54,502	-2,035	**-3.9%**
South of Windy Hill Rd	SB	37,192	9,691	46,883	38,008	10,750	48,758	-1,875	**-4.0%**
I-575 Segment (all lanes)									
South of Sixes Rd	SB	25,777	4,542	30,319	25,987	4,803	30,790	-471	**-1.6%**
South of Towne Lake	SB	22,990	4,542	27,532	23,017	4,803	27,820	-288	**-1.0%**
South of SR 92	SB	20,704	5,011	25,715	20,704	4,803	25,507	208	**0.8%**
South of Bells Ferry Rd	SB	21,746	5,011	26,757	21,725	5,273	26,998	-241	**-0.9%**
South of Chastain Rd	SB	20,103	5,011	25,114	20,274	5,273	25,547	-433	**-1.7%**
South of Barrett Pkwy	SB	16,701	5,515	22,216	17,268	6,024	23,292	-1,076	**-4.8%**

Table 4-1. Comparison of HOT3+ and ETL Operations, 2035 (continued)

PM Peak Period (4-hour volumes)									
		ETL Conditions			HOT3+ Conditions			Comparison ETL vs. HOT3+	
Segment	Direction	GP Lanes	Managed Lanes	Total Volume	GP Lanes	Managed Lanes	Total Volume	Volume Differential	Percent Differential
I-75 Segment (all lanes)									
South of Hickory Grove	NB	23,245	6,180	29,425	23,268	6,577	29,845	-420	**-1.4%**
South of Wade Green Rd	NB	21,882	6,180	28,062	21,991	6,577	28,568	-506	**-1.8%**
South of Chastain Rd	NB	21,842	6,534	28,376	22,009	6,888	28,897	-521	**-1.8%**
South of Barrett Pkwy	NB	25,924	6,534	32,458	26,033	6,888	32,921	-463	**-1.4%**
South of I-575	NB	44,837	13,540	58,377	45,408	14,193	59,601	-1,224	**-2.1%**
South of Canton Hwy	NB	41,080	13,540	54,620	41,293	14,193	55,486	-866	**-1.6%**
South of N Marietta Pkwy	NB	36,012	12,842	48,854	36,290	13,312	49,602	-748	**-1.5%**
South of S Marietta Pkwy	NB	46,678	12,842	59,520	47,177	13,312	60,489	-969	**-1.6%**
South of Delk Rd	NB	41,827	12,842	54,669	42,062	13,312	55,374	-705	**-1.3%**
South of Windy Hill Rd	NB	34,187	12,720	46,907	35,534	13,439	48,973	-2,066	**-4.4%**
I-575 Segment (all lanes)									
South of Sixes Rd	NB	29,649	5,899	35,548	29,819	6,135	35,954	-406	**-1.1%**
South of Towne Lake	NB	26,772	5,899	32,671	26,714	6,135	32,849	-178	**-0.5%**
South of SR 92	NB	24,833	5,899	30,732	24,785	6,135	30,920	-188	**-0.6%**
South of Bells Ferry Rd	NB	24,807	6,596	31,403	24,781	6,901	31,682	-279	**-0.9%**
South of Chastain Rd	NB	22,051	6,596	28,647	22,068	6,901	28,969	-322	**-1.1%**
South of Barrett Pkwy	NB	18,903	7,005	25,908	19,364	7,304	26,668	-760	**-2.9%**

Notes: DIFF = difference between the ETL traffic volume minus HOT3+ traffic volume; ETL = express toll lane; HOT3+ - high-occupancy toll; NB = northbound and SB = southbound; GP = general-purpose.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

The total number of vehicle trips is slightly, but consistently, lower than under the ETL operations policy. The overall number of person trips remains constant; however transit use is slightly higher under the ETL policy than under HOT3+. With increased transit use, a single bus (one vehicle) can accommodate as many passengers as multiple HOV3+ vehicles. This causes the ETL policy to have lower volumes in both the general-purpose and managed lanes.

Despite the differences in the two tolling policies, the results of the sensitivity analysis demonstrate that the total number of vehicles using the proposed managed lanes would be generally the same under both tolling policies. Considering these outcomes, the project study team decided comprehensive traffic modeling for both tolling policies would not demonstrate any substantial differences for traffic volumes. Moreover, the traffic model volumes would be appropriate for comparing to the No-Build Alternative no matter which tolling policy is finally adopted for the Northwest Corridor. As a result, the project study team performed all of the traffic forecasting analysis discussed in the remainder of this chapter with the model modified only for the HOT3+ tolling policy.

The capacities of the general-purpose lanes and the managed lanes would be the same under either tolling scenario, and level of service (LOS) operations would maintain LOS D in the managed lanes. The LOS D was selected as the operating parameter for managed lanes in this analysis to maximize trip reliability and provide a significant improvement in level of service in comparison to the general-purpose lanes through the corridor. In addition, LOS D would be an appropriate proxy for the 45 mile per hour operating requirement in the managed lanes. It is anticipated that the adopted tolling strategy in the corridor would provide for a significant differential in level of service in the managed lanes in comparison to the general-purpose lanes to improve travel times in the managed lanes.

The Georgia Department of Transportation (GDOT) P3 Steering Committee approved a draft tolling policy in December 2010. This policy and the operation of the reversible lanes are discussed in Section 2.3.1.4, and a copy of the approved tolling policy can be found in Appendix D.

4.1.3 Software Used to Analyze Traffic Operations

Several different software programs were used to analyze the different operational features of the existing and 2035 No-Build and Preferred Alternatives. These software programs are described in the bullets below.

- The ARC 2008 Travel Demand Forecasting Model provided the volume conditions for each of the scenarios analyzed and measures of regional and corridor travel. These included vehicle-miles traveled (VMT), person-miles traveled (PMT), vehicle and person throughputs, and corridor travel speeds among several measures of effectiveness (MOEs). A summary of these MOEs are included in Tables 4-3 through 4-13.
- The *Highway Capacity Manual* (HCM) Software (HCS Version 3.2) was used to evaluate all mainline, ramp merge-diverge and weaving areas in the corridor. The software uses the model output refined to peak-hour traffic volumes combined with geometric characteristics (number of lanes, truck volume percentages, roadway grade, obstructions etc.) to determine the operating conditions of the interstate mainline, ramps, and LOS. The latter indicates performance on a scale of A through F, with A representing free-flowing conditions and F representing congested, stop-and-go conditions. The acceptable level of service for urban freeways and ramps to operate during peak periods is LOS D or better.

- The Highway Capacity Manual Software (HCS) analysis is supplemented by the use of Trafficware's Synchro model (version 7 Build 773), which provides for a more detailed analysis of signalized intersections at the ramp terminals and crossing arterial roadways. The Synchro modeling allows for specific intersection data to be entered including turning movement data for each movement, peak hour and vehicle type factors, and signal timing parameters. This analysis includes signal optimization and intersection lane geometrics. Synchro modeling reports include LOS grades using the same HCM grading scale; however, results may differ from HCS results.
- Federal Highway's CORSIM software (version 6.0) was used to conduct the logical termini analysis at each end of the project. The CORSIM model is a simulation based program that assigns parameters to each vehicle in the network and vehicle paths and operations are tracked and analyzed during an entire trip through the modeled corridor. CORSIM is particularly useful for analyzing ramp merge, diverge, and weaving operations. The model is able to identify the origins and destinations of each vehicle and where weaving conflicts might occur. In urban and suburban locations with saturated flow, such as the Northwest Corridor, the use of simulation software such as CORSIM is recommended.

4.2 Regional Transportation System Effects

This section describes the effects of the opening year (2015) and design year (2035) No-Build and Preferred Alternatives on total travel as well as travel by highway and transit modes. This analysis was conducted for the region.

4.2.1 Total Regional Travel

Regional travel impacts of the Preferred Alternative were measured through changes in the number of daily person trips by travel mode and by trip purpose. The total person hours of travel also was investigated and compared for both the No-Build and Preferred Alternatives.

4.2.1.1 Daily Person Trips by Mode

One of the purposes of the project is to provide additional transportation choices. A comparison of person trips by mode indicates whether travel choices would be expected to change as a result of the transportation improvements under the Preferred Alternative.

The region is projected to generate approximately 20.16 million daily person trips in 2015 and 27.52 million 2035. Under the No-Build Alternative, approximately 19.84 million (98 percent) in 2015 and 27.11 million (99 percent) in 2035 would be highway trips. Under the Preferred Alternative in both 2015 and 2035, slightly fewer trips would be made compared to the No-Build Alternative due to the expected increase in transit in the managed-lane system.

Table 4-2 presents the projected number of daily person highway trips in 2035 for both the Preferred Alternative and the No-Build Alternative. Highway person trips are presented for trips by SOVs and HOV2+. Truck trips include trips by light and heavy-duty vehicles. Heavy-duty vehicles are vehicles exceeding 8,000 pounds gross weight. The majority of the daily person trips by highway mode are made by SOVs (57 percent in 2015 and 59 percent in 2035), while the HOV2+ vehicles account for the next highest proportion of daily trips (31 percent in 2015 and 30 percent in 2035).

Table 4-2. Daily Regional Person Trips by Mode, 2015 and 2035

Mode	2015		2035	
	No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative
Highway				
SOV	11,373,000	11,370,000	15,935,000	15,926,000
HOV2+	6,227,000	6,228,000	8,201,000	8,207,000
Truck	2,238,000	2,238,000	2,978,000	2,978,000
Total	**19,838,000**	**19,837,000**	**27,114,000**	**27,111,000**
Change from the No-Build Alternative				
Highway	–	-1,000	–	-3,000

Notes: SOV = single-occupancy vehicle; HOV2+ = high-occupancy vehicle with two or more persons
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.2.1.2 Preferred Alternative Daily Person Trips by Purpose

Table 4-3 presents the projected number of daily highway person trips in 2015 and 2035 by trip purpose. Truck trips are accounted for separately. The trip purposes are both work and non-work. All work trips in the model are home-based. A work trip is defined as a trip with home as one end of the trip and the work place as the other end of the trip. The work trips also include a portion of the trips from outside the Atlanta metropolitan area. With the exception of truck trips, all other trips are non-work trips. These trips can be a shopping trip, a recreational trip, a school trip, or a trip made by a service person from the place of employment to a residence or business.

Table 4-3. Daily Regional Person Trips by Trip Purpose, 2015 and 2035

Trip Purpose	2015		2035	
	No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative
Highway				
Work	3,747,000	3,746,000	5,465,000	5,463,000
Non-Work	13,853,000	13,853,000	18,671,000	18,670,000
Commercial Vehicle	1,549,000	1,549,000	2,060,000	2,060,000
Truck (Medium & Heavy)	689,000	689,000	918,000	918,000
Total	**19,838,000**	**19,837,000**	**27,114,000**	**27,111,000**
Change from the No-Build Alternative				
Highway	–	-1,000	–	-3,000

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Under the Preferred Alternative, approximately 20 million daily person trips are projected in 2015 and 27 million projected in 2035. For both the No-Build and Preferred Alternatives, most of the highway trips, approximately 70 percent, would be for non-work purposes in both 2015 (13.85 million) and 2035 (18.67 million). Work-related highway person trips would account for 19 percent (3.75 million) in the 2015 Preferred Alternative and 20 percent (5.46 million) in the 2035 Preferred Alternative. The slight reduction in work and non-work trips in 2015 and 2035 is attributable to transit using the managed lanes.

4.2.1.3 Person Hours of Travel

Improving mobility by reducing travel time and increasing reliability is one of the goals of the proposed project. One measure of effectiveness to address this issue is the total number of person hours of travel (PHT) incurred daily on the regional highway and transit system. It is a function of the number of person trips and travel time for each trip. The highway travel time used to calculate highway PHT includes time spent in congestion. Table 4-4 presents the projected person hours of travel in 2035 by trip purpose.

Table 4-4. Daily Regional Person Hours of Travel, 2015 and 2035

Trip Purpose	2015 No-Build Alternative	2015 Preferred Alternative	2035 No-Build Alternative	2035 Preferred Alternative
Highway				
AM Peak Period	1,897,000	1,896,000	3,127,000	3,142,000
PM Peak Period	2,878,000	2,863,000	5,329,000	5,259,000
Total Daily	7,861,000	7,849,000	13,058,000	13,011,000
Total All Modes	**8,083,000**	**8,072,000**	**13,349,000**	**13,304,000**
Change from the No-Build Alternative				
Highway	–	-12,000	–	-47,000

Notes: AM = morning; PM = evening.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

A comparison of PHT indicates whether the highway improvements would reduce travel time for users, or persons traveling by auto and truck. A reduction in travel time under the Preferred Alternative would also indicate improved reliability.

PHT is projected to total 8.08 million under the No-Build Alternative in 2015 and 13.35 million hours daily under in 2035. Travel on the regional highway system would comprise more than 97 percent of these hours—7.86 million in 2015 and 13.06 million in 2035 for the No-Build and Preferred Alternatives, respectively. The implementation of the transportation improvements under the Preferred Alternative would reduce PHT by 12,000 hours in 2015 and 47,000 hours in 2035. These improvements to travel are attributed to the addition of the managed lanes.

4.2.2 Regional Highway System Effects

The impacts of the Preferred Alternative on the regional highway system also were measured through a comparison of the number of vehicle trips, VMT, vehicle hours of travel (VHT), and average speed. In this analysis, truck travel as well as travel in passenger vehicles was considered. Table 4-5 presents the effects on the highway system for the Preferred Alternative compared to the No-Build Alternative.

The increase in VMT along with a decrease in VHT in the 2015 and 2035 Preferred Alternative reflects the additional highway system capacity provided by the managed lanes on I-75 and I-575. The decrease in overall trips reflects a change in mode share from SOV to HOV. The decrease in VHT and increase in average speed (1 mile per hour [mph] in 2015 and 0.2 mph in 2035) under the Preferred Alternative indicates reduced congestion and improved mobility — all of which are goals of the project.

Table 4-5. Daily Regional Highway System Effects, 2015 and 2035

Trip Purpose	2015		2035	
	No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative
Vehicle Trips				
Total	15,853,500	15,851,100	21,863,600	21,856,100
Change from No-Build	–	-2,400	–	-7,500
Vehicle Miles of Travel				
Total	172,890,500	173,213,200	231,606,500	232,119,100
Change from No-Build	–	+322,700	–	+512,600
Vehicle Hours of Travel				
Total	6,304,500	6,295,700	10,504,500	10,467,900
Change from No-Build	–	-8,800	–	-36,600
Average Speed (mph)				
Total	27.0	28.0	22.0	22.2
Change from No-Build	–	+1.0	–	+0.2

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.2.3 Regional Transit System Impacts

The Preferred Alternative proposes the same transit improvements as those included in the No-Build Alternative. As such, no separate analysis of potential impacts on the regional transit system was performed.

4.3 Corridor Highway System Impacts

This section describes the analysis of the corridor highway system impacts of the 2015 and 2035 No-Build and Preferred Alternatives. Additional information regarding the analysis of traffic impacts is presented in the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i) prepared in support of this FEIS.

4.3.1 Preferred Alternative Traffic Volumes

The 2015 and 2035 Preferred Alternative traffic volumes were developed assuming a HOT3+ tolling scenario. Under this scenario, HOV3+ vehicles may use the managed lanes without paying a toll, but all other vehicles are required to pay a toll to use the facilities. As noted in Section 4.1.2, the 2035 traffic volumes did not vary significantly based on the tolling policy used in the modeling. While the differences in traffic volumes between ETL and HOT3+ in the travel demand model were slight, in almost every case, volumes from the HOT3+ scenario were larger than the ETL scenario. These slightly larger volumes were not sufficient to eliminate the need for the overall project. Using the HOT3+ values, therefore, would be more conservative in identifying operational issues associated with the Preferred Alternative. Based on this assessment, the HOT3+ travel forecast modeling was used to develop the traffic volumes for operational analysis in this FEIS.

Traffic volumes on the highway system would be affected by the implementation of the managed lanes under the Preferred Alternative. With the increase in capacity along the I-75 and I-575 highway corridors, overall increases in the traffic volumes on these facilities would be expected.

Correspondingly, minor reductions in traffic volumes along parallel roadways within the study corridor also would occur as traffic shifts into the Northwest Corridor. Projected 2015 and 2035 average daily traffic (ADT) volumes within the study area are discussed in the following sections.

4.3.1.1 Highway Mainline

Projected ADT volumes for selected highway segments along I-75 and I-575 for the 2015 and 2035 No-Build and Preferred Alternatives are presented in Table 4-6 and shown in Figure 4-1 and Figure 4-2, respectively. The ADT volumes presented include all traffic for all lanes for both the southbound and northbound travel directions. The volumes for the No-Build Alternative in the Northwest Corridor include only general-purpose lane traffic; but the Preferred Alternative includes the general-purpose lane and the managed-lane traffic.

Table 4-6. Average Daily Traffic Volumes by Lane Group, 2015 and 2035

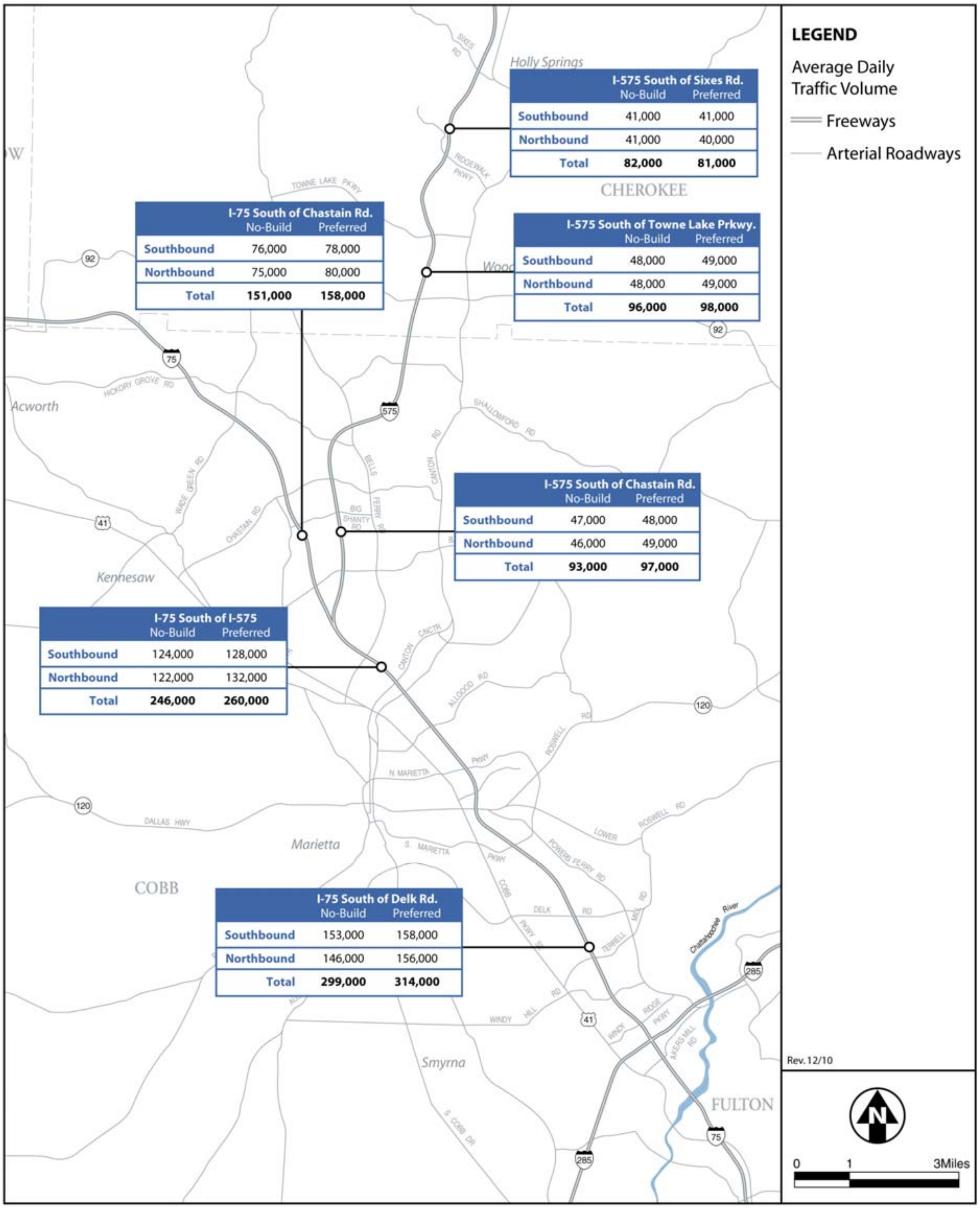
Freeway Segment	No-Build Alternative		Preferred Alternative					
			Managed Lanes		GP Lanes		Total	
	2015	2035	2015	2035	2015	2035	2015	2035
I-75								
South of Delk Rd	299,000	308,000	23,000	40,000	291,000	301,000	314,000	341,000
South of I-575	246,000	295,000	17,000	35,000	243,000	290,000	260,000	325,000
South of Chastain Rd	151,000	163,000	9,000	17,000	149,000	159,000	158,000	176,000
I-575								
South of Chastain Rd	93,000	139,000	5,000	14,000	92,000	140,000	97,000	154,000
South of Towne Lake Pkwy	96,000	152,000	3,000	12,000	95,000	151,000	98,000	163,000
South of Sixes Rd	82,000	139,000	3,000	12,000	78,000	137,000	81,000	149,000

Note: In these segments, the No-Build Alternative consists of only general-purpose (GP) lanes.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

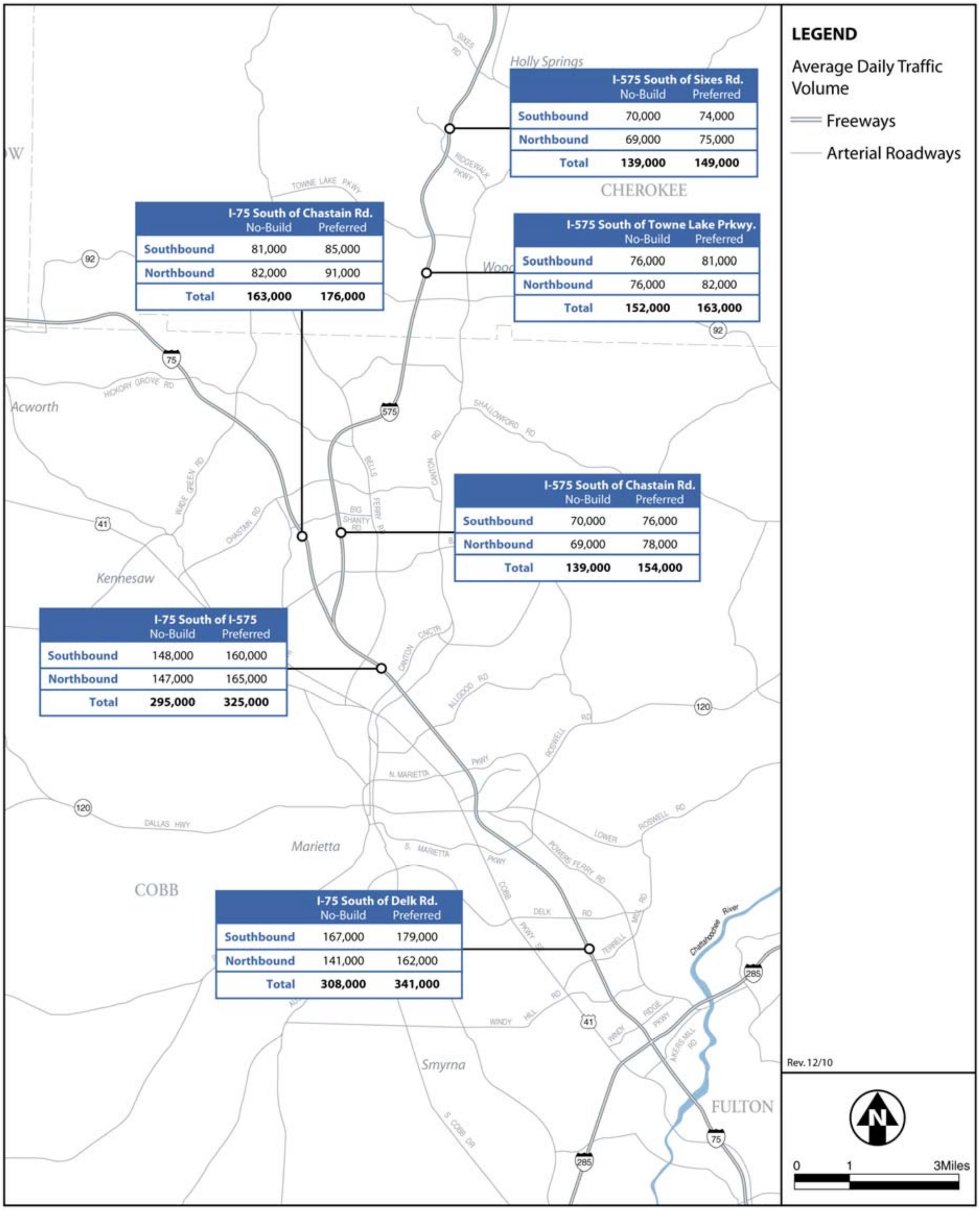
The ADT volumes on I-75 within the study area are highest close to the I-285/I-75 interchange, and volumes decrease to the north. On I-575 ADT, volumes are similar throughout the study area. However, there is a slightly higher ADT around the Towne Lake Parkway interchange in the general-purpose lanes of the 2015 Preferred Alternative. This similarity in traffic volume pattern is observed both in the general-purpose and managed lanes and in the opening year (2015) as well as the design year (2035).

The Preferred Alternative volumes are higher than the No-Build Alternative volumes due to the increased capacity from the managed lanes. However, under the Preferred Alternative, ADT volumes in the general-purpose lanes of I-75 are projected to decrease compared to the No-Build Alternative. This is due to the shift of traffic volume from the general-purpose lanes to the managed lanes. Although traffic would divert from parallel arterials to the freeway, the net effect would be a reduction in ADT volumes in the general-purpose lanes.

The projections for I-575 assume the addition of one general-purpose lane in each direction on I-575, which is included in *Envision6,* Volume I: 2030 *Regional Transportation Plan* (*Envision6* RTP) (ARC, 2007b). Based upon the RTP, this additional lane is planned to be constructed sometime between the 2015 opening year and the 2035 design year.



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.3.1.2 Highway Interchanges

Traffic volumes for the study area roadway and highway interchanges on I-75 and I-575 would differ between the No-Build and the Preferred Alternatives. In general, arterial roadways crossing I-75 at general-purpose lane interchanges would remain approximately the same under the No-Build and Preferred Alternatives. The managed-lane interchanges on I-75 would be constructed at different locations and would not share access with the existing general-purpose interchanges. In contrast, the traffic volumes on arterial roadways crossing I-575 at general-purpose interchanges would decrease for the Preferred Alternative compared to the No-Build Alternative. Since access to the managed-lane system on I-575 is through slip ramps from the general-purpose lanes and the managed lanes offer substantial time savings, travel patterns would shift to the general-purpose interchanges to take advantage of nearby slip ramps.

A summary of the projected 2015 and 2035 ADT volumes for interchange arterial roadways under the No-Build and Preferred Alternatives is presented in Table 4-7. In the 2035 Preferred Alternative, arterial ADT volumes on the cross roads with general-purpose interchanges are projected to decrease between less than 1 percent and slightly over 5 percent, compared to the No-Build Alternative. This indicates that existing arterial and interchange operations would be slightly improved at these locations under the Preferred Alternative.

Table 4-7. Interchange Arterial Average Daily Traffic Volumes, 2015 and 2035

Freeway Interchange Arterial	Type	2015			2035		
		No-Build Alternative	Preferred Alternative	% Change	No-Build Alternative	Preferred Alternative	% Change
I-75 Interchanges							
Hickory Grove Rd	ML	14,113	15,033	6.5%	17,229	18,606	8.0%
Wade Green Rd	GP	28,402	27,722	-2.4%	25,811	24,552	-4.9%
Chastain Rd	GP	28,775	28,960	0.6%	33,398	32,074	-4.0%
Big Shanty Rd	ML	9,429	10,322	9.5%	15,685	18,817	20.0%
Barrett Pkwy	GP	78,332	79,819	1.9%	86,064	85,416	-0.8%
N Marietta Pkwy	GP	45,598	43,762	-4.0%	49,231	48,678	-1.1%
SR 3 Conn/Roswell Rd	ML	32,409	37,475	15.6%	39,023	46,026	17.9%
S Marietta Pkwy	GP	32,112	30,866	-3.9%	58,517	58,133	-0.7%
Delk Rd	GP	55,546	53,085	-4.4%	63,083	60,955	-3.4%
Terrell Mill Rd	ML	13,094	17,799	35.9%	16,585	22,413	35.1%
Windy Hill Rd	GP	57,497	55,617	-3.3%	65,575	64,116	-2.2%
I-575 Interchanges							
Sixes Rd	GP	19,136	20,304	6.1%	21,946	22,765	3.7%
Rope Mill Rd	GP	11,012	11,017	0.0%	10,890	10,661	-2.1%
Towne Lake Pkwy	GP	41,173	41,427	0.6%	49,242	48,683	-1.1%
SR 92	GP	52,716	52,760	0.1%	67,261	66,175	-1.6%
Bells Ferry Rd	GP	28,208	27,817	-1.4%	34,120	33,324	-2.3%
Chastain Rd	GP	43,317	42,584	-1.7%	57,640	55,308	-4.0%
Barrett Pkwy	GP	63,510	63,265	-0.4%	73,456	71,594	-2.5%

Notes: ML = managed lane; GP = general-purpose lane; % change = the percent change by dividing the Preferred Alternative average daily traffic (ADT) by the No-Build Alternative ADT.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

In contrast, arterial ADT volumes on the cross roads at managed-lane interchanges are projected to increase between about 8 and 35 percent for the Preferred Alternative compared to the No-Build Alternative. This indicates cross-road operations would be worse at these locations due to traffic pattern changes as motorists drive to the managed-lane interchanges. More detailed information about the operation of the managed-lane interchanges for the Preferred Alternative is presented in Section 4.3.5.3 and Section 4.3.5.5, which include discussions of managed lane level of service and intersection improvements required by the project to achieve acceptable operations.

On I-575, no managed-lane interchanges would be constructed. Rather, vehicles would continue to use the general-purpose interchanges and access the managed-lane system via proposed slip ramps. Arterial ADT volumes on the cross streets at these general-purpose interchanges generally would decrease on average from 1 to 4 percent. This indicates the arterial and interchange operations would be slightly improved at these locations under the Preferred Alternative. The exception is at Sixes Road. At this interchange, ADT is forecast to increase by about 6 percent in the opening year of the Preferred Alternative compared to the No-Build Alternative. This indicates intersection operations would be slightly worse at this interchange. This increase is related to the termination/origin of the managed lanes south of the Sixes Road interchange.

4.3.1.3 Arterial Roadways

Projected 2035 ADT volumes for arterial roadways parallel to the I-75 and I-575 highways under the No-Build and Preferred Alternatives are presented in Figure 4-3 and Figure 4-4. The ADT traffic volumes are identified for the southbound and northbound directions along Cobb Parkway (US 41), Powers Ferry Road, Canton Road, and Bells Ferry Road. These roadways were selected for analysis because their orientation is parallel to both the I-75 and I-575 highways. As such, they would be expected to experience the most substantial traffic volume fluctuations based on the changed operating conditions of I-75 and I-575.

Under the 2035 No-Build Alternative, ADT volumes along Cobb Parkway (US 41) would range from 58,000 north of Barrett Parkway to 53,900 south of Delk Road. Under the Preferred Alternative, ADT volumes along Cobb Parkway (US 41) would decrease by 1 to 2 percent, from 57,500 north of Barrett Parkway to 52,900 south of Delk Road. Generally, the Preferred Alternative is projected to reduce traffic volumes along Cobb Parkway. The 2035 ADT volumes along Powers Ferry Road, Canton Road, and Bells Ferry Road also would be less under the Preferred Alternative by about 2 to 3 percent compared to the No-Build Alternative.

4.3.2 Highway Throughput

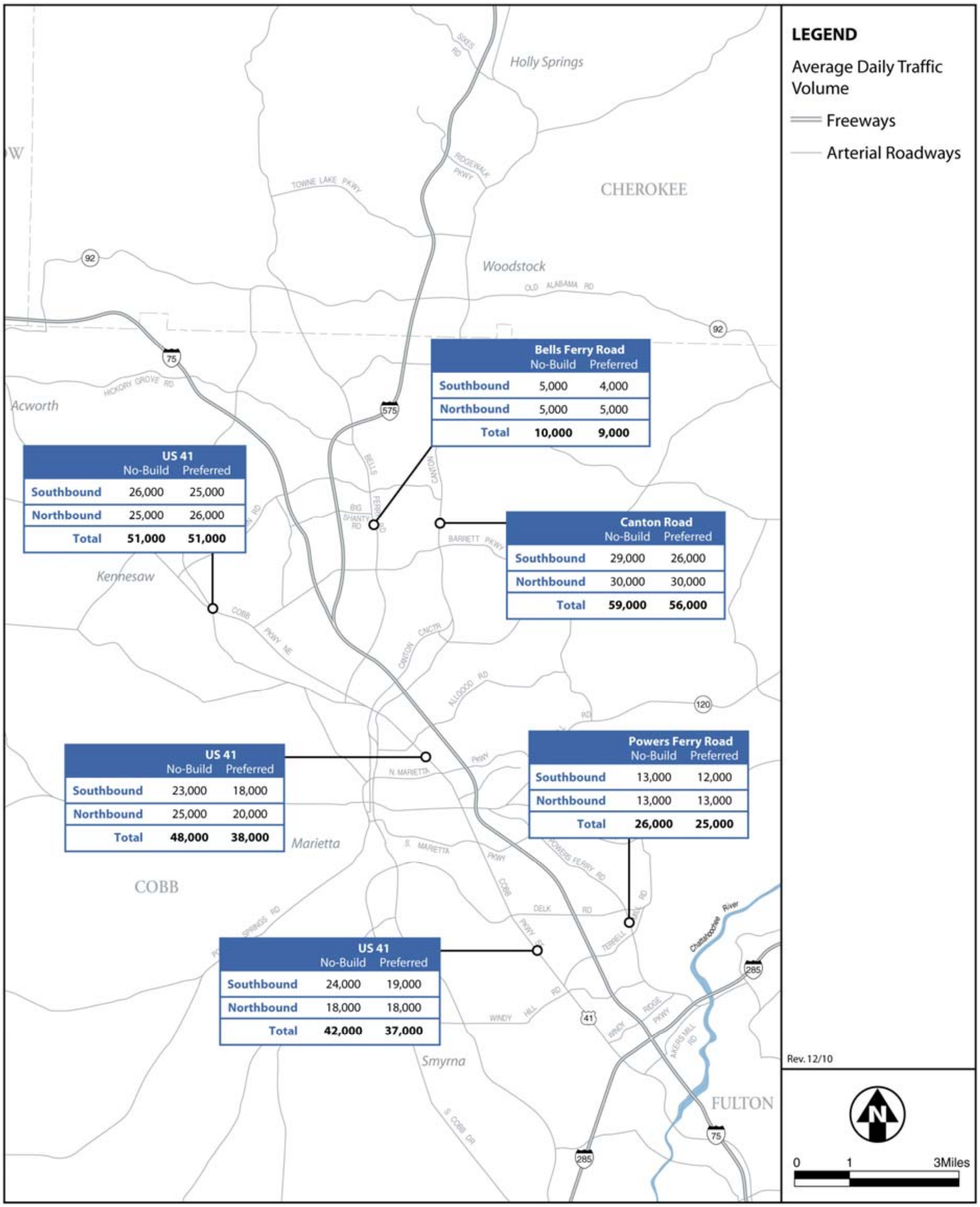
A highway project's basic measure of effectiveness can be illustrated by changes in vehicle and person trip movements through the corridor. Mobility can be measured by the number of people and vehicles moving through the corridor. The movement of people is of paramount importance because more than one person can ride in a vehicle, so analysis only of vehicle movement would underestimate highway effectiveness. The specific assumptions for the travel demand modeling associated with the people and vehicle throughput can be found in the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i).

4.3.2.1 Throughput on I-75

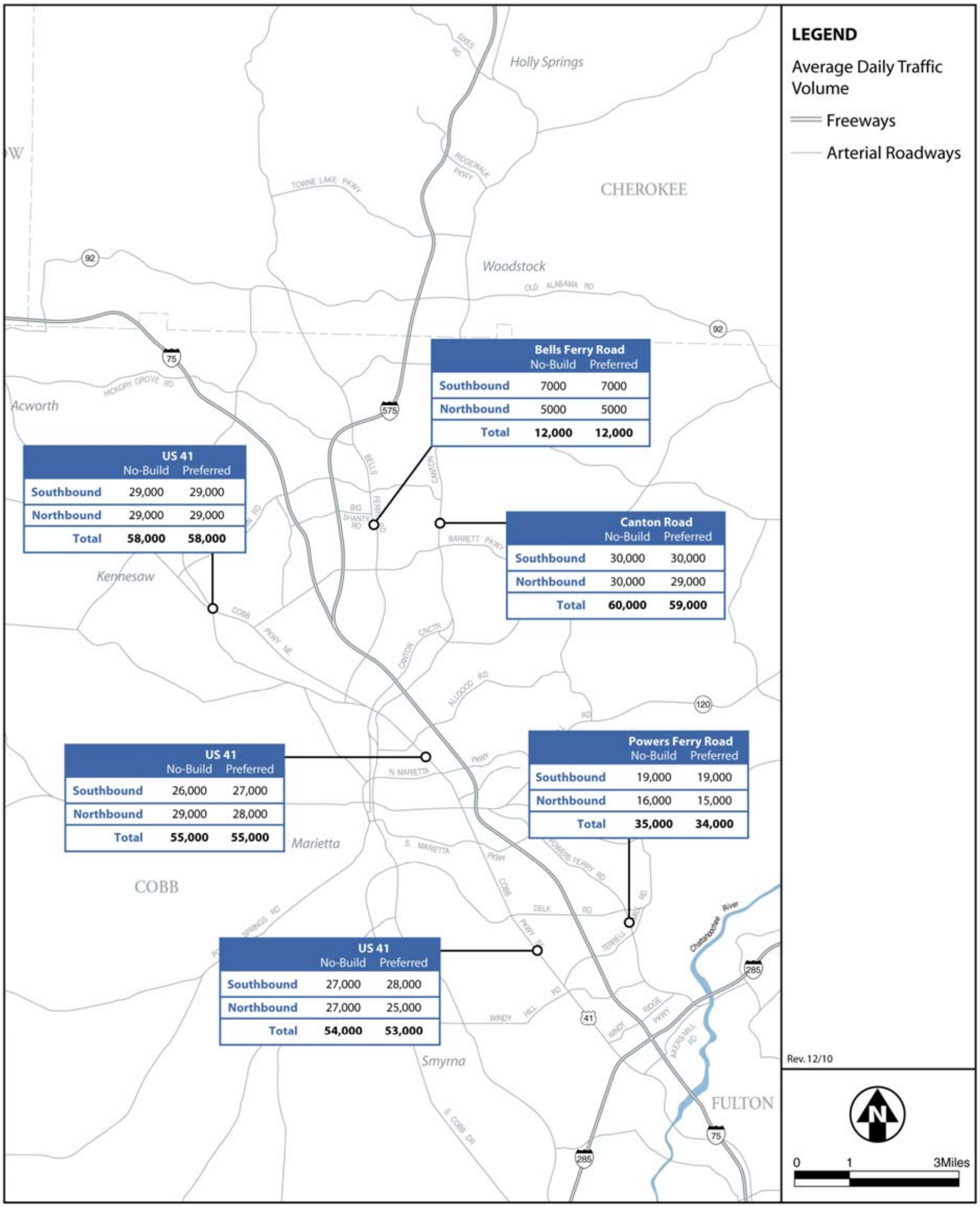
A summary of the projected 2015 and 2035 vehicle throughput and person throughput on I-75 under the No-Build and Preferred Alternatives is presented in Table 4-8.

Average Daily Traffic Volumes Parallel Arterials, 2015

Figure 4-3



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Table 4-8. Vehicle and Person Throughput on I-75, 2015 and 2035

I-75 Location		Vehicle Throughput				Person Throughput			
		2015		2035		2015		2035	
		No-Build	Preferred	No-Build	Preferred	No-Build	Preferred	No-Build	Preferred
Both Directions	**S. of Hickory Grove Rd**								
	AM Period	32,115	33,919	37,285	40,493	34,358	38,668	39,953	45,794
	PM Period	38,218	40,663	45,437	49,138	42,385	47,706	50,605	57,064
	Total Daily	138,704	144,971	161,690	171,714	152,935	166,987	178,448	197,634
	S. of Chastain Rd								
	AM Period	35,099	37,454	37,618	42,104	37,729	42,477	40,144	47,515
	PM Period	40,050	42,994	42,881	48,205	44,483	50,390	47,298	55,942
	Total Daily	150,984	158,036	162,601	175,603	168,203	182,071	179,108	201,778
	S. of I-575								
	AM Period	58,385	62,287	69,774	80,488	65,061	73,390	78,194	95,768
	PM Period	70,197	76,448	84,644	97,025	82,143	96,053	99,630	120,344
	Total Daily	246,409	259,784	294,969	325,188	288,353	316,772	346,734	399,211
	S. of Delk Rd								
	AM Period	69,913	74,503	72,122	81,789	78,175	88,110	80,840	97,919
	PM Period	84,120	90,264	86,108	97,425	99,050	112,877	101,465	122,821
	Total Daily	298,504	313,795	308,418	340,823	351,956	385,751	362,495	422,874
Southbound Direction	**S. of Hickory Grove Rd**								
	AM Period	18,641	20,414	21,023	24,197	20,238	24,511	23,005	28,787
	PM Period	16,632	16,645	19,280	19,293	18,398	18,437	21,324	21,294
	Total Daily	68,337	70,157	78,450	81,449	75,205	79,570	86,392	92,255
	S. of Chastain Rd								
	AM Period	18,641	20,414	20,822	25,167	21,577	26,275	22,563	29,737
	PM Period	16,632	16,645	19,507	19,619	20,664	20,837	21,439	21,513
	Total Daily	68,337	70,157	80,425	85,025	84,227	89,206	88,493	96,341
	S. of I-575								
	AM Period	35,086	38,852	42,245	52,200	39,177	47,352	47,542	64,225
	PM Period	30,894	31,151	36,624	37,424	36,725	37,191	43,932	44,857
	Total Daily	123,898	128,008	148,330	160,197	145,217	153,999	174,911	194,339
	S. of Delk Rd								
	AM Period	41,152	45,598	45,559	55,165	45,908	55,710	51,274	68,270
	PM Period	38,739	39,122	41,647	42,051	46,644	47,068	50,381	50,702
	Total Daily	152,546	157,534	167,611	178,770	180,740	191,196	198,765	217,523

Table 4-8. Vehicle and Person Throughput on I-75, 2015 and 2035 (continued)

		Vehicle Throughput				Person Throughput			
		2015		2035		2015		2035	
I-75 Location		No-Build	Preferred	No-Build	Preferred	No-Build	Preferred	No-Build	Preferred
Northbound Direction	**S. of Hickory Grove Rd**								
	AM Period	13,474	13,505	16,262	16,296	14,120	14,156	16,948	17,007
	PM Period	21,586	24,018	26,157	29,845	23,987	29,269	29,281	35,770
	Total Daily	70,367	74,814	83,240	90,265	77,730	87,416	92,056	105,380
	S. of Chastain Rd								
	AM Period	15,211	15,258	16,796	16,937	16,153	16,202	17,581	17,778
	PM Period	21,540	24,388	23,374	28,586	23,819	29,553	25,858	34,428
	Total Daily	75,435	80,018	82,176	90,578	83,976	92,864	90,615	105,437
	S. of I-575								
	AM Period	23,299	23,435	27,529	28,288	25,884	26,038	30,652	31,544
	PM Period	39,303	45,297	48,020	59,601	45,418	58,863	55,699	75,488
	Total Daily	122,511	131,776	146,639	164,991	143,136	162,773	171,823	204,873
	S. of Delk Rd								
	AM Period	28,761	28,905	26,563	26,624	32,267	32,400	29,566	29,649
	PM Period	45,381	51,142	44,461	55,374	52,407	65,810	51,084	72,119
	Total Daily	145,958	156,261	140,807	162,053	171,216	194,555	163,730	205,352

Notes: AM = morning; PM = evening; Person throughput excludes transit riders.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

The analysis for 2015 and 2035 for the No-Build and Preferred Alternatives indicate the total daily person throughput would be slightly higher than the total daily vehicle throughput indicating a higher than one person per vehicle average occupancy. The average vehicle occupancy rate increases from south of Hickory Grove Road to south of Delk Road. This indicates the level of occupancy corresponds to increases in congestion from north to south. A review of the No-Build Alternative vehicle and person throughput, as well as average vehicle occupancy during both the morning and evening periods, results in similar findings.

Under the Preferred Alternative, total daily vehicle throughput would increase with the added capacity on I-75 compared to the No-Build Alternative. Total daily person throughput would also substantially increase compared to the No-Build Alternative. Similarly, increases in vehicle throughput and person throughput would occur during the morning and evening peak periods.

4.3.2.2 Throughput on I-575

A summary comparison of the projected 2015 and 2035 vehicle throughput and person throughput on I-575 under the No-Build and Preferred Alternatives is presented in Table 4-9.

Under the No-Build Alternative, total daily vehicle throughput (both directions) on I-575 ranges from roughly 82,100 at the north end to 92,800 vehicles per day at the south end in 2015. In 2035, it increases to almost 139,500 vehicles daily south of Sixes Road at the north end of the corridor and rises to approximately 138,700 south of Chastain Road at the south end of the I-575 corridor. The highest projected vehicle throughput is in the segment between Towne Lake

Table 4-9. Vehicle and Person Throughput on I-575, 2015 and 2035

	I-575 Location	Vehicle Throughput				Person Throughput			
		2015		2035		2015		2035	
		No-Build	Preferred	No-Build	Preferred	No-Build	Preferred	No-Build	Preferred
Both Directions	**S. of Sixes Rd**								
	AM Period	20,378	20,081	35,007	38,675	24,174	23,089	41,542	48,062
	PM Period	25,867	25,526	44,903	48,941	32,628	31,091	56,659	63,536
	Total Daily	82,107	81,123	139,428	148,898	105,184	101,006	178,130	194,523
	S. of Towne Lake Pkwy								
	AM Period	23,346	23,966	37,227	41,580	27,688	29,223	44,355	51,511
	PM Period	29,680	30,692	48,552	53,557	37,475	39,689	61,617	69,546
	Total Daily	96,001	97,895	151,607	163,109	123,184	127,586	194,762	213,376
	S. of SR 92								
	AM Period	20,688	21,541	32,882	37,839	24,347	26,818	38,875	47,355
	PM Period	26,520	28,243	43,577	49,708	33,197	37,535	54,730	64,992
	Total Daily	87,503	90,746	137,822	151,685	111,155	119,653	175,301	199,184
	S. of Chastain Rd								
	AM Period	21,770	22,665	32,934	38,295	25,618	27,879	39,050	47,688
	PM Period	26,215	28,555	40,556	47,268	32,787	38,417	50,999	61,630
	Total Daily	92,871	97,080	138,660	153,701	118,115	128,107	176,796	201,047
Southbound Direction	**S. of Sixes Rd**								
	AM Period	12,383	12,061	22,913	25,987	14,684	13,536	26,995	32,776
	PM Period	11,661	11,681	18,604	19,121	15,026	15,121	24,359	25,029
	Total Daily	41,464	41,157	70,282	74,367	53,103	52,055	89,900	97,121
	S. of Towne Lake Pkwy								
	AM Period	14,450	15,047	24,104	27,820	17,056	18,571	28,475	34,901
	PM Period	13,157	13,115	20,251	20,708	17,055	17,010	26,642	27,178
	Total Daily	48,385	48,826	76,222	81,034	62,077	63,401	98,037	105,932
	S. of SR 92								
	AM Period	12,671	13,528	21,133	25,507	14,813	17,264	24,778	32,567
	PM Period	11,752	11,746	18,175	18,788	15,168	15,151	23,654	24,434
	Total Daily	43,730	44,568	69,122	74,760	55,617	58,023	88,120	97,598
	S. of Chastain Rd								
	AM Period	13,410	14,238	20,715	25,547	15,651	17,838	24,327	32,389
	PM Period	11,963	12,092	17,699	18,299	15,547	15,695	23,209	23,933
	Total Daily	47,200	48,291	70,306	76,262	60,171	62,698	89,967	99,393

Table 4-9. Vehicle and Person Throughput on I-575, 2015 and 2035 (continued)

	I-575 Location	Vehicle Throughput				Person Throughput			
		2015		2035		2015		2035	
		No-Build	Preferred	No-Build	Preferred	No-Build	Preferred	No-Build	Preferred
Northbound Direction	**S. of Sixes Rd**								
	AM Period	7,995	8,020	12,094	12,688	9,490	9,553	14,548	15,285
	PM Period	14,206	13,845	26,299	29,820	17,602	15,970	32,300	38,507
	Total Daily	40,643	39,966	69,146	74,531	52,081	48,951	88,229	97,403
	S. of Towne Lake Pkwy								
	AM Period	8,896	8,919	13,123	13,760	10,631	10,651	15,880	16,610
	PM Period	16,523	17,577	28,301	32,849	20,420	22,680	34,974	42,368
	Total Daily	47,616	49,069	75,385	82,075	61,107	64,185	96,725	107,445
	S. of SR 92								
	AM Period	8,017	8,013	11,749	12,332	9,534	9,554	14,097	14,788
	PM Period	14,768	16,497	25,402	30,920	18,029	22,385	31,076	40,558
	Total Daily	43,773	46,178	68,700	76,925	55,538	61,630	87,181	101,587
	S. of Chastain Rd								
	AM Period	8,360	8,427	12,219	12,748	9,968	10,041	14,724	15,298
	PM Period	14,252	16,463	22,857	28,969	17,240	22,721	27,790	37,697
	Total Daily	45,671	48,789	68,354	77,439	57,944	65,409	86,829	101,654

Notes: AM = morning; PM = evening; Person throughput excludes transit riders.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Parkway and SR 92 with approximately 96,000 vehicles in 2015 and about 151,600 vehicles in 2035. This segment has an auxiliary lane in both the northbound and southbound directions, and thus substantially increased capacity. Similar patterns were measured for vehicle and person throughput during both the morning and evening peak periods.

Under the Preferred Alternative, total daily vehicular and person throughput would increase along I-575 compared to the No-Build Alternative in 2015 as well as 2035. The increase in daily vehicle throughput under the Preferred Alternative would be the lowest south of Towne Lake Parkway and highest in the I-575 segment south of Chastain Road. Thus, the managed lane on I-575 would provide an increase in both vehicle and person throughput. Similarly, increases in vehicle throughput and person throughput also were projected during the morning and evening peak periods.

4.3.3 Highway Vehicle Miles and Hours of Travel

The overall effectiveness of a transportation project can be identified through analysis of changes in the number of vehicular trips and the corresponding changes in total VMT and VHT using the general-purpose lanes and managed lanes. For each highway segment, VMT is calculated as the number of vehicles multiplied by the length of the segment. The VHT is computed as the number of vehicles multiplied by the time it takes to traverse the segment. The total VMT and VHT are aggregates calculated for each segment. Summaries of the forecast 2015 and 2035 morning and evening peak periods and daily VMT and VHT on I-75 and I-575 for the No-Build and Preferred Alternatives are presented in Table 4-10 and Table 4-11, respectively.

4.3.3.1 VMT and VHT on I-75

Table 4-10 summarizes the change in daily VMT and VHT in the I-75 corridor in both 2015 and 2035. Under 2015 as well as 2035 conditions, the daily VMT on I-75 increases, while the VHT reduces from the No-Build Alternative to the Preferred Alternative reflecting that under the Preferred Alternative more vehicles would be traveling in the corridor. This trend in VMT and VHT is seen for both the southbound and northbound directions of I-75.

Table 4-10. VMT and VHT on I-75, 2015 and 2035

			2015		2035	
		Location	No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative
Both Directions	Vehicle Miles of Travel	AM Period	786,338	822,819	869,155	989,205
		PM Period	937,208	1,058,269	1,038,809	1,175,317
		Total Daily	3,390,482	3,668,731	3,751,846	4,112,589
		Daily VMT Per Lane Mile	21,752	17,711	24,070	19,854
	Vehicle Hours of Travel	AM Period	26,865	27,082	40,981	39,938
		PM Period	35,677	35,147	61,963	58,666
		Total Daily	101,463	101,182	153,542	149,238
		Daily VHT Per Lane Mile	651	488	985	720
Southbound	Vehicle Miles of Travel	AM Period	461,100	494,153	513,802	628,476
		PM Period	428,049	431,391	465,757	469,249
		Total Daily	1,715,726	1,759,400	1,902,601	2,027,448
		Daily VMT Per Lane Mile	22,125	17,049	24,535	19,647
	Vehicle Hours of Travel	AM Period	18,883	18,915	30,895	29,420
		PM Period	12,232	12,553	17,553	17,999
		Total Daily	50,588	51,392	74,230	73,612
		Daily VHT Per Lane Mile	652	498	957	713
Northbound	Vehicle Miles of Travel	AM Period	325,238	328,666	355,353	360,729
		PM Period	509,159	626,879	573,053	706,068
		Total Daily	1,674,756	1,909,331	1,849,244	2,085,140
		Daily VMT Per Lane Mile	21,382	18,368	23,610	20,059
	Vehicle Hours of Travel	AM Period	7,981	8,167	10,085	10,517
		PM Period	23,445	22,594	44,410	40,667
		Total Daily	50,875	49,790	79,312	75,626
		Daily VHT Per Lane Mile	650	479	1,013	728

Notes: AM = morning; PM = evening; VHT = vehicle hours of travel; and VMT = vehicle miles of travel.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.3.3.2 VMT and VHT on I-575

Table 4-11 summarizes the change in daily VMT and VHT in the I-575 corridor in both 2015 and 2035. Under 2015 as well as 2035 conditions, the daily VMT on I-575 increases while the VHT decreases from the No-Build Alternative to the Preferred Alternative. This reflects that under the Preferred Alternative conditions more vehicles are traveling in the corridor in less time on I-575. This trend in VMT and VHT is seen both the southbound and northbound directions of I-575.

Table 4-11. VMT and VHT on I-575, 2035

		Location	2015 No-Build Alternative	2015 Preferred Alternative	2035 No-Build Alternative	2035 Preferred Alternative
Both Directions	Vehicle Miles of Travel	AM Period	233,997	241,797	373,099	425,175
		PM Period	294,150	341,678	477,488	542,556
		Total Daily	973,170	1,049,189	1,534,886	1,680,033
		Daily VMT Per Lane Mile	20,297	14,984	21,536	17,998
	Vehicle Hours of Travel	AM Period	7,294	7,265	15,779	15,353
		PM Period	10,612	9,707	26,148	24,869
		Total Daily	26,704	25,760	56,086	54,836
		Daily VHT Per Lane Mile	557	368	787	587
Southbound	Vehicle Miles of Travel	AM Period	146,610	152,931	244,955	290,669
		PM Period	134,471	135,435	205,818	212,611
		Total Daily	501,681	510,347	791,184	851,070
		Daily VMT Per Lane Mile	20,475	14,356	21,734	17,936
	Vehicle Hours of Travel	AM Period	5,488	5,410	13,118	12,470
		PM Period	3,469	3,528	5,870	6,486
		Total Daily	13,356	13,399	26,112	26,299
		Daily VHT Per Lane Mile	545	377	717	554
Northbound	Vehicle Miles of Travel	AM Period	87,386	88,866	128,144	134,506
		PM Period	159,679	206,243	271,670	329,945
		Total Daily	471,489	538,842	743,701	828,963
		Daily VMT Per Lane Mile	20,111	15,631	21,330	18,062
	Vehicle Hours of Travel	AM Period	1,807	1,856	2,662	2,883
		PM Period	7,143	6,179	20,277	18,383
		Total Daily	13,348	12,360	29,975	28,538
		Daily VHT Per Lane Mile	569	359	860	622

Notes: AM = morning; PM = evening; VHT = vehicle hours of travel; and VMT = vehicle miles of travel.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.3.4 Highway Person Miles and Hours of Travel

Similar to VMT and VHT, PMT and PHT provide indications of the transportation facility's ability to accommodate travel during a specific time period. However, unlike VMT and VHT, the measures of PMT and PHT provide a better indication of the effectiveness of the managed lanes to move people. A higher PMT value per lane mile indicates a higher overall density, or greater use of the facility.

4.3.4.1 PMT and PHT on I-75

Under both 2015 and 2035 conditions, the total daily PMT on I-75 would increase. However, in general, the PHT either stays the same or slightly increases between the No-Build and Preferred Alternatives. When looking at PMT and PHT per lane mile, the trend indicates that more people are able to travel on I-75 as they are spending less time on the roadway on a daily basis. While the results are mixed in 2015, it is significant that considering morning, evening and total daily PHT for both directions of travel there are fewer PHT with the Preferred Alternative than the No-Build in 2035. The comparison of the daily PMT per lane mile for both 2010 and 2035 reinforces the conclusion that the Preferred Alternative provides travel time savings.

Table 4-12 summarizes the change in daily PMT and PHT in the I-75 corridor in both 2015 and 2035. Under the No-Build Alternative, daily total PMT for I-75 is projected to total 4.305 million person miles and daily total PHT is projected to be approximately 175,400 person hours. Daily PMT under the Preferred Alternative is projected to increase to 4.973 million person miles, an increase of approximately 668,000 miles daily. Daily PHT is projected to decrease from 175,400 in the No-Build Alternative to approximately 174,000 under the Preferred Alternative, a decrease of approximately 1,400. Daily PMT and PHT per lane mile under the Preferred Alternative are forecast to decrease due to the added managed lanes. Total peak period PMT under the Preferred Alternative is projected to increase by more than 208,000 person miles during the morning peak and would increase by almost 247,500 during the evening peak period compared to the No-Build Alternative. Total peak period PHT under the Preferred Alternative is projected to decrease by about 200 person hours during the morning peak period and would decrease slightly more than 2,000 hours during the evening peak period.

4.3.4.2 PMT and PHT on I-575

Table 4-13 summarizes the change in daily PMT and PHT in the I-75 corridor for both 2015 and 2035. Under both the 2015 and 2035 conditions, the total daily PMT on I-575 increases, while the PHT either stays same or slightly increases. However, when looking at PMT and PHT per lane mile, the trend indicates that more people are able to travel on I-575 while spending less time using the highway on a daily basis.

4.3.5 Level of Service Effects

4.3.5.1 Highway General-Purpose and Managed-Lanes

As described previously, the severity of roadway congestion is measured by a rating system referred to as level of service. This rating system describes the quality of traffic flow using standardized terminology. It is reported using letter designations from A to F. Rating LOS A represents the best operating conditions (free traffic flow) and LOS F designates the worst operating conditions (stop-and-go conditions, substantially reduced speeds, and difficulty maneuvering).

A summary of the 2015 and 2035 Preferred Alternative level of service operations of the managed and general-purpose lanes is included in Table 4-14 and Table 4-15. Under the Preferred Alternative, most segments of the managed lanes on I-75 and I-575 in the morning and evening peak-flow directions would operate at LOS D or better. This is because the managed-lane volumes, and therefore congestion, would be influenced through a variable toll.

In some locations, LOS F conditions would continue to exist in the general-purpose lanes under the Preferred Alternative. The Northwest Corridor Project would not eliminate all LOS F conditions. However, the project would improve density, travel speeds, and overall corridor travel time for all general-purpose lanes, while maintaining a demand for use of the managed lanes. The managed lanes would operate at acceptable levels of service during peak hours through the 2035 design year and they would provide mobility through the corridor for all managed lane users.

Table 4-12. PMT and PHT on I-75, 2015 and 2035

		Location	2015 No-Build Alternative	2015 Preferred Alternative	2035 No-Build Alternative	2035 Preferred Alternative
Both Directions	Person Miles of Travel	AM Period	863,915	960,635	957,496	1,165,770
		PM Period	1,078,480	1,223,995	1,197,151	1,444,648
		Total Daily	3,897,386	4,303,239	4,305,145	4,973,119
		Daily PMT Per Lane Mile	25,004	20,774	27,620	24,008
	Person Hours of Travel	AM Period	29,529	29,831	45,275	45,067
		PM Period	40,946	40,624	71,161	69,130
		Total Daily	116,062	116,559	175,374	173,689
		Daily PHT Per Lane Mile	745	563	1,125	838
Southbound	Person Miles of Travel	AM Period	508,249	599,937	570,562	771,600
		PM Period	500,252	505,664	544,259	547,131
		Total Daily	1,976,855	2,086,121	2,189,710	2,407,081
		Daily PMT Per Lane Mile	25,492	20,215	28,237	23,326
	Person Hours of Travel	AM Period	20,809	20,873	34,318	33,594
		PM Period	14,295	14,716	20,495	20,975
		Total Daily	57,909	59,015	84,839	85,254
		Daily PHT Per Lane Mile	747	572	1,094	826
Northbound	Person Miles of Travel	AM Period	355,666	360,698	386,935	394,170
		PM Period	578,227	718,330	652,892	897,517
		Total Daily	1,920,532	2,217,118	2,115,435	2,566,038
		Daily PMT Per Lane Mile	24,520	21,329	27,009	24,685
	Person Hours of Travel	AM Period	8,720	8,958	10,957	11,474
		PM Period	26,651	25,908	50,666	48,155
		Total Daily	58,153	57,544	90,535	88,435
		Daily PHT Per Lane Mile	742	554	1,156	851

Notes: AM = morning; PM = evening; PHT = person hours of travel; and PMT = person miles of travel.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Table 4-13. PMT and PHT on I-575, 2015 and 2035

		Location	2015 No-Build Alternative	2015 Preferred Alternative	2035 No-Build Alternative	2035 Preferred Alternative
Both Directions	Person Miles of Travel	AM Period	275,494	294,785	441,709	526,950
		PM Period	368,679	425,574	601,234	704,273
		Total Daily	1,237,727	1,340,587	1,955,967	2,189,453
		Daily PMT Per Lane Mile	25,815	19,145	27,445	23,456
	Person Hours of Travel	AM Period	8,574	8,509	18,618	18,318
		PM Period	13,216	12,089	32,510	31,303
		Total Daily	33,515	32,297	70,001	69,060
		Daily PHT Per Lane Mile	699	461	982	740
Southbound	Person Miles of Travel	AM Period	171,630	188,892	287,501	365,370
		PM Period	173,771	175,271	269,248	277,683
		Total Daily	638,819	659,519	1,010,527	1,107,014
		Daily PMT Per Lane Mile	26,072	18,553	27,759	23,330
	Person Hours of Travel	AM Period	6,427	6,297	15,415	14,854
		PM Period	4,483	4,567	7,683	8,473
		Total Daily	16,759	16,796	32,585	33,115
		Daily PHT Per Lane Mile	684	472	895	698
Northbound	Person Miles of Travel	AM Period	103,864	105,893	154,209	161,581
		PM Period	194,908	250,303	331,986	426,589
		Total Daily	598,909	681,068	945,440	1,082,439
		Daily PMT Per Lane Mile	25,547	19,757	27,117	23,585
	Person Hours of Travel	AM Period	2,147	2,211	3,203	3,463
		PM Period	8,732	7,522	24,828	22,829
		Total Daily	16,756	15,502	37,416	35,945
		Daily PHT Per Lane Mile	715	450	1,073	783

Notes: AM = morning; PM = evening; PHT = person hours of travel; and PMT = person miles of travel.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Table 4-14. Preferred Alternative LOS for I-75 Managed and GP Lanes, 2015 and 2035

Segment	Southbound					Northbound				
	# of Lanes	GP Lanes		Managed Lanes		# of Lanes	GP Lanes		Managed Lanes	
	GP / ML	2015	2035	2015	2035	GP / ML	2015	2035	2015	2035
AM Peak Period										
N. of Hickory Grove Rd	3 / 0	E	F	n/a	n/a	3 / 0	C	E	n/a	n/a
S. of Hickory Grove Rd	3 / 1	E	F	A	C	3 / 0	C	E	n/a	n/a
S. of Big Shanty Rd	3 / 1	D	F	B	D	3 / 0	D	E	n/a	n/a
S. of I-575	6 / 2	E	F	B	D	6 / 0	D	D	n/a	n/a
S. of Allgood Rd	5 / 2	D	F	B	D	5 / 0	D	D	n/a	n/a
S. of SR 3 Conn/ Roswell Rd	5 / 2	E	E	B	D	5 / 0	D	D	n/a	n/a
S. of Terrell Mill Rd	7 / 2	E	F	C	D	8 / 0	D	D	n/a	n/a
S. of I-285	5 / 1	D	D	B	C	5 / 0	C	C	n/a	n/a
S. of Akers Mill Rd	4 / 1	D	D	B	C	4 / 1	C	C	B	B
PM Peak Period										
N. of Hickory Grove Rd	3 / 0	C	E	n/a	n/a	3 / 0	D	F	n/a	n/a
S. of Hickory Grove Rd	3 / 0	C	E	n/a	n/a	3 / 1	C	F	B	D
S. of Big Shanty Rd	3 / 0	D	E	n/a	n/a	3 / 1	C	E	C	D
S. of I-575	6 / 0	D	D	n/a	n/a	6 / 2	D	E	C	D
S. of Allgood Rd	5 / 0	C	D	n/a	n/a	5 / 2	D	F	C	D
S. of SR 3 Conn/ Roswell Rd	5 / 0	D	D	n/a	n/a	5 / 2	C	D	C	D
S. of Terrell Mill Rd	7 / 0	D	D	n/a	n/a	8 / 2	D	D	C	D
S. of I-285	5 / 0	D	D	n/a	n/a	5 / 1	C	C	B	C
S. of Akers Mill Rd	4 / 1	C	C	B	B	4 / 1	C	C	B	B

Notes: AM = morning; PM= evening; GP lane = general-purpose lane; ML = managed lane; LOS = level of service; ML = managed lane; n/a = not applicable. # of lanes GP / ML depicts X (Y) / Z where X = GP lanes in 2015; Y = GP lanes in 2035 and Z = managed lanes in 2015 and 2035.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Table 4-15. Preferred Alternative LOS for I-575 Managed and GP Lanes, 2015 and 2035

Segment	Southbound					Northbound				
	# of Lanes	GP Lanes		Managed Lanes		# of Lanes	GP Lanes		Managed Lanes	
	GP / ML	2015	2035	2015	2035	GP / ML	2015	2035	2015	2035
AM Peak Period										
N. of Sixes Rd	2 (3) / 0	C	E	n/a	n/a	2 (3) / 0	B	C	n/a	n/a
S. of Sixes Rd	2 (3) / 1	D	E	A	C	2 (3) / 0	B	C	n/a	n/a
S. of Towne Lake Pkwy	3 (4) / 1	C	D	A	C	3 (4) / 0	B	C	n/a	n/a
S. of SR 92	2 (3) / 1	D	E	A	C	2 (3) / 0	C	D	n/a	n/a
S. of Bells Ferry Rd	3 (4) / 1	D	D	A	C	3 (4) / 0	B	C	n/a	n/a
S. of Big Shanty Rd	2 (3) / 1	D	E	A	C	2 (3) / 0	C	C	n/a	n/a
S. of Barrett Pkwy	2 (3) / 1	C	D	A	D	2 (3) / 0	B	C	n/a	n/a
PM Peak Period										
N. of Sixes Rd	2 (3) / 0	C	D	n/a	n/a	2 (3) / 0	C	E	n/a	n/a
S. of Sixes Rd	2 (3) / 0	C	D	n/a	n/a	2 (3) / 1	C	E	A	C
S. of Towne Lake Pkwy	3 (4) / 0	C	C	n/a	n/a	3 (4) / 1	D	D	A	C
S. of SR 92	2 (3) / 0	C	D	n/a	n/a	2 (3) / 1	D	F	B	C
S. of Bells Ferry Rd	3 (4) / 0	C	D	n/a	n/a	3 (4) / 1	D	E	B	D
S. of Big Shanty Rd	2 (3) / 0	C	D	n/a	n/a	2 (3) / 1	D	E	B	D
S. of Barrett Pkwy	2 (3) / 0	C	C	n/a	n/a	2 (3) / 1	C	D	B	D

Notes: AM = morning; PM = evening; GP lane = general-purpose lane; LOS = level of service; ML = managed lane; n/a = not applicable. # of lanes GP / ML depicts X (Y) / Z where X = GP lanes in 2015;
Y = GP lanes in 2035 and Z = managed lanes in 2015 and 2035.

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.3.5.2 LOS Analysis Comparison between FEIS and Earlier Documents

Intersections evaluated, traffic volumes, turning movements, and LOS analysis contained in this FEIS are not directly comparable to those presented in the SDEIS. These differences occurred for the following reasons:

1. The overall study area was established as part of a planning level analysis in the original AA/DEIS study. That project was much broader in scope and impact than the alternatives in the SDEIS and the Preferred Alternative in this FEIS. The original arterial intersections evaluated in the AA/DEIS were carried into the SDEIS for consistency. However, based on more detailed operational analysis, the scope of the project impact could be more precisely defined. This resulted in the elimination of the arterial intersections more distant from the core interstate corridors.
2. In the corridor studies performed prior to this document, there were two sources for traffic volumes. The interstate highway facilities, I-75, I-575 and I-285, were modeled using the ARC 20-county Travel Demand Forecasting Model directly. This is appropriate as these facilities are regional in nature and their volumes can be affected by conditions outside of the immediate corridor. Traffic volumes for the arterial roadways in the study area were developed from a sub-area transportation model, and provided more refined transportation forecasts. These values were not consistent with each other at the detailed level, although they were generally similar. Traffic volumes used for this analysis were developed by blending both sources to enable consistent operational analysis. In addition, it is notable that operational analysis requires peak-hour traffic, and model output is in the form of peak-period volumes.
3. The operational analysis was performed beginning at the ramp terminal intersections and moved outwards to each signalized intersection along the arterial corridor until the traffic generated by the Preferred Alternative did not cause a degradation of the LOS below acceptable levels. Once that standard is achieved, the impact of the project beyond that point is felt to be of lesser significance.

4.3.5.3 Highway Ramp Terminal Intersections

The level of service analysis for the highway ramp terminal intersections was conducted for both the existing ramp terminal intersections at all general-purpose interchanges on I-75 and I-575 and the ramp terminal intersections of the proposed managed-lane interchanges on I-75. This analysis was conducted for both the No-Build and Preferred Alternatives in 2015 and 2035. The analysis assumed existing intersection and lane geometry for the No-Build Alternative and the proposed improvements and lane geometry under the Preferred Alternative, as required.

General-Purpose Ramp Terminal Intersections

The level of service analysis of the general-purpose intersections was limited to the existing interchanges on I-75 under the No-Build Alternative and with the improvements proposed under the Preferred Alternative. The lane geometry for the Preferred Alternative shown on the concept plan drawings in Appendix H served as the basis for the analysis of the interchange improvements.

The results of the level of service and delay analysis for the general-purpose ramp terminal intersections on I-75 and I-575 during the morning and evening peak hours under the No-Build and Preferred Alternatives are summarized in Table 4-16 for both opening and design years. In 2015, all ramp terminal intersections under the Preferred Alternative are forecast to operate at

Table 4-16. Ramp Terminal Intersections Levels of Service and Delay, 2015 and 2035

Interchange	Inter-section (ramps)	2015				2035			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		No-Build	Preferred	No-Build	Preferred	No-Build	Preferred	No-Build	Preferred
I-75/Windy Hill Rd	I-75 SB	355.9 / F	245.5 / F	214.9 / F	244.2 / F	451.5 / F	367.3 / F	213.2 / F	207.7 / F
	I-75 NB	47.2 / D	32.1 / C	55.6 / E	58.4 / E	150.6 / F	111.4 / F	63.0 / E	49.7 / D
I-75/Delk Rd	I-75 SB	224.6 / F	156.9 / F	36.7 / D	50.4 / D	269.1 / F	345.6 / F	118.5 / F	153.3 / F
	I-75 NB	3.2 / A	3.4 / A	6.6 / A	7.6 / A	5.7 / A	9.1 / A	9.3 / A	11.6 / B
I-75/S Marietta Pkwy	I-75 SB	31.1 / C	24.6 / C	16.0 / B	15.2 / B	44.7 / D	33.2 / C	14.4 / B	18.3 / B
I-75/N Marietta Pkwy	I-75 SB	33.1 / C	32.6 / C	23.7 / C	17.3 / B	35.7 / D	26.4 / C	39.8 / D	34.0 / C
	I-75 NB	39.4 / D	28.3 / C	20.1 / C	17.2 / B	18.8 / B	18.4 / B	87.3 / F	39.9 / D
I-75/Barrett Pkwy	I-75 SB	15.9 / B	37.1 / D	4.1 / A	4.8 / A	32.9 / C	37.6 / D	10.7 / B	7.6 / A
	I-75 NB	23.7 / C	20.3 / C	38.4 / D	41.4 / D	25.5 / C	24.3 / C	74.5 / E	49.8 / D
I-75/ Chastain Rd	I-75 SB	22.1 / C	18.6 / B	17.9 / B	14.7 / B	55.2 / E	37.8 / D	14.9 / B	17.4 / B
	I-75 NB	15.6 / B	15.2 / B	71.3 / E	56.9 / E	26.6 / C	18.3 / B	37.0 / D	28.4 / C
I-75/Wade Green Rd	I-75 SB	52.2 / D	38.2 / D	15.2 / B	17.1 / B	44.5 / D	53.0 / D	19.1 / B	21.6 / C
	I-75 NB	12.7 / B	15.7 / B	34.7 / C	29.7 / C	12.7 / B	15.9 / B	29.7 / C	18.7 / B
I-575/Barrett Pkwy	I-575 SB	18.4 / B	22.3 / C	8.9 / A	11.1 / B	10.9 / B	19.7 / B	13.5 / B	12.5 / B
	I-575 NB	20.0 / C*	25.1 / C	20.0 / B	22.3 / C	63.2 / E	39.2 / D	95.5 / F	63.5 / E
I-575/ Chastain Rd	I-575 SB	57.8 / E	57.5 / E	40.3 / D	35.9 / D	215.0 / F	181.1 / F	101.3 / F	122.4 / F
	I-575 NB	21.4 / C	22.2 / C	20.9 / C	24.0 / C	19.9 / B	16.9 / B	31.1 / C	26.4 / C
I-575/Bells Ferry Rd	I-575 SB	32.8 / C	22.3 / C	29.4 / C	27.3 / C	62.1 / E	36.7 / D	59.1 / E	60.3 / E
	I-575 NB	21.3 / C	21.6 / C	62.9 / E	52.0 / D	31.7 / C	31.8 / C	186.9 / F	104.2 / F
I-575/SR 92	I-575 SB	24.7 / C	20.1 / C	20.5 / C	26.0 / C	43.0 / D	40.2 / D	27.8 / C	33.0 / C
	I-575 NB	5.5 / A	4.7 / A	12.4 / B	12.2 / B	11.8 / B	11.1 / B	32.6 / C	22.6 / C
I-575/Towne Lake Pkwy	I-575 SB	23.5 / C	23.3 / C	30.3 / C	28.6 / C	115.5 / F	82.7 / F	81.7 / F	51.1 / D
	I-575 NB	21.0 / C	24.0 / C	44.2 / D	47.5 / D	29.9 / C	31.1 / C	202.1 / F	115.0 / F
I-575/Sixes Rd	I-575 SB	21.0 / C	20.8 / C	15.4 / B	16.9 / B	168.0 / F	136.7 / F	37.0 / D	29.0 / C
	I-575 NB	14.8 / B	15.0 / B	18.7 / B	19.1 / B	23.9 / C	28.2 / C	36.9 / D	53.9 / D

Notes: NB = northbound; SB = southbound; AM = morning; PM = evening;
* Although a delay of 20.0 represents LOS B, Synchro's HCM reports show it as LOS C most likely due to calculations beyond the first decimal.
Average Intersection Delay (sec/veh) / LOS
A = 0.0 – 10.0 sec/veh C = 20.1 - 35.0 sec/veh E = 55.1 – 80.0 sec/veh
B = 10.1 – 20.0 sec/veh D = 35.1 – 55.0 sec/veh F = > 80.0 sec/veh
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

acceptable conditions (LOS D or better) with a few exceptions. The following locations would operate at LOS E or F:

- The I-75 northbound (in the evening peak hour) and southbound (in both the morning and evening peak hours) ramp terminal intersections at Windy Hill Road,
- the I-75 southbound ramp (in the morning peak hour) terminal intersection at Delk Road,
- the I-75 northbound ramp (in the evening peak hour) terminal intersection at Chastain Road, and

- the I-575 southbound ramp (in the morning peak hour) terminal intersection at Chastain Road.

Of the thirteen general-purpose ramp terminal intersections (seven interchanges) on I-75 within the study limits, five would operate at LOS E or LOS F in either the morning or evening peak hours of the 2035 No-Build Alternative. These intersections include: Windy Hill Road (SB-AM/PM; NB-AM/PM), Delk Road (SB-AM/PM), Barrett Parkway (NB-PM), North Marietta Parkway (NB-PM), and Chastain Road (SB-AM). Under the Preferred Alternative, only two interchanges (Windy Hill Road and Delk Road) would have intersections that would operate at LOS E or LOS F in either the morning or evening peak hours in 2035.

The six existing interchanges on I-575 have twelve ramp terminal intersections. Of the twelve intersections, seven would operate at LOS E or F in either the morning or evening peak hours of the 2035 No-Build Alternative. These intersections include: Barrett Parkway (NB-AM/PM), Chastain Road (SB-AM/PM), Belles Ferry Road (SB-AM/PM, NB-PM), Towne Lake Parkway (SB-AM/PM, NB-PM), and Sixes Road (SB-AM). Under the Preferred Alternative, five interchanges containing seven intersections would operate at LOS E or F in either the morning or evening peak hours. These intersections include: Barrett Parkway (NB-PM), Chastain Road (SB-AM/PM), Bells Ferry Road (NB-PM, SB-PM), Towne Lake Parkway (SB-AM, NB-PM) and Sixes Road (SB-AM). It is important to note that some of the intersections have an acceptable morning LOS in comparison to the No-Build Alternative.

Managed-Lane Interchanges

There is an existing HOV interchange with south-facing ramps on I-75 at Akers Mill Road. This interchange would not be modified to add north-facing ramps as part of the Preferred Alternative. All other managed-lane interchanges would be new interchanges with single intersections at the ramp terminals. The Preferred Alternative would require modifications to existing roadways at the proposed managed-lane access ramp intersections.

The results of the level of service analysis for the proposed managed-lane interchange intersections on I-75 during the morning and evening peak hours are summarized in Table 4-17. The results indicate that acceptable operating conditions (i.e., LOS D or better) would exist at all managed-lane ramp intersections in 2015 and 2035.

Table 4-17. Managed-Lane Ramp Terminal Intersection Levels of Service on I-75, 2015 and 2035

Intersection	Traffic Control	Ramp Approach/ Arterial Lanes	Preferred Alternative			
			AM Peak Hour (SB)		PM Peak Hour (NB)	
			2015	2035	2015	2035
I-75 at Terrell Mill Rd [1]	Signal	1/4	20.9 / C	37.9 / D	34.9 / C	44.8 / D
I-75 at SR 3 Conn/Roswell Rd [1]	Signal	1/6	20.1 / C	37.2 / D	34.8 / C	43.1 / D
I-75 at Big Shanty Rd [1]	Signal	1/5	20.7 / C	53.8 / D	24.4 / C	36.3 / D
I-75 at Hickory Grove Rd [1,2]	Signal	1/3	4.8 / A	7.1 / A	34.9 / C	41.7 / D

Notes: NB = northbound; and SB = southbound.
Average Intersection Delay (secs.) / LOS
A = 0.0 to 10.0 sec/veh C = 20.1 to 35.0 sec/veh E = 55.1 to 80.0 sec/veh
B = 10.1 to 20.0 sec/veh D = 35.1 to 55.0 sec/veh F = > 80.0 sec/veh
[1] Interchange has reversible ramps.
[2] Interchange has south-facing managed-lane ramps only.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.3.5.4 Arterial Intersections

An intersection level of service analysis also was conducted to determine impacts on arterial intersections during the peak hours in both 2015 and 2035 under the Preferred and the No-Build Alternatives. The analysis was based on procedures outlined in the *Highway Capacity Manual* (TRB, 2000) for the analysis of signalized intersections and projected peak-hour turning movement volumes. Optimized traffic signal timings with current signal phasing patterns were used to analyze intersection traffic operations under the No-Build Alternative. The analysis of the Preferred Alternative also assumed both optimized traffic signal timings and phasing.

4.3.5.5 Existing Roadway and Intersection Modifications Required by the Project

Operations analyses were conducted at existing general-purpose and managed-lane ramp terminal intersections and at signalized intersections adjacent to the ramp terminal to determine if comparable LOS ratings could be achieved between the Preferred and the No-Build Alternatives at all intersections. Necessary intersection geometry modifications, signal phasing, and roadway reconfigurations were identified through this analysis to ensure the project did not negatively impact the level of service when compared to the No-Build Alternative. These modifications became part of the overall Northwest Corridor Project concept plans and are included in the environmental analysis for the project to determine if the modifications present any impacts that would require mitigation. In the next section, the level of service analysis results are described with these modifications and demonstrate that the project does not degrade intersection level of service at any of the intersections with the modified intersection geometrics and roadway reconfiguration as identified in the concept plans presented in Appendix H.

Future 2015 and 2035 intersection conditions include the projects programmed in the long-range transportation plan that were included in the traffic modeling process. These projects are included in Table 2-4 of Chapter 2. Notable intersection improvements include the widening of intersections on Cobb Parkway between Akers Mill Road and North Marietta Parkway (present by the 2035 design year), the widening of Sixes Road (present by the 2015 opening year) and the addition of the Ridgewalk Parkway intersections (also present by the 2015 opening year).

Along the I-75 corridor, there would be four locations where new interchange intersections would be added on existing roadways where there is currently no direct interchange access to I-75. These locations include the I-75 managed-lane ramp intersections at Terrell Mill Road, SR 3 Connector/Roswell Road (SR 3 Conn/Roswell Road), Big Shanty Road, and Hickory Grove Road. At new intersection locations where there is no access in the No-Build Alternative, intersection geometries were developed and tested to provide acceptable intersection operations (LOS D or better) through the 2035 design year.

Intersection geometric conditions would change from existing conditions as compared to the project concept at a number of intersections. At Terrell Mill, Big Shanty Road, and Hickory Grove Roads, the ramp terminal geometries include two approach lanes on the ramps (to permit one left and one right turn lane from the ramp onto the arterial) and single left-turn lanes on the arterials (to turn left onto the ramps). At these locations, there is sufficient pavement and/or median width to create the necessary improvements with no right-of-way or other environmental impacts. The Hickory Grove Road overpass is planned to be rebuilt to accommodate the required intersection geometrics, which include two lanes on the south-facing ramp approaching the intersection.

At SR 3 Conn/Roswell Road, the ramp terminal geometry includes two approach lanes on the ramps and dual left-turn lanes on SR 3 Conn/Roswell Road in both directions (to turn onto to the ramps). There are currently six lanes on SR 3 Conn/Roswell Road between Lower Roswell Road and US 41 — two in the westbound direction, a continuous center-turn lane, and three lanes in the eastbound direction. The current lanes would be reconfigured to include two through lanes in both the east and westbound directions (a reduction of one eastbound through lane) and dual left-turn lanes at the ramp terminal intersection. This modification can be made without degrading intersection operations or travel times on SR 3 Conn/Roswell Road. This modification can be accomplished by restriping the existing lanes. No widening of SR 3 Conn/Roswell Road is required. The roadway restriping also permits a second (dual) left-turn lane on westbound SR 3 Conn/Roswell Road at US 41, which would improve operations at this intersection in comparison to the No-Build Alternative. The intersection of SR 3 Conn/Roswell Road at Freys Gin Road would be relocated a few hundred feet to the west to align with Hagood Circle to the north. The purpose of this change would be to create a safer, unsignalized intersection. This modification can be viewed in detail in Appendix H (see Sheet H-8).

No other intersection modifications from existing conditions would be necessary to achieve the same intersection operation levels of service for the No-Build Alternative.

No-Build and Preferred Alternatives

The results of the level of service analysis for arterial intersections in 2015 and 2035 during the morning and evening peak hours under the No-Build and the Preferred Alternatives are summarized in Table 4-18 and Table 4-19. The intersection levels of service for the No-Build Alternative in 2015 and 2035 are shown by location in Figure 4-5 and Figure 4-7. Figure 4-6 and Figure 4-8 show the intersection levels of service by location for the Preferred Alternative in 2015 and 2035, respectively.

Intersection levels of service in 2015 under the No-Build Alternative range from LOS A to LOS F during both peak hours. At or over-capacity operations (LOS E or LOS F) are anticipated at 18 intersections in one or both peak hours. Under the 2015 Preferred Alternative, two intersections improve from LOS E/F conditions under the No-Build Alternative. Therefore, 16 intersections are anticipated to operate at or over capacity in one or more peak hour in 2015 under the Preferred Alternative.

Intersection levels of service in 2035 under the No-Build Alternative range from LOS A to LOS F during both peak hours. At or over-capacity operations (LOS E or LOS F) are anticipated at 33 intersections in one or both peak hours. Under the 2035 Preferred Alternative, 10 intersections improve from LOS E/F conditions under the No-Build Alternative. Therefore, the overall number of intersections projected to operate at or over capacity in one or more peak hour decreases to 23 in the Preferred Alternative.

The general-purpose lanes would have lower traffic volumes during the Preferred Alternative peak hour compared to corresponding No-Build Alternative peak hour due to traffic shifting to the managed lanes. This shows traffic using parallel arterial streets under No-Build Alternative would use either I-75 or I-575 under Preferred Alternative. This projected change in some travel patterns under the Preferred Alternative would cause some study area signalized intersections to have a corresponding change in turning movement patterns resulting in improved overall operating conditions under the Preferred Alternative compared to the No-Build Alternative. A majority of intersections, however, would operate with similar or slightly deteriorated conditions compared to the No-Build Alternative.

Table 4-18. Intersection Levels of Service, 2015

Intersection	No-Build AM Peak	No-Build PM Peak	Build AM Peak	Build PM Peak
Windy Hill Rd				
Cobb Pkwy	F	F	F	F
I-75 SB Ramps	F	F	F	F
I-75 NB Ramps	D	E	C	E
Interstate Hwy N Pkwy	D	C	C	D
Terrell Mill Rd				
Cobb Pkwy	B	F	C	F
I-75 ML Ramps	n/a	n/a	C	C
Powers Ferry Rd	E	C	E	D
Delk Rd				
Franklin Rd	E	F	E	F
I-75 SB Ramps	F	D	F	D
I-75 NB Ramps	A	A	A	A
Powers Ferry Rd	F	E	F	E
S Marietta Pkwy				
Franklin Rd	C	D	C	D
I-75 SB Ramps	C	B	C	B
Powers Ferry Rd	D	E	D	D
SR 3 Conn/Roswell Rd				
Cobb Pkwy	C	C	C	D
I-75 ML Ramps	n/a	n/a	C	C
Powers Ferry Rd	A	B	B	C
N Marietta Pkwy				
Cobb Pkwy	C	E	D	F
I-75 SB Ramps	C	B	C	B
I-75 NB Ramps	D	B	C	B
Wallace Rd	C	C	C	D
Canton Rd Connector				
Cobb Pkwy EB	A	B	A	B
Cobb Pkwy WB	F	C	F	C
Sandy Plains Rd	F	F	F	F
Barrett Pkwy				
Cobb Place Blvd	C	C	C	D
I-75 SB Ramps	B	A	D	A
I-75 NB Ramps	C	D	C	D
George Busbee Pkwy	C	C	B	D
Big Shanty Rd				
Barrett Lakes Blvd	B	C	B	C
I-75 ML Ramps	n/a	n/a	C	C
George Busbee Pkwy	B	C	B	C
Chastain Rd				
Barrett Lakes Blvd	E	E	F	E
I-75 SB Ramps	C	B	B	B
I-75 NB Ramps	B	E	B	E
Busbee Drive	B	D	B	C

Intersection	No-Build AM Peak	No-Build PM Peak	Build AM Peak	Build PM Peak
Wade Green Rd				
Shiloh Rd	D	F	D	F
I-75 SB Ramps	D	B	D	B
I-75 NB Ramps	B	C	B	C
George Busbee Pkwy	B	C	B	C
Hickory Grove Rd				
Shiloh Rd	D	C	D	C
I-75 ML Ramps	n/a	n/a	A	C
Wade Green Rd	C	C	C	D
Barrett Pkwy				
Mall Blvd	B	D	B	C
I-575 SB Ramps	B	A	C	B
I-575 NB Ramps	B	B	C	C
Chastain Meadows Pkwy	C	C	C	C
Chastain Rd				
Chastain Ctr Blvd	B	B	C	D
I-575 SB Ramps	E	D	E	D
I-575 NB Ramps	C	C	C	C
Chastain Meadows Pkwy	A	C	B	C
Bells Ferry Rd				
Shiloh Rd	E	F	E	F
I-575 SB Ramps	C	C	C	C
I-575 NB Ramps	C	E	C	D
SR 92/Old Alabama Rd				
Molly Lane	C	C	B	C
I-575 SB Ramps	C	C	C	C
I-575 NB Ramps	A	B	A	B
Parkway 575	A	B	B	B
Towne Lake Pkwy				
Stone Bridge Pkwy	C	B	B	B
I-575 SB Ramps	C	C	C	C
I-575 NB Ramps	C	D	C	D
Woodstock Parkway	C	C	A	C
Ridgewalk Pkwy				
I-575 SB Ramps	C	B	C	B
I-575 NB Ramps	B	B	B	B
Sixes Rd				
I-575 SB Ramps	B	B	B	B
I-575 NB Ramps	B	C	B	C
Canton Rd	D	D	D	D

Notes: AM = morning; PM = evening; and n/a = not applicable.

LOS / Average Intersection Delay (secs.)
A = 0.0 to 10.0 sec/veh D = 35.1 to 55.0 sec/veh
B = 10.1 to 20.0 sec/veh E = 55.1 to 80.0 sec/veh
C = 20.1 to 35.0 sec/veh F = > 80.0 sec/veh

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

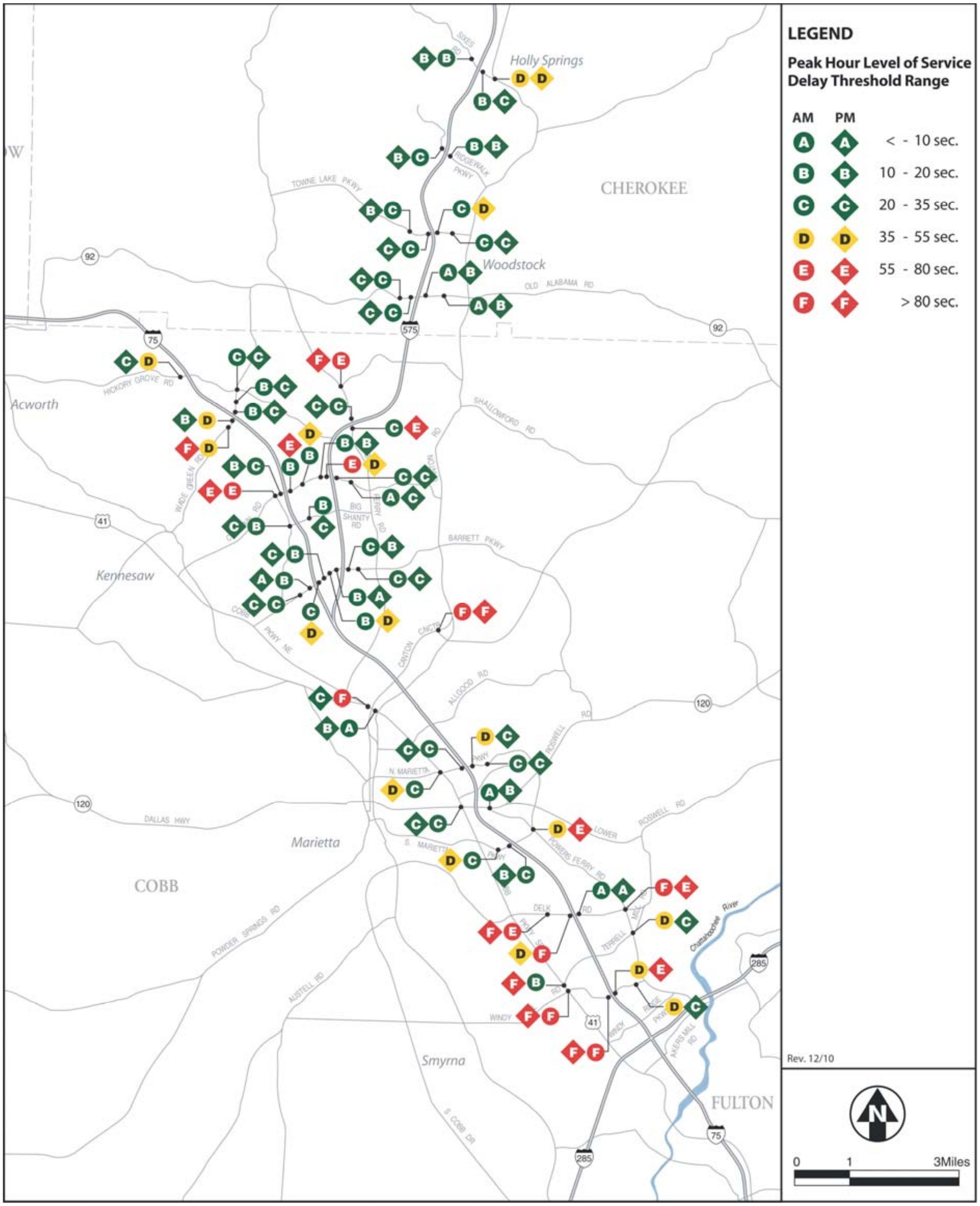
Table 4-19. Intersection Levels of Service, 2035

Intersection	No-Build AM Peak	No-Build PM Peak	Build AM Peak	Build PM Peak
Windy Hill Rd				
Cobb Pkwy SB Ramps	E	F	E	F
Cobb Pkwy NB Ramps	C	D	C	C
I-75 SB Ramps	F	F	F	F
I-75 NB Ramps	F	E	F	D
Interstate Hwy N Pkwy	n/a	n/a	n/a	n/a
Terrell Mill Rd				
Cobb Pkwy	B	E	B	E
I-75 ML Ramps	n/a	n/a	D	D
Powers Ferry Rd	C	D	D	C
Delk Rd				
Franklin Rd	F	F	F	F
I-75 SB Ramps	F	F	F	F
I-75 NB Ramps	A	A	A	B
Powers Ferry Rd	F	F	F	F
S Marietta Pkwy				
Franklin Rd	C	D	C	D
I-75 SB Ramps	D	B	C	B
Powers Ferry Rd	F	F	D	E
SR 3 Conn/Roswell Rd				
Cobb Pkwy	C	C	D	C
I-75 ML Ramps	n/a	n/a	D	D
Powers Ferry Rd	B	B	B	B
N Marietta Pkwy				
Cobb Pkwy	D	C	D	C
I-75 SB Ramps	D	D	C	C
I-75 NB Ramps	B	F	B	D
Wallace Rd	C	E	C	E
Canton Rd Connector				
Cobb Pkwy EB	F	C	A	B
Cobb Pkwy WB	F	E	C	C
Sandy Plains Rd	F	F	F	F
Barrett Pkwy				
Cobb Place Blvd	C	D	C	D
I-75 SB Ramps	C	B	D	A
I-75 NB Ramps	C	E	C	D
George Busbee Pkwy	B	C	C	C
Big Shanty Rd				
Barrett Lakes Blvd	C	C	C	C
I-75 ML Ramps	n/a	n/a	D	D
George Busbee Pkwy	C	C	C	C
Chastain Rd				
Barrett Lakes Blvd	F	E	F	E
I-75 SB Ramps	E	B	D	B
I-75 NB Ramps	C	D	B	C
Busbee Drive	D	C	D	C

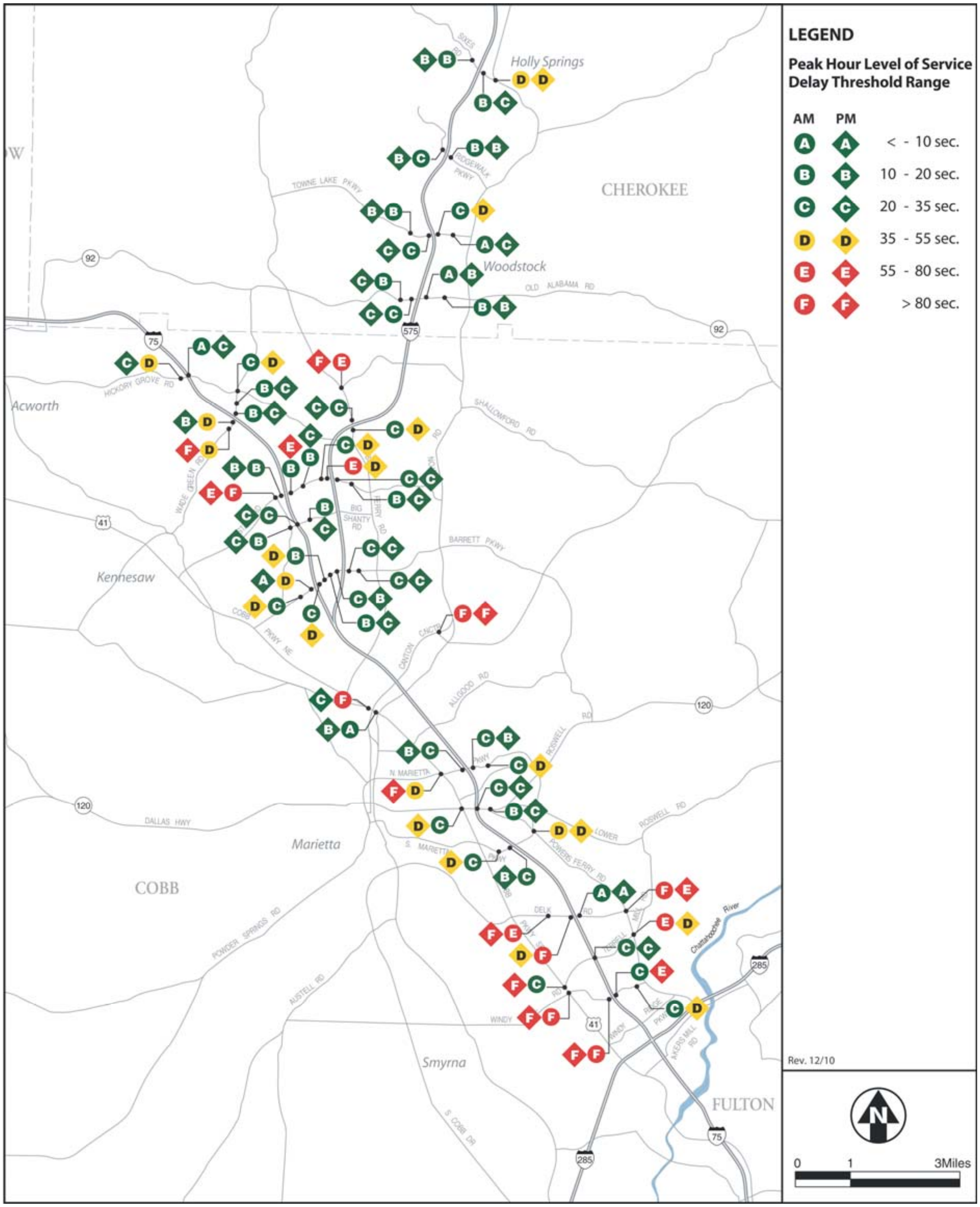
Intersection	No-Build AM Peak	No-Build PM Peak	Build AM Peak	Build PM Peak
Wade Green Rd				
Shiloh Rd	F	E	F	F
I-75 SB Ramps	D	B	D	C
I-75 NB Ramps	B	C	B	B
George Busbee Pkwy	B	C	C	C
Hickory Grove Rd				
Shiloh Rd	D	D	D	D
I-75 ML Ramps	n/a	n/a	A	D
Wade Green Rd	E	D	E	D
Barrett Pkwy				
Mall Blvd	C	E	C	D
I-575 SB Ramps	B	B	B	B
I-575 NB Ramps	E	F	D	E
Chastain Meadows Pkwy	C	C	C	C
Chastain Rd				
Chastain Ctr Blvd	C	C	C	D
I-575 SB Ramps	F	F	F	F
I-575 NB Ramps	B	C	B	C
Chastain Meadows Pkwy	C	D	C	C
Bells Ferry Rd				
Shiloh Rd	F	F	F	F
I-575 SB Ramps	E	E	D	E
I-575 NB Ramps	C	F	C	F
SR 92/Old Alabama Rd				
Molly Lane	D	C	C	C
I-575 SB Ramps	D	C	D	C
I-575 NB Ramps	B	C	B	C
Parkway 575	B	C	A	C
Towne Lake Pkwy				
Stone Bridge Pkwy	E	E	D	C
I-575 SB Ramps	F	F	F	D
I-575 NB Ramps	C	F	C	F
Woodstock Parkway	B	E	B	D
Ridgewalk Pkwy				
I-575 SB Ramps	F	D	F	C
I-575 NB Ramps	B	F	B	F
Sixes Rd				
I-575 SB Ramps	E	C	F	B
I-575 NB Ramps	C	D	C	D
Canton Rd	E	D	D	D

Notes: AM = morning; PM = evening; and n/a = not applicable.

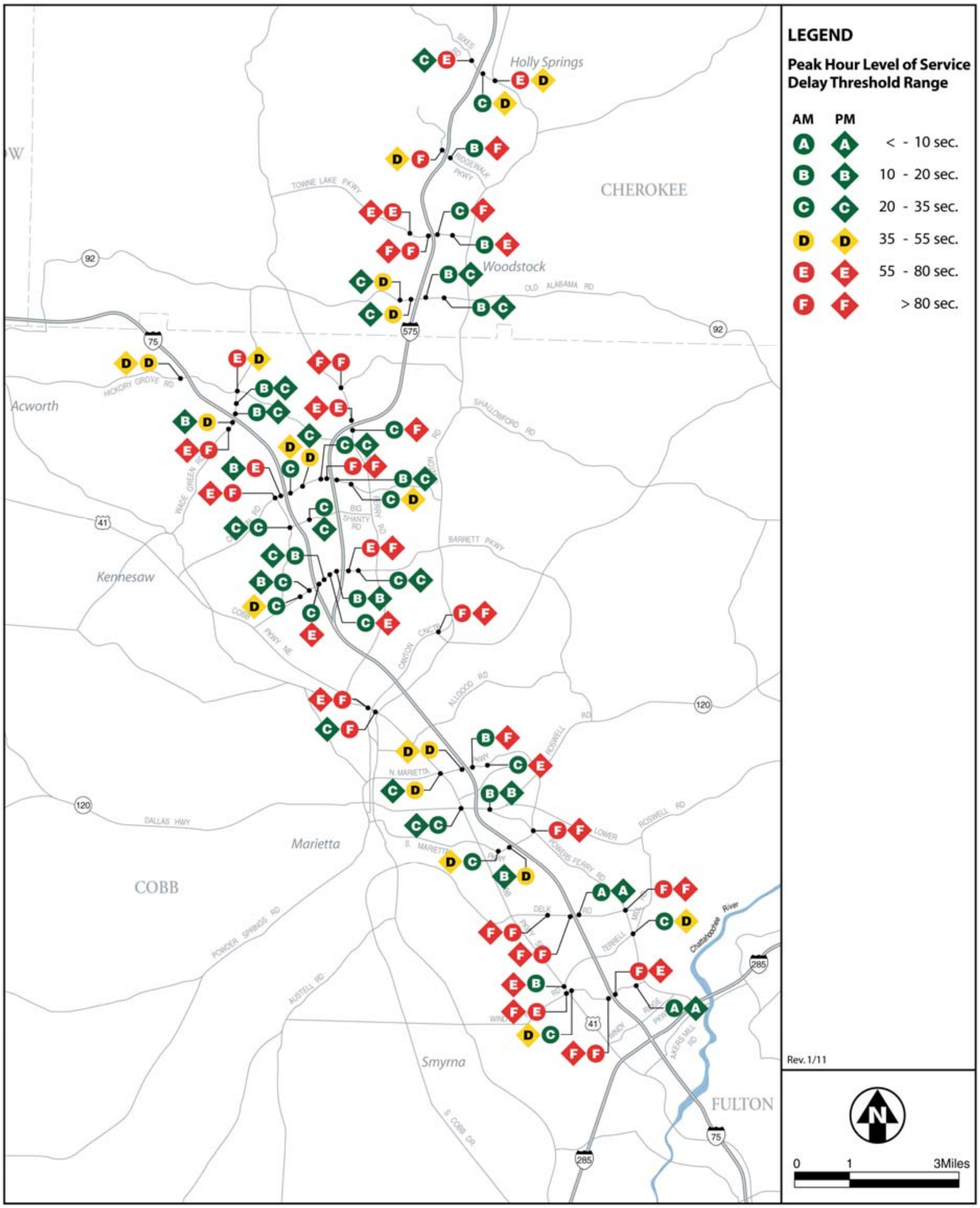
LOS / Average Intersection Delay (secs.)
A = 0.0 to 10.0 sec/veh D = 35.1 to 55.0 sec/veh
B = 10.1 to 20.0 sec/veh E = 55.1 to 80.0 sec/veh
C = 20.1 to 35.0 sec/veh F = > 80.0 sec/veh
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



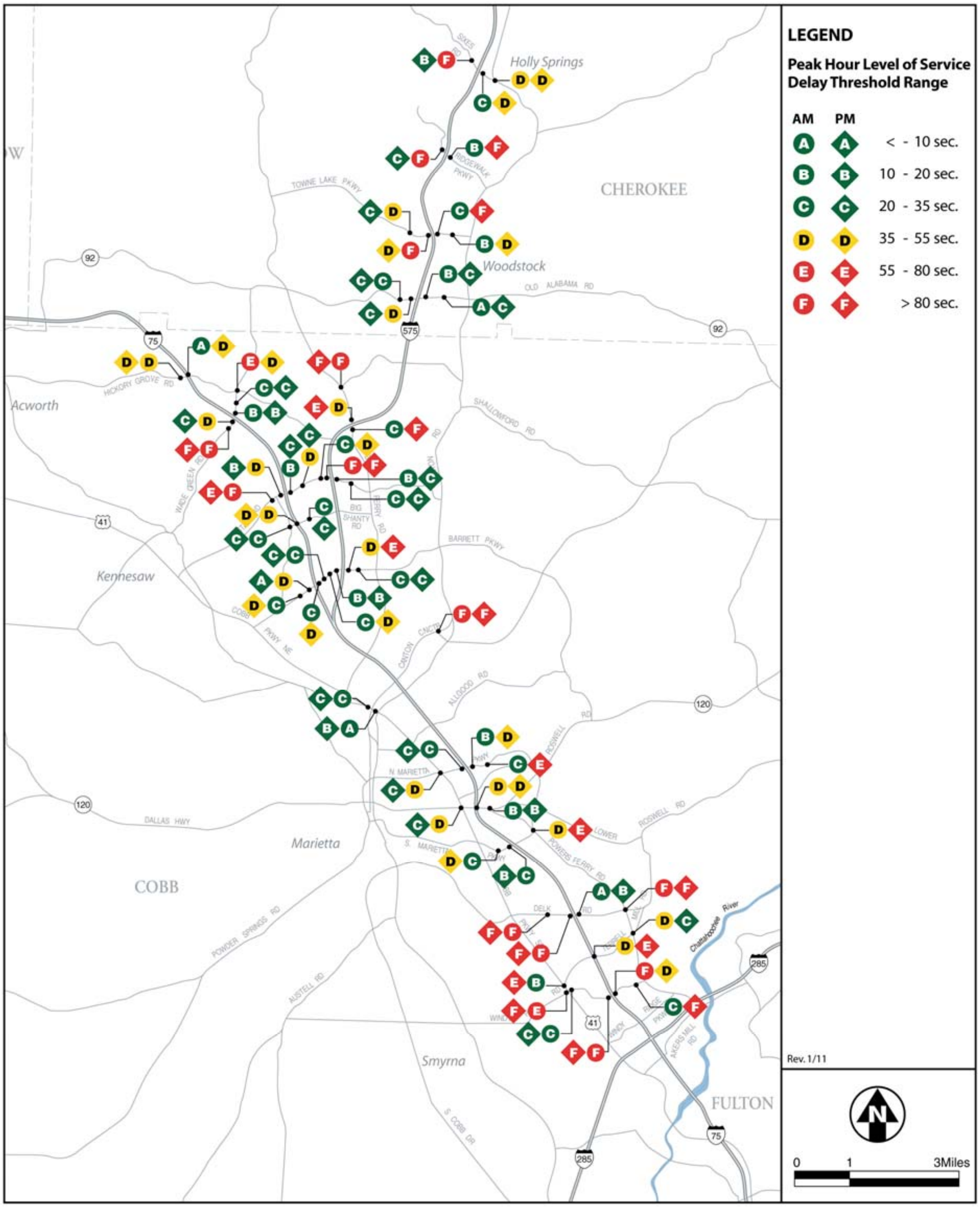
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.3.6 Roadway Travel Times

Roadway travel time per trip measures how long it takes a typical roadway user to travel between highway segments. Roadway travel times were obtained from the ARC 2008 Travel Demand Forecasting Model output. The model calculates a travel time for each of the link segments based on the assigned volumes. Travel time savings can occur from changes in average travel speeds, reduction in traffic congestion, and changes in distances as a result of changes in travel patterns. The results of the peak direction travel time presented in this section compare select points on I-75 and I-575 under the No-Build and Preferred Alternatives for both 2015 and 2035. Figure 4-9 and Figure 4-10 show the morning and evening peak hour travel time for 2015, respectively. And Figure 4-11 and Figure 4-12 show the morning and evening peak hour travel time for 2035. The peak directions are inbound (southbound) in the morning peak hour and outbound (northbound) during the evening peak hour.

4.3.6.1 2015 Peak Hour Travel

For the 2015 No-Build Alternative, the average travel time southbound on I-75 (morning peak hour) from north of Hickory Grove Road to Akers Mill Road is projected to be approximately 42 minutes (see Figure 4-9). The evening peak hour travel time (northbound) on I-75 from Akers Mill Road to north of Hickory Grove Road is projected to be about 45 minutes (see Figure 4-10). On I-575, the 2015 morning peak hour average travel time from Sixes Road to Akers Mill Road would be nearly 51 minutes. During the evening peak hour, the northbound 2015 travel time for the same segment is forecast to be 59 minutes.

Under the Preferred Alternative, the 2015 travel time in the general-purpose lanes would decrease slightly compared to the No-Build Alternative and travel time in the managed lanes would be substantially less than in the general-purpose lanes. In the morning peak period, the average travel time southbound on I-75 from north of Hickory Grove Road to Akers Mill Road would be approximately 41 minutes in the general-purpose lanes, a savings of about a minute. The managed lanes travel time would be just over 16 minutes for the same segment. This equates to a savings of more than 61 percent compared to the No-Build Alternative.

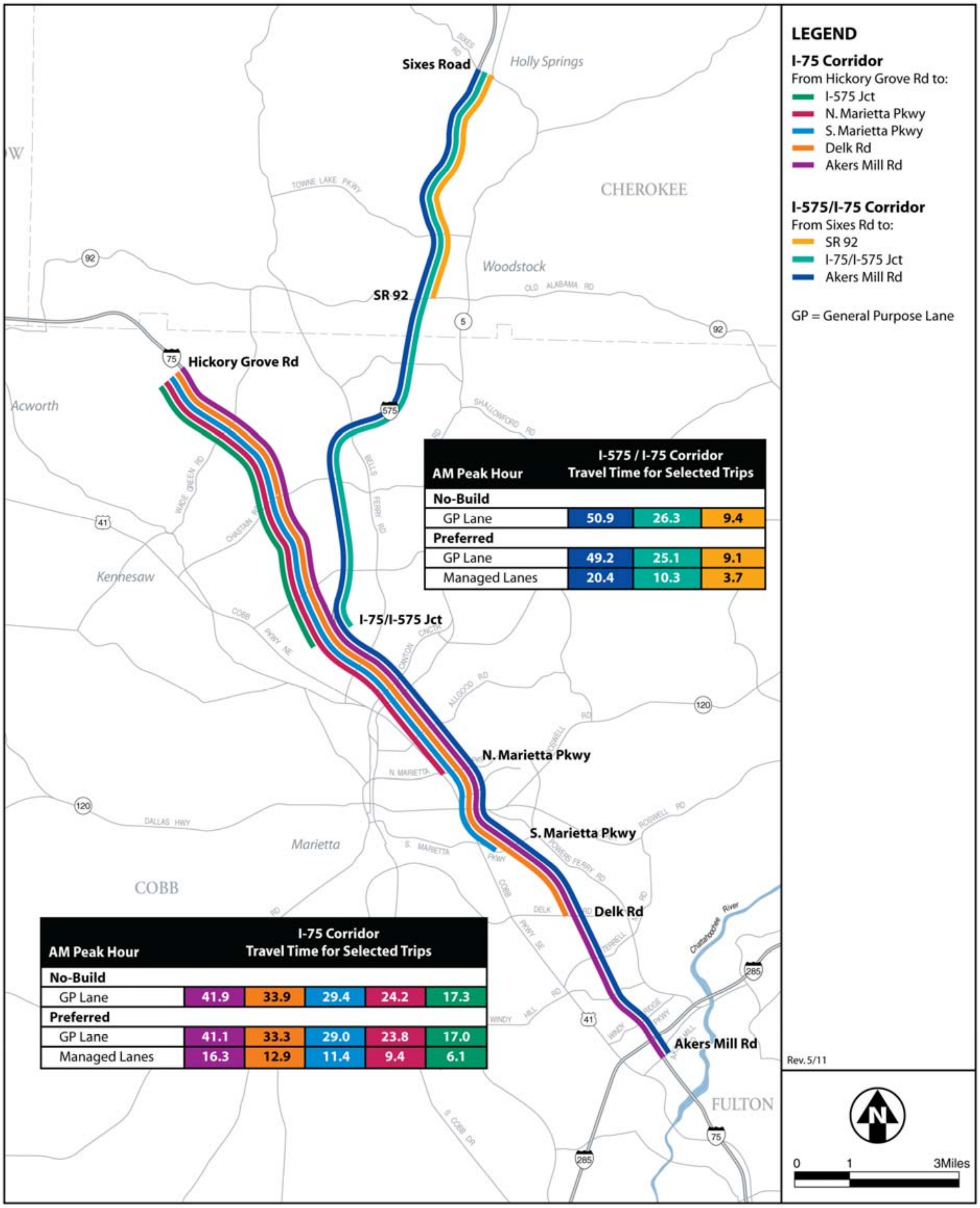
In 2015, the evening peak hour average northbound travel time on I-75 from Akers Mill Road to north of Hickory Grove Road is forecast to be approximately 41 minutes in the Preferred Alternative for the general-purpose lanes; and it would be less than 17 minutes in the managed lanes. This compares to about 44 minutes in the No-Build Alternative. This difference indicates a projected time savings under the Preferred Alternative for the general-purpose lanes of approximately 3 minutes. The time savings between the general-purpose and managed lanes is almost 60 percent.

On I-575, the average travel time southbound on I-575 from Sixes Road to Akers Mill Road under the 2015 No-Build Alternative would be approximately 51 minutes in the morning peak hour. This compares to a projected travel time of 49 minutes in the general-purpose lanes under the 2015 Preferred Alternative. The projected travel time would be approximately 20 minutes in the corresponding managed lanes, a savings of over 58 percent.

In contrast, northbound travel in the evening peak hour on I-575 from Akers Mill Road to Sixes Road would be about 59 minutes under the No-Build Alternative in 2015. Under the Preferred Alternative, travel would be about 54 minutes in the general-purpose lanes, but only about 21 minutes in the managed lane. The projected 2015 travel time in the managed lane on I-575 would provide a travel time savings of over 37 minutes, or over 63 percent.

Roadway Travel Times – AM Peak Direction, 2015

Figure 4-9



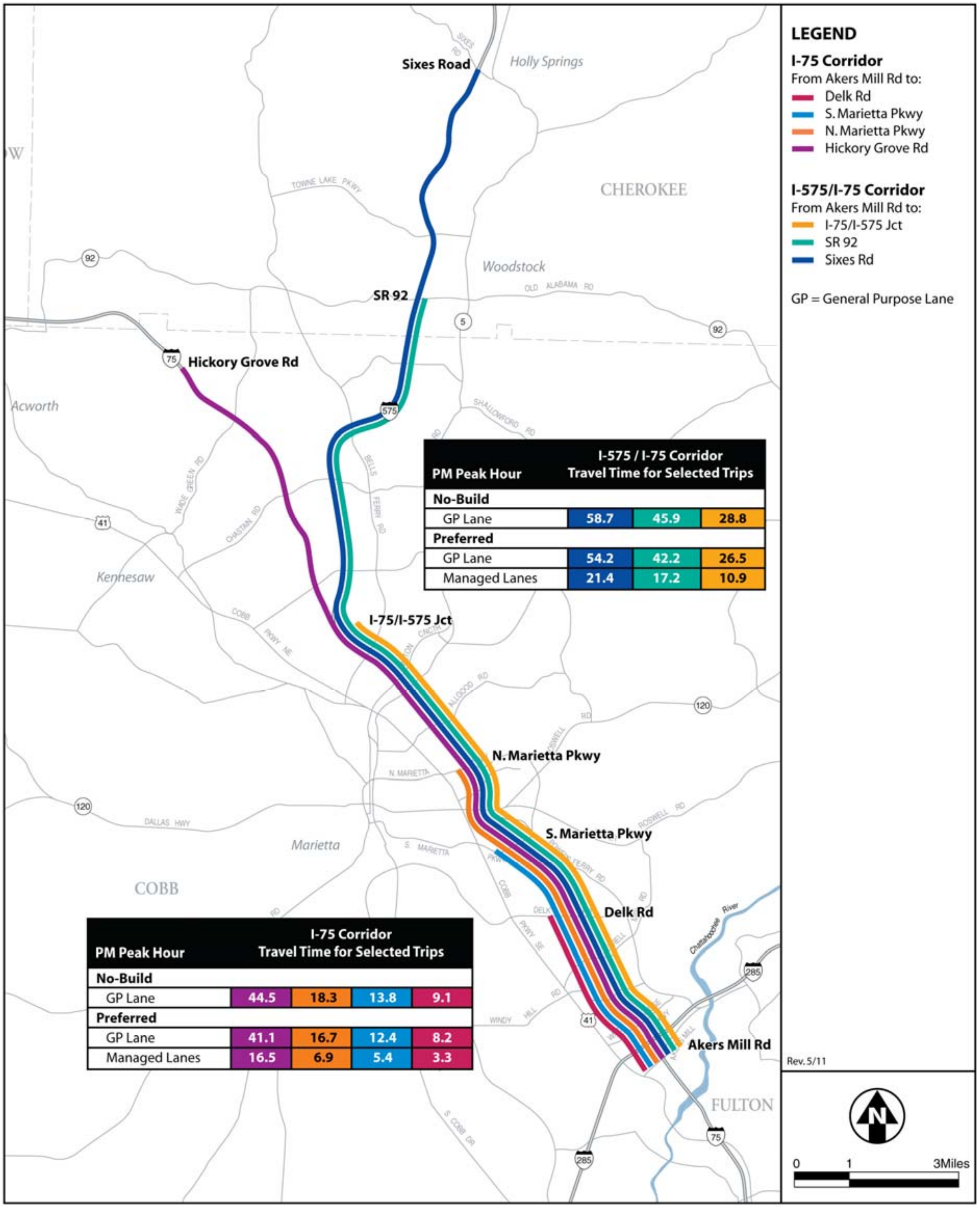
AM Peak Hour	I-575 / I-75 Corridor Travel Time for Selected Trips		
No-Build			
GP Lane	50.9	26.3	9.4
Preferred			
GP Lane	49.2	25.1	9.1
Managed Lanes	20.4	10.3	3.7

AM Peak Hour	I-75 Corridor Travel Time for Selected Trips				
No-Build					
GP Lane	41.9	33.9	29.4	24.2	17.3
Preferred					
GP Lane	41.1	33.3	29.0	23.8	17.0
Managed Lanes	16.3	12.9	11.4	9.4	6.1

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Roadway Travel Times – PM Peak Direction, 2015

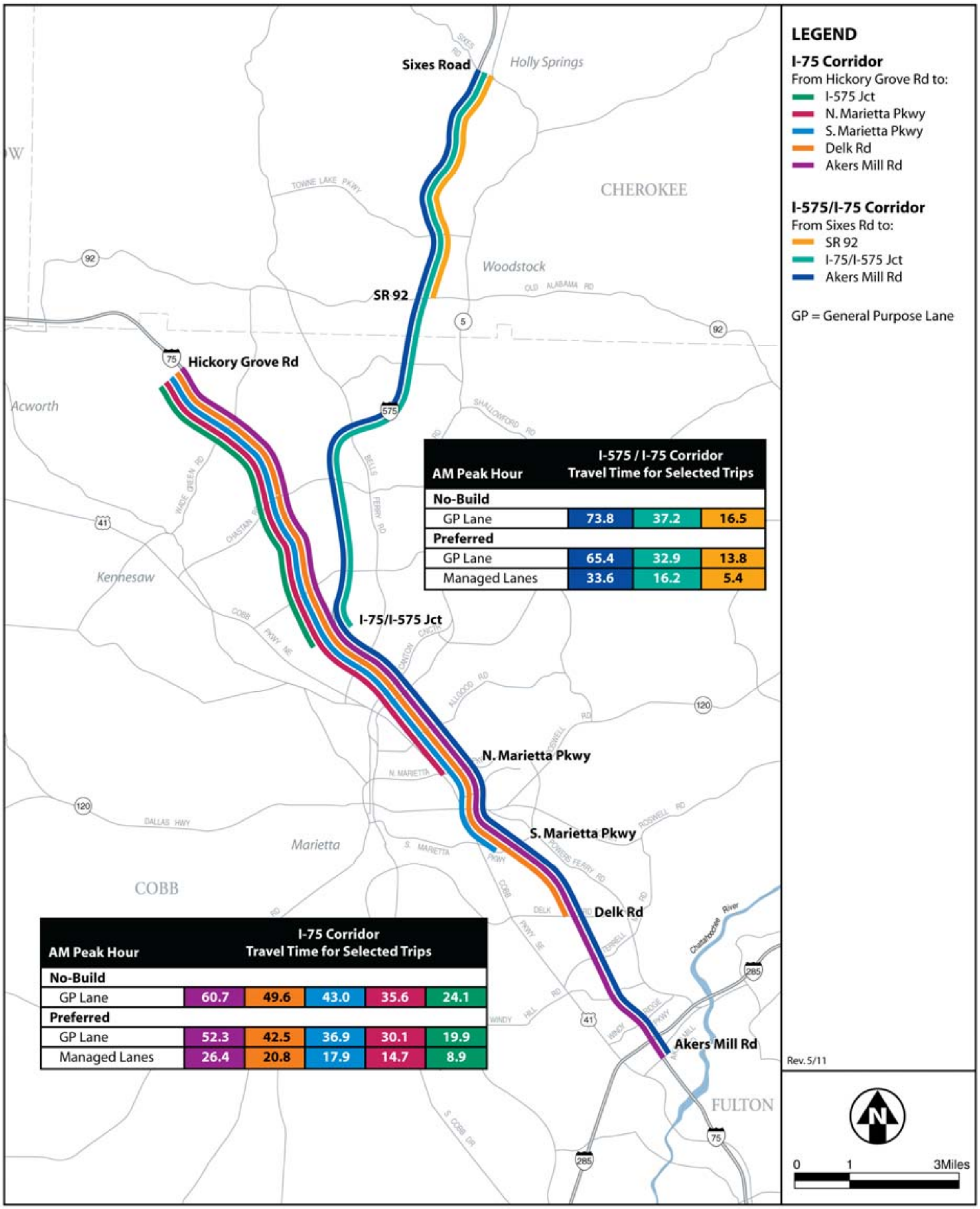
Figure 4-10



PM Peak Hour	I-575 / I-75 Corridor Travel Time for Selected Trips		
No-Build			
GP Lane	58.7	45.9	28.8
Preferred			
GP Lane	54.2	42.2	26.5
Managed Lanes	21.4	17.2	10.9

PM Peak Hour	I-75 Corridor Travel Time for Selected Trips			
No-Build				
GP Lane	44.5	18.3	13.8	9.1
Preferred				
GP Lane	41.1	16.7	12.4	8.2
Managed Lanes	16.5	6.9	5.4	3.3

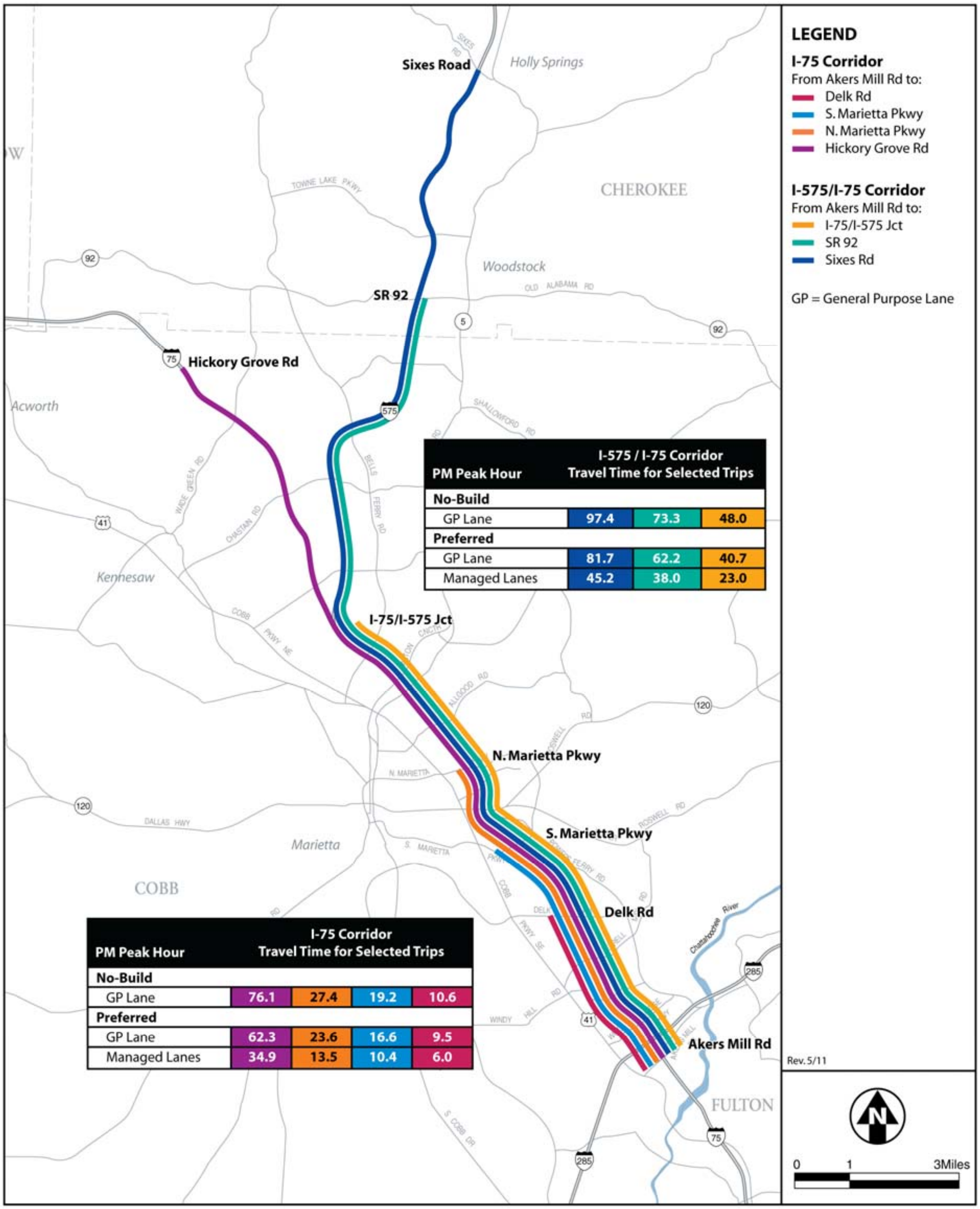
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



AM Peak Hour	I-575 / I-75 Corridor Travel Time for Selected Trips		
No-Build			
GP Lane	73.8	37.2	16.5
Preferred			
GP Lane	65.4	32.9	13.8
Managed Lanes	33.6	16.2	5.4

AM Peak Hour	I-75 Corridor Travel Time for Selected Trips				
No-Build					
GP Lane	60.7	49.6	43.0	35.6	24.1
Preferred					
GP Lane	52.3	42.5	36.9	30.1	19.9
Managed Lanes	26.4	20.8	17.9	14.7	8.9

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.



PM Peak Hour	I-575 / I-75 Corridor Travel Time for Selected Trips		
No-Build			
GP Lane	97.4	73.3	48.0
Preferred			
GP Lane	81.7	62.2	40.7
Managed Lanes	45.2	38.0	23.0

PM Peak Hour	I-75 Corridor Travel Time for Selected Trips			
No-Build				
GP Lane	76.1	27.4	19.2	10.6
Preferred				
GP Lane	62.3	23.6	16.6	9.5
Managed Lanes	34.9	13.5	10.4	6.0

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

4.3.6.2 2035 Peak Hour Travel

Under the 2035 No-Build Alternative, the average travel time southbound on I-75 from north of Hickory Grove Road to Akers Mill Road is projected to be approximately 61 minutes in the morning peak hour (see Figure 4-11). In contrast, the evening peak hour average travel time northbound on I-75 from Akers Mill Road to north of Hickory Grove Road is projected to be approximately 76 minutes (see Figure 4-12). On I-575, the average travel time southbound from Sixes Road to Akers Mill Road would be nearly 74 minutes in the morning peak hour. During the evening peak hour the average travel time northbound from Akers Mill Road to Sixes Road using I-575 is forecast to be over 97 minutes.

Under the Preferred Alternative, the 2035 travel time in the general-purpose lanes would less than under the No-Build Alternative and travel time in the managed lanes would be substantially reduced compared to the general-purpose lanes. For comparison, under the Preferred Alternative the average peak hour travel time southbound on I-75 from north of Hickory Grove Road to Akers Mill Road would be approximately 52 minutes in the morning in the general-purpose lanes, a savings of 9 minutes, or approximately 15 percent. The travel time under the Preferred Alternative in the morning peak hour for southbound I-75 managed lanes would be slightly more than 26 minutes for the same segment. This equates to a savings of more than 56 percent compared to the No-Build Alternative or a total travel time savings of over 34 minutes. The off-peak travel time in the morning peak hour (northbound), for both the Preferred and No-Build Alternatives for the same segment, would be 28 minutes.

During the evening peak hour, the average northbound travel time on I-75 from Akers Mill Road to north of Hickory Grove Road is forecast to be approximately 62 minutes in the 2035 Preferred Alternative's for the general-purpose lanes; and it would be 35 minutes in the managed lanes. This compares to 76 minutes in the No-Build Alternative. This indicates a projected savings under the Preferred Alternative of 14 minutes in the general purpose lanes and 41 minutes in the managed lanes. This is over 18 percent savings in time in the general-purpose lanes and a savings of 54 percent in the managed lanes. The off-peak (southbound) travel time for the same segment for both the Preferred and No-Build Alternatives during the evening peak hour would be 38 minutes.

On I-575, the average travel time southbound on I-575 from Sixes Road to Akers Mill Road under the 2035 No-Build Alternative would be approximately 74 minutes in the morning peak hour. This compares to a projected travel time of 65 minutes in the morning peak in the general-purpose lanes under the Preferred Alternative. This is an anticipated time savings of 9 minutes, or over 12 percent, compared to the No-Build Alternative. The projected travel time would be less than 34 minutes in the corresponding managed lane, a savings of over 54 percent. The off-peak travel time in the morning peak hour (northbound) for both the Preferred and No-Build Alternatives for the same segment would be an estimated 34 minutes.

During the evening peak hour, northbound travel from Akers Mill Road to Sixes Road would be over 97 minutes under the No-Build Alternative in 2035. Under the Preferred Alternative, evening peak hour northbound travel in the general-purpose lanes would be almost 82 minutes and just slightly more than 45 minutes in the managed lane. As such, the managed lane on I-575 would reduce travel time by over 52 minutes, or 53 percent.

4.4 Corridor Transit System Impacts

As mentioned in Section 4.2.3, there are no differences in transit improvements under the No-Build and Preferred Alternatives. These improvements are related to operational issues such as new or altered routes, better headways/frequencies, number of transit stops/stations, etc. However, transit riders would still receive the same travel benefits as the non-transit travel time savings under the Preferred Alternative. This is because transit vehicles would travel for free in the managed lanes. More importantly, the transit vehicles would bypass the congestion in the general-purpose lanes. Accordingly, the Preferred Alternative would reduce transit travel times by over 50 percent depending on time and direction as mentioned in Section 4.3.6 for transit vehicles using the managed lanes. These conditions would provide substantially more reliable transportation service for transit riders. However, because transit service in terms of number of routes and vehicles to operate the transit system in 2035 is assumed to be the same as provided under the No-Build Alternative, specific transit modeling was not performed at this time. It is important to note that while transit vehicles would achieve the same travel time savings through the corridor, transit trips are frequently longer; therefore, the proportion of time saved would be smaller for a transit trip than an SOV trip.

Cobb County has been awarded $1.3 million from the Federal Transit Administration through the Alternatives Analysis Grant Program to conduct an Alternatives Analysis for a potential transit project along US-41/I-75 from the Metropolitan Atlanta Rapid Transit Authority (MARTA) Arts Center Station in Atlanta to Acworth. This route is directly parallel and close to the alignment of the Preferred Alternative. The study is anticipated to commence in the fall of 2011. As this evaluation is just beginning, it was not considered in this FEIS.

4.5 Freight and Truck Movement Impacts

As the managed lanes exclude all truck traffic, freight and truck movements would be the same under the Preferred Alternative compared to the No-Build Alternative. Indirectly, the shifting of some automobiles and buses from the general-purpose lanes to the managed lanes under the Preferred Alternative would benefit freight and truck movements by reducing the congestion in the general-purpose lanes. These benefits were reflected in the discussion of improvements to the travel times in the general-purpose lanes (see Section 4.3.6).

4.6 Construction Impacts

Construction impacts would be relatively low for the Preferred Alternative. Most of the construction work would be performed outside of the existing travel lanes, but largely within the existing rights-of-way. Where construction activities would affect the general-purpose lanes, in particular near the I-75/I-285 interchange and near the I-75/I-575 interchange, the existing number of lanes would be maintained during daytime periods. The capacity, however, would be likely be somewhat reduced due to reduced shoulders, lane width, or other factors affecting overall roadway capacity.

Some lane closures are expected to be required during the construction of the project. Construction of the managed lanes over, and in some cases under, cross streets and highway ramps would result in closure of lanes on cross streets and highway ramps during off-peak periods. In particular, the construction of the western span of the Gresham Road bridge over I-75 would likely require closure of Gresham Road for a number of weeks. During this period, traffic would be required to detour, which could increase traffic on parallel arterial streets during this period. Overall, however, it is anticipated that high-volume cross streets and ramps would experience increased traffic only at night or on weekends when construction activities would require short-term temporary road closures and/or detours.

Through the P3 Developer Agreement, the construction contractor would be required to submit a work plan outlining work schedules, traffic control, access provisions, and intended mitigation measures prior to initiating construction. In addition, the full extent and durations of closures will be identified and minimized during final design.

CHAPTER 5
ENVIRONMENTAL CONSEQUENCES

5. ENVIRONMENTAL CONSEQUENCES

This chapter discusses the potential impacts of the No-Build and Preferred Alternatives on the social, cultural, and natural environments. This chapter also identifies potential measures to mitigate adverse impacts. The framework of analysis is set forth in the National Environmental Policy Act of 1969, as amended (NEPA).

5.1 Preferred Alternative Property Acquisitions

This section discusses the estimated property acquisitions for the proposed project. Acquisitions consist of both full and partial property acquisitions. Full acquisition occurs when the entire parcel is needed, including any buildings that may be present on the land. Loss of use of the property, including loss of access, also can lead to full acquisition and displacement. Partial acquisition occurs when only a portion of a parcel is required, and therefore, does not result in displacement. The property acquisitions associated with the No-Build Alternative and the Preferred Alternative are described in this section, but are preliminary and subject to refinement during preliminary engineering and final design.

5.1.1 Methodology

To identify potential properties that would need to be acquired the right-of-way limits of the Preferred Alternative were overlaid onto corridor parcel maps. Each of the parcels was evaluated to see if the portion of the parcel within the boundaries of proposed right-of-way encompassed all or part of onsite buildings or structures. If so, the parcel was assumed to be a full acquisition. For other parcels, the analysis determined that the portion of the parcel within the proposed right-of-way was only land, either undeveloped or developed, e.g., simply a landscaped portion of land or a portion of a paved parking lot. For these parcels, the required acquisition was determined to be a partial acquisition.

The key issue to acquisition is whether or not the property owner can continue to have use of the property as it was used prior to the acquisition. If acquisition would require purchase of portions integral to the use of the property, then all of the property is assumed to be purchased. For example, an entire parcel would be acquired if all of the parking area were acquired because without the parking the business would not be viable.

Displacement, and potentially relocation, can be caused by right-of-way acquisition. Land uses, buildings, and building occupants (owners or tenants) could be displaced. If residential buildings are acquired, then the owners or renters must relocate to new housing. If commercial buildings are acquired, the businesses and associated assets and/or employees must relocate to new commercial space.

5.1.2 Property Acquisitions

The No-Build Alternative would not require the acquisition of additional right-of-way as part of the proposed project. The Preferred Alternative would require acquisition an estimated 76 property parcels that are privately owned for the right-of-way necessary. Most of the acquisitions are narrow slivers of land that would not result in acquisition of buildings or substantial changes in land use. Table 5-1 presents the number of full and partial property acquisitions required under the Preferred Alternative. Additional information about the type of land use, number of households, and types of businesses that would be displaced due to full acquisitions is

Table 5-1. Property Acquisitions for the Preferred Alternative

Full Acquisitions	Partial Acquisitions	Total (affected parcels)
13	63	76

discussed below in Section 5.3. This section also discusses mitigation measures for proposed acquisitions and resulting displacements.

5.2 Land Use

This section discusses the potential land use impacts for both the No-Build and Preferred Alternatives. A discussion of existing land uses and adopted planning documents is found in Section 3.1. The potential land use impacts and compatibility with existing land use plans, policies, and controls that may affect future land use are discussed in this section.

The No-Build Alternative would not require acquisition of additional right-of-way as the managed lanes would not be constructed.

The Preferred Alternative would require acquisition of additional right-of-way and would displace 6 residences and 12 businesses. The displacements are located immediately adjacent to the existing highway corridor generally between Delk Road and Canton Road. The displacements are located in an area that is developed and represent a small fraction of the existing residences and businesses in that area. As such, the displacements would not result in any substantial changes to land use patterns in the study area.

5.2.1 Compatibility with Land Use Plans and Policies

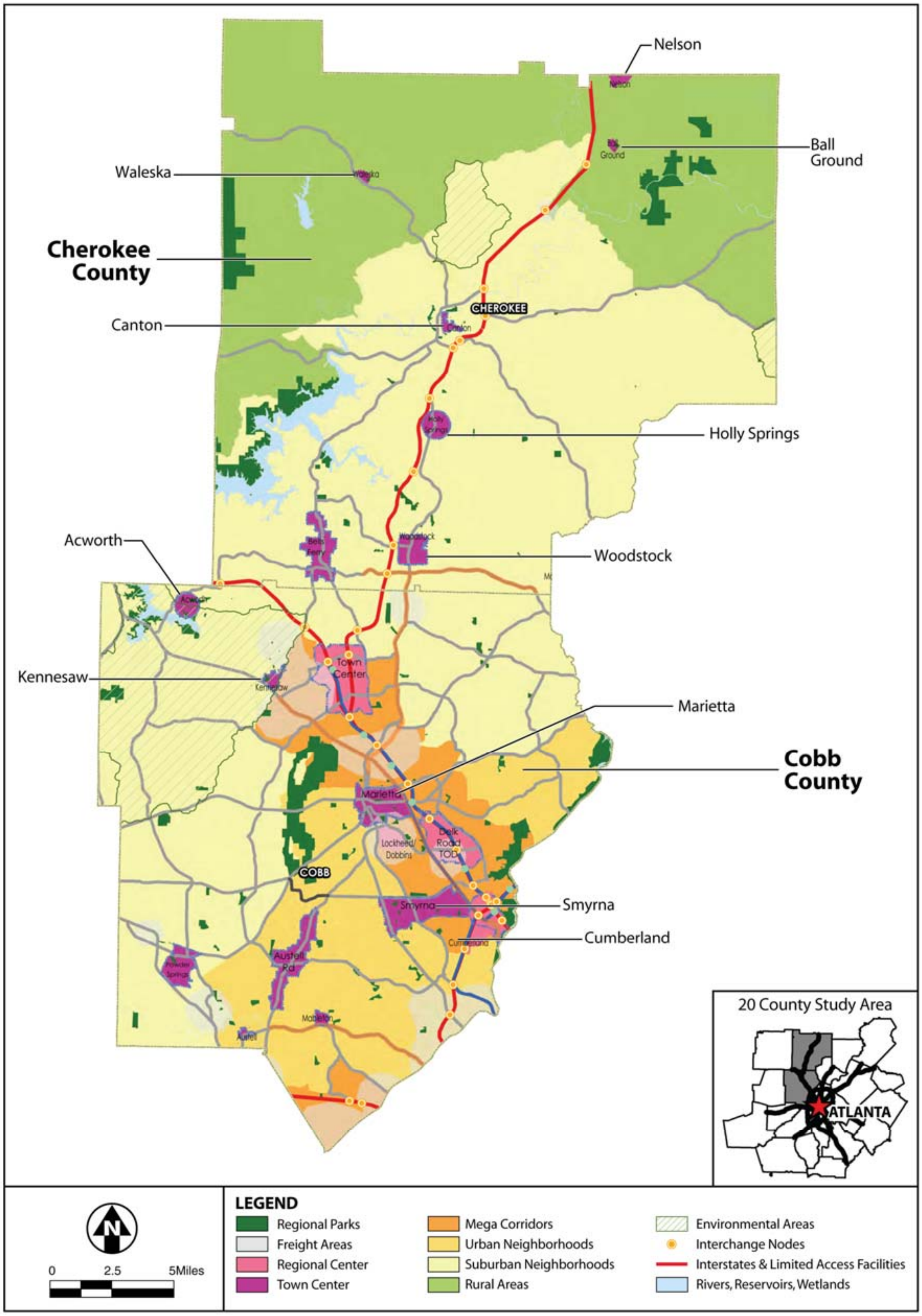
The *Envision6 Atlanta Region Unified Growth Policy Map* (ARC, 2010a), developed as part of the regional development plan, identifies the future land use vision for the region that was developed with local government and public input. Figure 5-1 illustrates the section of the Unified Growth Policy Map for the Northwest Corridor study area. The majority of the future land use along the Interstate 75 (I-75) and I-575 corridors where the Preferred Alternative is proposed is classified as Mega Corridors or Regional Centers. In the *Envision6 Regional Development Types Matrix* (ARC, 2006b), Mega Corridors and Regional Centers are defined as described below.

- Mega Corridors: Most intensely developed radial corridors in the region. They may include multiple regional centers. In Mega Corridors, higher density mixed use developments and regional parks are strongly recommended and general commercial, industrial and residential (5 to 44 dwelling units per acre) uses are conditionally recommended. The Mega Corridors are shown in dark orange in Figure 5-1.

- Regional Centers: Areas of intense retail, office and residential uses. The uses can be integrated or separate. They have a higher density of residential uses, but lower job densities than a central city. In Regional Centers, higher density mixed uses, general commercial uses, office and regional parks, and residential (townhouses and small lot) uses are strongly recommended and higher density residential (44 dwelling units per acre) uses are conditionally recommended. The Regional Centers are shown in pink in Figure 5-1.

Unified Growth Policy Map for the Northwest Corridor Study Area

Figure 5-1



Source: ARC, 2010a.

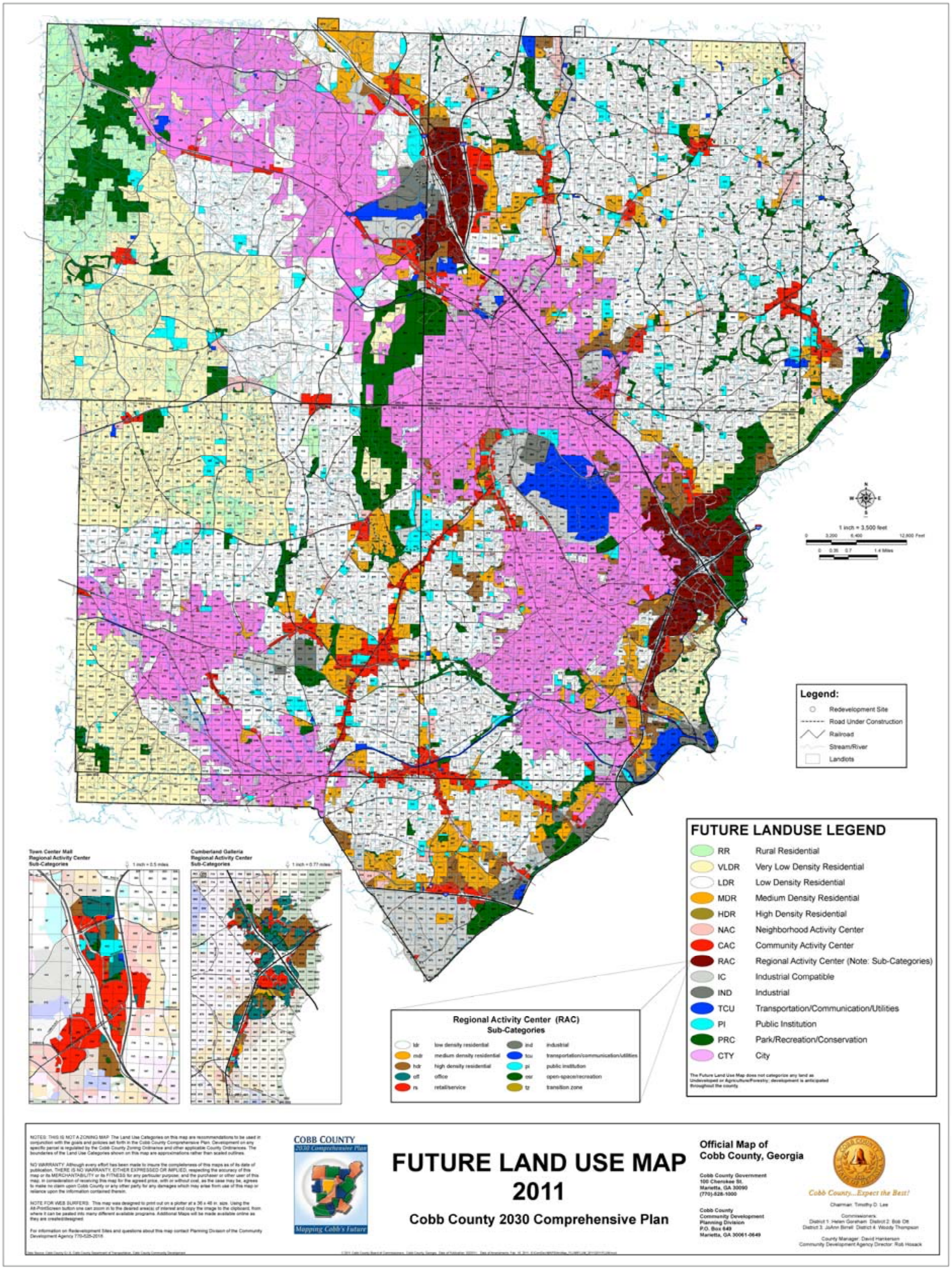
Figure 5-2 shows the Cobb County future land use map developed as part of the *2030 Comprehensive Plan: Mapping Cobb County's Future* (Cobb County, 2010a). The plan and map are updated annually through an official annual plan amendment process in order to allow for timely, small-scale changes to the plan text and the map. The amendment process begins at the end of each calendar year. Changes to the plan and map may be the result of direction from the Board of Commissioners due to a rezoning action, and/or suggestions from the Planning Commission, residents, business, community, or staff. Any site that was not previously posted for a rezoning, issued a land use permit, or subject to a special land use permit hearing is posted to notify the public of the proposed comprehensive plan amendments and two public meetings are held to solicit public input.

The majority of the future land use along route of the Preferred Alternative under Cobb County jurisdiction is classified as Regional Activity Center (maroon color in Figure 5-2). The purpose of a Regional Activity Center is to provide for areas that can support a high intensity of development, which serves a regional market.

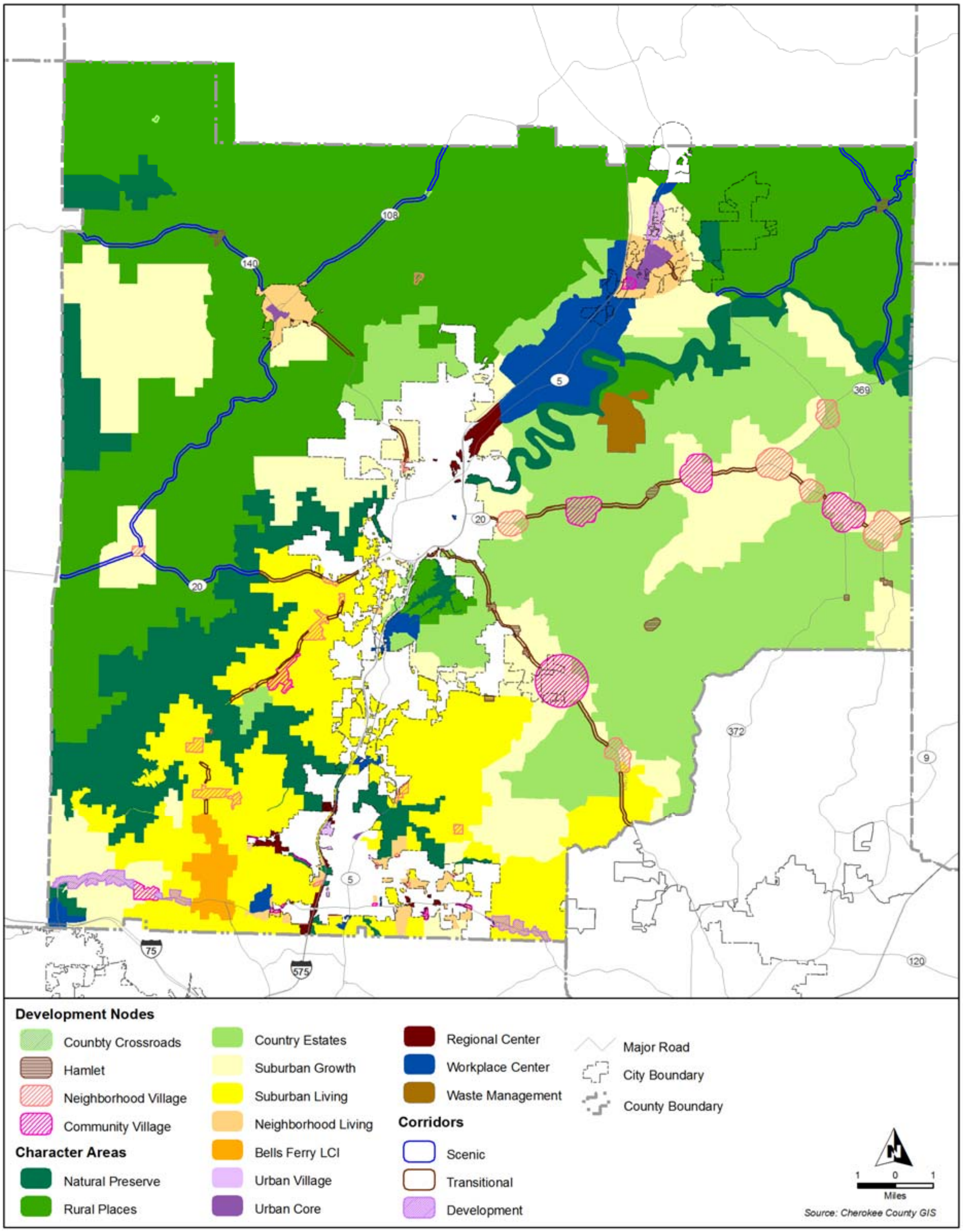
Figure 5-3 shows the Cherokee County future development map that was developed as part of Cherokee County's comprehensive plan, *Plan Cherokee: Community Agenda* (Cherokee County, 2008). The future development map relies heavily on the written character area descriptions in the comprehensive plan to define the types of land uses that are appropriate in different parts of the county. The character areas were developed to identify places that show a common form of development and land use pattern, lifestyle and "feel", intensity of use, design elements or other factors that collectively define the overall character, whether existing or intended in the future. The descriptions indicate the primary and secondary types of land uses, the infrastructure necessary for that type of development, and serve as a guide for future development approvals. The comprehensive plan was developed with input from residents and community stakeholders.

The majority of future land use along the Preferred Alternative under Cherokee County jurisdiction is classified Suburban Living and Regional Center, with smaller areas classified as Workplace Center and Natural Preserve. These classifications are defined as follows:

- Suburban Living: These areas are characterized by existing suburban neighborhoods of single-family detached houses and complimentary shopping areas, and institutions such as churches, schools, libraries and regional parks. The intent of this classification is to support existing suburban development with compatible residential and commercial development.
- Regional Center: Regional Centers are areas that include a relatively high intensity mix of business and retail, office and employment opportunities, higher-education facilities, sports, recreational complexes, hotels, theaters, civic and semi-public uses (such as libraries, health clinics, museums, and religious institutions). They also include higher density condominium and rental residential complexes, townhomes, brownstones, live-work units, lofts, senior housing and residential over retail.
- Workplace Center: Workplace Centers are primarily large employment centers that incorporate many aspects of commerce such as professional office buildings, corporate offices, regional offices, high-tech and research facilities and small office complexes; educational services and recreation; and light industrial uses such as warehousing and wholesale. Secondary uses include retail and residential development.



Source: Cobb County, 2010a.



Source: Cherokee County, 2008.

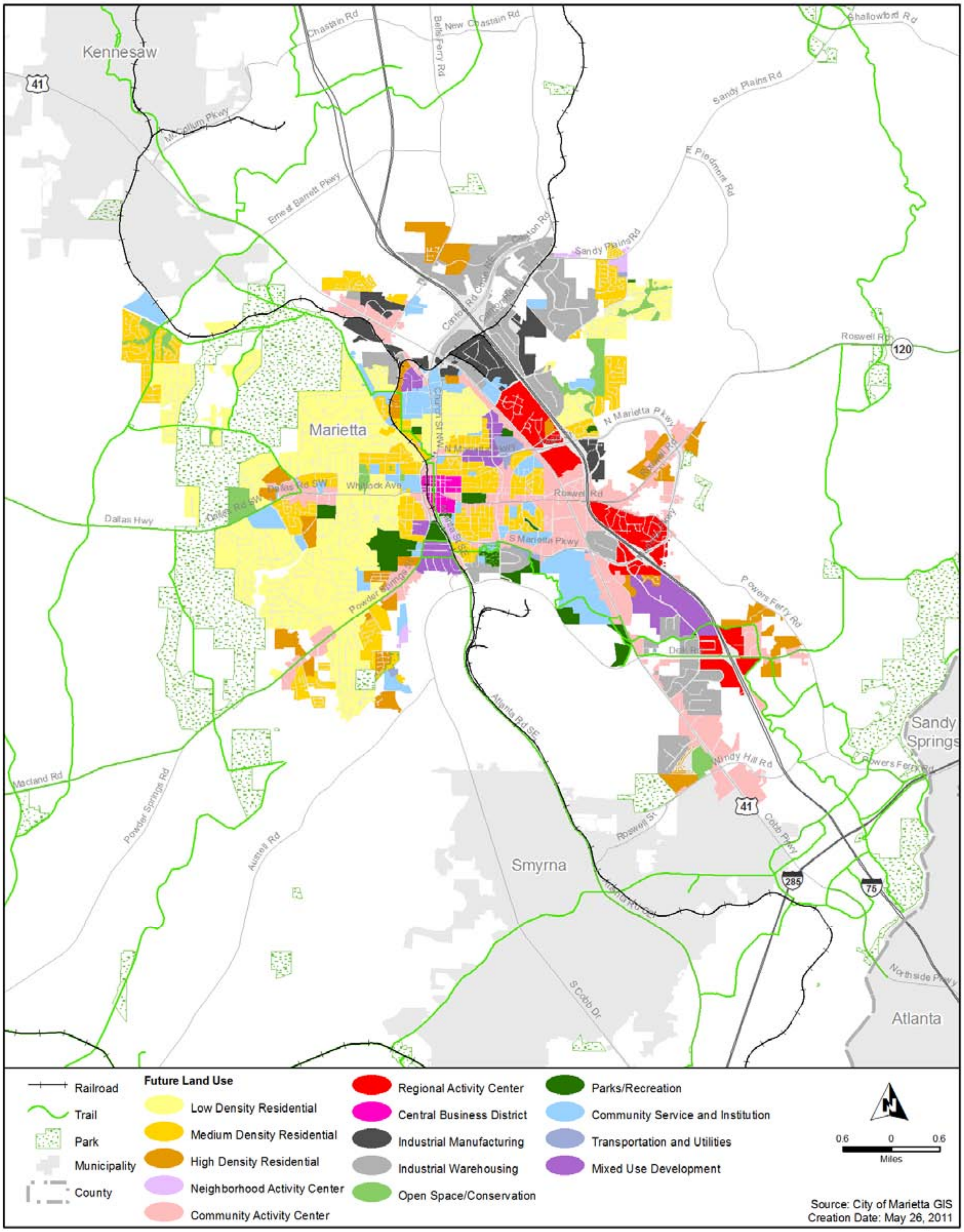
- Natural Preserve: These areas are characterized as undeveloped, natural lands with significant natural features that may include views, steep slopes, flood plains, wetlands, watersheds, wildlife management areas, conservation areas, private or publically owned conservation areas and other environmentally sensitive areas not suitable for development. These areas also include passive open space and greenway trails.

The Marietta future land use map is shown is Figure 5-4 and was developed as part of the *City of Marietta Comprehensive Plan 2006-2030, The Roadmap to Marietta's Future* (Marietta, 2006). The plan is one of the primary tools used by the City to make decisions about the location of land uses and community facilities, priorities for public investment, the extension of public services, business development, and transportation needs. The plan was developed with input from residents and community stakeholders.

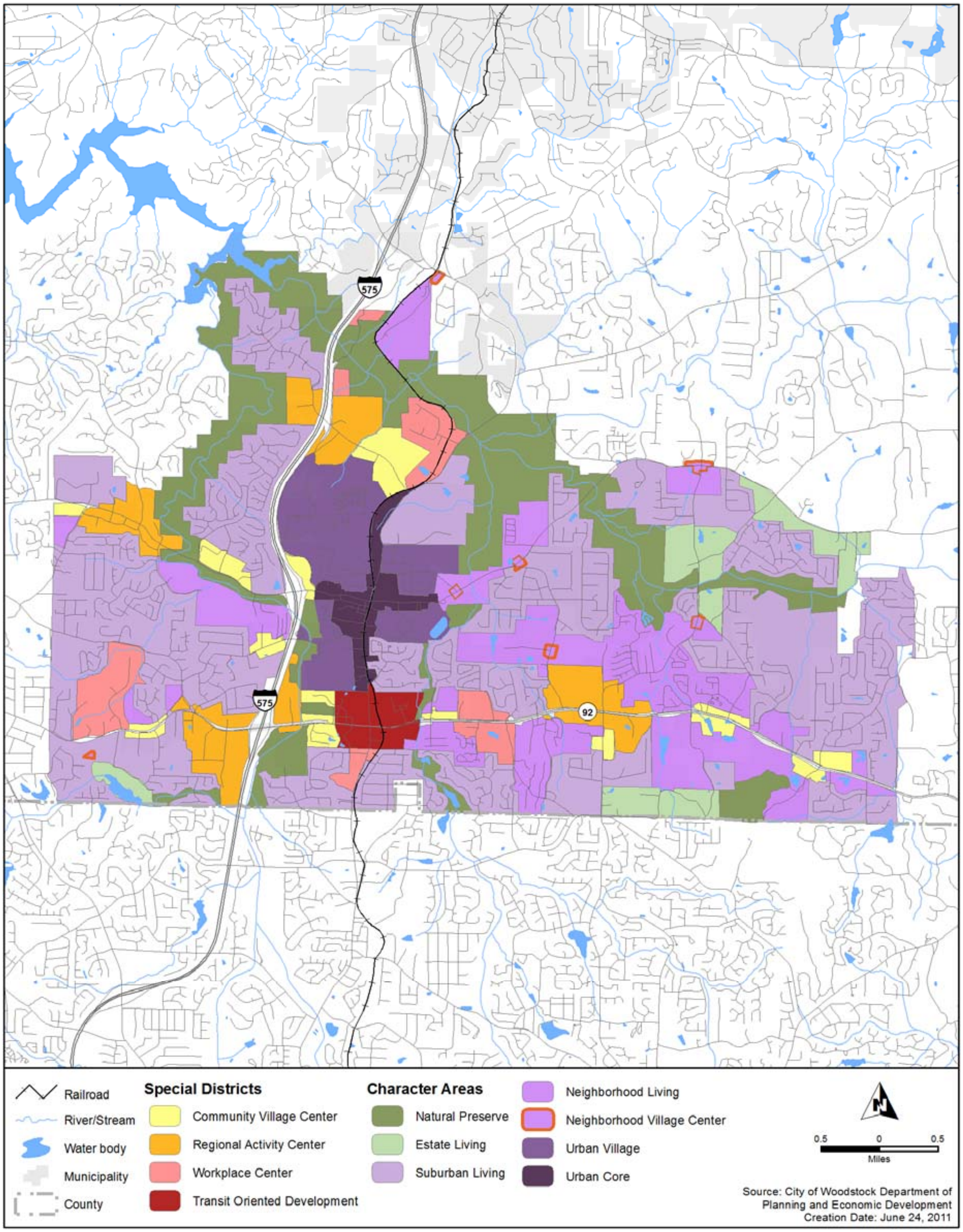
The current version of the future land use map is dated December 2010. The future land uses adjacent to the Preferred Alternative within Marietta include: Regional Activity Center, Community Activity Center, Industrial Manufacturing, Industrial Warehousing, and Mixed Use. These classifications are defined as follows.

- Regional Activity Center: The purpose of a Regional Activity Center is to provide for areas that can support a high intensity of development serving regional markets and trade areas. These districts are generally located along major arterials, highway interchanges and high-capacity mass transit routes. Types of development encouraged in these areas are medium to high intensity office and/or retail. Limited residential opportunities are provided in Regional Activity Centers. The residential opportunities must be in a mixed-use capacity and should not detract from the regional draw of developments in that area.
- Community Activity Center: The purpose of the Community Activity Center is to provide for areas that can meet the retail and service needs of several neighborhoods and communities. These areas provide a wide range of goods and services, including businesses and professional offices. These centers are located along collector and arterial streets. Types of development encouraged in these areas are low- to medium-intensity office, retail and commercial services. Limited residential opportunities may be available in these districts as long as they are along major commercial corridors and are provided in mixed-use traditional neighborhood development or new urbanism communities.
- Industrial Manufacturing: The purpose of the Industrial Manufacturing classification is to provide areas that can support industrial uses. These areas should be located where there is sufficient access to I-75 and/or the CSX rail corridor.
- Industrial Warehousing: The purpose of the Industrial Warehousing classification is to provide areas that can support light industrial, office/warehouse, and distribution uses. These areas should be located where there is sufficient access to major arterials and I-75.
- Mixed Use: Mixed-use districts are recommended locations for the development of activity centers that are specifically planned to include both residential and non-residential uses. The range of non-residential uses and the development density of all use types vary depending on the size of the district and the intensity of the surrounding development.

The City of Woodstock future development map is shown in Figure 5-5 and was developed as part of the City's comprehensive plan, *Comprehensive Town Plan 2030* (Woodstock, 2008a). The comprehensive plan was developed with the idea that the future development map and the plan text were to be used as an integrated whole, with the map serving as a graphic representation of the plan text. The plan uses character areas and subsets of character areas, special districts, to define the types of land uses that are appropriate for the city. Character



Source: Marietta, 2011.



Source: Woodstock, 2008b.

areas were developed to describe classifications of development patterns, their distinct differences and their relationships to each other. The comprehensive plan was developed with input from residents and community stakeholders.

The majority of future land use along the Preferred Alternative under the City of Woodstock jurisdiction is classified T-5 Urban Village, T-1 Natural Preserve, and Regional Activity Center. Other classifications of land use along the Preferred Alternative that are found in smaller amounts include CVC-Community Village Center and WPC-Workplace Center. The classifications are defined as follows:

- T-5 Urban Village: These areas are characterized as areas with a higher density mix of uses, such as mixed-use building types that accommodate local-serving retail and professional offices, small-lot single-family neighborhoods, townhouses, condominiums and apartment buildings.
- T-1 Natural Preserve: These areas are characterized as undeveloped, natural lands with significant natural features that may include views, steep slopes, flood plains, wetlands, watersheds, wildlife management areas, conservation areas, private or publically owned conservation areas and other environmentally sensitive areas not suitable for development. These areas also include passive open space and greenways.
- RAC-Regional Activity Center: Regional Activity Centers are areas that include a relatively high intensity mix of business and retail, office and employment opportunities, higher-education facilities, sports, recreational complexes, hotels, theaters, civic and semi-public uses (such as libraries, health clinics, museums, and religious institutions). They also include higher density condominium and rental residential complexes, townhomes, brownstones, live-work units, lofts, senior housing and residential over retail.
- CVC-Community Village Center: Community Village Centers are typically located at the convergence of major transportation corridors and are envisioned as places where a compatible mixture of higher intensity uses are located, such as larger scaled shopping centers, professional offices and services serving several neighborhoods. These areas include shopping and service facilities that offer a wide variety of goods and services, including both convenience goods for neighborhood residents and shopping goods for a market area consisting of many neighborhoods.
- WPC-Workplace Center: Workplace Centers are primarily large employment centers that incorporate many aspects of commerce such as professional office buildings, corporate offices, regional offices, high-tech and research facilities and small office complexes; educational services and recreation; and light industrial uses such as warehousing and wholesale. Secondary uses include retail and residential development.

As discussed in Section 2.2, the No-Build Alternative includes all existing highways defined by the ARC 2008 Travel Demand Forecasting Model (ARC, 2008b) plus improvements from the *Envision6, Volume I: 2030 Regional Transportation Plan* (*Envision6* RTP) (ARC, 2007b). Among the RTP highway improvements for the study area that are included in the No-Build Alternative are a new interchange on I-575 at Ridgewalk Parkway, improvements on I-75 northbound from I-285 to Delk Road, and the widening of several arterial roads. The latter includes improvements for State Route 92 (SR 92), Bells Ferry Road, Big Shanty Road, and US 41. The RTP also includes the widening of I-575 from four to six lanes (a third lane in each direction). Table 2-4 provides a list of planned highway capacity improvements in the study area.

The No-Build also includes of all of the transit services and facilities defined by the ARC existing transit network, plus the short-range and long-range transit improvements from the RTP. Both local and express transit services would operate in the I-75 corridor under the No-Build Alternative. Table 2-5 provides a list of existing and planned express transit service for the I-75 corridor.

Given the nature of the proposed highway capacity and transit improvements under the No-Build Alternative, it is likely to result in the continuation of the same types of land use patterns that the area is currently experiencing, based on existing zoning and land use policies.

The Preferred Alternative would add capacity to the highway system and would support planned land use in the Northwest Corridor. The capacity would be limited to the proposed managed lanes, which would provide some congestion relief for the general-purpose lanes. The managed lanes would be managed through the use of dynamically priced tolls and the unused capacity in the general-purpose lanes and could attract traffic from heavily congested parallel arterials. Overall conditions would continue to be congested and constrain travel through the Northwest Corridor. As such, the Preferred Alternative would not trigger growth beyond that already envisioned for the area and mitigation would not be required.

5.2.2 Compatibility with Other Plans and Initiatives

Other plans and initiatives that have affected land use and development within the study are the Cobb County Enterprise Zones, the Cobb County *Bicycle and Pedestrian Improvement Plan* (Cobb County, 2009), the *Canton Road Corridor "Main Street" Design Principles, Plan, and Recommendations* (Cobb County, 2005), and the Woodstock *Downtown District Master Plan* (Woodstock, 2005). These documents are discussed in more detail in Section 3.1.3 and focus on development and/or redevelopment issues. The Preferred Alternative would not negatively affect these plans and initiatives. In addition, the Cobb County *Bicycle and Pedestrian Improvement Plan*, which proposes criteria for bicycle and pedestrian infrastructure investment and includes a countywide Safe Routes to Schools Plan. The Preferred Alternative would not adversely affect these elements proposed in this plan and mitigation would not be required.

5.2.3 Consistency with Transportation Plans and Policies

Current transportation plans and policies at the state, regional, and local government level help to ensure transportation infrastructure in the study area is consistent with and would support planned residential and commercial development.

The No-Build Alternative, with its proposed improvements, would support current transportation plans and policies to the degree that it would provide for some capacity and transit service improvements that would improve the performance of the regional transportation system.

The Preferred Alternative would support current transportation plans and policies by helping to preserve the continuity, integrity and sustainability of the I-75 system in the study area by managing capacity. It would provide additional transportation choices/options and would increase the capacity of I-75 and I-575. It would provide a choice for motorists, including users of high-occupancy vehicles (HOVs), to travel in tolled managed lanes with improved levels of service and reliability. It also would allow transit to use the managed lanes at no cost, thus improving consistency and travel time for transit riders and supporting and enhancing transit service mobility.

The ARC *Envision6* RTP (ARC, 2007b), the Georgia Department of Transportation's (GDOT) *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a), and the recent update *PLAN 2040, Volume I Regional Transportation Plan* (*PLAN 2040* RTP) (ARC, 2011b) all include a managed-lane system along I-75 and I-575 in the Northwest Corridor. The *Atlanta Regional Managed Lane System Plan* recommends high-occupancy tolling where vehicles with one to two persons would pay a toll and vehicles with three or more persons (HOT3+) would not pay a toll. This Plan also provides flexibility since policies can be reconsidered to "change eligibility to a higher revenue-generating alternative, namely HOT4+ or express toll lane (ETL)."

The GDOT Public-Private Partnership (P3) Steering Committee concurred with a policy memorandum dated May 19, 2010, signed by Commissioner Vance Smith, Deputy Commissioner Gerald Ross, and Planning Director Todd Long on May 27, 2010. The memorandum recommends proceeding with ETL for the Northwest Corridor. In December 2010, GDOT adopted the ETL tolling policy for the Northwest Corridor Project since a HOT3+ policy would not achieve the financial goals for the project (GDOT, 2010f). Compared to a HOT3+ tolling policy, an ETL tolling policy generally would generate substantially more revenue, thereby reducing the level of public funding required. In addition, it would reduce the risk of lost revenue and reduce the cost of enforcement.

5.2.4 Mitigation Measures

The acquisition of required right-of-way for the construction of the Preferred Alternative would not result in any substantial changes to land use patterns in the study area. In total, 13 properties would be displaced along the entire 29.7-mile project corridor. The Preferred Alternative would be compatible with surrounding land uses and consistent with adopted land use, transportation, and other planning initiatives. As such, no mitigation is required.

5.3 Population and Employment

The following sections describe anticipated changes in population and employment as a result of the Northwest Corridor Project. Background information about existing and forecast population and employment is found in Section 3.2.

5.3.1 Displacement of Population

5.3.1.1 Housing, Households, and Population

In contrast to the No-Build Alternative that would have no effect on population, the Preferred Alternative would require the acquisition of six single-family residences (see Table 5-2). The residential acquisitions would result in displacing an estimated 15 persons.

Table 5-2. Residential Displacements of the Preferred Alternative

Type of Residence	Number of Buildings	Population
Tenant-Occupied SF	4	10
Owner-Occupied SF	2	5
MH	0	0
MF	0	0
TOTAL	6	15

Notes: The population was calculated assuming an average of 2.48 persons per household, which was the 2000 average for the impact area defined by census tract block groups within approximately 0.5 mile of the corridor.
SF=Single Family; MH=Mobile Homes; MF=Multi-Family.
Source: Dianna Hunt and Associates, Inc., 2011.

5.3.1.2 Availability of Replacement Housing

In total, the Preferred Alternative would displace four tenant-occupied and two owner-occupied single-family residences. All of the six properties are in Cobb County. The paragraph below discusses the availability of replacement housing for households that would be displaced.

According to the *Conceptual Stage Study* (Dianna Hunt and Associates, Inc., 2011), an adequate supply of replacement housing is available. The GDOT would provide a list of available and comparable housing to all displaced households to assist them to find and secure replacement housing. By federal and state law, the replacement housing would need to be comparable to the housing acquired for the proposed project. However, if an owner or tenant displacee is unable to find comparable affordable housing, they may require additional financial assistance through GDOT. Under such circumstances, replacement housing would be made available to displaced individuals and families within a reasonable time prior to displacement.

5.3.2 Displacement of Businesses and Employees

The No-Build Alternative would not require the acquisition of any properties, and therefore would not result in any businesses or their employees being displaced. The Preferred Alternative would displace seven commercial properties. Six of the commercial properties are each occupied by a single business. The seventh property is occupied by six commercial tenants (see Table 5-3). In total, 12 businesses and an estimated 33 employees would be displaced by property acquisition.

Table 5-3. Commercial Displacements of the Preferred Alternative

Business Name	Address	Business	Number of Employees
Marcee's Towing Service	121 Freys Gin Road	Auto repair, towing services	3
Underpriced Cars	35 Freys Gin Road	Used Car Lot	2
Powermax Fitness	1200 SR 3 Conn/ Roswell Road	Administrative	15 (total employees for the six businesses)
Prime America Corporation		Financial	
Varner & Varner		Land Development	
VPI Corporation		Land Development	
Dr. Thomas Vangalder, DDS		Dentist	
Savage & Company		Food Broker	
Chicago Delights	1199 SR 3 Conn/ Roswell Road	Fast Food Restaurant	4
Tractor Trailer Parking Lot	Chert Road (no street number)	Truck Lot	1
Trailer Plus	100/110 Chert Road	Trailer Sales	2
Church's Chicken	1130 SR 3 Conn/ Roswell Road	Fast Food Restaurant	6
TOTAL		12	33

Note: Data presented in the table above is based on site visits and on-line data.
Source: Dianna Hunt and Associates, Inc., 2011.

5.3.3 Relocation Assistance

All property acquisition and relocations would be conducted in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 United States Code [USC] 4601 et seq. and 49 *Code of Federal Regulations* [CFR] Part 24 and 23 CFR Part 710) and the Georgia Relocation Assistance and Land Acquisition Policy Act (Title 22 Official Code of Georgia Annotated [OCGA] Chapter 4). Property acquisition would begin following environmental approval. Property owners would be paid fair market value for acquired property and/or damages to the property.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act requires that relocation and advisory assistance be provided to all eligible individuals and businesses displaced by a proposed transportation project. Comparable housing that is decent, safe, and sanitary must be available for displaced persons. The Act requires non-discriminatory policies and actions with regard to appraisals and acquisitions of properties.

Relocations associated with the Preferred Alternative would be accomplished by providing assistance to locate and acquire available housing or business properties elsewhere. This assistance would include moving expenses. Every effort would be made to help property owners relocate in the same area, rather than other areas. In addition, displaced owner or tenant occupants of residential housing would be provided financial assistance for increased costs they may encounter buying or renting replacement housing. Owner occupants also would be provided financial assistance for other eligible incidental expenses such as closing costs and increased interest payments.

A federal and state compliant relocation assistance program would be available to displaced persons and businesses. Personnel assigned to the program would be experienced in both residential and business relocations and would provide information on relocation options. A relocation specialist would contact each property owner or tenant to be relocated to determine individual needs and desires. The specialist would provide information, answer questions, and assist in finding replacement property. Persons displaced would be offered decent, safe, and sanitary housing. In addition, a list of available and comparable housing would be furnished to all displaced residential owners or tenants. A written notice to vacate would be issued upon securing title to a property.

The GDOT would assist displaced commercial property owners and business owners in finding new replacement commercial properties reasonably comparable to current properties or facilities. Every effort would be made to help the businesses relocate within the same area, rather than relocate to other areas or close business operations entirely.

For residential relocations, if replacement housing is not available within a resident's financial means, the use of Last Resort Housing may be necessary. When Last Resort Housing becomes necessary, supplemental payments or other housing options would be implemented.

5.4 Economic Impacts

This section discusses the potential long-term effects on the local and regional economy from on-going expenditures for operations and maintenance (O&M) of the No-Build and Preferred Alternatives. These effects would be felt to varying degrees throughout the region in terms of economic output, employment, and earnings. Other economic impacts discussed include potential effects on the local tax base and property tax revenues.

5.4.1 Impacts of Managed-Lane Operations and Maintenance Expenditures

In contrast to the No-Build Alternative that would not require new O&M expenditures, the Preferred Alternative would involve the construction of new managed lanes on I-75 and I-575 that would require ongoing O&M expenditures. Over the life of the roadway improvements, there would be maintenance and repair costs for the roadway, facilities, and the software and equipment used to operate the managed lanes. Roadway maintenance costs have not been calculated, but would be incidental on an annual basis over the life of the managed lanes. The Public-Private Partnership (P3) Developer would be responsible for maintenance of the new managed-lane facilities. No specialized skills would be required specifically for the managed-lane facilities, and maintenance work would be similar to the activities currently performed by GDOT staff for the existing general-purpose lanes. Relatively few hires would be expected and would be from the regional labor force.

The P3 Developer also would be responsible for the ongoing operation of the managed-lane facilities. These tasks would include the daily operation of the barriers to prevent contra-flow traffic from entering the managed lanes, should mechanical barriers be used. The P3 Developer staff would be required to periodically change as well as repair the variable-message signage on tolling costs at the entrance to the managed-lane system. The employment skills for this type of work are not anticipated to be extremely specialized, and it is fully expected that the very few numbers of new workers required for this work could be supplied by the regional labor force. As such, the Preferred Alternative would not result in substantial employment impacts during facility operation and no mitigation would be required.

5.4.2 Impacts of Displacements on Tax Revenues

The No-Build Alternative would not require the acquisition of additional right-of-way, and therefore it would not result in any change in tax revenues due to removal of properties from the tax rolls. The acquisition of property and displacement of businesses under the Preferred Alternative, however, would result in a change in property taxes revenues at state, county and local levels. Other tax losses that could be anticipated also are briefly discussed in this section.

The analysis assumes that retail expenditures within the respective taxing jurisdictions would not change. The local businesses that would be displaced do not appear to provide unique services to the community. As such, retail sales tax revenue collected from displaced business locations would likely shift to other retail outlets within the same jurisdiction.

5.4.2.1 Property Tax Impacts

The acquisition of properties for right-of-way under the Preferred Alternative would result in a negligible decline in the local property tax base. The initial loss to the tax base would occur prior to the start of project construction.

The likely reduction in property tax revenue was calculated for Cobb County, Marietta, the Cumberland Community Improvement District (CCID), and Georgia based on 2010 tax assessments. Table 5-4 shows the approximate annual property tax losses for the Preferred Alternative.

Table 5-4. Annual Property Tax Losses

Jurisdiction	No-Build Alternative	Preferred Alternative
Cobb County	$0	$37,000
City of Marietta	$0	$66,000
Cumberland CID	$0	$900
State of Georgia	$0	$800
Total	$0	$105,000

Notes: All values are based on 2010 assessments and have been rounded.
CID = Community Improvement District.

The jurisdiction most affected by the property tax losses would be the City of Marietta followed by Cobb County. Together, the property taxes losses for these two jurisdictions ($103,000) equals 98 percent of the estimated annual property tax losses for all of the affected jurisdictions together ($105,000). The Cobb County tax collections include taxes for the school district, school bond, county government, and the fire district. The City of Marietta property tax losses would affect the city school district, school district bond, general local government, and other government agencies that receive revenues through the City's 23.203 millage rate (2010). The property tax losses to the CCID and the State of Georgia would be negligible at approximately $900 and $800, respectively.

This tax revenue loss, however, is a very small proportion of total tax revenues for these jurisdictions. The loss of tax revenue represents less than 0.6 percent of Marietta's 2010 property tax collection. Marietta collected $11,660,045 in property taxes in fiscal year 2010, which contribute revenue to the City's General Fund, Special Revenue Fund, and Debt Service Fund (Marietta, 2010b). Other revenue sources also contribute to those funds. Similarly, property tax revenue losses to Cobb County would be negligible – about $37,000. This would comprise a very small proportion of total county property taxes revenues, which totaled over $242 million in fiscal year 2010 (Cobb County, 2011a).

5.4.2.2 Hotel Tax Impacts

As expected, there are numerous hotels adjacent to the highway corridor. The City of Marietta collects a hotel tax from hotels within the city limits of Marietta; and Cobb County collects an identical hotel tax from hotels located outside the city limits. Hotel guests are required to pay a hotel tax (8 percent of the room charge) for each night of stay, with two exceptions. Hotel guests are only required to pay the tax for the first ten nights of stay, and government representatives on official government business do not pay. The current list of parcels that could be affected by property acquisition for the proposed project alternatives, however, does not displace any of these nearby hotels. For a few of these properties, a small sliver of land would be acquired, but this acquisition is not expected to affect operation of the hotels. Therefore, the Preferred Alternative would not adversely affect hotel tax revenues.

5.4.2.3 Other Tax Impacts

There are several additional taxes collected by the City of Marietta that may be affected. Those taxes include Marietta business license fees, franchise fees, electricity usage fees, and personal property taxes. It is expected that the effects on revenues from these taxes would be negligible considering only seven commercial properties (parcels) and 12 small businesses would be displaced. Moreover, some displaced businesses would likely relocate within Marietta, thus lessening potential changes in revenues from these taxes.

Cobb County also collects taxes from those acquired properties that are located in unincorporated county limits. These taxes include business license fees, liquor excise taxes, liquor package taxes, wholesale wine and liquor taxes, and personal property taxes. For these taxes, the effects would similarly be negligible, and again some displaced businesses may relocate within the same tax districts. None of the businesses that would be displaced sell liquor or wine. Research did not confirm whether or not any properties had personal property that would be taxed. Potential reduction in personal property taxes or business license fees because of the displacement of the 12 small businesses would be negligible compared to the annual total county tax revenues from these types of taxes.

5.4.3 Mitigation Measures

No substantial adverse economic impacts would result during long-term operation of the Preferred Alternative. The amount of tax revenue losses would be only a very small proportion of the total revenues collected annually by local jurisdictions. In addition, several new operations staff would be required for the proposed managed-lane system. The number, however, would be very small. As a result, no economic mitigation measures would be required.

5.5 Neighborhoods and Community Facilities

This section discusses anticipated effects on neighborhoods and community facilities and services under the No-Build Alternative and the Preferred Alternative. Mitigation measures to avoid, reduce, and minimize potential adverse impacts also are discussed. A discussion of existing study area neighborhoods and community facilities is found in Section 3.3.

5.5.1 Neighborhood Effects

5.5.1.1 Methodology

Potential impacts to neighborhoods, communities, and community services were assessed using techniques described in the Federal Highway Administration's *Community Impact Assessment: A Quick Reference for Transportation* (FHWA, 1996b). Analysis of impacts, such as noise, traffic access, and property value impacts, are discussed in other sections of this Final Environmental Impact Statement (FEIS). Issues discussed in this section focus on potential impacts to community cohesion and interaction, isolation effects, social values, barrier effects, community impacts, and displacements.

When new transportation infrastructure is constructed in an area that is already established and built out, it is important to determine the extent to which the project would create barriers to social interaction and neighborhood cohesion. A discussion of the potential impacts to neighborhoods identified in the study area follows. Neighborhoods are discussed using geographic groupings used previously in Chapter 3 as well as by the use of street boundaries to provide geographic context.

5.5.1.2 Changes to Neighborhoods

Given the urban nature of the study area, many subdivisions and multi-family complexes are located in close proximity to the 16.8-mile segment of I-75 and 11.3-mile segment of I-575. The No-Build Alternative would have no effect on cohesion in adjacent neighborhoods. The Preferred Alternative would displace six single-family residences and 12 businesses. The business displacements do not represent businesses that function as neighborhood focal points, nor do they provide services or products that cannot be found elsewhere in the study area. A total of 12 of the 13 displacements are along I-75, between South Marietta Parkway and North

Marietta Parkway. Small slivers of land also would be required along the west side of I-75 south of I-575.

The proposed project would construct managed lanes along I-75 and I-575 to increase the capacity of existing highways. The project would not construct a new roadway through established neighborhoods. Therefore the proposed project would not introduce any barriers that would permanently disrupt community cohesion or interrupt local traffic access and circulation.

In addition to the relocations and acquisitions, some neighborhoods would experience potential changes in visual quality. In many areas along I-75, current noise levels exceed 66 A-weighted decibels (dBA). Noise levels predicted for the Preferred Alternative (2035) and those predicted for the No-Build Alternative (2035) in a majority of locations are the same or differ by an imperceptible amount. Neighborhood impacts are discussed in greater detail in text sections that follow. See Section 5.8 for more discussion on visual quality impacts. For more information on potential noise impacts, see Section 5.12 and the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

East Cobb

The Preferred Alternative would remain within the existing right-of-way near the East Cobb neighborhood. There are several neighborhoods, apartment communities, townhouses and condominium communities in this district. The district is on the east side of the highway and does not abut the existing right-of-way. With the proposed alignment of the managed lanes on the west side of I-75, occupants of East Cobb residences would not be expected to experience increased noise levels or substantial changes in views. As such, the Preferred Alternative would not result in impacts to neighborhoods and communities in this district.

Delk Road to South Marietta Parkway

The Preferred Alternative would remain within the existing right-of-way between Delk Road and South Marietta Parkway. A number of apartment complexes and single-family residential subdivisions are located along both sides of I-75 in this area. The existing noise levels in this area range from 59.1 dBA to 74.9 dBA. Noise levels under the No-Build Alternative would range from 62.5 dBA to 77.0 dBA. Noise levels with the Preferred Alternative would range from 62.7 dBA to 75.1 dBA. The noise analysis indicates that there would be noise impacts in this district. A sound barrier that currently exists on the east side of I-75 between Delk Road and South Marietta Parkway would need to be replaced with a taller structure according to the sound barrier analysis. No sound barriers currently exist on the west side of I-75 in this area. Sound barriers are currently proposed in locations along both sides of I-75 in this area as noise mitigation for this project.

Between Delk Road and South Marietta Parkway, the managed lanes would be located on the west side of I-75 on a retaining wall. The managed lanes would add a new visual element to the landscape. The visual change would be noticeable but would not adversely affect the existing visual character or the ability to use adjacent land for its intended purpose. Moreover, the project would not obstruct important views.

In summary, under the Preferred Alternative, the following impacts are anticipated in this district:

- Noise levels exceeding the FHWA Noise Abatement Criteria (NAC); and
- Minor visual impacts.

The Preferred Alternative would not impact community cohesion or community facilities in this district.

South Marietta Parkway to Allgood Road

The Preferred Alternative would require the acquisition of additional right-of-way in this area. All of the required residential and business displacements associated with the Preferred Alternative would occur on the west side of I-75. The residential displacements would occur on Kasandra Drive, Chert Road, and Dickson Court. The business displacements would occur on Freys Gin Road, SR 3 Connector/Roswell Road (SR 3 Conn/Roswell Road), and Chert Road. The displacements are not expected to impact community cohesion.

The existing noise levels in this area range from 58.1 dBA to 74.7 dBA. Predicted noise levels under the No-Build Alternative would range from 61.0 dBA to 76.8 dBA. Noise levels with the Preferred Alternative would range from 60.7 dBA to 76.9 dBA. Sound barriers may be provided on the west side of I-75 between South Marietta Parkway and Gresham Road, on the west side of I-75 between North Marietta Parkway and Allgood Road, and on the east side of I-75 between South Marietta Parkway and SR 3 Conn/Roswell Road (see Section 5.12).

On Kasandra Drive, the existing homes located at the cul-de-sac streets have a view of I-75 (see Figure 5-6). Additional right-of-way is required at this location along the highway alignment. The acquisition and removal of trees and other vegetation that currently serve as a natural visual buffer from the highway traffic would expose homes deeper in the neighborhood on Kasandra Drive to more expansive views of the highway (see Section 5.8). The visual change would be noticeable but would not substantially affect the existing visual character, would not impact the ability to use adjacent land for its intended purpose, nor would it obstruct important views.

Figure 5-6. Kasandra Drive in the Banberry/Frey's Gin/Kasandra Neighborhood at I-75

In summary, under the Preferred Alternative, the following impacts are anticipated in this district:

- Residential and business displacements;
- Noise levels exceeding the FHWA NAC; and
- Minor visual impacts.

Northeast Cobb

In Northeast Cobb, the Preferred Alternative would remain within the existing right-of-way, and acquisition would not disrupt adjacent neighborhoods, apartment communities, townhouses, or condominium communities.

The existing noise levels in the northeast Cobb County area along I-75 range from 49.1 dBA to 75.8 dBA. Noise levels predicted under the No-Build Alternative would range from 53.2 dBA to 78.2 dBA, while noise levels under the Preferred Alternative would range from 53.7 dBA to 78.0 dBA. Sound barriers may be provided on the west side of I-75 between Bells Ferry Road and Barrett Parkway; between Frey Road and Shiloh Road; and between Wade Green Road and Hickory Grove Road. Sound barriers also may be provided on the east side of I-75 from about 1,200 feet south of Frey Road to about 700 feet north of Frey Road; from Shiloh Road to about 2,300 feet south of Hickory Grove Road; and from Hickory Grove Road to about 3,400 feet south of Woodstock Road.

The existing noise levels in the northeast Cobb County area along I-575 range from 45.7 dBA to 73.2 dBA. Noise levels under the No-Build Alternative are predicted to range from 46.3 dBA to 73.6 dBA, while noise levels under the Preferred Alternative would range from 46.5 dBA to 73.7 dBA. Sound barriers may be provided on the west side of I-575 from Chastain Road to about 2,500 feet north of Hawkins Store Road and from Shallowford Road to SR 92. In addition, sound barriers may be provided on the east side of I-575 between Chastain Road and Booth Road and between Bells Ferry Road and Shallowford Road.

Along I-75, a single managed lane would be constructed at grade in the median to just north of Hickory Grove Road. It would be separated from the existing general-purpose lanes by concrete barriers. Visual quality with respect to adjacent neighborhoods would not substantially change. Since the managed lane would be constructed within the median of I-75, neighborhoods on either side of I-75 would not experience changes in cohesion.

Along I-575, the proposed single managed lane would similarly be located within the highway median. Visual quality for adjacent neighborhoods would not be expected to change and adjacent neighborhoods on either side of I-575 would not experience changes in cohesion.

In summary, under the Preferred Alternative, noise levels exceeding the FHWA are anticipated in this district.

Cherokee County and the City of Woodstock

In Cherokee County, the proposed single managed lane would continue to be located in the I-575 highway median. No property acquisition would be required and existing vegetation along the highway would not change. Therefore, visual quality would not be expected to change.

The existing noise levels in this area along I-575 range from 47.6 dBA to 71.7 dBA. Noise levels under the No-Build Alternative are predicted to range from 45.1 dBA to 73.6 dBA. Noise levels with the Preferred Alternative would range from 45.2 dBA to 73.5 dBA. Sound barriers may be provided on the west side of I-575 between SR 92 and Dupree Road and on the east side of I-575 between Dupree Road and Towne Lake Parkway.

In summary, under the Preferred Alternative, noise levels exceeding the FHWA NAC are anticipated in this district.

5.5.2 Community Facility Effects

Community facilities include educational facilities; places of worship; health care facilities; public safety facilities (e.g., police, fire, and rescue); cultural facilities (e.g., libraries, museums, or theaters); park/recreation areas; and government agency buildings. As discussed in Section 3.3.3, these facilities are located throughout the study area and contribute to the social welfare of the local neighborhoods and communities. Neither the No-Build Alternative nor the Preferred Alternative would affect community facilities. The Preferred Alternative would not require any right-of-way from community facilities. Potential effects to community parks are evaluated in Section 5.9 and potential effects to public services are discussed in Section 5.7.

5.5.3 Mitigation Measures

The neighborhood effects of the Preferred Alternative would be limited to a few neighborhoods adjacent to the highway, primarily located on the west side of I-75 in the Marietta area. Six residences would be acquired along Kasandra Drive (south of SR 3 Conn/Roswell Road), Chert Road (north of SR 3 Conn/Roswell Road), and Dickson Court (north of Canton Road). Twelve businesses also would be acquired. These effects from acquisition and anticipated changes in noise levels and visual quality would not be expected to alter cohesion for any of the adjacent neighborhoods along this portion of the project corridor.

The noise impacts would be mitigated by the anticipated construction of sound barriers, where feasible (see Section 5.12) and approved by area property owners. The height of the sound barriers would be mitigated visually through the use of context-sensitive aesthetic finishes or treatments and, where possible, landscaping. The use of aesthetic finishes, treatments, and landscaping also would create a positive change in the corridor by creating a potentially unifying visual element along the highway. The views of the road from adjacent properties and roadways also could be enhanced through similar measures.

5.6 Environmental Justice

This section discusses potential disproportionate environmental effects of the proposed project on minority and low-income communities, or environmental justice populations, within the project corridor and recommends measures to avoid, reduce, or minimize potential disproportionate adverse effects on those communities. Disproportionate adverse impacts are impacts that are especially borne by minority and low-income communities when compared to other communities within the study area.

The study area represents the diverse demographic characteristics of metropolitan Atlanta. The No-Build Alternative would not require any property acquisitions or displacements, and thus would not result in any adverse effects on minority or low-income populations.

The Preferred Alternative, however, would affect both minority and low-income communities adjacent to both I-75 and I-575. Figure 3-6 shows low-income neighborhoods are adjacent to I-75 south of Wade Green Road and on I-575 south of Bells Ferry Road south along the corridor to almost Canton Road. Substantial concentrations of both minority and low-income neighborhoods are located in the city of Marietta. The figure shows there is a high correlation between those neighborhoods identified as minority and those identified as low-income, particularly adjacent to I-75 and east of the freeway between Allgood Road and Roswell Road. Between Delk Road and I-285, nearly every adjacent neighborhood is identified as both minority and low-income on both sides of the freeway.

The encroachment of the highway into these neighborhoods by right-of-way acquisition would affect homes and businesses. In addition, some of these neighborhoods would experience increased noise and potential visual impacts (see Sections 5.6.2.5 and 5.6.2.8).

5.6.1 Environmental Justice Considerations

In assessing compliance of the proposed project with the intent of Executive Order 12898 regarding environmental justice, the following considerations were taken into account:

- Whether the project would provide benefits to minority and/or low-income communities;
- Whether any potential adverse impacts would be disproportionately borne by minority and/or low-income communities; and
- Whether minority and/or low-income communities would have opportunities to actively participate in the planning of the project.

The environmental justice analysis includes an evaluation of the potential for disproportionate adverse impacts to the economic stability and social functioning of minority and low-income communities and neighborhoods. The analysis also investigated whether displacements resulting from full and partial acquisitions and other potential impacts such as additional noise and potential visual impacts would have any disproportionate, adverse effects on minority and low-income communities compared to the study area as a whole.

A discussion of potential benefits to minority and low-income communities is found in Chapter 7, Evaluation of Alternatives. That analysis examines travel time savings for minority and low-income communities.

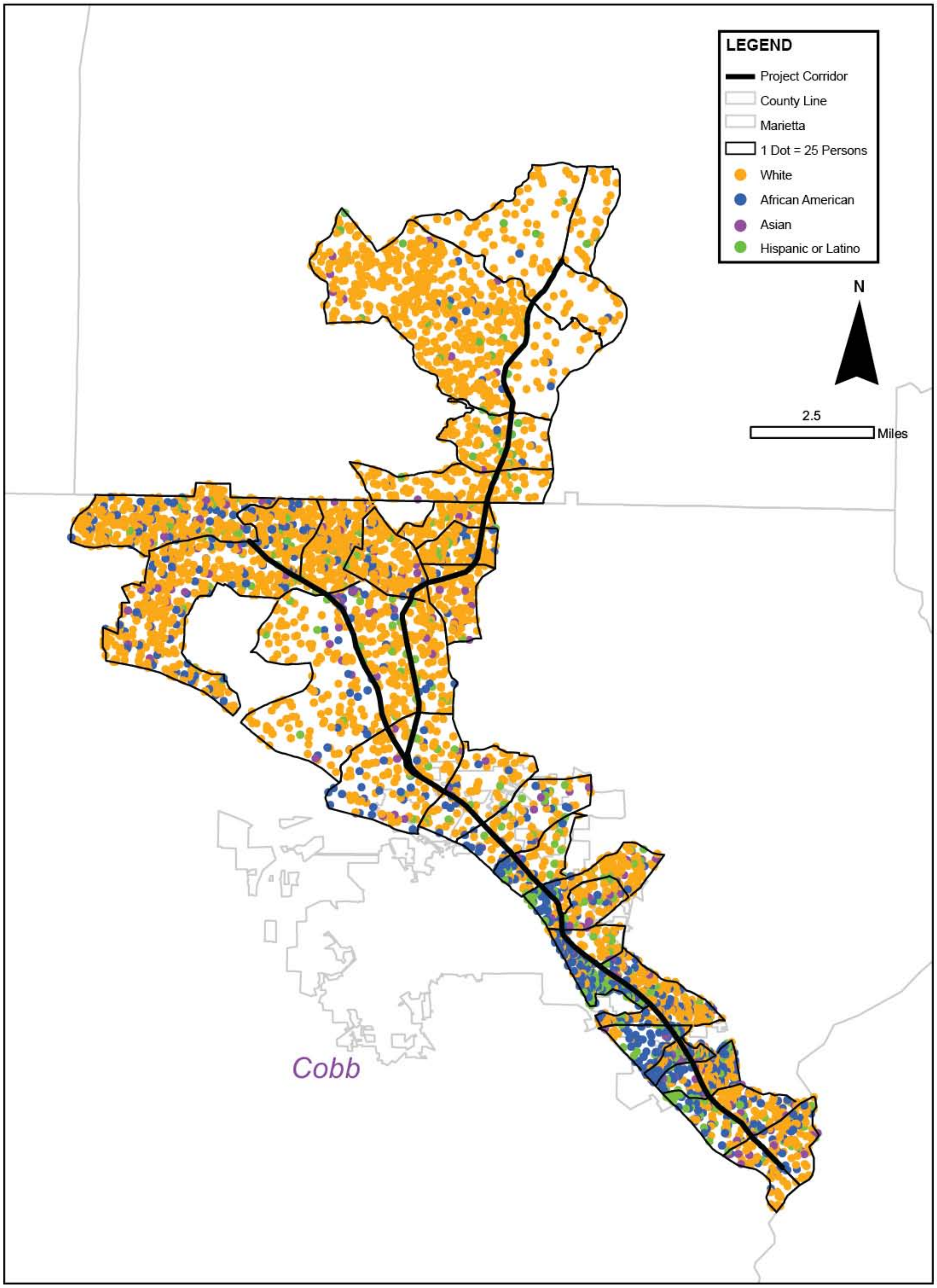
5.6.2 Potential for Disproportionate Impacts

To analyze potential disproportionate effects on minority and low-income communities with regard to natural and cultural resources, census tract block groups adjacent to the project alignment were identified and were considered in the study area for the environmental justice analysis. Figure 5-7 shows these block groups and the density of major minority populations in the study area. This information is based on data from the 2000 census since it is the most current detailed demographic data available for small subareas of cities and counties. The 2010 census results for small subareas of cities and counties will not be available until mid- to late-2011. Figure 5-8 shows where low-income workers live and where low-paying jobs are located. The threshold for defining low-paying jobs was based on a rate $7.20 per hour for 2,000 hours. The information shown in the figure is from the February 2011 *Human Services Transportation in the Atlanta Region* (ARC, 2010c) presentation prepared by ARC's Social Equity Advisory Committee.

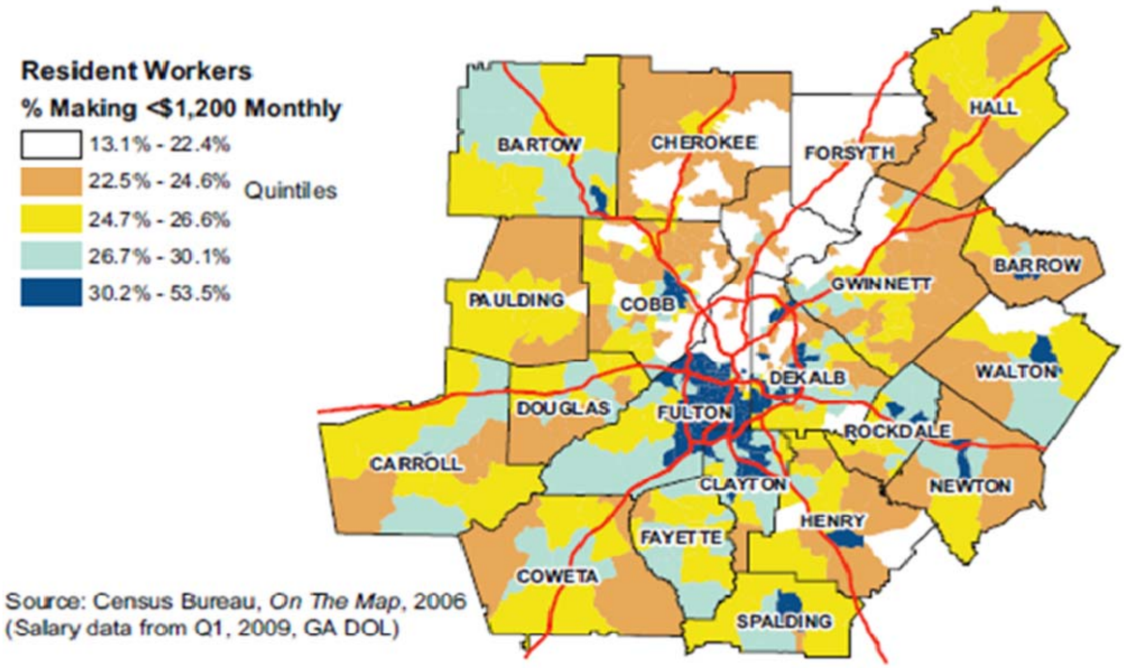
For limited English proficient (LEP) populations, a discussion of the public outreach effort is made with particular emphasis on the availability of documents in other languages and translation services.

In order to assess the potential for disproportionate adverse impacts, all of the environmental topics in this FEIS were analyzed. Adverse impacts were studied using the considerations discussed in Section 3.3.2.

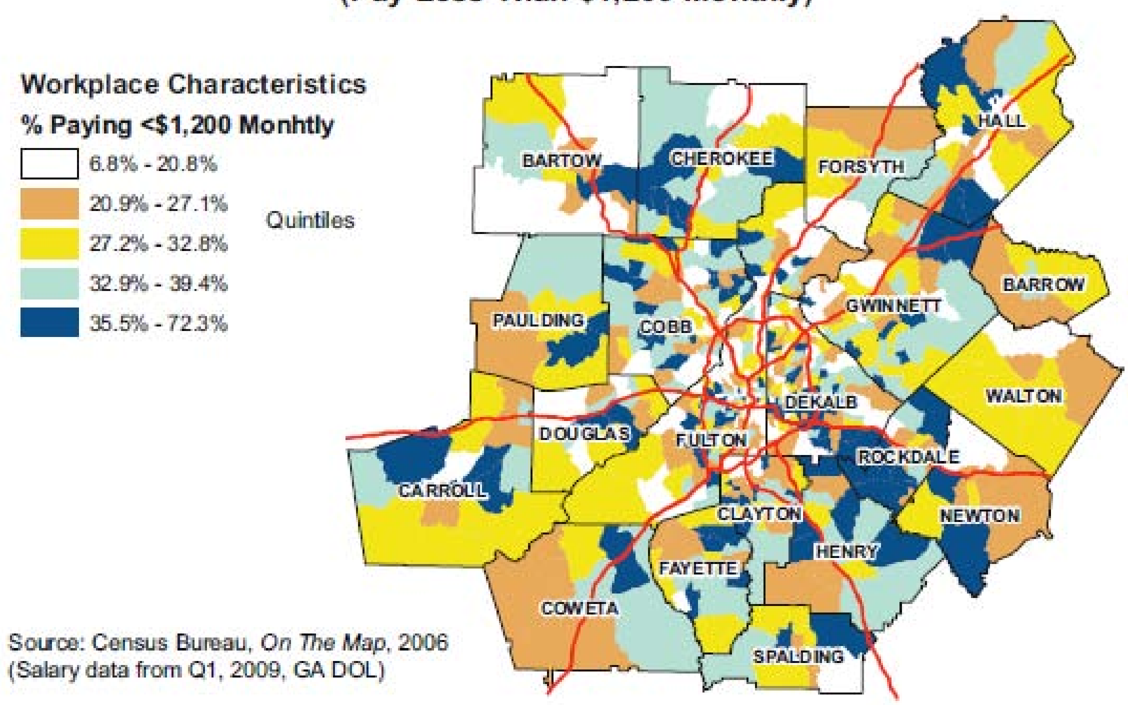
Under the No-Build Alternative, there would be no change in the right-of-way of either I-75 or I-575 within the project limits and, therefore, no acquisitions would be required. As such, the No-Build Alternative would not have disproportionate adverse impacts on minority and/or low-income communities associated with displacement. However, despite no highway expansion, traffic



Source: TAHA, 2010.



Where Low-Paying Jobs Are
(Pay Less Than $1,200 Monthly)



Source: ARC, 2011a.

congestion would be anticipated to worsen and air quality and noise impacts would increase. These impacts would not be disproportionate as they would affect the entire region.

Under the Preferred Alternative, no impacts are anticipated for the environmental topics listed below. For that reason, these topics are not discussed further in this section. Please refer to other sections of this FEIS for discussion of these topics.

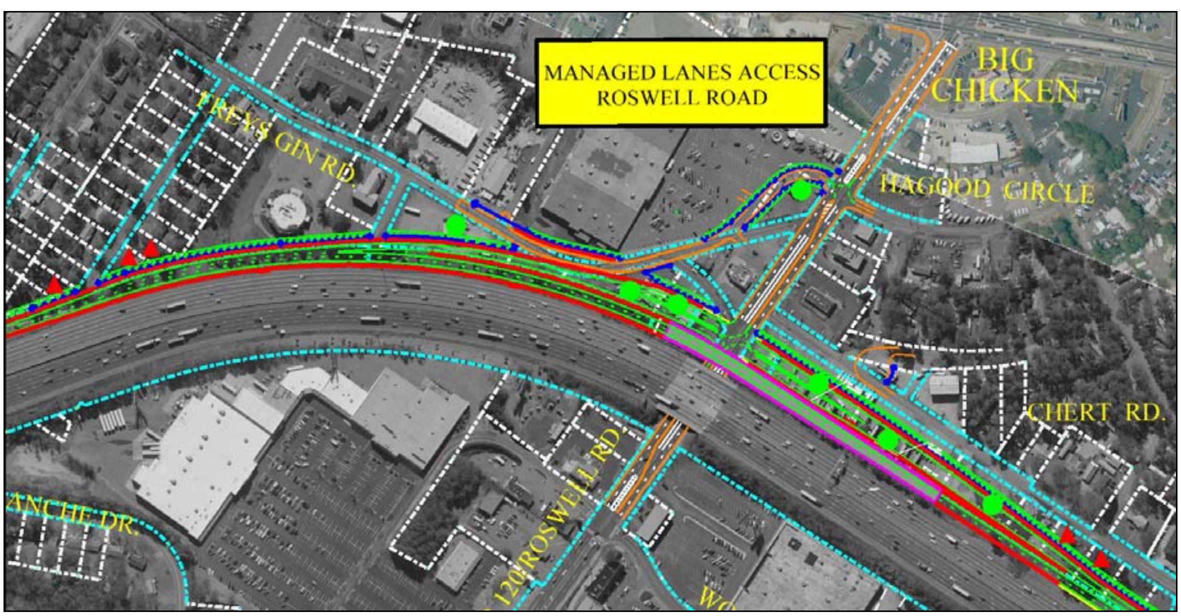
- Land Use (Section 5.2)
- Safety and Security (Section 5.7)
- Parklands and Other Section 4(f) Properties (Section 5.9)
- Historic and Archaeological Resources (Section 5.10)
- Ecosystems (Section 5.13)
- Water Resources (Section 5.14)
- Geology and Soils (Section 5.15)
- Hazardous Materials (Section 5.16)

The remaining environmental topics are discussed in detail on the following pages.

5.6.2.1 Traffic and Circulation

Neighborhood traffic conditions and access to the proposed Northwest Corridor managed lanes were investigated for disproportionate impacts on minority, low-income, and transit-dependent communities. These environmental justice communities are largely concentrated in the neighborhoods immediately adjacent to the I-75 corridor in Cobb County and within the city of Marietta. Compared to all residents in the benefit area, these residents would have improved access and reduced travel time to the planned managed-lane interchanges at: Terrell Mill Road, SR 3 Conn/Roswell Road (see Figure 5-9), and Big Shanty Road.

Figure 5-9. Locations of Potential Business Displacements



Note: The green dots in the figure above indicate the locations of anticipated business displacements.

For example the morning travel southbound time from Hickory Grove Road to the SR 3 Conn/Roswell Road managed-lane interchange in 2035 is estimated to be a little over 16 minutes in the managed lanes. To the crossover at SR 3 Conn/Roswell Road, the general-purpose lane travel time would be about 33 minutes under the Preferred Alternative. Under the No-Build Alternative, the southbound travel time from Hickory Grove Road to SR 3 Conn/Roswell Road would be about 39 minutes in 2035. From the SR 3 Conn/Roswell Road managed-lane interchange to Akers Mill Road, travel time southbound, in the morning peak period would be almost 19 minutes in the general-purpose lanes and about 10 minutes in the managed lanes under the Preferred Alternative. Travel time from SR 3 Conn/Roswell Road to Akers Mill Road is forecast to exceed 21 minutes under the No-Build Alternative.

In the evening peak period, northbound 2035 travel time from Akers Mill Road to SR 3 Conn/Roswell Road is estimated to be slightly greater than 20 minutes in the general-purpose lanes and about 12 minutes in the managed lanes. This same segment would take over 23 minutes under the No-Build Alternative in 2035. From SR 3 Conn/Roswell Road to Hickory Grove Road, northbound during the evening peak period travel times in 2035 would be almost 23 minutes in the managed lanes and over 42 minutes in the general-purpose lanes under the Preferred Alternative. In comparison, travel time would be almost 53 minutes under the No-Build Alternative.

The expanded freeway capacity of the Preferred Alternative would attract traffic to the I-75 and I-575 corridors from parallel arterial facilities. However, as illustrated in Figures 4-9 through 4-12, there would be improvements in the peak direction travel times in the corridor for both the managed-lane traffic and the general-purpose lane traffic. There would be corresponding reductions in the traffic volumes on parallel facilities such as Powers Ferry Pike and Cobb Parkway. The environmental justice communities in the corridor would have excellent access to both the SR 3 Conn/Roswell Road and Terrell Mill Road managed-lane interchanges. It is important to note that due to the major concentration of environmental justice communities in the southern portion of the corridor, and the directional nature of the managed lanes, travel time benefits would be less than benefits to residents in the northern areas of the corridor. This would be true for both the managed lanes and the general-purpose lanes under the Preferred Alternative. There would be travel time benefits for all users of the corridor in the peak periods; however these benefits would be directly proportional to the distance traveled in the corridor. As such, residents of the southern portions of the corridor, including the concentrations of environmental justice communities, have less distance to travel in the corridor and therefore would receive less overall benefit.

Sections 4.3.5 and 4.3.6 detail the overall impacts of the Preferred Alternative on traffic and circulation congestion and travel time in the study area. Generally, levels of service and travel times improve. This is due to three effects of the Preferred Alternative, including:

(1) The added capacity of the managed lanes under the Preferred Alternative attracts traffic onto I-75 and I-575, but slightly less traffic overall than the available added capacity. This improves travel time and reduces delay.

(2) The construction of separate interchanges for the managed lanes at roadways without general-purpose interchanges distributes the managed lane traffic to other roadway facilities (SR 3 Conn/Roswell Road, Terrell Mill Road, Big Shanty Road, and Hickory Grove Road). These roadways have available capacity compared to congested roadways at existing interchanges.

(3) The proposed toll policy also is expected to shift some vehicle trips to transit trips, thus reducing overall traffic volume.

The project would provide some additional capacity on I-75 and I-575 and would redistribute some traffic, particularly along I-75 to roadways that have available capacity associated with the manage-lane interchanges. The project improves level of service (LOS) for many intersections analyzed in the corridor. Therefore, no disproportionate adverse impacts to traffic or circulation are anticipated.

A large portion of the low-income and minority communities adjacent to the Northwest Corridor are located near I-75 south of the I-575 interchange. Table 5-5 and Table 5-6 illustrate those intersections where there would be a change in level of service between the No-Build and the Preferred Alternatives in 2015 and 2035, respectively. Those locations in the table where the level of service is unchanged are blank. Overall the changes between the No-Build and Preferred Alternatives are one grade in both 2015 and 2035. In 2015, the Preferred Alternative generally would result in degradation in level of service adjacent to the managed-lane interchanges. At those intersections experiencing a change, the level of service would not fall below LOS D, except at the North Marietta Parkway and Cobb Parkway Intersection. LOS D is the accepted standard for congestion by both GDOT and ARC, especially for long-range planning analysis. At LOS D average delay at intersections exceeds 1 minute and travel speeds are significantly reduced. At the Cobb Parkway and North Marietta intersection, the evening peak period is forecast to be LOS E in 2015 under the No-Build Alternative and LOS F under the Preferred Alternative. However, in 2035, the data presented in the tables show the Preferred Alternative clearly improves the levels of service adjacent to the low-income and minority neighborhoods along the Northwest Corridor.

In addition, no traffic pattern changes are anticipated to affect low-income or minority communities because of an increase in traffic due to toll avoidance. The general-purpose lanes would remain as a toll-free option. The managed lanes would serve as a time-savings option for the congested highways. It is anticipated that drivers would not elect to travel on the local roadways any more than they would if the No-Build Alternative were implemented. No increase to traffic or congestion is anticipated in the environmental justice communities. Potential air quality impacts are discussed in Section 5.6.2.6.

The Preferred Alternative would cause an increase in transit travel time – an estimated 1 minute based on model output. This increase is the result of a combination of the slightly longer transit routes necessary to access the managed-lane intersections and the relatively short travel in the managed lanes. Through more comprehensive route studies, it may be possible for transit providers to minimize or even eliminate this slight increase in travel time. The use of the managed lanes under the established tolling policy, however, would enhance transit reliability and on-time performance.

The operation of the managed lanes would increase noise in some low-income and minority neighborhoods. Sound barriers are proposed to mitigate these noise impacts. Sound barriers are common along areas located near interstate highways and additional sound barriers along the Northwest Corridor would not be an adverse visual affect. Final determination of which sound barriers to be constructed would be based on additional noise analysis during final design and public outreach.

Anticipated sound barriers in environmental justice communities would change views and aesthetics; however, sound barriers are common to areas near interstate highway facilities. The visual changes would not deteriorate the ability to use the adjacent land for intended purposes or obstruct important views. The views of the interstate from adjacent residences, businesses, and roadways would be blocked in areas where sound barriers may be constructed. No visual resources, such as parks or important viewsheds, within communities of environmental justice concern would be affected by the proposed Preferred Alternative. No disproportionate adverse

Table 5-5. Environmental Justice Area Intersection LOS, 2015

Intersection	No-Build Alternative		Preferred Alternative	
	AM Peak	PM Peak	AM Peak	PM Peak
Windy Hill Rd				
Cobb Pkwy				
I-75 SB Ramps				
I-75 NB Ramps	D		C	
Interstate Hwy N Pkwy	D	C	C	D
Terrell Mill Rd				
Cobb Pkwy	B		C	
I-75 ML Ramps	n/a	n/a	C	C
Powers Ferry Rd		C		D
Delk Rd				
Franklin Rd				
I-75 SB Ramps				
I-75 NB Ramps				
Powers Ferry Rd				
S Marietta Pkwy				
Franklin Rd				
I-75 SB Ramps				
Powers Ferry Rd		E		D
SR 3 Conn/Roswell Rd				
Cobb Pkwy		C		D
I-75 ML Ramps	n/a	n/a	C	C
Powers Ferry Rd	A	B	B	C
N Marietta Pkwy				
Cobb Pkwy	C	E	D	F
I-75 SB Ramps				
I-75 NB Ramps	D		C	
Wallace Rd		C		D
Canton Rd Connector				
Cobb Pkwy EB				
Cobb Pkwy WB				
Sandy Plains Rd				

Notes: Table cells that are not colored indicate that the LOS under the No-Build and Preferred Alternatives are the same. Table cells that are colored indicate the LOS under the two alternatives is different.
LOS / Average Intersection Delay (secs.)
A = 0.0 to 10.0 sec/veh   D = 35.1 to 55.0 sec/veh
B = 10.1 to 20.0 sec/veh   E = 55.1 to 80.0 sec/veh
C = 20.1 to 35.0 sec/veh   F = > 80.0 sec/veh
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

Table 5-6. Environmental Justice Area Intersection LOS, 2035

Intersection	No-Build Alternative		Preferred Alternative	
	AM Peak	PM Peak	AM Peak	PM Peak
Windy Hill Rd				
Cobb Pkwy SB Ramps				
Cobb Pkwy NB Ramps		D		C
I-75 SB Ramps				
I-75 NB Ramps		E		D
Interstate Hwy N Pkwy	n/a	n/a	n/a	n/a
Terrell Mill Rd				
Cobb Pkwy				
I-75 ML Ramps	n/a	n/a	D	D
Powers Ferry Rd	C	D	D	C
Delk Rd				
Franklin Rd				
I-75 SB Ramps				
I-75 NB Ramps		A		B
Powers Ferry Rd				
S Marietta Pkwy				
Franklin Rd				
I-75 SB Ramps	D		C	
Powers Ferry Rd	F	F	D	E
SR 3 Conn/Roswell Rd				
Cobb Pkwy	C		D	
I-75 ML Ramps	n/a	n/a	D	D
Powers Ferry Rd				
N Marietta Pkwy				
Cobb Pkwy				
I-75 SB Ramps	D	D	C	C
I-75 NB Ramps		F		D
Wallace Rd				
Canton Rd Connector				
Cobb Pkwy EB	F	C	A	B
Cobb Pkwy WB	F	E	C	C
Sandy Plains Rd				

Notes: Table cells that are not colored indicate that the LOS under the No-Build and Preferred Alternatives are the same. Table cells that are colored indicate the LOS under the two alternatives is different.
LOS / Average Intersection Delay (secs.)
A = 0.0 to 10.0 sec/veh D = 35.1 to 55.0 sec/veh
B = 10.1 to 20.0 sec/veh E = 55.1 to 80.0 sec/veh
C = 20.1 to 35.0 sec/veh F = > 80.0 sec/veh
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

impacts associated with visual quality and aesthetics are anticipated. Visual quality and potential visual impacts are discussed in more detail in Section 5.6.2.5 and Section 5.8.

5.6.2.2 Property Acquisitions

The No-Build Alternative would not require any property acquisitions and would not result in any residential or business displacements.

The Preferred Alternative would require the acquisition of additional right-of-way that would affect approximately 76 parcels. Most of the acquisitions are narrow slivers of land, however, 58 percent (44 parcels) would occur in areas that are minority and/or low-income. Of the parcel acquisitions required in minority and/or low-income areas, seven involve the relocation of 12 businesses and six involve the relocation of six residences (see Table 5-7). All of the business displacements and five of the six residential displacements would occur within the community around I-75 at SR 3 Conn/Roswell Road that includes Chert Road, Freys Gin Road, and Kasandra Drive.

Table 5-7. Displacements Under the Preferred Alternative

	Preferred Alternative		
	SF	CM	Total
In EJ Block Groups	6	12	18
Not in EJ Block Groups	0	0	0
Totals	6	12	18

Notes: EJ = environmental justice; SF = single-family; CM = commercial businesses.
Source: TAHA, 2010.

Of the six residences that would be acquired, two are owner-occupied and four are tenant-occupied. The *Conceptual Stage Study* (Diana Hunt and Associates, 2011) concludes there is adequate replacement housing in the area for occupants to find replacement housing.

The businesses that would be acquired include an auto towing service, a used car sales facility, a multi-tenant office building containing six tenants, two fast-food style restaurants, a trailer sales outlet, a yard storage facility for tractor trailers, and a truck rental business. According to the *Conceptual Stage Study*, the business displacements would affect an estimated 33 employees. Based on the results of a field review, it was noted that the businesses that would be displaced are not businesses that function as neighborhood focal points, nor do they provide services or products that cannot be found elsewhere in the study area. The potential loss of businesses and jobs in these neighborhoods would not be considered a disproportionate adverse impact.

Property acquisitions would be conducted in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Georgia Relocation Assistance and Land Acquisition Policy Act. The GDOT would assist displaced commercial property owners and business owners in finding new replacement commercial properties reasonably comparable with current properties or facilities. Every effort would be made to help the businesses relocate within the same area, rather than relocate to other areas or close business operations entirely.

Relocations would be accomplished by providing assistance to locate and acquire available housing or business properties elsewhere. This assistance also would include moving expenses. Every effort would be made to help property owners relocate in the same area, rather than other areas. In addition, displaced owner or tenant occupants of acquired residences would be provided financial assistance for increased costs they may encounter buying or renting replacement housing. Owner occupants also would be provided financial assistance for other incidental expenses, such as closing costs and increased interest payments.

A federally funded, locally administered, relocation assistance program would be established to help displaced persons and businesses. Personnel assigned to the program would be experienced in both residential and business relocations and would provide information on relocation options. A relocation specialist would contact each property owner, resident or business to be relocated to determine individual needs and desires. The specialist would provide information, answer questions, and assist in finding replacement property. Persons displaced would be offered decent, safe, and sanitary housing that is within the financial means of displaced households. In addition, a list of available and comparable housing would be furnished to all displaced households with the notice to vacate.

Some residential relocations may possibly require the use of Last Resort Housing procedures. When Last Resort Housing becomes necessary, supplemental payments or other housing options would be implemented.

The number of residential and business displacements is relatively small considering the urbanized character of the study area. Nevertheless, as all but one of the displacements would occur in areas where there are identified substantial minority and low-income communities (see Figure 5-10, Figure 5-11, and Figure 5-12), adverse disproportionate impacts are anticipated. The alignment of the Preferred Alternative resulted from the balancing of overall impacts throughout the length of the project. The number of impacts to a range of resources would have been higher had the managed lanes had been located on the east side of I-75.

In addition to the relocations and acquisitions, visual and noise impacts would be the most frequent impact on adjacent neighborhoods. Visual impacts could be mitigated through the use of context sensitive aesthetic finishes or treatments and, where possible, landscaping. Sound barriers may be provided in the section of the project where the environmental justice communities are located (between South Marietta Parkway and Allgood Road).

5.6.2.3 Population and Employment

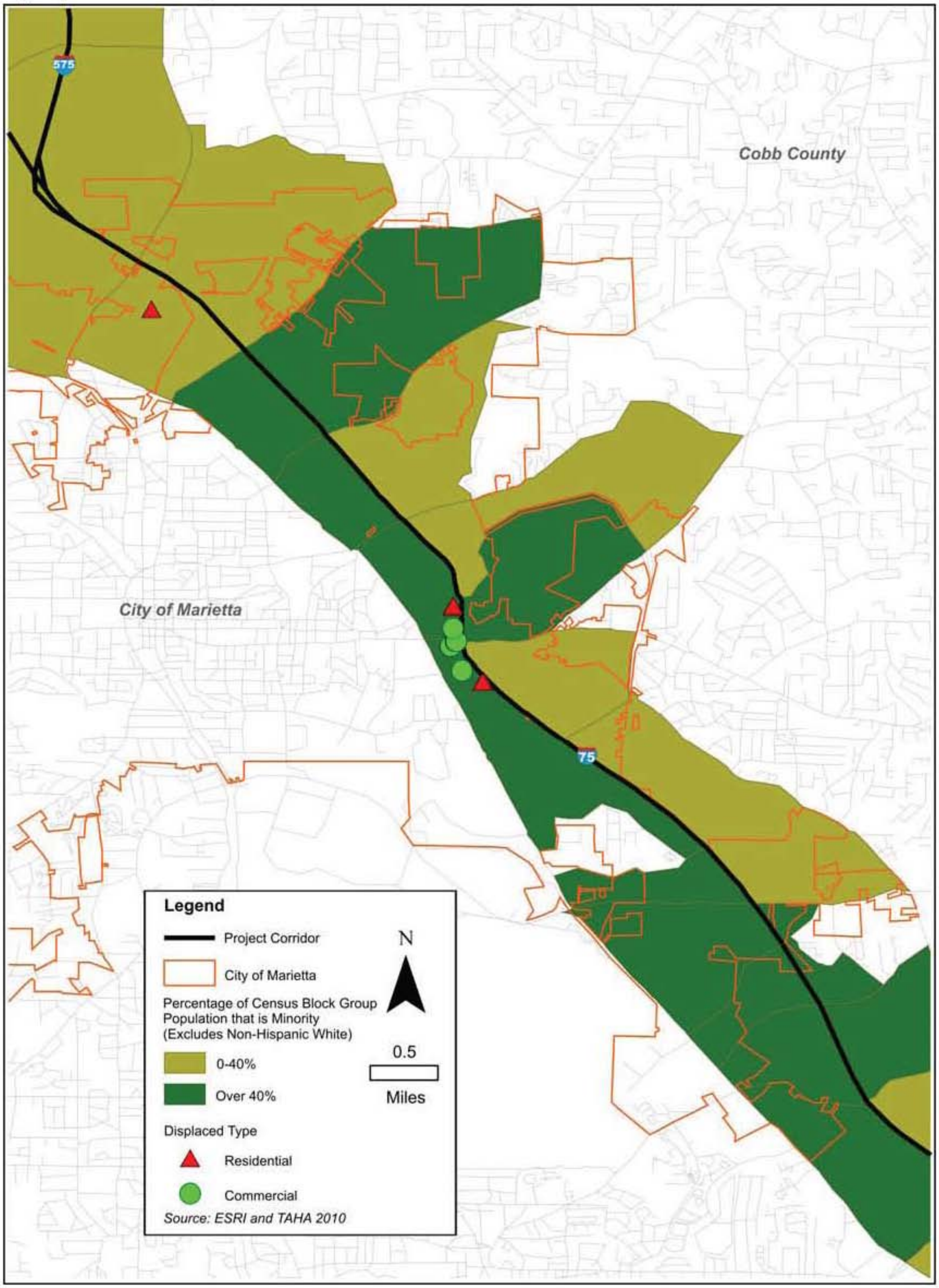
The No-Build Alternative would not require any residential displacements and would have no effects on cohesion in adjacent neighborhoods. As discussed above in Section 5.6.2.2, under the Preferred Alternative, six residences and 12 businesses (located on seven parcels) would be displaced due to the acquisition of right-of-way. Three of the residential displacements would occur on Kasandra Drive in a residential neighborhood with 53 residences. This would affect approximately seven residents, or less than 5 percent of the neighborhood population.

The Preferred Alternative would displace approximately 15 people. Assuming that all of the residents displaced are minority, the residential displacements would affect less than 1 percent of the total minority population (219,409) within the study area. The residential displacements would have an adverse disproportionate impact on the minority population in the study area.

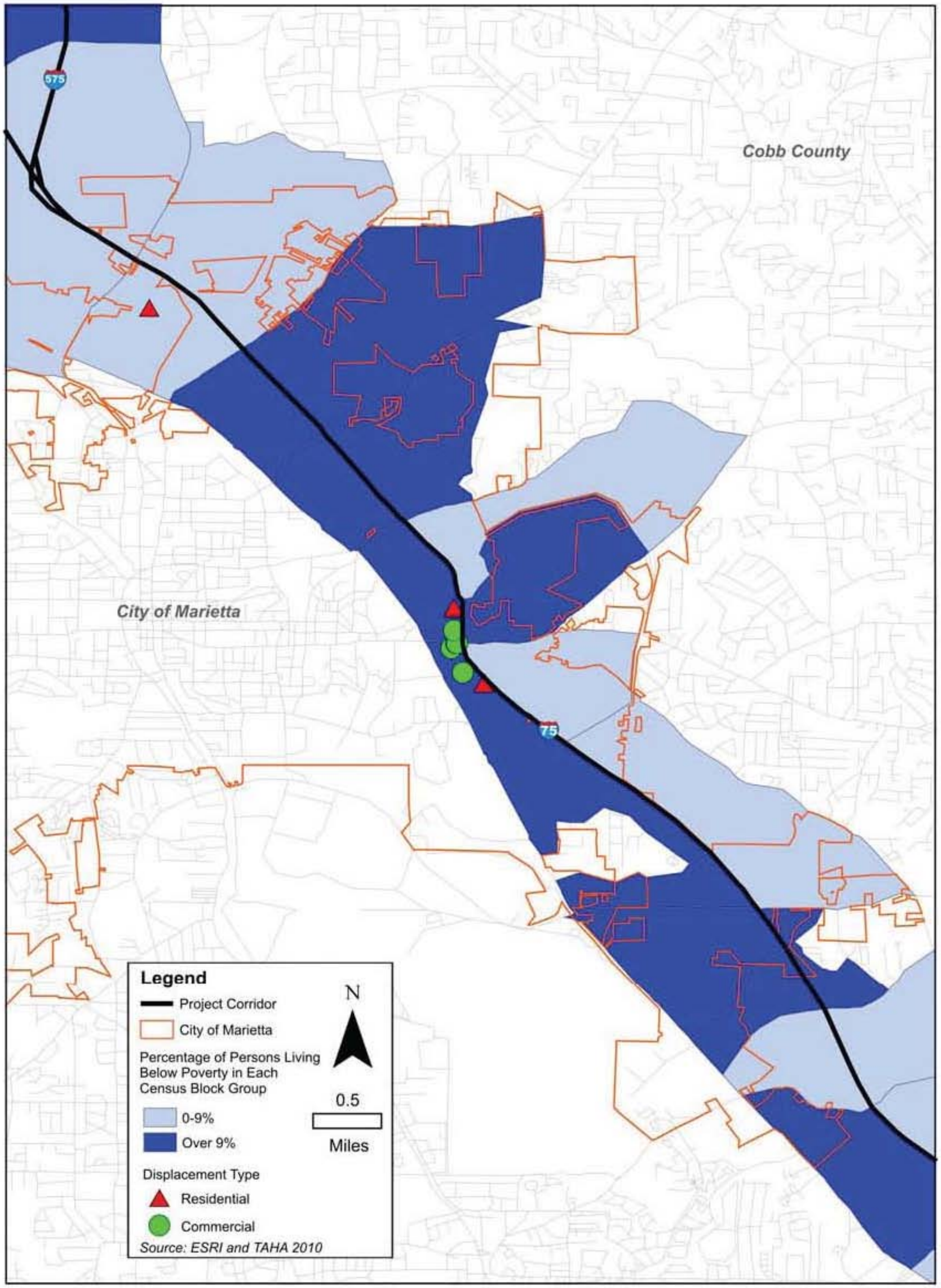
Assuming that all of the residents displaced are part of the low-income population, the residential displacements would affect less than 1 percent of the total low-income population (66,161) within the study area. The residential displacements would have an adverse disproportionate impact on the low-income population in the study area.

Potential Displacements and Minority Population

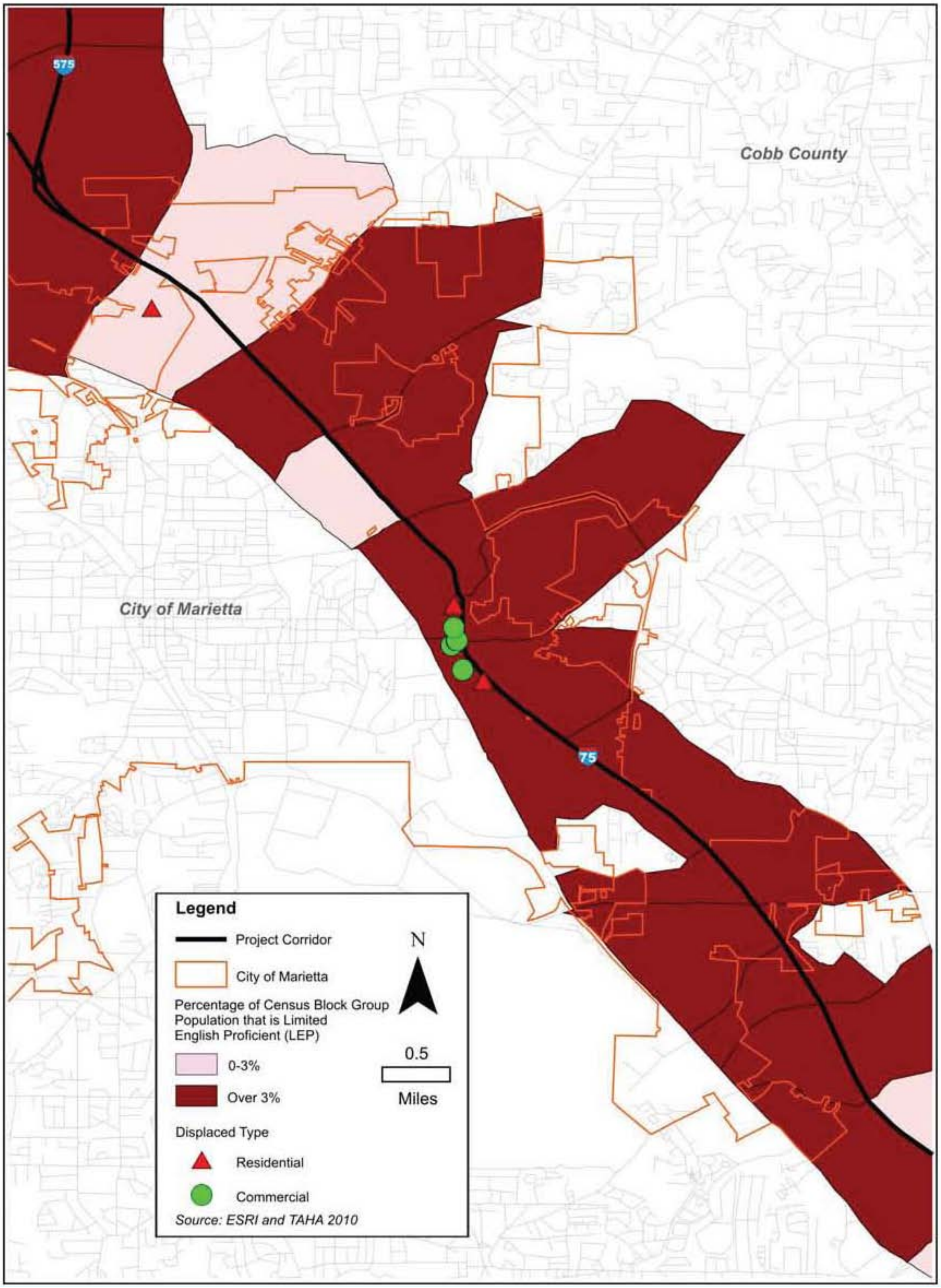
Figure 5-10



Source: TAHA, 2010.



Source: TAHA, 2010.



Source: TAHA, 2010.

The business displacements would impact an estimated 33 employees. It is unknown whether any of the employees of these businesses live close to where they work.

5.6.2.4 Economic Impacts

The number of properties that would be acquired under the Preferred Alternative would not result in adverse effects due to loss of property tax revenues to local governments, nor does it appear the displaced businesses and their employees would adversely affect minority and/or low-income community business districts. The Uniform Relocation Assistance and Real Property Acquisitions Policies Act, as amended, requires that relocation and advisory assistance be provided to all eligible businesses displaced by a proposed transportation project in accordance with its provisions.

Table 5-3 lists the names of the 12 businesses (located on 7 parcels) that would be displaced. The names of the businesses and types of businesses do not indicate that the businesses are primarily serving minority or low-income populations, nor do the business names indicate the businesses may be culturally important in the communities.

While the construction of the Preferred Alternative would result in direct impacts to the businesses, the contribution of this transportation infrastructure project has long-term benefits of improvement transportation mobility and the direct benefit of the work force in the 10-county area. A study conducted by Georgia State University's Fiscal Research Center, *The Economic Impact of the Northwest Corridor P3 Project* (Mathews et al., 2010), concluded that the total economic impact for Atlanta is estimated at $1.45 billion, rising to $1.52 billion for the state from this project. In addition, the project would support an estimated 9,700 person-year private sector jobs in Georgia, with 95 percent of the jobs and economic activity occurring within the 10-county metropolitan Atlanta area. These include jobs directly created by construction and additional jobs created to satisfy increased demand for local goods and services related to construction activities. The study points to $507 million in additional income generated in the Atlanta region and nearly $529 million generated in Georgia over the construction period, which amounts to an average annual income per job of about $55,300 in the metro area and almost $54,500 over the entire state. Construction of the Preferred Alternative would provide ongoing benefits of travel time saving for the movement of goods and people in the corridor and result in a net benefit to employment opportunities in the area.

5.6.2.5 Visual Quality and Aesthetics

The dominant visual elements in the highway corridor between I-285 and Canton Road are predominantly building and transportation-related land uses, and the visual quality is considered low (see Section 3.6). No visually sensitive resources were identified in this area. This section encompasses the environmental justice communities that are in the portion of the project concentrated in the city of Marietta. In this section of the corridor, the Preferred Alternative would introduce new vertical elements into the landscape in the form of walls and structures. These changes would not substantially affect the existing character given the existing visual context and would not constitute an adverse visual impact. The height of walls would be mitigated visually through the use of context-sensitive aesthetic finishes or treatments. Community outreach would be implemented during final design. The use of aesthetic finishes, treatments, and landscaping also would create a positive change in the corridor by creating a potentially unifying visual element along the highway. The views of the road from adjacent properties and roadways would also be enhanced through similar measures.

5.6.2.6 Air Quality

The project has undergone a required interagency consultation to determine if the project is of air quality concern. Based on the results of the interagency consultation process, it was determined that the project is not a project of air quality concern and a quantitative hot-spot analysis is not required to meet the standards of the Clean Air Act and 40 CFR 93.123(b)(1). US Environmental Protection Agency (USEPA) concurred that the proposed project is not a project of air quality concern on February 16, 2011 (see Appendix D).

One of the concerns raised with regard to mobile source air toxics (MSATs) over the last several years is the contribution of vehicles in the near-road environment to MSAT concentrations. Several studies have shown that the concentrations of some emissions return to background concentrations within 1,000 feet of the roadway (Hagler et al., 2009; Beckerman et al., 2008; Zhu et al., 2002). The FHWA, in conjunction with the USEPA, is currently conducting a national near road MSAT study to better understand mobile source emissions associated with major highway facilities. Data collection for the first study area (Las Vegas, Nevada) was completed in December 2009. In 2010, USEPA was preparing a final report for the data collected during that study. Only one community facility, Chalker Elementary School, is located within 1,000 feet of the proposed project. The school, located on North Booth Road in Kennesaw, is at the outer edge of the 1,000-foot boundary and buffered from the proposed project by vegetation. Studies conducted in 2009 indicate that vegetation and sound barriers both have an effect on pollutant concentrations and gradients (Niemeier et al., 2009; Baldauf, 2009). The school is not located in an identified environmental justice community. No environmental health and safety risks have been identified that would disproportionately affect children, in compliance with Executive Order 13045, as amended by Executive Order 13229.

5.6.2.7 Greenhouse Gases

Because greenhouse gases (GHGs) are directly related to energy use, the changes in GHG would be similar to the changes in energy consumption presented in the *Energy Technical Memorandum* (Parsons Brinckerhoff, 2010h), which is contained in Appendix F. Direct energy consumption under the Preferred Alternative is expected to be approximately 0.3 percent higher as compared to the No-Build Alternative. The Preferred Alternative would not result in a disproportionate adverse impact due to greenhouse gases in environmental justice communities.

5.6.2.8 Noise

For the Preferred Alternative between Delk Road and Allgood Road where environmental justice communities are located, existing noise levels range from 59.1 dBA to 74.9 dBA (see Sections 5.5.1 and 5.12). Noise levels under the No-Build Alternative would range from 61.0 dBA to 77.0 dBA. Noise levels under the Preferred Alternative would range from 60.7 dBA to 76.9 dBA. According to the noise analysis, the existing sound barrier on the east side of I-75 between Delk Road and South Marietta Parkway would need to be replaced with a taller structure. Sound barriers also may be provided on the west side of I-75 between South Marietta Parkway and Gresham Road and between North Marietta Parkway and Allgood Road. Sound barriers also may be provided on the east side of I-75 between South Marietta Parkway and SR 3 Conn/Roswell Road.

In the Preferred Alternative, sound barriers also are proposed and may be provided at several locations along the project corridor where there are no environmental justice communities (see Section 5.12). A final decision on the installation of sound barriers would be made upon completion of additional detailed noise abatement analysis based on the final project design and public outreach to those property owners potentially affected.

5.6.3 Potential Effects of Tolling on Environmental Justice Populations

As described in Chapter 2, the Preferred Alternative would result in the construction of managed lanes on I-75 and I-575. The operation of these managed lanes would include tolling to manage congestion. As such, it is important to consider whether or not tolling under the Preferred Alternative could disproportionately affect low-income populations. The following sections describe national and regional studies concerning potential equity issues associated with highway congestion pricing and potential effects of tolling from the proposed project.

5.6.3.1 Literature Review

Traditional methods of financing highway improvements have included fuel tax, sales tax, and flat-rate tolls, which are generally regressive forms of taxation, whereby lower-income and higher-income populations contribute equally to fund transportation projects. While studies have shown that higher-income populations use the managed lanes more often than lower-income populations, the most important aspect of managed lanes and tolling is that they offer commuters a choice. The opportunity to choose to avoid congestion on general-purpose lanes is appreciated by all commuters irrespective of income levels. Survey results show support for managed lanes across all income levels, and there are numerous reasons why a commuter would choose to take advantage of the reliable travel time offered by the managed lanes (FHWA 2008). In addition, general-purpose lanes and transit operations benefit from the introduction of managed lanes. The general-purpose lanes benefit from the single-occupancy vehicle (SOV) shift out of the general-purpose lanes to the managed lanes. Transit operations benefit through the travel time reliability provided by the tolling policy, which would maintain vehicle speeds and exempts transit from paying a toll. Lower-income populations are generally more reliant on transit and use it more than higher income populations. Therefore the transit benefits provided by managed lanes would benefit lower-income and transit-dependent populations.

The FHWA report *Urban Partnership Agreement, Low-Income Equity Concerns of U.S. Road Pricing Initiatives* (FHWA, 2011b) outlines the equity issues of pricing as it relates to low-income drivers and offers insights from states with toll operations in place. Another paper, *Lexus Lanes or Corolla Lanes? Spatial Use and Equity Patterns of the I-394 MnPASS Lanes* (Patterson and Levinson, 2008), cites some specific equity benefits of managed lanes, such as vehicle shifts away from the general-purpose lanes improving travel conditions on such lanes. The study recognizes that managed lanes benefit transit operations by providing a reliable, congestion-free, commuting alternative to SOV travel. Managed lanes make the corridor more efficient and support a long-term strategy of moving more people through the corridor. Evaluations of the variably priced 91 express lanes in California report that low-income drivers use the express lanes and are as likely to approve of the lanes as drivers with higher incomes. In the study, over half of commuters with household incomes under $25,000 a year approved of providing toll lanes. In a 2006 survey of users of the I-394 high-occupancy-toll (HOT) lanes in Minnesota, usage was reported across all income levels, including by 79 percent of higher income respondents, 70 percent of middle income respondents, and 55 percent of lower-income respondents. Support for the managed lanes was also found to be high across income levels, with 71 percent of higher income respondents, 61 percent of middle income respondents, and 64 percent of lower-income respondents.

The FHWA publication *Income-Based Equity Impacts of Congestion Pricing: A Primer* (FHWA, 2008) provides an overview of congestion pricing, its effect on low-income groups, and identifies ways to mitigate potential unequal distribution of benefits through examples provided by managed lanes system in operation across the country. Pertinent to the Northwest Corridor Project, the report presents findings of income equity and modal equity based on current literature and US Department of Transportation (USDOT) studies from the federal Urban Partnership Agreement Program and the Congestion Demonstration Program.

The main topics to be addressed are accessibility and distribution of benefits and burdens across income levels and travel modes. The issue of access to toll equipment is important to address. Lower-income populations may not have financial resources such as credit cards and bank accounts to establish tolling accounts, or they may lack sufficient financial resources to pay deposits on electronic toll payment equipment, such as transponders. These conditions may limit use of the facilities by low-income groups. However there are measures, including the use of cash machines to secure deposits for toll usage that have been used to mitigate such concerns.

Opinion research of congestion pricing projects across the country has demonstrated that impacts of congestion pricing are not necessarily related to income, but are more based on choice, flexibility of personal schedules, and alternative routes available to users. Low-income populations have been shown to support the construction of toll facilities; and they use toll facilities. The latter appears to be attributed to environmental justice populations having less personal schedule flexibility. The opportunity to pay a toll in exchange for more reliable travel and/or reduced travel time results in on-time arrival at places of employment and eliminates potential penalties such as day care services late fees. A survey of users of Miami's I-95 Express Lanes Project shows that users value the reliable travel time. An estimated 76 percent of those who have used the express lanes believe it is a more reliable trip than trips using the general-purpose lanes.

Studies have shown that revenue sources and the planned use of tolling revenues influence public support from all income groups for congestion pricing transportation projects. On San Diego's I-15 HOT lanes, users were more likely to be from higher income populations than in the general-purpose lanes; however, lower-income drivers use the lanes. The equity concerns in this corridor are being addressed through the dedication of toll revenue to support transit service. This I-15 Project demonstrates the benefits of tolling as a demand management tool and suggests that transit benefits reduce the impact of pricing on low-income individuals.

5.6.3.2 Georgia Studies

A study of tolling effects on environmental justice populations was published by the Georgia State Road and Tollway Authority (SRTA) in April 2006 entitled *Tollway Authority HOT Lane Environmental Justice Analysis* (SRTA, 2006). The focus of this study examines the potential effect of converting the Atlanta region's existing and proposed HOV lanes to HOT lanes. The study concluded that the conversion of HOV lanes to HOT lanes would adversely affect adjacent communities due to increased noise and air pollution and property acquisitions. The study also found that while regional implementation of HOT lanes did not appear to disproportionately affect any particular group when it did not include converting existing HOV or SOV lanes to HOT operation, implementation of HOT lanes would create localized environmental justice concerns.

The study concluded that proposed HOT lanes would not benefit low-income and/or transit-dependent populations. The SRTA study determined that though low-income populations may be willing to pay tolls, their ability to pay is clearly less than populations with higher incomes. Vanpool programs, increased transit service, and HOV incentives could offset these adverse effects. Mandatory tolling, however, would likely result in disproportionate adverse effects on environmental justice populations.

In addition, the study outlined public controversies on how toll revenues should be spent. For many, the collection of highway toll monies should be restricted to funding the construction or operation of highway infrastructure. But, this approach to toll revenue expenditure is not equitable for members of society who contribute tax revenues, are less likely to benefit from the highway improvements, and may have reduced mobility with implementation of the proposed improvements. As such, the SRTA study discussed the need to consider expenditure of toll revenues to improve mobility for environmental justice populations. The study also suggested a mitigation measure to improve equity through tolling discounts for low-income, disabled, and elderly persons and access through a "convenience card" that could be purchased in local retail stores. While tolling discounts are not being considered as part of the Northwest Corridor Project, SRTA has developed "cash preferred" customer options for users preferring to use cash.

In March 2010, the Georgia Division of FHWA issued a letter summarizing reasons why the proposed I-85 HOV to HOT Conversion Project in DeKalb and Gwinnett Counties would not result in disproportionate impacts on low-income communities in the Atlanta region (FHWA, 2010). In researching the response to comments regarding disproportionate impacts, the Georgia Division of FHWA discussed the project with FHWA Headquarters and with FHWA Division offices in California, Washington, and Minnesota (states with operational HOT lanes). The letter summarizes the Environmental Assessment (EA) and makes the following points:

- Travelers of all income levels may benefit from the trip time reliability provided by the Conversion Project.
- Across the nation, commuters of all income levels are using managed lanes regularly.
- Approval ratings of existing HOT lane systems across the country are fairly consistent among all income levels. In independent studies such as one conducted by the University of Minnesota, approval ratings remained quite consistent from the period before the lanes were implemented through the first six months of operation and then after the first year of operation.
- The GDOT demonstrated it conducted sufficient public involvement within the project influence area to provide opportunities in the transportation decision-making process for full and fair participation by all potentially affected communities, including low-income residents.
- National studies have shown that income demographics are consistent between HOT lane users and general-purpose lane users.
- Similar to national studies, the FHWA concluded the proposed Conversion Project would not amount to a denial, reduction, or substantial delay in the receipt of benefits to low-income populations.
- The Georgia Division of FHWA has learned about a number of innovative ways to make transponders that enable electronic collection of tolls readily available to the greatest cross-section of the public. The agency is working with GDOT and SRTA to develop an operations plan to further develop implementation logistics for the Conversion Project.

The *Atlanta Regional Managed Lane System Plan, Technical Memorandum 9: Social Equity and Environmental Effects Evaluation* (HNTB, 2010) report provides a high level study of the regional effects of managed lanes on environmental justice populations and the potential air quality effects. The study concluded that environmental justice communities are not disproportionately impacted by managed lanes and that the congestion reduction resulted in the potential for air quality benefits. An education campaign, outreach to traditionally underrepresented populations in the planning process, inclusive payment methods (e.g., a cash payment method option), and access to information regarding the operations and benefits of managed lanes were keys to minimize perceived effects to environmental justice communities.

Among other studies, the *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a) references the experience of Minnesota and proposes that "managed lanes will provide advantages to HOVs and transit by way of increased mobility options and more reliable travel times, two aspects that have direct benefit to lower-income HOVs and transit riders." Further, the study presents the findings from San Diego's I-15 HOT lanes, which "showed a broad approval of the HOT lane program, perceived it to be fair, and noted that it had reduced congestion." The equity issues in I-15 were addressed by dedicating some of the express lane revenues to bus service. The Managed Lanes studies points out an important fact that "I-15 does not have debt service on capital, which frees revenue for this obligation" and hypothesizes that "although the funding source has not been determined in the Atlanta region, it may be a challenge to provide transit because the managed lane system toll revenue would likely have to be used to pay debt service on capital for system construction."

5.6.3.3 Tolling Effects of the Preferred Alternative

The use of priced managed lanes in Georgia are untested, and it is unclear if the Northwest Corridor Project managed lanes would garner the same levels of participation and support experienced in other urban areas. The first tolled managed-lane project to come online in the Atlanta region is the I-85 HOV to HOT Conversion Project, which began operation in October 2011. Initial operation of this project will provide valuable information on drivers' actual willingness to pay for travel time savings and on the socioeconomic makeup of managed lane users in the Atlanta region. Absent such data, it is challenging to predict the demographic profile of the potential users of the proposed managed lanes.

A two-step methodology was used to evaluate the potential effects of tolling on low-income populations within the study area (HNTB, 2011). First, the geographic distribution of low-income households within the study area was analyzed for 2015 and 2035 using income data at the traffic analysis zone (TAZ) level from the ARC travel demand model. The TAZ boundaries closely match block group boundaries in most cases and represent a way to analyze income data absent the 2010 decennial block group census data. After the geographic distribution of low-income households was determined, a select link analysis was conducted. The select link analysis was conducted to determine the origin and destination zones of users of the facility. The output information was used to generate a map showing the geographic distribution of the originating zones in the Northwest Corridor for managed lane users. The income maps and the zonal trip generation maps were overlaid to show trips related to distribution of low-income households.

Income Distribution

Figure 5-13 shows the income distribution of population with incomes below $20,000 per year and incomes below $50,000 per year for years 2015 and 2035. These income categories were selected because the ARC 2008 Travel Demand Forecasting Model includes annual household income data using these categories among four categories and these specific categories capture households of any size with income that is at or below the poverty level (HNTB, 2011). The figures highlight the distribution of low-income and low- to mid-income populations in the project area. Darker areas indicate that a larger proportion of households in a particular TAZ have incomes that fall below the designated threshold. These figures show clusters of low-income TAZs immediately adjacent to the project, with a concentration of these households to the west of the project's southern section.

Select Link Analysis

The results of the select link analysis showed the originating zone of the Northwest Corridor managed-lane users over the course of a typical weekday, as well as the destination zone of each user. Figure 5-14 shows the results of the select link analysis. The darker areas indicate zones that generate a larger number of trips using the Northwest Corridor managed lanes. Since the managed lanes are reversible, the darker zones on the northern end are most likely trips generated in the morning and the darker areas at the southern end of the project are most likely trips generated in the afternoon. Based on the analysis, it appears that the largest number of trips originate in zones immediately adjacent to the project corridor. Many of these trip-generating zones also are low-income or low- to mid-income areas. Figure 5-15 shows the income distribution overlaid with the zonal trip generation (daily TAZ volumes) results. This figure shows trips from areas with diverse household income profiles. The zones outlined in yellow have a higher average percentage of households with income less than $50, 000 per year. Results of the select link analysis show a substantial number of trips originating from these zones using the managed lanes.

Table 5-8 shows the number of trips from traffic analysis zones (TAZs) identified as low-income and low- to mid-income in the study area. The percentage of trips from these TAZs relative to the total number of trips also is presented. In both 2015 and 2035, an estimated 40 percent of all trips using the managed lanes come from TAZs that have a low-income population greater than the regional average. Over half of all trips using the managed lanes come from TAZs that have a low- to mid-income population that is greater than the regional average.

Table 5-8. Trip Comparison from Select Link Analysis for Managed Lanes

Year	Total Subarea TAZs	Total TAZ trips	Total Low-Income TAZs (<$20k)	Total Low/Mid-Income TAZs (<$50k)	Trips from Low-Income TAZs	Trips from Low/Mid-Income TAZs	Percent of Total Trips from Low-Income TAZs	Percent of Total Trips from Low/Mid-Income TAZs
2015	185	9,480	91	115	4,480	5,750	47%	61%
2035	255	21,370	90	119	9,240	12,200	43%	57%

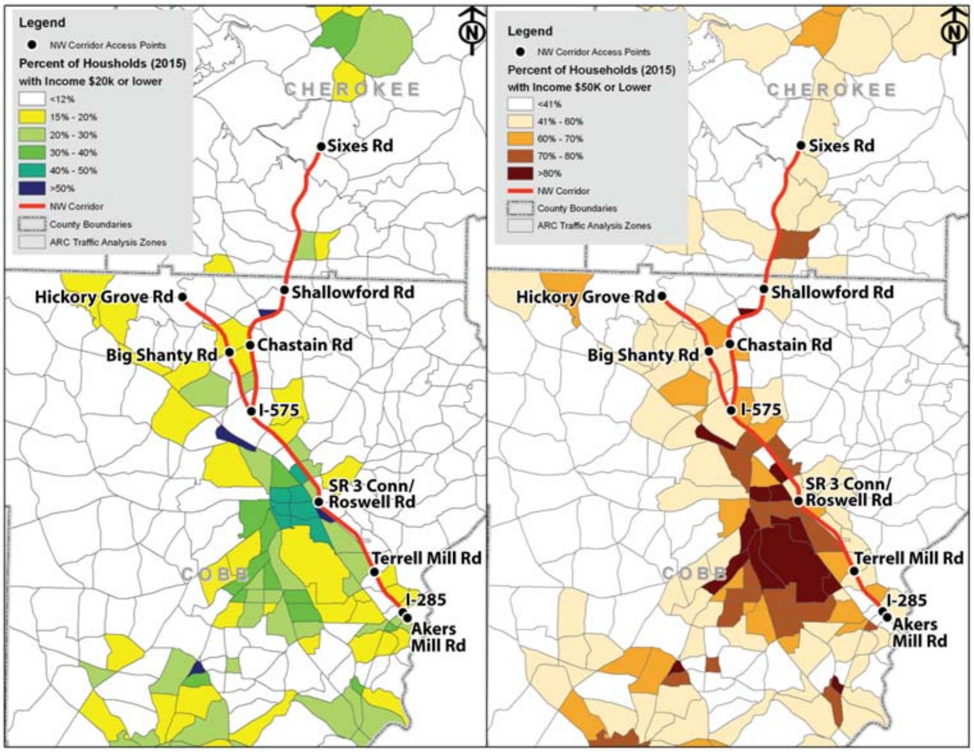
Source: HNTB, 2011.

Relationship Between Annual Household Income and Trips

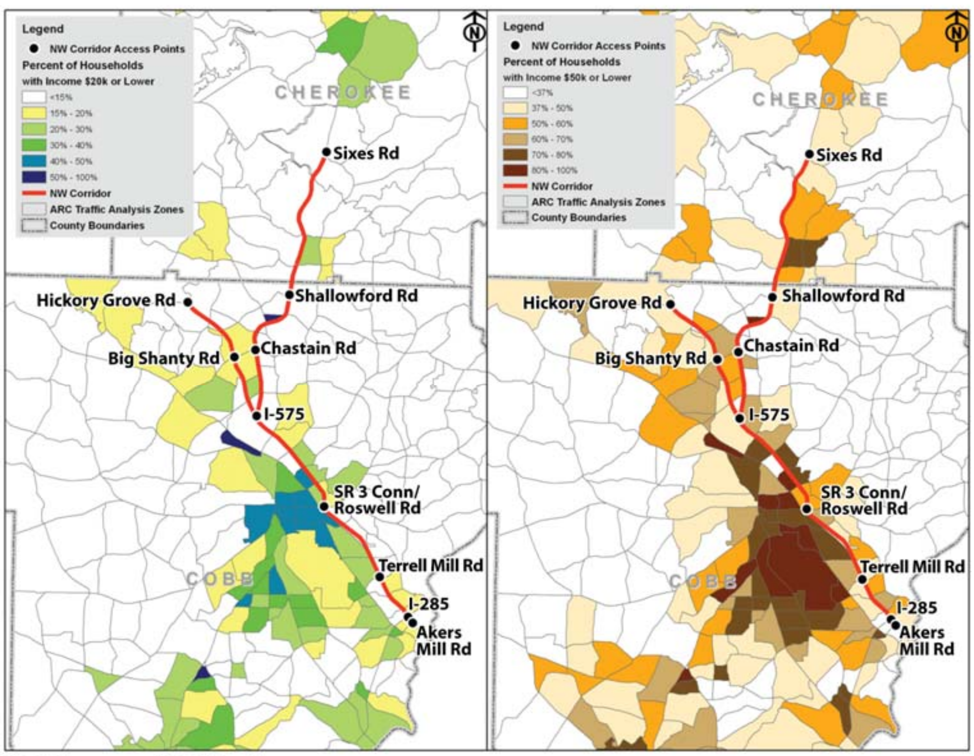
In addition to income distribution and select link analysis, a statistical analysis of the trip-making characteristics of the TAZs and the low-income profile of the TAZs was conducted to determine if a relationship existed between the percentage of low-income households and the usage of the proposed managed lanes. The results of the analysis indicate that there does not appear to be a strong relationship between the percentage of low-income households and managed lane usage. Additional information on the analysis can be found in *Evaluation of Tolling Effects on Low-Income Populations, Northwest Corridor Project, Technical Memorandum* (HNTB, 2011) (see Appendix F).

Toll Policy

The Preferred Alternative proposes to alleviate congestion by constructing reversible tolled managed lanes. Implementation and operation would be achieved through a P3 Developer Agreement under which the P3 Developer would design, build, finance, and operate the managed lanes facility. The P3 Developer would be required to maintain a minimum average operating speed of not less than 45 miles per hour (mph) in the managed lanes. The addition and operation of these managed lanes



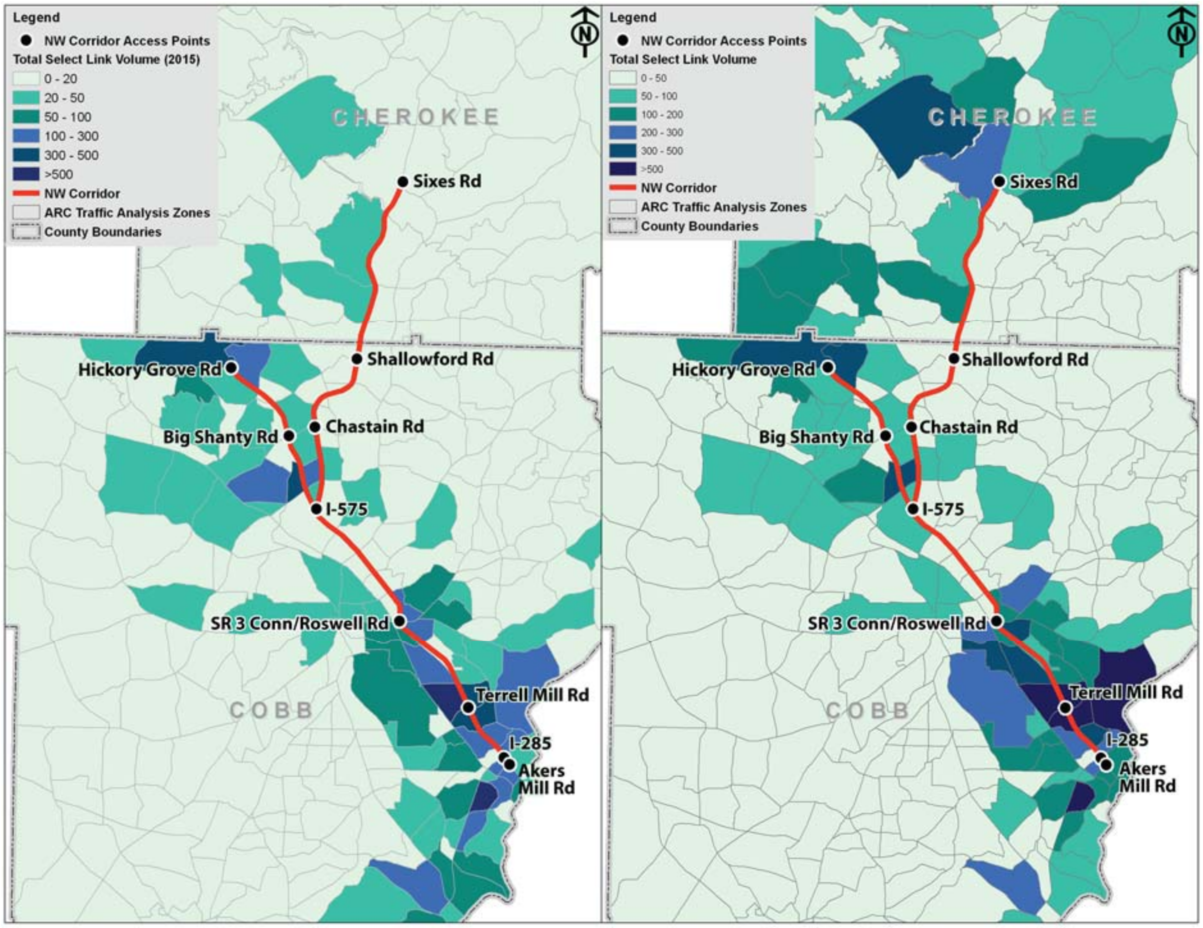
2015 Income Distribution



2035 Income Distribution

Source: HNTB, 2011.

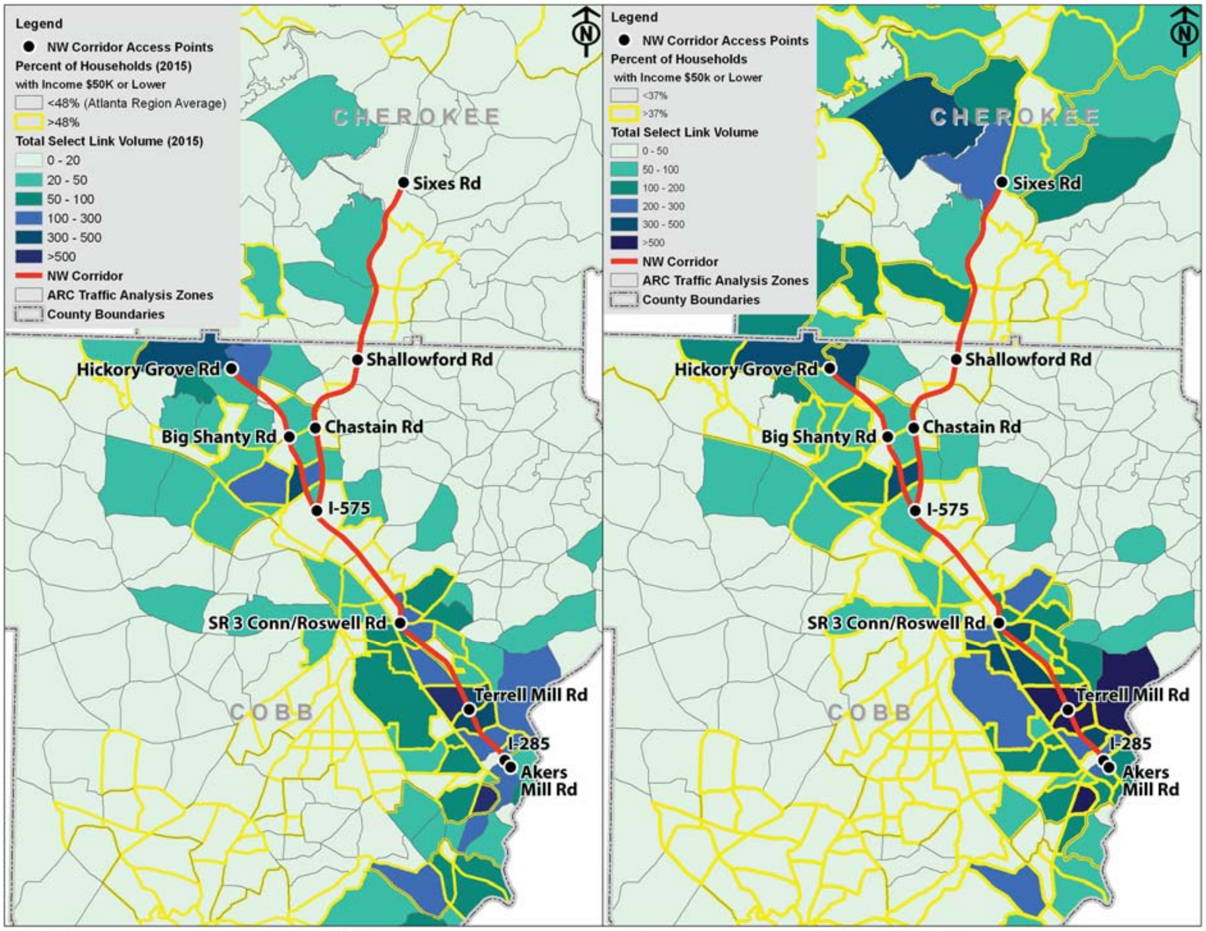
Figure 5-14. Daily Traffic Access Volumes by Traffic Analysis Zone, 2015 and 2035



2015 Daily TAZ Volumes **2035 Daily TAZ Volumes**

Source: HNTB, 2011.

Figure 5-15. Daily Traffic Analysis Zone Traffic Volumes and Income Distribution, 2015 and 2035



2015 Income and Daily TAZ Volumes **2035 Income and Daily TAZ Volumes**

Source: HNTB, 2011.

would improve the overall performance of the corridor, including the general-purpose lanes. The tolling policy for the Preferred Alternative would charge permitted vehicles to use the lanes, which would be dynamically priced to maintain a minimum average operating speed of not less than 45 mph, and the tolls would be collected through the use of electronic tolling systems. Permitted vehicles consist of passenger cars and other permitted vehicles, including panels, vans, campers, motor homes, ambulances, hearses, carryalls and minibuses. Vehicles with up to two axles and six tires would be permitted to use the managed lanes and would be required to pay a toll. Vehicles not meeting these definitions would not be permitted to use the managed lanes. Certified alternative fuel vehicles would be required to pay the toll.

Military vehicles, registered transit vehicles, emergency vehicles, P3 Developer vehicles, and school buses as defined in OCGA § 40-1-1(55), are exempt from tolls. Registered transit vehicles include buses or vanpools registered by or through a public transportation agency within the 20-county ARC region.

The SRTA would provide cash options for toll payment at its customer service centers and individuals would be able to register accounts on SRTA's website and telephone service, both of which would be available in English and Spanish languages. In addition, individuals would be able to register accounts at the Department of Driver Services. These types of customer services also would be available at office and/or commercial business locations within the project area.

Toll Rate

Varied (dynamic) toll rates would be used to meter traffic traveling the managed lanes in order to maintain a minimum average operating speed of not less than 45 mph. These varied (dynamic) toll rates would be changeable not more frequently than once every 5 minutes.

At each entry point to the managed-lane system, a toll rate sign would display the toll for two travel movements. These would include the toll from the entry point to the next (upcoming) exit and from the entry point to the last exit of the managed-lane system (or the last exit of each leg of the system, as applicable). Any travel movement between the entry point and an intermediate exit point that is not listed on the toll rate sign would be tolled at an intermediate rate based on the applicable rate displayed on the toll rate sign. The toll rate shown on the toll rate sign at an access point to the managed-lane system would be the toll rate locked in for that trip.

A maximum toll rate for the Northwest Corridor managed lanes has not been established, but toll rates would be revisited throughout the lifetime of the project and potentially adjusted in response to travel demand. The toll rate would not exceed the threshold, except if needed to maintain an average speed of 45 mph in the managed-lane system. If necessary, a prescribed mechanism would apply to increase or decrease tolls based on throughput. The per-mile toll rate threshold would be subject to annual adjustment in accordance with either an increase in the Consumer Price Index (CPI) or an analysis of the frequency and amount of toll rates that exceeded the threshold during the previous year.

The P3 Developer would be responsible for capturing the tolling transactions for the managed lanes and would be responsible for transmitting the tolling transaction information to SRTA. The SRTA would deduct a processing fee from the gross toll revenues prior to submitting the net amount back to the P3 Developer. As such, SRTA would be responsible for collecting toll revenue, enforcing toll collection, and distributing toll revenues less collection costs and administration cost to the P3 Developer. Toll revenues would be used for management, maintenance, operation, and debt payment for the Northwest Corridor Project Ultimately, the agreement between GDOT and the P3 Developer would determine how the toll revenue would be used. Any excess toll revenues received by GDOT would be used to fund other projects identified through the statewide transportation planning process. Since transit vehicles are exempt from having to pay a toll, they benefit from the reliable travel times, which would make transit operations more efficient in the corridor.

Accessibility

Access to using the managed-lane system is being addressed through a requirement that SRTA provide a payment mechanism for persons who do not have a credit card to establish cash accounts or pre-paid accounts at walk-in customer service centers or retail outlets.

The SRTA would offer cash backed pre-paid transponder accounts and would accept cash payments for video-toll invoices and violation notices. Additionally, SRTA is currently working with third parties to identify locations throughout the region for customers to replenish their cash-backed pre-paid accounts and pay video-toll invoices and violation notices.

The GDOT is proactively working with the State Road and Tollway Authority (SRTA) to develop a Memorandum of Understanding to address implementation of tolling for the proposed managed-lane facility. The potential commitments include a cash option toll payment method and a monitoring program. In particular, potential methods to mitigate tolling for minority and low-income populations, such as special programs to facilitate use of the managed lanes for low-income populations have been discussed with GDOT and SRTA and will be explored
16 further.

Corridor Efficiency

A reduction in SOV trips would indicate that the Preferred Alternative is influencing the mode people choose to travel, with more opting to use HOV and transit. Under the Preferred Alternative, the number of SOV person trips is projected to decrease by 9,000 person trips daily as a result of the new managed lanes on I-75 and I-575. Travel times by HOV to regional activity centers outside the study area (i.e., downtown Atlanta, Midtown, Perimeter Center, and Buckhead) would decrease by 9 to 12 percent, while travel times to Cumberland-Galleria and Town Center within the study area would decrease by up to 14 percent. SOV travel times to regional activity centers outside the study area also would decrease under the Preferred Alternative, but the difference would be slightly lower than for HOV travel. For travel to activity centers within the study, travel times for SOV users would be the same as HOV users.

Transit

Transit vehicles would be permitted to use the managed lanes at no cost. The operation of the lanes would use variable toll rates to keep traffic flowing freely. This approach would provide transit vehicles with consistent travel times. This would benefit transit users on transit routes that use I-75 and I-575 in the project area.

The long-term aspects of having managed lanes in the corridor and a toll policy that exempts registered transit vehicles and registered vanpools is consistent with the discussion provided in Sections 5.6.3.1 and 5.6.3.2, which conclude that improved transit operations and reliable travel times benefit low-income and transit-dependent populations.

Summary of Findings

In summary, this analysis indicates that managed-lane users from low-income communities are anticipated to use the managed lanes in both 2015 and 2035. However, there are limitations to the analysis and some uncertainties inherent with predicting future acceptance of managed lanes in the project corridor. The ARC model does not generate specific details on any one user's income, race, or any other socioeconomic characteristic. Additionally, economic downturns are likely to alter the personal calculus of potential managed lane users. The analysis takes into account the ARC's projections for economic conditions in 2015 and 2035.

The analysis shows that there are projected trips coming from low-income communities that would use the managed lanes, based on the select link analysis output for 2015 and 2035. The characteristics of the TAZs indicate that these communities are predominantly low-income; however, there is no linkage to individuals' trips and the household income characteristics of those individuals. The analysis demonstrates that the benefits of the managed lanes are anticipated to be enjoyed by users irrespective of income level. The figures show that proximity to the Northwest Corridor is a more significant factor affecting usage, with those TAZs located nearest the corridor generating the highest number of trips. It is anticipated that all trips in the corridor would benefit from increased highway capacity including trips using the managed lanes, the general-purpose lanes, and parallel arterial roadways. Such benefits attribute to passenger cars and transit vehicles used by all income groups, minority, and non-minority groups as well. Transit users would receive additional benefits since transit vehicles would not be required to pay a toll for use of the managed lanes.

According to these results, it is reasonable to conclude that low-income populations would use the managed lanes. The benefits of the project would be realized for those choosing to use the managed lanes and for those who do not choose to use the managed lanes. The addition of tolled managed lanes in the Northwest Corridor would provide travel time savings and improve level of service conditions in the general-purpose lanes. However, as mentioned previously, there are limitations to the analysis and some uncertainties inherent with predicting future acceptance of managed lanes in the corridor.

However, it has been demonstrated by existing operational tolled managed-lane systems that there is no disproportionate adverse impact on low-income populations. It is important to note, however, that every toll system is different in terms of vehicle occupancy requirements, operational policies, and overall system goals and objectives. However, according to the report *Income-Based Equity Impacts of Congestion Pricing: A Primer* (FHWA, 2008), there is evidence that shows system "approval ratings are equally high for all income groups, in the 60-80 percent range, because all income groups value the 'insurance' of a reliable trip time when they absolutely need it." These existing managed-lane facilities have proven usage across all household income levels; therefore it is reasonable to assume that the proposed project would be used by persons of all income levels.

Based on the analysis for this project and evidence from other similar facilities, the implementation of the Preferred Alternative is not anticipated to generate disproportionate high and adverse impacts to environmental justice communities. Tolling inherently imposes an impact on all populations, including environmental justice populations that choose to use the tolled managed lanes. The general-purpose, non-tolled option that is available currently would continue to be available in the future and as a result of the construction of the tolled managed lane facility, the general-purpose lanes would realize travel time benefits. In addition, the managed lanes would provide benefits to transit operations as well provide a more reliable travel time in the managed lane, which provides an additional benefit to those who elect to use transit.

For more information on the select link analysis, review the *Evaluation of Tolling Effects on Low-Income Populations, Northwest Corridor Project, Technical Memorandum* (HNTB, 2011) contained in Appendix F.

5.6.4 Public Involvement Efforts

Access to the decision-making process is a fundamental principle of environmental justice analysis. To further the goals of environmental justice in accordance with federal directives, an environmental justice outreach plan was developed and implemented as an integral part of the public involvement and outreach strategy for the proposed project. A sound public outreach program provides access and opportunity for participation by all of the communities in the study area, with a particular emphasis on the minority and low-income communities in the areas most likely to be affected by the proposed project.

The public involvement and outreach program for the Northwest Corridor Project has continued to include activities tailored to meet the needs of minority and low-income populations. Techniques have included targeted community group meetings, newsletters, and kiosk displays. Translation and interpretation services have been used for written materials and public meetings, respectively. Special coordination efforts have been used with advocacy, social service, and media outlets to advertise upcoming outreach events.

To date, four public outreach kiosk displays have been used to particularly target minority and low-income populations. The kiosk events were held at Spanish-language churches, a social service organization, and the Cobb County Transit Marietta Transfer Center. The kiosk events allowed citizens to review the project maps, pick up a fact sheet, and hear a brief overview of the proposed project from a member of the project study team. Spanish and Portuguese interpreters were available to assist members of the public as well as the project team.

The following outreach activities will be associated with the publication of this FEIS:

- Newsletter: A newsletter summarizing the FEIS and providing information on ways to submit comment, upcoming public involvement activities and next steps will be emailed electronically to those on the project email list, posted to the project website, mailed to those on the project mailing list, delivered to churches, service organizations, libraries, Cobb and Cherokee County offices, City of Marietta offices and used in information kiosks. The newsletter will be developed in English and translated into Spanish and Portuguese.
- Information Kiosks: A number of staffed kiosks will be set up to target low-income and minority populations in the Northwest Corridor study area.
- Speakers Bureau: The project team will respond to requests to present project updates.
- Project Website: The project website will be updated with the latest information regarding the FEIS, including the document itself, the latest newsletter and information about how to submit comments on the project. Facebook and Twitter will be used to inform friends and followers of project updates and events.
- Project Hotline: The project hotline will continue to be advertised and monitored.

In addition to the public outreach associated with the publication of this FEIS, public outreach would be conducted in all areas where sound barriers are proposed to mitigate noise impacts. This public outreach is required by the GDOT noise policy. The noise abatement policy requires the affected property owners and dwellers submit a ballot voting on proposed construction of sound barriers in their neighborhood. Sound barriers would only be constructed if a minimum of 50 percent plus one of the respondents vote in favor of a sound barrier.

Public outreach to minority and low-income populations is planned to be ongoing through project design, construction, and operation. Following completion of project construction, an annual study would be conducted to monitor usage of the managed-lane system for potential impacts to environmental justice communities. Opportunities would be provided for solicitation of public feedback on system operations and customer satisfaction.

5.6.5 Mitigation Measures

The following mitigation measures would be implemented:

- The GDOT and the P3 Developer would make every effort during design to reduce property acquisitions through project refinement, especially in minority and low-income neighborhoods.
- The FHWA would approve a project financial plan that addresses access to the managed-lane facility, particularly by environmental justice persons. Alternatives to be considered include the following: cash, pre-paid accounts, walk-in customer service centers, and/or retail outlets.
- The GDOT and SRTA would consider the need to facilitate access of the managed-lane system by environmental justice populations during the design and construction of the facility. The SRTA, in consultation with GDOT, would develop a specific plan to address this need upon opening to traffic.
- The GDOT would conduct annual studies that monitor the system for potential impacts to environmental justice populations and provide opportunities for the public to submit feedback on system operations and customer satisfaction for a period of three years from project opening.

5.7 Safety and Security

This section describes potential impacts of the No-Build Alternative and the Preferred Alternative on public service providers. See Section 3.5 for a description of existing conditions. The public service providers most likely to be affected would include emergency services, such as GDOT's Highway Emergency Response Operators (HERO) units, Georgia State Patrol, Cobb County Police Department, City of Marietta Police Department, Cherokee County Sheriff Department, Cobb County Fire Department, City of Marietta Fire and Rescue, and Cherokee County Fire and Emergency Services. All of these service providers use I-75 and/or I-575 to respond to emergencies and/or respond to emergencies on the highway itself.

The P3 Developer would be responsible for providing an operations management plan that includes incident response, management and reporting. The P3 Developer would either contract with the State for HERO units to provide the service on the managed lanes or provide the service through other means, such as a private contractor.

5.7.1 Safety and Security Impacts

An adverse impact to public services occurs when response times are regularly delayed or if there is a substantial increase in demand. Under the No-Build Alternative, response times for emergency services would not be improved over existing conditions. Response times would continue to gradually worsen in the years to come because of increased congestion in the

Northwest Corridor, including the highway interchanges. In contrast, the Preferred Alternative would have a positive effect to reduce emergency response times for emergency service providers using I-75 and I-575 general-purpose lanes. Travel time from one end of the project to the other would be reduced by almost half if emergency vehicles used the managed lanes during peak hours.

The managed lanes under the Preferred Alternative are projected to improve travel times for vehicular traffic in the general-purpose lanes because of the additional capacity added to the I-75 and I-575 corridors. The managed lanes on I-75 between I-285 and I-575 would be at a different elevation than the general-purpose lanes (the managed lanes are typically higher) and separated horizontally by a wall or barrier. This segment is proposed as a two-lane segment with a 10-foot-wide shoulder on one side. Emergency vehicles would be able to access the new lanes from any of the proposed interchanges and travel in the managed lanes to the incident. If the incident has not completely blocked the lanes, emergency responders would have to travel in the direction of travel of the reversible lanes for the time of day.

On I-75 north of I-575, the proposed managed lane would be adjacent to, but barrier-separated from, the northbound general-purpose lanes. The construction of the barrier would result in an 8-foot-wide inside shoulder for the northbound general-purpose lanes. Emergency responders would travel in the northbound general-purpose lanes to the incident and work back and forth over the median barrier, travel in the southbound general-purpose lanes to the incident and work across the wide depressed grass median, or travel in the managed lane to the incident. Again, if traveling in the managed lane, the emergency responders would have to travel in the direction of peak period traffic flow in the reversible lanes, i.e., southbound in the morning and northbound in the evening.

On I-575 north of I-75, the proposed managed lane would be adjacent to, but barrier-separated from the northbound general-purpose lanes. The construction of the barrier would result in a 6-foot-wide inside shoulder for the northbound general-purpose lanes. Emergency responders would travel in the northbound general-purpose lanes to the incident and work across the median barrier, travel in the southbound general-purpose lanes to the incident and work across the wide depressed grass median, or travel in the managed lane to the incident. Again, if traveling in the managed lane, the emergency responders would have to travel in the direction of peak period traffic flow. The managed lane on I-575 would have slip ramp accesses between the general-purpose lanes and the managed lane that would facilitate emergency access. There also would be emergency access locations planned where a section of the grass median between the southbound general-purpose lanes and the managed lane is paved, but blocked with a gate to limit their use to emergency vehicles.

The Preferred Alternative would not have an adverse effect on the operation of emergency vehicles. Compared to the No-Build Alternative, the Preferred Alternative would reduce emergency response times during peak period traffic in the general-purpose lanes because of an improved level of service. Moreover, emergency vehicles would be allowed access to crashes on the managed lanes via the proposed managed-lane interchanges, the managed-lane slip ramp accesses, and special emergency-only access locations.

The Preferred Alternative is a reversible-lane system, with messaging signs and gates. As such, the system also could be used to facilitate the movement of traffic in the event of an emergency evacuation by providing additional capacity in the needed direction.

5.7.2 Mitigation Measures

Mitigation is not necessary since no adverse effects on public services are expected to occur under the Preferred Alternative. As appropriate, design features that may aid emergency access should be considered during final engineering.

5.8 Visual Quality and Aesthetics

Visual impacts are changes to the visual landscape. Visual impacts can be categorized as substantial, less than substantial, and minimal visual impacts.

- Substantial visual impacts of a transportation project are those that would result in a deterioration in the ability to use the adjacent land as intended, a reduction in the quality of that use, obstruction of an important view, interference with a specific design in the environment, degradation of a natural condition, removal of a substantial percentage – or the last amount of - landscaping or natural vegetation, and similar levels of visual disturbance.
- Less than substantial impacts are those visual effects that would not result in a deterioration in the ability to use the adjacent land as intended, a reduction in the quality of that use, obstruction of an important view, interference with a specific design in the environment, degradation of a natural condition, removal of a substantial percentage - or the last amount of - landscaping or natural vegetation, and similar levels of visual disturbance.
- Minimal visual impacts are those where the visible changes would be barely noticeable to the general public.

5.8.1 Visual Impacts

Visual effects are the degree of change in a visual resource combined with viewer response to that change. Changes in visual resources are determined from changes in visual quality. Potential project effects were evaluated by analyzing the change in quality of the visual resources that would result from the proposed project, and the viewers' expected response to those changes. As necessary, photographs of existing conditions from specific viewpoints were used to help assess effects on visual resources.

The following sections describe the anticipated changes in the visual character along the Northwest Corridor for both the No-Build Alternative and the Preferred Alternative. This analysis is summarized in Table 5-9.

Table 5-9. Summary of Visual Impacts

	Section 1: I-285 – Canton Road		Section 2: Canton Road – Hickory Grove Road		Section 3: I-575 Between I-75 and Sixes Road	
Element	No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative
Visual Character	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Visual Quality	No Impact	Less Than Substantial	No Impact	Less Than Substantial	No Impact	Less Than Substantial
Visually Sensitive Resource	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact

5.8.1.1 No-Build Alternative

The No-Build Alternative includes existing and planned transportation services, facilities, and infrastructure that would be in place by 2035. No construction would occur, so there would be no change in the environment. The No-Build Alternative would not change the form, character or quality of the visual environment in the project corridor.

5.8.1.2 Preferred Alternative

Section 1: I-75 between Cumberland Boulevard and Canton Road

The Preferred Alternative along I75 between Cumberland Boulevard and Canton Road lies within landscape unit Section 1 (see Section 3.6). The existing visual quality in this section is considered low. In this section, two managed lanes would be constructed on the west side of I-75. The lanes would be on retaining walls or on structures. The height of the retaining walls would be between 8 and 25 feet. In most places along this section of the corridor, the highest sections of the walls would be those on the west side of the managed lanes, away from the interstate (see first typical section in Figure 5-16).

Two notable exceptions occur near Allgood Road and Terrell Mill Road. Near Allgood Road, the managed lanes would be 3 to 4 feet lower than the existing highway elevation for about 1,500 feet south of the overpass (see second typical section in Figure 5-16). In the Terrell Mill Road area, the existing adjacent ground level is higher than the highway, which would result in a lower wall on the west side of the managed lanes and a taller wall next to the highway (see third typical section in Figure 5-16). In some areas, the managed lanes would be elevated more than 25 feet and supported by bridge structures. In most areas, these structures would span existing highway overpasses.

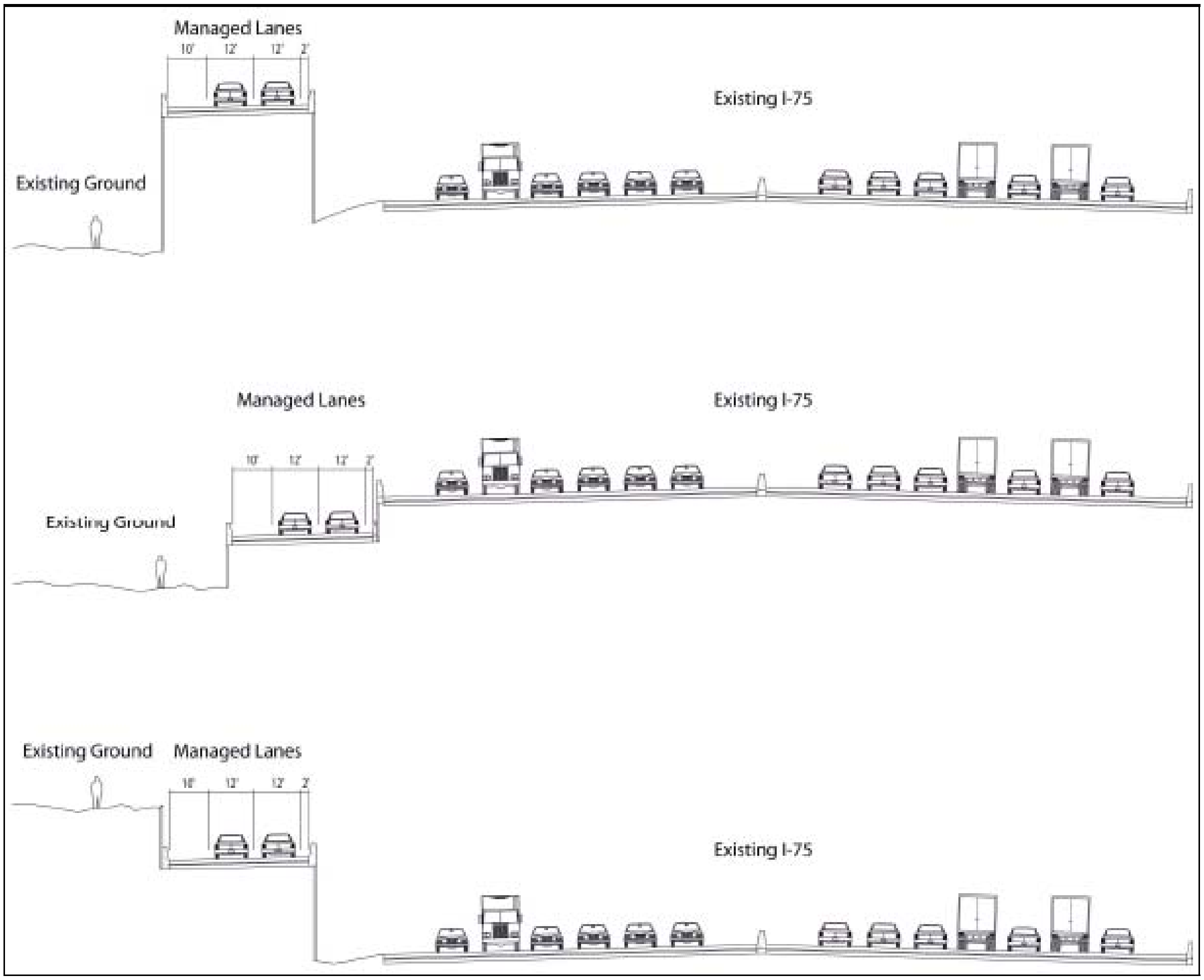
Along this segment between Cumberland Boulevard and Canton Road, the Preferred Alternative would introduce new vertical elements into the landscape in the form of walls and structures. These changes would be noticeable for the viewers looking at the road and the viewers traveling along the roadway. However, these changes would not substantially affect existing visual character given the existing visual context consists mainly of buildings and transportation related-elements. The proposed project would introduce changes that would be noticeable. However, these visual changes would not deteriorate the ability to use the adjacent land for its intended purpose or obstruct important views. The views of the busy highway from adjacent properties and roadways would be blocked in areas where walls would be constructed.

Since no visually sensitive resources have been identified in this section, the Preferred Alternative would have no effect on visually sensitive resources.

Preferred Alternative Section 2: I-75 between Canton Road and Hickory Grove Road

Along this segment, the Preferred Alternative would introduce new vertical elements into the landscape in the form of a large bridge and additional lanes of paved roadway. The drivers traveling along I-75 and the proposed managed lanes should focus their attention on the traffic and the road in front of them and not up as they pass the bridge. As such, the bridge would mostly appear as a mid-ground to background element because of its height. The bridge would be visible as a background or distant view from some of the adjacent neighborhoods.

Figure 5-16. Typical Elevations



The addition of a paved lane in the median, separated by concrete barriers, would result in a noticeable change, but one that is not out of context with the existing highway setting. The view of the road from the surrounding properties would not substantially change since the additional lane would be located in the median, which is not currently visible.

Construction of the Preferred Alternative between Canton Road and Hickory Grove Road would not change the visual character of the corridor. It would introduce changes that would be noticeable, but not substantial, and would result in a moderate impact on visual quality. Since no visually sensitive resources have been identified in this section, the Preferred Alternative would have no effect on visually sensitive resources, deteriorate the ability to use the adjacent land for its intended purpose, or obstruct important views. Therefore, the Preferred Alternative would result in visual impacts that are less than substantial.

Section 3: I-575 between I-75 and Sixes Road

The Preferred Alternative on I-575 between I-75 and Sixes Road lies within landscape unit Section 3 (see Section 3.6). The existing visual quality in this section is considered moderate. The addition of a single managed lane in the median, separated by concrete barriers, would result in a noticeable change, but one that is consistent with an interstate-type roadway (see Figure 3-14 and Figure 5-17). The construction of the lane in the median would not result in the removal of existing vegetation along the outer edges of the right-of-way that currently serves as a visual buffer for views of the road from the adjacent properties.

Figure 5-17. View of I-575 from Olde Rope Mill Park

Along this segment, the Preferred Alternative would introduce new elements into the landscape in the form of an additional lane of paved roadway and concrete barriers. The drivers traveling along I-575 and the proposed managed lane would focus their attention on the traffic and the road in front of them and not the concrete barriers as they pass them. As such, the concrete barriers mostly would appear as a mid-ground to background element because of their height.

Construction of the Preferred Alternative between I-75 and Sixes Road would not change the visual character of the corridor, which consists of low-density suburban residential development, commercial development, and woodlands. While these changes would be noticeable, they would not deteriorate the ability to use the adjacent land for its intended purpose or obstruct important views. Therefore, the Preferred Alternative would result in visual impacts that would be less than substantial. The highway, however, is visible from Olde Rope Mill Park, a visually sensitive resource north of Ridgewalk Parkway on the east side of I-575 (see Figure 5-17). The park is at a lower elevation than I-575. The views of I-575 are background views and not visually dominant.

The median is not visible from the park. The Preferred Alternative would not change the visual character of the park, nor would it affect the visual quality of the park.

5.8.2 Mitigation Measures

The height of the walls would be mitigated visually through the use of context-sensitive aesthetic finishes or treatments and, where possible, landscaping. Community outreach would be implemented during final design. The use of aesthetic finishes, treatments, and landscaping also would create a positive change in the corridor by creating a potentially unifying visual element along the highway. The views of the road from adjacent properties and roadways would also be enhanced through similar measures.

5.9 Parklands and Other Section 4(f) Properties

This section describes potential impacts to parks and recreational facilities including potential Section 4(f) park, recreation facility, and historic resource properties. Mitigation measures for minimizing potential adverse impacts also are described.

5.9.1 Parkland and Recreational Resource Impacts and Section 4(f) Use

Effects on Section 4(f) resources are categorized as effects involving a "use" or "constructive use" of such resources. A Section 4(f) use, as defined in 23 CFR 774.17, occurs:

1) When land is permanently incorporated into a transportation facility;
2) When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose so determined by the criteria in 23 CFR 774.13(d); or
3) When there is a constructive use of a Section 4(f) property as determined by the criteria in 23 CFR 774.15.

As described in Section 3.7, one recreation unit within the Chattahoochee River National Recreation Area is near the project corridor. However, the park would not be affected by the Preferred Alternative as improvements would occur within the existing highway right-of-way along this segment of the corridor. The only other parklands are located near I-575 and Ridgewalk Parkway in Cherokee County. These facilities include the Olde Rope Mill Park and a baseball diamond west of I-575 and north of Towne Lake Parkway. These recreation amenities would not be affected by the Preferred Alternative as no right-of-way would be required and construction of the new managed lanes would occur within the center median of the existing highway. Moreover, potential sound barriers are not proposed for these segments of the corridor.

Section 4(f) also protects trails as well as parks and historic resources. The alignment of the Preferred Alternative would cross one existing Cobb County recreational trail, the Bob Callan Trail, via bridges. The section of the trail that the managed lanes would cross is located within the existing GDOT right-of-way. That section of the trail would be subject to temporary closures during construction of the structures for safety reasons. The closures would occur at night when the trail is closed so pedestrian traffic would be maintained during the normal operating hours of the trail. No physical impacts to the trail are anticipated. Because the trail is a Section 4(f) resource and the project would have temporary impacts on the trail, the project would need to comply with the requirement for Section 4(f) approval based on Section 774.13(d). It should be noted that:

- Construction of the managed lanes over the Bob Callan Trail would be of limited duration. Construction of the proposed bridges would occur at night when the trail is closed, so the trail would remain open during the day during its normal operating hours. In addition, there would be no change in ownership of the Bob Callan Trail.
- The nature and magnitude of the changes to the Bob Callan Trail would be minimal, if any.
- Construction of the managed lanes would not result in any anticipated permanent adverse impacts to the Bob Callan Trail.
- The land would be restored to its original use once construction is complete.

On August 26, 2010, the Cobb County Department of Transportation prepared a formal response (see Appendix D) that concurred with the following statements:

- Any periodic trail traffic pacing would be temporary in duration;
- No changes to the trail would occur--any traffic pacing would be to assure the safety of trail users;
- No permanent adverse physical impact to the trail would occur; and
- Any physical impact to the trail would be addressed so that the trail would be returned to a condition that is at least as good as that which existed prior to project construction.

Cobb County also has several programmed and proposed public recreational trails along the project corridor as described in Section 3.7. There are three programmed trails within the project limits with funding that has been included in local capital improvement plans. These trails include: Akers Mill Trail, Interstate North Parkway Trail, and Noonday Creek Trail. The Akers Mill Trail and the Interstate North Parkway Trail are located at the interchange of I-75 and I-285. The programmed Noonday Creek Trail crosses I-75 and I-575 north of the I-75/I-575 interchange. The managed lane system would be constructed within the highway medians at these locations. The project would be constructed within the existing highway right-of-way at the locations of these three programmed trails and would therefore not prevent construction of these trails in the future.

Cobb County has five additional proposed public recreational trails within the study area: Proctor Creek Trail, Chattahoochee River Trail, Noonday Creek Trail-Cherokee Connector, Rottenwood Creek Trail, and Wildwood Trail. The Proctor Creek Trail and Noonday Creek-Trail Cherokee Connector would be located north of the I-75/I-575 interchange. The managed lane would be constructed within the medians of I-75 and I-575 at these locations. The project would be constructed within the existing right-of-way at the locations of these two proposed trails. It is likely that piers would be required, but these structures would not preclude construction of the trails.

The proposed Wildwood Trail and Rottenwood Creek Trail would cross I-75 south of the I-75/I-575 interchange. The managed lanes are proposed to be constructed to the west of I-75 and right-of-way would be required at the location of these proposed trails. The managed lanes would be constructed over the proposed Wildwood Trail via a bridge structure. The construction of piers may be necessary within the right-of-way, but these structures would not prevent the future construction of the Wildwood Trail. The estimated height of the bridge is 17 feet above ground level.

At the Rottenwood Creek Trail crossing, a pedestrian bridge would be necessary for the trail to cross I-75 and a pedestrian culvert (underpass) would be required for the trail to cross the managed lane. Piers may be needed, but would not prevent the future construction of the Rottenwood Creek Trail. The pedestrian bridge over I-75 would be necessary even if the Preferred Alternative is not constructed.

The Chattahoochee River Trail would cross I-75 along Delk Road. The managed lane would be constructed to the west of I-75 and would be located on a bridge structure that would cross over Delk Road. Therefore, the Preferred Alternative would not prevent the construction of this trail in the future.

The City of Woodstock also has plans to develop a greenway system as described in Section 3.7. The proposed greenway system would cross I-575 in the area of Towne Lake Parkway, Rope Mill Road, and the Little River. The managed lane would be constructed within the I-575 median at these locations within the existing freeway right-of-way; and therefore would not prevent future construction of the greenway system.

The historic Marietta and North Georgia Railroad traverses the project corridor. The scenic and recreational segment of the railroad, the excursion train called the Blue Ridge Scenic Railway, operates near the Tennessee state line and is not known to ever have operated in the Marietta area. The entire railroad has been determined as a whole to be National Register of Historic Places (NRHP)-eligible. However, the portion of the resource located within the Northwest Corridor Project area of potential effects (APE) has been altered, and is not considered to be eligible. As such, that portion of the railroad crossing the project corridor is not a Section 4(f) resource. The railroad is documented in the Historic Resources Survey Report Addendum II (November 2006, State Historic Preservation Officer (SHPO) concurrence on November 29, 2006) and in the Finding of No Historic Properties Affected Report (April 2007, SHPO concurrence on April 27, 2007). See Appendix D for a copy of the SHPO correspondence.

5.9.2 Mitigation Measures

It is anticipated that the Preferred Alternative would result in only one Section 4(f) use of existing park facilities or trails located within the study area. As discussed above in Section 5.9.1, the use of the Bob Callan Trail during project construction would be temporary and would not result in any permanent adverse impacts to the trail. Mitigation measures for this impact are presented above, and in Section 5.19. The Preferred Alternative would not prevent the future construction of any of the programmed or proposed trails located within the study area, so no additional mitigation measures would be required.

5.10 Historic and Archaeological Resources

This section describes the potential effects of the No-Build Alternative and the Preferred Alternative on historic and archaeological resources and recommended mitigation measures to minimize potential adverse effects. Complete documentation of investigations and agency consultation related to potential impacts to historic and archaeological resources can be found in *Cultural Resources Report* (Parsons Brinckerhoff, 2011e). Additional analysis specifically related to the proposed advance toll signage is found in the *Advance Toll Signage Technical Report* (Parsons Brinckerhoff, 2011c).

5.10.1 Section 106 Criteria for Adverse Effect

The Section 106 regulations and criteria used for assessing effects are outlined in 36 CFR 800, Protection of Historic Properties. The regulations stipulate that a determination of effect must be made to NRHP-listed or -eligible resources within a project's APE. The APE for this project and the NRHP-listed or -eligible resources within the project APE is described in Section 3.8.

As defined in 36 CFR 800.16(i), "effect" means "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register." A determination of effect was made for NRHP-listed or -eligible resources in the project APE. For those identified as potentially affected, the Section 106 Criteria of Adverse Effect were then applied. Under 36 CFR 800.5, an "adverse effect" is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the resource for inclusion in the NRHP in a manner that diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Examples of adverse effects provided in the Section 106 regulations include the following:

- Physical destruction/damage to all or part of the property;
- Alteration of a property that is not consistent with the Secretary of Interior's Standards for Treatment of Historic Properties;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of the property that causes its deterioration; and
- Transfer, sale or lease of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

The location of an historic resource in proximity to the Preferred Alternative, the properties' settings, noise impacts, visual impacts, and other impacts to the properties, such as indirect and cumulative impacts, were taken into account in the adverse effects analysis. If the effects did not meet the adverse effect criteria, or if the project has been modified to avoid adverse effects, then a finding of no adverse effect has been recommended. On June 1, 2010, the Georgia Department of Natural Resources Office (GDNR) of Historic Preservation Division issued a concurrence letter on the *Historic Resources Survey Report, Addendum III* (Parsons Brinckerhoff, 2010c) (see Appendix D). With subsequent design modifications, an additional historic resources survey (Parsons Brinckerhoff, 2011b) was conducted in August 2011 and a Finding of No Historic Resources Affected was signed by SHPO on September 2, 2011 (see Appendix D).

5.10.2 Assessment of Effect on Historic Resources

No NRHP-listed or -eligible historic resources were identified within the project APE. Moreover, that portion of the historic Marietta & North Georgia Railroad that traverses the project corridor has been altered and is no longer NRHP-eligible. Therefore, no significant historic resources would be affected by the Preferred Alternative.

5.10.3 Assessment of Effect on Archaeological Resources

No known locally-designated or NRHP-eligible or -listed archaeological sites were identified within the project APE. Therefore, no significant archaeological sites would be affected by the Preferred Alternative.

5.10.4 Section 106 Coordination

This project is being coordinated pursuant to Section 106 of the National Historic Preservation Act (NHPA). The SHPO has been involved in the NRHP eligibility determinations.

In 2003, the following potential Section 106 consulting parties were identified and invited by letter to participate in the Section 106 process for these projects: Cherokee County Historical Society, Cobb County Genealogical Society, Cobb County Historic Preservation Commission, Cobb Landmarks and Historical Society, Cherokee County Board of Commissioners, Cobb County Board of Commissioners, City of Holly Springs, City of Marietta, City of Woodstock, Cobb County Public Library System, Sequoyah Regional Library, Atlanta Regional Commission, and the

GDNR Historic Preservation Division. The letters also requested recipients to inform GDOT if they were aware of other organizations or individuals interested in cultural resources in the study area that had not been identified.

The following tribal governments were also invited to participate in the Section 106 process for this project: Alabama-Coushatta Tribe of Texas, Chickasaw Nation, Eastern Band of Cherokee Indians of North Carolina, Muscogee (Creek) Nation of Oklahoma, Poarch Band of Creek Indians, Seminole Nation of Florida, Thlopthlocco Tribal Town, and the United Keetoowah Band of Indians.

One response to the letters was received that indicated an interest in participating in the project as a Section 106 consulting party. A letter was sent to FHWA from the Eastern Band of Cherokee Indians dated February 19, 2010 (see Appendix D). The letter concurs with the archaeologist's recommendations that no archaeological sites eligible for inclusion on the National Register of Historic Places were encountered during the field survey. In addition, the tribal representative requested that government-to-government consultation continue in the event that the project plans change or cultural resources or human remains are discovered. The project study sponsors continue to acknowledge the rights of the several tribes as sovereign nations to contribute to the planning process at their own discretion.

5.10.5 Mitigation Measures

No mitigation is required as no adverse effects on historic or archaeological resources would occur under the Preferred Alternative.

5.11 Air Quality

This section describes the analysis completed to compare potential impacts of the No-Build Alternative and the Preferred Alternative on regional air quality and for specific locations within the study area. Section 3.9 provides an overview of existing conditions for air quality in the study area. The analysis looks at specific air quality pollutants, regional emissions, mobile source air toxics, microscale air quality, and persistence factor. The results of the air pollution modeling for the 29.7-mile project are presented. A comprehensive discussion is found in the *Air Quality Technical Report* (Parsons Brinckerhoff, 2011d). A discussion of potential air quality impacts can also be found in Section 5.6.2.6.

5.11.1 Pollutants for Analysis

Pollutants that can be traced principally to motor vehicles are relevant to the evaluation of the project air pollution impacts. These pollutants include carbon monoxide (CO), hydrocarbon (HC) referred to as volatile organic compounds (VOC), nitrogen oxide (NO_X), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and the seven priority mobile source air toxics (MSATs). Transportation sources of air pollution account for only a small percentage of regional emissions of sulfur oxide (SO_X) and lead (Pb); thus, a detailed analysis of these pollutants is not presented. The study area is classified as an attainment area for PM_{10} and as such, a PM_{10} hot-spot analysis is not required. The study area, however, is classified as a non-attainment area for $PM_{2.5}$. Based on the results of the interagency consultation process, it was determined that the project is not a project of air quality concern and a quantitative hot-spot analysis is not required to meet the standards of the Clean Air Act and 40 CFR 93.123(b)(1). EPA concurred that the proposed project is not a project of air quality concern on February 16, 2011 (see Appendix D).

The VOCs and NO_X emissions from automotive sources are a concern primarily because they are precursors in the formation of O_3, which happens through a series of reactions that occur in the atmosphere in the presence of sunlight. Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated O_3 levels often are found many miles from sources of the precursor pollutants. Therefore, the effects of HC and NO_X emissions generally are examined on a regional or "mesoscale" basis.

The PM_{10} and $PM_{2.5}$ impacts are both regional and local. A substantial portion of particulate matter, especially PM_{10}, comes from disturbed vacant land, construction activity, and paved road dust. The PM2.5 also comes from these sources. Motor vehicle exhaust, particularly from diesel vehicles, is another source of PM_{10} and $PM_{2.5}$. Thus it is appropriate to predict concentrations of PM_{10} and $PM_{2.5}$ on both a regional and a localized basis. The MSATs are also examined on a local and regional level.

Potential CO impacts are generally localized. Even under the worst meteorological conditions and most congested traffic conditions, high concentrations are limited within a relatively short distance (300-600 feet) of heavily traveled roadways. Vehicle emissions are the major sources of CO. The proposed project could change traffic patterns within the study area. Consequently, it is appropriate to predict concentrations of CO on both a regional and a localized or "microscale" basis.

5.11.1.1 Regional Emissions and Transportation Conformity

A regional or mesoscale analysis of a project determines a project's overall impact on regional air quality levels. A transportation project is usually analyzed as part of a regional transportation network developed by the county or state. Projects included in this network are found in the Transportation Improvement Program (TIP) and RTP. The TIP and RTP are the basis for the regional analysis, which uses vehicle miles traveled (VMT) and vehicle hours traveled (VHT) within the region to determine daily "pollutant burden" levels.

The ARC is responsible for managing the process to ensure that transportation plans and programs within the Atlanta non-attainment area do not cause or contribute to violations of the National Ambient Air Quality Standards (NAAQS). This process is referred to as transportation conformity. A conformity determination for the study area was provided as part of the *PLAN 2040, Volume I: Regional Transportation Plan* (*PLAN 2040* RTP) (ARC, 2011b) and *PLAN 2040 FY 2012-2017 Transportation Improvement Program* (FY 2012-2017 TIP) (ARC, 2011c). The Northwest Corridor Project was listed in FY 2012-2017 TIP as Project AR-ML-930. A positive conformity determination was provided for both the O_3 and PM standards on September 6, 2011. For more information on this conformity analysis, see *PLAN 2040, Volume II: Conformity Determination Report* (ARC, 2011d).

The current Northwest Corridor Project is included in ARC's *PLAN 2040* RTP (ARC, 2011b) and FY 2012-2017 TIP (ARC, 2011c), which were adopted on July 27, 2011. In these planning documents, the project is listed as ARC Project AR-ML-930 and P.I. 0008256. The *PLAN 2040* RTP and the FY 2012-2017 TIP were approved by the Georgia Regional Transportation Authority on August 18, 2011 and the FHWA issued a conformity determination on September 6, 2011. As such, the Northwest Corridor Project is part of a conforming RTP and TIP. The Northwest Corridor Project also was included in the positive conformity determination for Amendment 10 of the *Envision6* RTP.

To illustrate the project's impact on regional air quality levels, a regional air quality analysis was conducted. This analysis uses projected VMT and VHT within the region, with corresponding emission factors for VOC, NO_X, CO, PM_{10}, and $PM_{2.5}$ from USEPA's latest emission factor program. This analysis was used to determine daily “pollutant burden” levels with and without the proposed project improvements.

A regional analysis based on 2035 VMT and average network speed was conducted for the No-Build Alternative and the Preferred Alternative. As shown in Table 5-10, the Preferred Alternative is expected to increase average daily VMT by 0.26 percent and increase regional pollutant emissions by 0.0 to 0.3 percent. These differences would result in no measurable impact on regional pollutant burdens. As such, the Preferred Alternative is predicted to have a minimal effect on regional pollutant burden levels.

Table 5-10. Regional Emission Assessment

Alternative	Pollutant (Tons per Day)					Percent Change from No-Build				
	CO	NO_x	PM_{10}	$PM_{2.5}$	HC	CO	NO_x	PM_{10}	$PM_{2.5}$	HC
No-Build Alternative	1,313.20	46.44	6.19	2.85	53.49	-	-	-	-	-
Preferred Alternative	1,317.13	47.59	6.20	2.85	53.61	0.30%	0.32%	0.16%	0.0%	0.22%

Notes: CO = carbon monoxide; NO_X = nitrous oxide; PM = particulate matter; HC = hydrocarbon.
Source: Parsons Brinckerhoff, 2011d.

5.11.1.2 Particulate Matter ($PM_{2.5}$ & PM_{10})

On March 10, 2006, USEPA issued a Final Rule regarding the localized or “hot-spot” analysis of $PM_{2.5}$ and PM_{10} (40 CFR Part 93). This rule requires that $PM_{2.5}$ and/or PM_{10} hot-spot analysis be performed only for transportation projects with substantial diesel traffic in areas not meeting $PM_{2.5}$ and/or PM_{10} air quality standards.

$PM_{2.5}$

The project study team conducted analysis following the guidelines in USEPA’s *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Are*as ($PM_{10/2.5}$ Guidance) (USEPA, 2006). As a result, the $PM_{2.5}$ hot-spot analysis should be conducted according to qualitative guidance only if the project is of air quality concern. This is defined in 40 CFR 93.123(b)(1) as:

(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

(ii) Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that change to LOS D, E or F because of increased traffic volumes from a significant number of diesel vehicles;

(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

(v) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Examples of projects of air quality concern that would be covered by 40 CFR 93.123(b)(1)(i) and (ii) include:

- A project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than 125,000 annual average daily traffic (AADT) where 8 percent or more of such AADT is diesel truck traffic;
- New exit ramps and other highway facility improvements to connect a highway or expressway to a major freight, bus, or intermodal terminal;
- Expansion of an existing highway or other facility that affects a congested intersection (operated at LOS D, E, or F) that has a significant increase in the number of diesel trucks; and
- Similar highway projects that involve a significant increase in the number of diesel transit buses and/or diesel trucks.

Examples of projects of air quality concern that would be covered by 40 CFR 93.123(b)(1)(iii) and (iv) include:

- A major new bus or intermodal terminal that is considered to be a "regionally significant project" under 40 CFR 93.101; and
- An existing bus or intermodal terminal that has a large vehicle fleet where the number of diesel buses increases by 50 percent or more, as measured by bus arrivals.

The project has undergone a required interagency consultation to determine if it is a project of air quality concern. EPA concurred that the proposed project is not a project of air quality concern and a qualitative hot spot analysis is not required.

PM_{10}

The study area is classified as an attainment area for PM_{10}. As such, a PM_{10} hot-spot analysis is not required.

5.11.1.3 Mobile Source Air Toxics

On February 3, 2006, FHWA issued interim guidance regarding MSAT analysis for NEPA documents. This guidance was superseded on September 30, 2009 by the *Interim Guidance Update on Air Toxic Analysis in NEPA Documents* (FHWA, 2009). The purpose of FHWA's guidance is to advise on when and how to analyze MSATs in the NEPA process for highways. This guidance is interim because the MSAT science is still evolving. As the science progresses, FHWA will update the guidance.

FHWA has suggested a tiered approach in determining potential project-induced MSAT impacts. The three tiers are:

- Tier 1 – No analysis for projects with no potential for meaningful MSAT effects;
- Tier 2 – Qualitative analysis for projects with low potential MSAT effects; and
- Tier 3 – Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Based on FHWA's recommended tiering approach the project falls within the Tier 3 approach, used for projects with a high potential for MSAT effects. In accordance with FHWA's recommendation, the Easy Mobile Inventory Tool (EMIT) model was used to calculate annual MSAT pollutant burdens in tons per year for the No-Build Alternative and the Preferred Alternative. EMIT incorporates USEPA's MOBILE6.2 emission factor model along with components for forecasting congested vehicle speeds and vehicle miles of travel as a function of area type and roadway functional class. Summer and winter parameters were input to the MOBILE6.2 portion of EMIT to obtain an accurate annual pollutant burden estimate. MOBILE6.2 input parameters recommended by GDNR and FHWA were used, along with link by link traffic volumes, speeds and travel characteristics forecast for the project. The current version of EMIT has not yet been updated to reflect all the MSATs of concern listed in USEPA's September 2009 rule. For the air toxics not evaluated within EMIT (Naphthalene and Polycyclic Organic Matter [POM]), MOBILE6.2 was run directly for each roadway functional class and associated speed. The calculated emission rates were then multiplied by the VMT, resulting in the emission burden. As POM is not one single MSAT but rather a broad class of compounds, the following air toxics emission rates were independently calculated with MOBILE6.2 and combined:

- acenaphthene
- anthracene
- acenaphylene
- benz[a]anthracene
- benzo[b]fluoranthene
- benzo[k]fluoranthene
- benzo[a]pyrene
- benzo(g,h,i) perylene
- chrysene
- debenz[a,h]anthracene
- fluoranthene
- fluorene
- ideno[1,2,3-cd]pyrene
- phenanthrene, and
- pyrene

The results of this analysis are shown in Table 5-11. Future calculated MSAT emission burdens are predicted to decrease as compared to the existing scenario, even with a 46 percent increase in VMT. The Preferred Alternative is predicted to demonstrate similar, though slightly higher, MSAT burdens as compared to the No-Build Alternative. These increases are less than 0.5 percent and are not considered measurable.

In summary, it is projected that there would be no measurable changes in MSAT emissions in the immediate area of the Northwest Corridor under the Preferred Alternative relative to the No-Build Alternative, as a result of the VMT changes associated with the project. The MSAT levels could be higher in some locations than others, such as for I-75, but current tools and science are not adequate to quantify them. Regardless, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than today.

This analysis has provided a quantitative analysis of MSAT emissions relative to the proposed project and has acknowledged that the alternatives could increase exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain.

One of the concerns raised with regard the MSATs over the last several years concerns the contribution of vehicles in the near-road environment to MSAT concentrations. Several studies have shown that the concentrations of some emissions return to background concentrations within 1,000 feet of the roadway (Hagler et al., 2009; Beckerman et al., 2008; Zhu et al.; 2002). The FHWA, in conjunction with EPA, is currently conducting a national near road MSAT study to better understand mobile source emissions associated with major highway facilities. Data collection for the first study area (Las Vegas, Nevada) was completed in February 2010. The

Table 5-11. Predicted MSAT Emission Burdens (Tons/Year)

Scenario	Daily VMT	Acrolein	Benzene	1,3-Butadiene	Diesel Particulate Matter	Formaldehyde	Naphthalene	POM
No-Build Alternative Change from Existing Conditions								
Existing (2010)	140,845,506	18.1	972.8	147.1	733.8	400.4	35.7	3.9
No-Build (2035)	204,698,343	11.4	469.4	76.5	101.5	260.3	34.14	4.24
Percent Change from Existing	*45%*	*-37%*	*-52%*	*-48%*	*-86%*	*-35%*	*-4%*	*-10%*
Preferred Alternative Change from Existing Conditions								
Existing (2010)	140,845,506	18.1	972.8	147.1	733.8	400.4	35.7	3.9
Preferred (2035)	205,221,000	11.4	470.6	76.7	101.8	260.9	34.21	4.25
Percent Change from Existing	*46%*	*-37%*	*-52%*	*-48%*	*-86%*	*-35%*	*-4%*	*-10%*
Preferred Alternative Change from 2035 No-Build Alternative								
No-Build (2035)	204,698,343	11.4	469.4	76.5	101.5	260.3	34.14	4.24
Preferred (2035)	205,221,000	11.4	470.6	76.7	101.8	260.9	34.21	4.25
Percent Change from No-Build	*0.3%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*	*0.2%*	*0.3%*

Notes: VMT = vehicle miles of travel; POM = polycyclic organic matter.
Source: Parsons Brinckerhoff, 2011d.

USEPA is completing the quality assurance on the data collected, analyzing the results and preparing a final report for the Las Vegas data. At this time, available technical tools do not enable prediction of the project-specific health impacts of the emission changes associated with the alternatives. One community facility, Chalker Elementary School, is located within 1,000 feet of the proposed project and is considered a sensitive receiver. The school, located on North Booth Road in Kennesaw, is at the outer edge of the 1,000-foot boundary and buffered from the proposed project by vegetation. Studies conducted in 2009 indicate that vegetation and sound barriers both have an effect on pollutant concentrations and gradients (Neimeier et al., 2009; Baldauf, 2009).

5.11.1.4 Microscale CO Air Quality

Microscale air quality modeling was performed using the most recent version of the USEPA MOBILE6.2 and the CAL3QHC version 2.0 air quality dispersion model. These models were used to estimate existing and future CO levels under the No-Build Alternative and the Preferred Alternative at selected locations in the study area.

Site Selection and Receptor Locations

The analysis sites for the CO analysis were selected using a screening analysis based on overall intersection volumes, changes in intersection volume, and predicted changes in traffic LOS. Intersections that demonstrate an LOS A, B, or C pass the screening test. That is, they are not expected to cause a violation of the NAAQS. Intersections that the project causes to operate at or below LOS D, increase delay of an intersection with LOS D or worse, or increase overall volumes, have the potential to cause a violation of the NAAQS, and thus fail the screening analysis.

A total of 64 intersections in the project corridor were screened based on this methodology. Eight of these 64 intersections failed the screening analysis. Of these eight, five of the worst case sites were chosen for analysis along with an additional four sites that were added to account for sensitive land uses and geographical representation. A total of nine sites were chosen for a detailed microscale CO analysis. The sites chosen for analysis are listed in Table 5-12 and are shown in Figure 5-18.

Table 5-12. Air Quality Analysis Sites

Site Number	Description	Site Number	Description
1	Towne Lake Pkwy at I-575	6	I-75 at Allgood Rd
2	Hickory Grove Rd at I-75	7	S Marietta Pkwy at Powers Ferry Rd
3	Shiloh Rd at Bells Ferry Rd	8	Delk Rd at I-75
4	Wade Green Rd at Shiloh Rd	9	Terrell Mill Rd at US 41
5	I-75 at I-575		

Source: Parsons Brinckerhoff, 2011d.

Receptors, which are locations near sensitive land uses (e.g., sidewalks, property lines, etc.) where pollutant levels were estimated, were chosen at each site in accordance with the guidelines found in the USEPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections* (USEPA, 1992a).

Dispersion Model

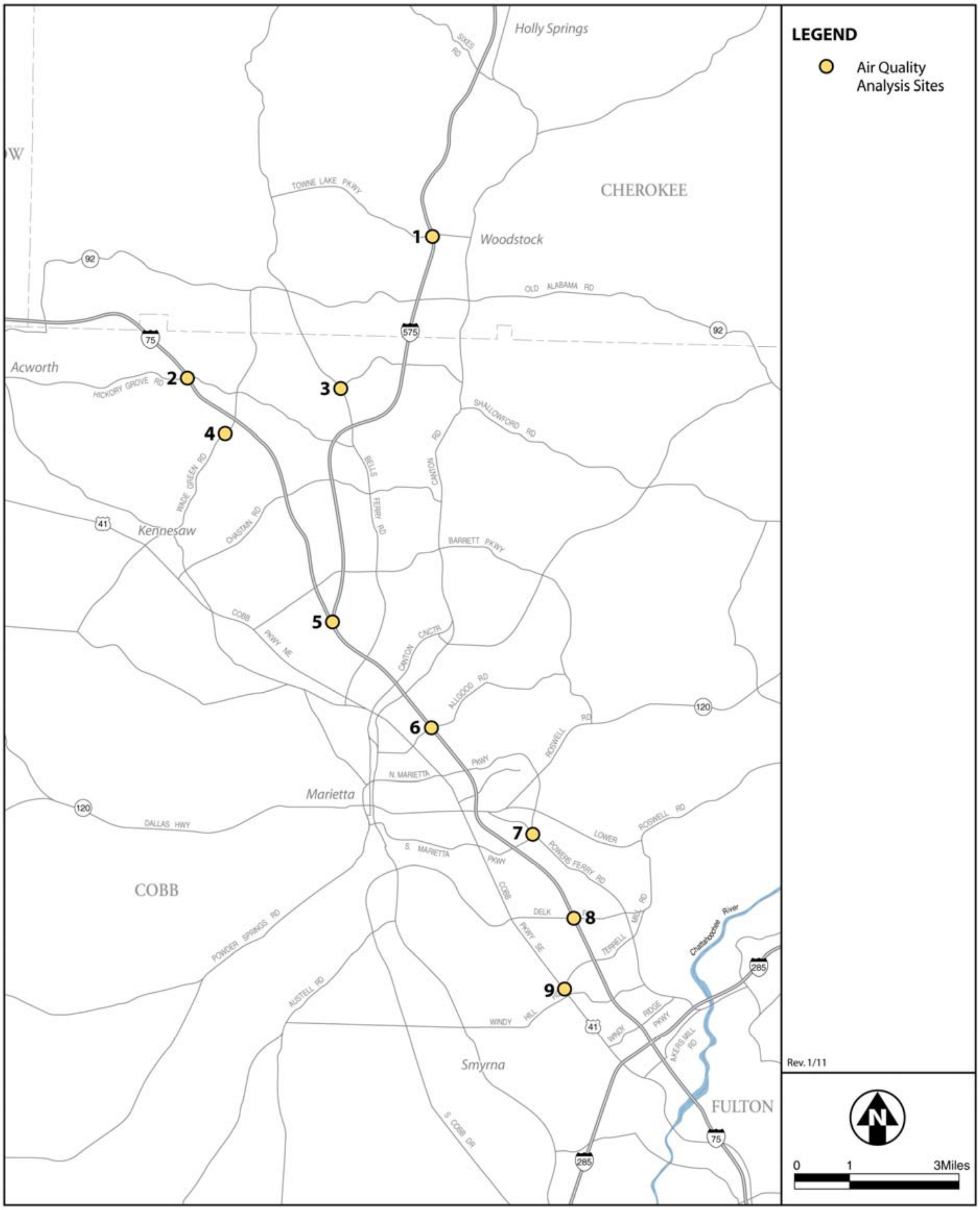
Mobile source models are the basic analytical tools used to estimate CO concentrations expected under given traffic, roadway geometry, and meteorological conditions. The mathematical expressions and formulations that comprise the various models attempt to describe an extremely complex physical phenomenon as closely as possible. The dispersion modeling program used in this study for estimating pollutant concentrations near roadway intersections is the CAL3QHC version 2.0 dispersion model developed by the USEPA and released in 1992.

Vehicular Emissions

Vehicular emissions were estimated using the USEPA MOBILE6.2 vehicular emission factor model (USEPA, 2002). MOBILE6.2 is a mobile source emission estimate program that provides current and future estimates of emissions from highway motor vehicles. The latest in the MOBILE series, dating back to 1978, is MOBILE6.2. It was designed by the USEPA to address a wide variety of air pollution modeling needs, and incorporates updated information on basic emission rates, more realistic driving patterns, separation of start and running emissions, improved correction factors, and changing fleet composition. GDOT provided input parameters for MOBILE6.2.

Meteorological Conditions

The transport and concentration of pollutants emitted from motor vehicles are influenced by three principal meteorological factors: wind direction, wind speed, and the atmosphere's profile. The values for these parameters were chosen to maximize pollutant concentrations at each prediction site and they establish a conservative, reasonable worst-case scenario.



Source: Parsons Brinckerhoff, 2011d.

- Wind Direction – Maximum CO concentrations normally are found when the wind is assumed to blow parallel to a roadway adjacent to the receptor location. At complex intersections, it is difficult to predict which wind angle would result in maximum concentrations. Therefore, the approximate wind angle that would result in maximum pollutant concentrations at each receptor location was used in the analysis. All wind angles from 0° to 360° (in 5° increments) were considered.
- Wind Speed – CO concentrations are greatest at low-wind speeds. A conservative wind speed of one meter per second (2.2 mph) was used to predict CO concentrations during peak traffic periods.
- Profile of the Atmosphere – A "mixing" height (the height in the atmosphere to which pollutants rise) of 1,000 meters, and neutral atmospheric stability (stability class D) conditions were used in estimating microscale CO concentrations. The selection of these meteorological parameters was based on recommendations from the GDOT Air Quality Guidelines. This data was found to be the most representative of the conditions existing in the study area.

The CO levels estimated by the model are the maximum concentrations that could be expected to occur at each air quality receptor site analyzed. They assume simultaneous occurrence of a number of worst-case conditions: peak-hour traffic conditions, conservative vehicular operating conditions, low wind speed, low atmospheric temperature, neutral atmospheric conditions, and wind direction.

5.11.1.5 Persistence Factor

Peak eight-hour concentrations of CO were obtained by multiplying the highest peak-hour CO estimates by a persistence factor. The persistence factor accounts for the fact that:

- More than eight hours (as distinct from a single hour) of vehicle volumes will fluctuate downward from the peak hour;
- Vehicle speeds might vary; and
- Meteorological conditions, including wind speed and wind direction, will vary compared to the conservative assumptions used for the single hour.

The GDOT recommends a persistence factor of 0.6, and USEPA recommends a default value of 0.7. The more conservative persistence factor of 0.7 was used in this analysis.

Analysis Years

In this analysis, the existing year (2010), the opening year (2015), and the design year (2035) were analyzed to determine the project's air quality effects. The existing year results are used in conjunction with the results of the future years without the proposed project to illustrate the predicted air quality trends at the study locations. For the opening year analysis, design year volumes were conservatively used with opening year emissions, for a worst-case analysis scenario.

Background Concentrations

Microscale modeling was used to predict CO concentrations resulting from emissions from motor vehicles using roadways immediately adjacent to the locations at which predictions are being made. A CO background level must be added to this value to account for CO entering the area from other sources upwind of the receptors. A CO background level of 1.0 particles per million (ppm) for one-hour and eight-hour periods was added to each analysis site. This value was recommended for use by GDOT.

Traffic Data

Traffic data for the air quality analysis were derived from traffic counts and other information developed as part of an overall traffic analysis for the project using methodology prescribed by GDOT. The microscale CO analysis was performed based on data from this analysis for the morning and evening peak hours of traffic. These are the hours when maximum traffic volumes occur on local streets and when the greatest traffic and air quality impacts of the proposed project are expected.

5.11.1.6 Microscale CO Local Analysis

Maximum one-hour and eight-hour CO levels were predicted at receptor sites along the proposed project. Maximum existing and 2015 one-hour CO concentrations are shown in Table 5-13. Maximum existing and 2035 one-hour CO concentrations are shown in Table 5-14. Maximum eight-hour existing, 2015, and 2035 CO concentrations are shown in Table 5-15. The CO levels estimated by the model are the maximum concentrations that could be expected to occur at each air quality receptor site analyzed, given the assumed simultaneous occurrence of a number of worst-case conditions: peak-hour traffic conditions, conservative vehicular operating conditions, low wind speed, low atmospheric temperature, neutral atmospheric conditions, and maximizing wind direction.

When compared to the No-Build Alternative, the Preferred Alternative is predicted to slightly increase CO levels at four locations, slightly decrease CO levels at two locations, and have no measurable affect at three locations in 2015 (opening year). In 2035, the Preferred Alternative is predicted to slightly increase CO levels at six locations, slightly decrease CO levels at two locations and have no measurable affect at one location. It is expected that at the locations selected for detailed analysis, there is a potential for CO levels to be higher with the Preferred

Table 5-13. Predicted Worst-Case One-Hour Existing (2010) and One-Hour 2015 CO Concentrations (ppm)

Site #	Site Description	2010 Existing Conditions		2015 No-Build Alternative		2015 Preferred Alternative	
		AM	PM	AM	PM	AM	PM
1	Towne Lake Pkwy at I-575	3.5	3.9	3.2	3.6	3.2	3.6
2	Hickory Grove Rd at I-75	2.6	2.5	2.2	2.3	2.4	2.4
3	Shiloh Rd at Bells Ferry Rd	2.8	3.7	2.8	3.6	2.7	3.6
4	Wade Green Rd at Shiloh Rd	3.8	3.1	3.2	4.1	3.2	4.1
5	I-75 at I-575	3.2	3.1	3.0	2.8	2.9	2.7
6	I-75 at Allgood Rd	4.8	4.8	4.3	4.1	4.8	4.8
7	S Marietta Pkwy at Powers Ferry Rd	4.6	5.0	4.2	5.3	4.2	4.3
8	Delk Rd at I-75	6.0	6.2	5.1	4.9	5.3	4.8
9	Terrell Mill Rd at US 41	3.2	4.9	2.8	4.2	2.9	4.5

Notes: Concentrations = modeled results + one-hour CO background.
One-hour CO background = 1.0 ppm; one-hour CO standard = 35 ppm.
AM = morning; PM = evening.
Source: Parsons Brinckerhoff, 2011d.

Table 5-14. Predicted Worst-Case One-Hour Existing (2010) and One-Hour 2035 CO Concentrations (ppm)

Site #	Site Description	2010 Existing Conditions		2035 No-Build Alternative		2035 Preferred Alternative	
		AM	PM	AM	PM	AM	PM
1	Towne Lake Pkwy at I-575	3.5	3.9	3.9	4.2	4.3	4.0
2	Hickory Grove Rd at I-75	2.6	2.5	2.4	2.4	2.2	2.4
3	Shiloh Rd at Bells Ferry Rd	2.8	3.7	2.7	3.4	2.6	3.2
4	Wade Green Rd at Shiloh Rd	3.8	3.1	2.8	2.9	3.0	2.9
5	I-75 at I-575	3.2	3.1	2.9	2.8	3.0	2.9
6	I-75 at Allgood Rd	4.8	4.8	4.3	4.2	5.0	5.0
7	South Marietta Pkwy at Powers Ferry Rd	4.6	5.0	4.6	5.3	3.2	3.8
8	Delk Rd at I-75	6.0	6.2	4.5	4.5	4.7	4.6
9	Terrell Mill Rd at US 41	3.2	4.9	3.1	4.3	3.1	4.5

Notes: Concentrations = modeled results + one-hour CO background.
One-hour CO background = 1.0 ppm; one-hour CO standard = 35 ppm.
AM = morning; PM = evening.
Source: Parsons Brinckerhoff, 2011d.

Table 5-15. Predicted Worst-Case Eight-Hour Existing (2010), 2015 and 2035 CO Concentrations (ppm)

Site #	Site Description	2010 Existing Conditions	2015		2035	
			No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative
1	Towne Lake Pkwy at I-575	3.0	2.8	2.8	3.2	3.3
2	Hickory Grove Rd at I-75	2.1	1.9	2.0	2.0	2.0
3	Shiloh Rd at Bells Ferry Rd	2.9	2.8	2.8	2.7	2.5
4	Wade Green Rd at Shiloh Rd	3.0	3.2	3.2	2.3	2.4
5	I-75 at I-575	2.5	2.4	2.3	2.3	2.4
6	I-75 at Allgood Rd	3.7	3.3	3.7	3.3	3.8
7	South Marietta Pkwy at Powers Ferry Rd	3.8	4.0	3.3	4.0	3.0
8	Delk Rd at I-75	4.6	3.9	4.0	3.5	3.6
9	Terrell Mill Rd at US 41	3.7	3.2	3.5	3.3	3.5

Notes: Concentrations = (modeled results x persistence factor [0.7]) and eight-hour CO background.
Eight-hour CO background = 1.0 ppm; eight-hour CO standard = 9 ppm.
Shaded cells indicate higher CO levels under project conditions, as compared to No-Build Alternative.
Source: Parsons Brinckerhoff, 2011d.

Alternative as compared to the No-Build Alternative. This is because only those intersections demonstrating a reduced LOS or increased volume under the Preferred Alternative were analyzed to ensure that the project would not cause or exacerbate a violation of an applicable standard. No violations of the NAAQS are predicted for either of the future analysis years.

5.11.2 Greenhouse Gas Analysis

Because climate change is a global issue and the emissions changes due to project alternatives are very small compared to global totals, FHWA did not calculate the GHG emissions associated with the alternatives. Because GHGs are directly related to energy use, the changes in GHG would be similar to the changes in energy consumption presented in the *Energy Technical Memorandum* (Parsons Brinckerhoff, 2010h), which is contained in Appendix F. Direct energy consumption under the Preferred Alternative is expected to be approximately 0.3 percent higher as compared to the No-Build Alternative. The relationship of current and projected Georgia highway CO_2 emissions to current global emissions is shown in Table 5-16. Even though Georgia is experiencing VMT growth rates of nearly 0.5 percent per year (USDOT, 2010), overall CO_2 emissions from the Georgia highway system are expected to grow only slightly between 2005 and 2035 because of the fuel economy and renewable fuels programs in the 2007 Energy Bill. This table also illustrates the size of the project corridor relative to the total Georgia travel activity.

Table 5-16. Greenhouse Gas Emissions Assessment

Global CO_2 Emissions 2005, MMT*	Georgia Highway CO_2 Emissions 2005, MMT	Projected 2035 Georgia Highway CO_2 Emissions, MMT	Georgia Highway Emissions Percent of Global Total (2005)	Project Corridor VMT, Percent of Statewide VMT** (2005)
28,051 MMT	76.1 MMT	67.1 MMT	0.27%	3,285,335,573 2.9%

Notes: MMT = million metric tons; VMT = vehicle miles of travel.
**Statewide VMT in 2005 was 113,509,000,000 miles per year.
Source: SEAI, 2008.

5.11.3 Conformity Analysis

As previously stated, the Northwest Corridor Project is listed in *PLAN 2040* FY 2012-2017 TIP as ARC Project AR-ML-930 and P.I. 0008256 (ARC, 2011c) and in the previous *Envision6* FY 2008-2013 TIP as Project AR-930. The *PLAN 2040* RTP and the FY 2012-2017 TIP were adopted by the Atlanta Regional Commission Board July 27, 2011 and approved by the Georgia Regional Transportation Authority on August 18, 2011. The FHWA issued a conformity determination on September 6, 2011, which means the project is part of a conforming RTP and TIP.

The Metropolitan Atlanta Area is classified as a non-attainment area for $PM_{2.5}$. Based on the results of the interagency consultation process, it was determined that the project is not a project of air quality concern and a quantitative hot-spot analysis is not required to meet the standards of the Clean Air Act and 40 CFR 93.123(b)(1). USEPA concurred that the proposed project is not a project of air quality concern on February 16, 2011 (see Appendix D).

A microscale CO analysis was conducted to determine if the project would potentially cause or exacerbate a violation of the applicable CO standards. Following USEPA's *Guideline for*

Modeling Carbon Monoxide from Roadway Intersections (USEPA, 1992a), the project is not predicted to cause or exacerbate a violation of the NAAQS for CO.

5.11.4 Mitigation Measures

The project is not predicted to cause or exacerbate a violation of the currently applicable NAAQS. Furthermore, it is anticipated that the project would have no measurable impact on regional MSAT levels.

5.12 Noise

This section discusses potential changes in noise levels in the study area as a result of the proposed Preferred Alternative. The changes would result from different road traffic characteristics (types, volumes, and speeds of vehicles) on I-75 and I-575 and proximity to sensitive noise receptors. Detailed results of predicted noise impacts at sensitive sites and potential noise abatement at the affected sites are presented in Appendix F. In addition, a full discussion of these potential impacts is documented in the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

The analysis of potential noise impacts was consistent with recent amendments to noise regulations and is in conformance with the FHWA Final Rule governing these new regulations. The amended regulatory requirements have been adopted under the revised GDOT traffic noise policy guidelines that became effective July 13, 2011.

5.12.1 Noise Impact Assessment Methodology

The proposed project involves adding new travel lanes on an existing highway; and therefore would be classified as a Type I project under the FHWA regulations. For Type I projects, the consideration of noise impact and potential mitigation is mandatory during the project development process.

5.12.1.1 Approach

The approach to the analysis of noise impacts differs from other analyses. As discussed in Section 2.2.1, there is a separate project (AR-917, P.I. No. 611150) to add a third general-purpose lane in each direction on I-575 that was incorporated into the travel demand modeling of the No-Build Alternative and the Preferred Alternative. The addition of a third general-purpose lane in each direction is identified as a future project for 2021-2030 and is not part of the Northwest Corridor Project. This future project will require a separate environmental document and noise analysis to determine appropriate mitigation.

As such, the noise analysis of potential direct impacts specifically related to the Northwest Corridor Project does not include this third general-purpose lane, and was identified in the modeling as the Preferred Alternative without the third lane. The proposed managed lane would be located in the existing median of I-575. But while no conceptual plans to add a third general-purpose lane in each direction have been developed, it is assumed this future project would likely involve a widening to the outside of I-575. This widening would necessitate removal of sections of Northwest Corridor Project sound barriers built on the existing shoulders of I-575. Since these sound barriers are expected to be removed in the future, it is recommended that these proposed sound barriers be built only to the lower heights necessary to mitigate the noise impacts of the Northwest Corridor Project.

In addition, recognizing that this future project may cause separate noise impacts, an additional noise analysis on I-575 was conducted to include the future project to add the third lanes to I-575. The assessment of potential impacts under this condition is identified in the modeling as the Preferred Alternative with the third lane. Because the third general-purpose lanes on the south end of I-575 would connect with I-75, this noise modeling included analysis on I-75 as well. This ensures the modeling captures traffic noise associated with the transition segment and merging lanes associated with the traffic volumes from the third general-purpose lanes on I-575 in the I-75 corridor.

This approach to noise mitigation would reduce overall construction costs, impacts to adjacent property owners, and construction-related traffic delays of the Northwest Corridor Project. Moreover, this additional analysis covering both conditions of the Preferred Alternative was undertaken to minimize over design of sound barriers proposed for the Northwest Corridor Project and reduce future costs associated with the removal and reconstruction of sound barriers potentially needed for the proposed project to add the third lanes to I-575.

This detailed approach to identifying reasonable and feasible sound barriers as mitigation for the Northwest Corridor Project is encompassed in the analysis described in the sections below. The detailed results of the modeling with and without the proposed third lanes on I-575 can be found in Appendix F and the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

5.12.1.2 Methods

The traffic noise impacts were assessed in accordance with FHWA procedures published in 23 CFR 772. The GDOT uses FHWA procedures for impact assessment and abatement analysis (see Section 3.10). These procedures involve performing the following steps:

- Identify existing land uses and activities, developed lands and undeveloped lands, which could be affected by traffic-related noise.
- Determine existing year measured noise levels and modeled noise levels.
- Predict 2035 noise levels for the No-Build and the Preferred Alternatives using the FHWA Traffic Noise Model (TNM®, version 2.5).
- Compare future noise levels for the Preferred Alternative with existing noise levels to determine if a substantial increase of 15 dBA or greater occurs at any noise sensitive site.
- Compare future noise levels for the Preferred Alternative against the FHWA NAC impact criteria to identify the properties where noise levels are predicted to approach or exceed the NAC impact thresholds for each Activity Category (various types of land use categorized A through E).
- Identify properties where noise abatement feasibility and reasonableness must be considered based on the GDOT traffic noise policy guidelines dated July 13, 2011.
- Investigate various types of noise abatement measures that would either reduce or eliminate traffic noise impacts.

The FHWA regulations identify NAC levels at which noise impacts occur and abatement must be considered for feasibility and reasonableness. Under the regulation, the proposed project would result in traffic noise impacts if the future noise levels approach or exceed the NAC thresholds for the appropriate Activity Category. The NAC apply to areas having frequent human use and where lowered noise levels would be of benefit. They do not apply to the entire tract of land on which the activity is based, but only to that portion where the activity takes place.

The FHWA regulations indicate that, “noise impacts occur when the predicted traffic noise levels approach or exceed the NAC levels, or when the predicted design year traffic noise levels substantially exceed the existing noise levels.” As such, substantial noise level increases (15 dBA or greater) constitute noise impacts of equal weight as those impacts identified from NAC exceedance. For example, a residential property with existing peak hour noise levels of 50 dBA projected to increase by 15 dBA is considered impacted, even though the absolute predicted noise level of 65 dBA is below the 66 dBA NAC.

The methodology for predicting future noise levels used the FHWA Traffic Noise Model (TNM®, version 2.5). The forecast traffic data and conceptual engineering drawings for the Preferred Alternative were incorporated into the computer model simulation. In general, sound propagation beyond the travel lanes takes place over acoustically “soft” ground conditions, such as a lawn. This type of ground surface was assumed throughout the study area. The model also addresses ground absorption, ground terrain physical features, roadway geometry, receptor distance, vehicle volumes and vehicle operating speeds. Four principal vehicle types are entered into the TNM® model: automobiles, medium trucks (two or three axles with six or more tires), heavy duty trucks (more than three axles) and buses (vehicles that hold nine or more people).

Two existing sound barriers were identified during the field survey and were incorporated into the modeling analysis for the existing conditions and the future No-Build Alternative and Preferred Alternative. One sound barrier is located along the I-75 corridor on the northbound side (east side) between Delk Road and South Marietta Parkway. Another is located along the I-575 corridor in the southwest quadrant at the Towne Lake Parkway interchange. A third sound barrier, currently under construction as part of the Ridgewalk Parkway interchange project along the I-575 corridor, was also modeled.

The noise analysis used the computer model derived from the forecast traffic data. Because the level of highway traffic noise is normally related directly to the traffic volume, the traffic characteristic that yields the worst hourly traffic noise impact on a regular basis is typically the average hourly volume for the peak traffic hour of each day. Existing and future midday peak hour traffic data at LOS C along the roadway segments on the I-75 and I-575 corridors was obtained from the *Traffic Technical Report* (Parsons Brinckerhoff, 2011i). It is assumed that the midday LOS C traffic would yield the worst hourly traffic noise impacts due to traffic volume and vehicle mix.

In the noise analysis, single-family homes were modeled as one discrete receptor point. Multi-family buildings, such as apartment buildings or hotels, were modeled using multiple vertical receptor points along the building façade. Of note are the exterior areas of frequent human uses such as patios or balconies outside hotels and apartment buildings. Noise impacts were only reported if these exterior areas had balconies or patios or other frequent human use where a lowered noise level would be of benefit. If noise levels exceeded the NAC, but there were no exterior noise sensitive activities associated with these outside areas, no impact was reported.

As per the new July 13, 2011 noise policy, additional research was conducted to identify undeveloped parcels in the study area for which building permits have been issued but construction has yet to begin. A list of properties and associated tax parcel identification numbers was created for the project study area within an 800-foot defined noise buffer zone from the edge of pavement of the Preferred Alternative. This information is contained in Appendix A of the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

Interior noise levels were determined by subtracting the exterior noise level from the appropriate building noise reduction factor provided in *Highway Traffic Noise: Analysis and Abatement Guidance* (FHWA, 2011a).

5.12.1.3 Noise Impact Assessment

Key steps in the traffic noise impact assessment require the following types of comparisons:

- The noise levels under existing conditions must be compared to those under the Preferred Alternative. This comparison shows the noise level changes that would be expected to occur between the present time and the 2035 design year and identifies any substantial noise level increase.
- The noise levels under the design year 2035 No-Build Alternative must be compared to those under the design year for the Preferred Alternative. This comparison shows how much of the change in noise levels could be attributed to the Preferred Alternative.
- The noise levels under the Preferred Alternative must be compared to the applicable FHWA NAC for noise impact assessment. This comparison determines the acceptability of noise levels under present as well as future conditions for the sensitive land uses.

At locations where noise impacts were identified, the GDOT July 13, 2011 noise policy guidelines were used to evaluate and determine the feasibility and reasonableness of noise mitigation measures.

5.12.2 Noise Analysis Results

The results of the noise impact analysis are summarized in this section and more detail is presented in Appendix F and the *Noise Technical Report* (Parsons Brinckerhoff, 2011h). Note, the tables of impacts in Appendix F include approximate addresses of receptor locations. The number of noise impacts anticipated to result under the Preferred Alternative along I-75 and I-575 are shown in Table 5-17 and Table 5-18, respectively.

5.12.2.1 Single and Multi-Unit Receptor Sites

I-75 Corridor

The noise levels along the I-75 corridor were estimated using the TNM® model at 32 representative monitoring sites and supplemented with 768 additional noise prediction sites, resulting in a total of 800 modeling points. The 800 modeled sites consisted of 656 Activity Category B properties, 52 Activity Category C properties, 3 Activity Category D properties and 89 Activity Category E properties. There were no Activity Category A properties within the study area boundaries. The 800 modeled receptor locations represent the Preferred Alternative noise levels at 5,491 receptors.

Along the I-75 corridor, the Preferred Alternative is predicted to result in 1,977 impacts. The 1,977 impacts consist of 1,451 Activity Category B dwellings, 467 Activity Category C properties, and 59 Activity Category E properties. It would not impact any Activity Category A or D sites. No receptor sites along I-75 would experience a substantial increase of 15 dBA or greater.

Table 5-17. Preferred Alternative Without Third Lane – Approximate Number of Properties with Predicted Noise Impacts Along the I-75 Corridor, 2035

Activity Category	Number of TNM Receivers	Number of Dwelling Units/ Receptors	Number of Impacts vs. Existing	Number of Impacts vs. NAC	Total Number of Impacts
A	None	None	None	None	None
B	656	2,282	None	1,451	1,451
C	52	2,659	None	467	467
D	3	22	N/A	0	0
E	89	528	None	59	59
Total	800	5,491	None	1,977	1,977

Notes: Activity Categories include: A = serene and quiet lands; B = residential; C = community facilities exterior; D = community facilities interior; E = hotel, motel, offices; F = agriculture, airports, heavy commercial, and industrial; G = undeveloped unpermitted land.
Source: Parsons Brinckerhoff, 2011h.

Table 5-18. Preferred Alternative Without Third Lane – Approximate Number of Properties with Predicted Noise Impacts Along the I-575 Corridor, 2035

Activity Category	Number of TNM Receivers	Number of Dwelling Units/ Receptors	Number of Impacts vs. Existing	Number of Impacts vs. NAC	Total Number of Impacts
A	None	None	None	None	None
B	295	986	None	139	139
C	38	420	None	19	19
D	4	4	N/A	0	0
E	25	71	None	0	0
Total	362	1,481	None	158	158

Notes: Activity Categories include: A = serene and quiet lands; B = residential; C = community facilities exterior; D = community facilities interior; E = hotel, motel, offices; F = agriculture, airports, heavy commercial, and industrial; G = undeveloped unpermitted land.
Source: Parsons Brinckerhoff, 2011h.

I-575 Corridor

The noise levels along the I-575 corridor were estimated using the TNM® model at 20 representative monitoring sites and supplemented with 342 additional noise prediction sites, resulting in a total of 362 modeling points. The 362 modeled sites consisted of 295 Activity Category B properties, 38 Activity Category C properties, 4 Activity Category D properties, and 25 Activity Category E properties. There were no Activity Category A properties within the I-575 portion of the study area. The 362 modeled receptor locations represent the Preferred Alternative noise levels at 1,481 receptors.

Along the I-575 corridor, the Preferred Alternative is predicted to result in 158 impacts. The 158 impacts consist of 139 Activity Category B dwellings and 19 Activity Category C properties. The

Preferred Alternative is not predicted to impact any Activity Category A, D, or E sites. No receptor sites along I-575 would experience a substantial increase of 15 dBA or greater.

5.12.2.2 Undeveloped Lands with a Permit

In Cobb County, 19 parcels had building permits issued, but construction had not yet begun at the time the research was conducted. Four of the parcels are single-family residential properties located within the 800-foot noise study buffer zone. The noise analysis indicated that the 2035 noise levels under the Preferred Alternative would remain below the 66 dBA impact threshold.

No construction building permits were determined to be on file with Cherokee County, therefore no noise assessment was required for these types of properties.

5.12.2.3 Interior Noise Impacts

Findings of the interior noise impact assessment indicate that noise levels at Activity Category D land use activities would remain below the impact threshold along the I-75 and I-575 corridors.

5.12.3 Noise Abatement

A detailed noise abatement analysis for the Preferred Alternative was completed in accordance with GDOT's revised traffic noise policy guidelines (effective July 13, 2011). A full discussion of the abatement analysis is documented in the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

The following noise abatement measures were investigated for this project:

- Traffic control measures
- Horizontal and vertical alignment modifications
- Creation of noise impact buffer zones to establish compatible future land development on undeveloped lands
- Sound barriers.

5.12.3.1 Traffic Control Measures

Traffic control measures that limit motor vehicle speeds and reduce traffic volumes can be effective noise mitigation measures. However, these measures may negate the ability of the proposed project to accommodate forecast traffic volumes and meet the project's purpose and need. Therefore, traffic control measures were not considered viable options for this project.

5.12.3.2 Horizontal and Vertical Alignment Modifications

Alignment modifications generally involve orienting and/or siting the roadway at sufficient distances from noise sensitive areas to minimize noise impacts. The location of the Preferred Alternative balances engineering criteria, limitations imposed by terrain and the various community, cultural and natural resource impacts. Therefore, modification to the Preferred Alternative is not considered a viable option.

5.12.3.3 Creation of Noise Impact Buffer Zones to Establish Compatible Future Land Development on Undeveloped Lands

Another noise abatement measure is the application of land use controls to minimize impacts to future development. Although GDOT typically is not able to acquire land to create buffer zones, it is sometimes possible to relocate an impacted mobile home to a parcel outside the noise impact zone. In the study area, some mobile homes would not be affected while others are located behind existing sound barriers. Other mobile home areas would be provided abatement with non-mobile homes, as occurred along I-75 with proposed Sound Barrier B18 and along I-575 with proposed Sound Barrier B2. As such, with so many non-mobile home residential communities receiving benefit of a sound barrier it would not be fair minded or equitable to consider displacement of the few impacted mobile home areas. Therefore this potential abatement measure was not considered.

In addition to creating buffer zones, noise contours created for undeveloped land identify the critical buffer zone distances from the proposed edge of pavement that land developers and local officials can use when establishing compatible development. The predicted noise contour levels developed for this project can be found in Appendix D of the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

5.12.3.4 Sound Barriers

An extensive sound barrier analysis was conducted for the receptor locations identified throughout the study area where future predicted noise levels for the Preferred Alternative were identified to approach or exceed the NAC. The feasibility and reasonableness of proposed sound barriers to provide acoustic and cost-effective noise reduction was evaluated based on the GDOT July 2011 *Highway Noise Abatement Policy Guidelines*.

Each sound barrier evaluated was optimized to achieve the optimum noise reduction at the most cost effective height and length. Any changes to the proposed sound barrier horizontal or vertical alignment would require new analysis of the abatement findings using the TNM model to ensure the optimum noise reduction levels are achieved. The maximum unit cost allowed by GDOT is $55,000 per benefiting receptor. The methodology to estimate sound barrier construction cost assumes a material cost of $20 per square foot. This assumption includes only the cost of construction materials and installation. The per benefited unit cost effectiveness of each proposed sound barriers was calculated by multiplying the material cost ($20/square foot) by the sound barrier length and height and dividing the resulting figure by the number of benefitting receptors at that location. A minimum noise reduction goal of 7 dBA had to be achieved at one receptor with a 5 dBA noise reduction required for each receptor in order to be counted as benefited.

The final decision on whether a proposed sound barrier that has been determined feasible and reasonable is constructed would be made upon completion of additional detailed noise abatement analysis based on the final project design and public outreach to those property owners potentially affected. As such, the noise mitigation commitments would be assigned to the P3 Developer.

The GDOT noise abatement policy requires the affected property owners and dwellers complete and submit a ballot voting form for proposed sound barriers in their neighborhood. Sound barriers would only be constructed if, at a minimum, 50 percent plus one of the respondents vote in favor of the sound barrier.

A reevaluation of the noise analysis would occur during final design. If during final design it has been determined that conditions have changed, the feasibility and/or reasonableness determinations and decision to provide abatement would be reconsidered. The final decision on the installation of any abatement measures would be made upon completion of the project's final design and the public involvement process.

Sound Barrier Findings for the I-75 Corridor

Based on the results of the noise analysis, 1,977 impacted receptors have been identified along the I-75 corridor. Noise abatement has been considered for all impacted receptors. The sound barrier analysis evaluated 37 locations for sound barriers along I-75 and found sound barriers to be feasible and reasonable at 28 locations. Maps of the proposed sound barriers can be found in Appendix D of the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

Six of the proposed sound barriers consisted of compound segments: sound barriers 8-9, 10-11, 14-15, 22-25, 27-29, and 31-32-34-35. Some of the compound segments were placed at ground level and some were placed on top of the proposed retaining wall along the west side of the alignment in the southern portion of the I-75 corridor.

The following proposed sound barriers were found to meet the GDOT feasibility and reasonableness requirements: 1, 2, 3, 5, 6, 7, 8-9, 10-11, 13, 18, 19, 21, 22-25, 26, 27-29, 30, 31-32 and 34-35.

Eight locations were evaluated for noise abatement but determined not to be feasible and reasonable. The following sound barriers did not meet the GDOT feasibility and reasonableness requirements: 4, 14-15, 16, 17, 20, 33 and 37. These sound barriers were determined not to be feasible and reasonable because they did not meet acoustic effectiveness criteria or the cost effectiveness criteria or both. More detailed information can be found in Appendix F and in the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

For the I-75 corridor, the cost for the proposed sound barriers that were found to meet the GDOT feasibility and reasonableness requirements would be approximately $20.7 million. The proposed sound barriers would provide noise abatement to 1,718 benefitting receptors. The 1,718 benefitting receptors include shared outdoor common use areas, such as swimming pools and active recreation areas associated with apartment buildings and hotels. These outdoor uses represent a common outdoor frequent human use environment shared by tenants or hotel guests of those buildings subjected to the same traffic noise exposure.

Sound Barrier Findings for the I-575 Corridor

Based on the results of the noise analysis, 158 impacted receptors have been identified along the I-575 corridor. Noise abatement has been considered for all impacted receptors. The sound barrier analysis evaluated nine locations for sound barriers along I-575 and found that all nine met the GDOT feasibility and reasonableness requirements.

For the I-575 corridor, the cost for the proposed sound barriers would be approximately $13 million. The proposed sound barriers would provide noise abatement to 410 benefitting receptors.

Parallel Sound Barrier Considerations

The *Highway Noise Barrier Design Handbook* (FHWA, 2000) defines parallel barriers as two barriers that face each other on opposite sides of a roadway. Sound reflected (back and forth) between the parallel barriers may cause reduction in each barrier's individual performance.

To ensure an imperceptible degradation in the performance of parallel sound barriers, the distance between the two should be greater than 20 times their average height (20:1 ratio). To ensure that sound degradation is barely perceptible, the distance between the two sound barriers should be between 10 and 20 times their average height (10:1 to 20:1). Significant degradation of greater than 3 dBA occurs when the ratios are less than 10:1. In the case where the ratios are less than 10:1 sound barrier design modifications are necessary to minimize the degradation. Table 5-19 provides a guideline of general ratios and the corresponding sound barrier insertion-loss degradation.

Table 5-19. Guideline for Categorizing Parallel Sound Barrier Sites Based on the Width/Height Ratio

W/H Ratio	Maximum ΔIL in dB(A)	Recommendation
Less than 10:1	3 or greater	Specification of sound barriers constructed with sound absorptive panels to minimize sound barrier attenuation degradation caused by parallel barriers.
10:1 to 20:1	0 to 3	At most, degradation barely perceptible; no action required in most instances.
Greater than 20:1	No measurable degradation	No action required.

Notes: W/H = width to height ratio; ΔIL = change in insertion-loss degradation.
Source: FHWA, 2000.

A review of the proposed sound barriers along I-75 and I-575 was conducted to identify sound barrier segments that would be parallel. The parallel sound barrier analysis findings for proposed sound barriers along I-75 indicate that under the maximum sound barrier height condition, none of the I-75 parallel proposed sound barriers would have a ratio of less than 10:1. The ratios fall in the 10:1 to 20:1 range. The analysis results yielded a maximum sound degradation of less than 0.5 dBA, indicating that sound degradation would not be perceptible.

The parallel sound barrier analysis findings for proposed sound barriers along I-575 indicate that sound barriers 7 and 8 would have a ratio of less than 10:1. The analysis results indicate a maximum sound degradation of 1 to 2 dBA at various receptor locations behind the two sound barriers. Sound barrier height adjustments of two feet upward appear to compensate for the sound degradation noted.

Although severe cases of sound degradation were not identified, the problems caused by parallel sound barriers also could be minimized through the use of design modifications.

5.13 Ecosystems

Ecosystems and natural resources include vegetation, wildlife, and threatened, endangered, or otherwise sensitive species. Existing conditions are described in Section 3.11. This section discusses the potential effects of the No-Build and Preferred Alternatives on ecosystems and natural resources and recommended mitigation measures to minimize potential adverse effects. Additional information regarding the analysis of ecosystem impacts is presented in the *Ecology*

Technical Report – Ecology Assessment/Description of Jurisdictional Wetlands, Non-Wetland Waters of the US, and Protected Species Survey (Parsons Brinckerhoff, 2010d) and *Addendum to the June 2010 Ecology Technical Report* (Parsons Brinckerhoff, 2011a) prepared in support of this FEIS. Coordination with the US Fish and Wildlife Service (USFWS) and the GDNR, Wildlife Division are in Appendix D. The GDNR provided information about the species that occur within three miles of the Preferred Alternative and stated their concerns over streams and habitat that could be impacted by the Preferred Alternative. Copies of the two reports and the agency coordination correspondence are compiled in the *Ecology Technical Report* (Parsons Brinckerhoff, 2011f). Additional analysis specifically related to the proposed advance toll signage is found in the *Advance Toll Signage Technical Report* (Parsons Brinckerhoff, 2011c).

An environmental constraints map of the project corridor is presented in Appendix I of Volume 2 of this FEIS.

5.13.1 Potential Impacts on Terrestrial and Aquatic Biota Habitats

The terrestrial habitats occurring adjacent to and within the project corridor included planted pine forest, upland hardwood/pine forest, open field, and bottomland hardwood forest. These habitats were primarily small, fragmented, and degraded vegetation communities that have been substantially disturbed due to the extensive urban development in the area, frequent land use changes (e.g., agricultural to residential or to commercial), and ongoing roadway improvements.

Aquatic habitats occurring adjacent to and within the project corridor included wetlands, streams, and open waters. The wetland communities within the project corridor are primarily low-quality wetlands that are relatively small and often the result of impounded streams due to the existing roadway corridors and adjacent land uses. The numerous streams also are low-quality and pass under existing roadways via culverts or pipes. The open waters (e.g., ponds, lakes, retention/detention basins) within or adjacent to the project corridor are primarily man-made and were created for the residential, commercial, and industrial facilities for decorative purposes and/or retention/detention basins for stormwater control.

Effects to the terrestrial and aquatic habitats that would occur within the project corridor would be minimal as the project primarily involves improving the roadway corridors within the existing road right-of-way. In addition, impacts to these habitats would have little to no effect on the resident and/or migrant fauna species potentially using these habitats, as these species are typically adapted to frequent disturbances and land use changes.

5.13.2 Potential Impacts on Threatened and Endangered Species

Coordination was initiated with the US Fish and Wildlife Service (USFWS) and the GDNR regarding potential impacts to threatened and endangered species and their habitats. Correspondence from the USFWS and a letter from the GDNR with a list of special concern species potentially occurring within the project corridor are provided in Appendix D.

Neither the individual species listed below nor their habitats were identified within the study area during the 2009 field surveys. Therefore, the Preferred Alternative would have no effect on the following species:

- Georgia aster (federal candidate)
- Michaux's sumac (federally endangered)
- Bay star vine (state threatened)
- Etowah darter (federally endangered)

- Monkeyface orchid (federal candidate)
- Open-ground whitlow-grass (state endangered)
- Indian olive (state threatened)
- Amber darter (federally endangered)
- Gulf moccasinshell (federally endangered)
- Delicate spike mussel (state endangered)

However, potentially suitable habitat for one federally listed species (Cherokee darter) and one state-listed species (Chattahoochee crayfish) is present within the study area. Potentially suitable habitat was present for the state-listed lined chub in the Little River just outside of the project limits. In addition, the Cherokee darter was collected in Stream 29 along the project corridor and Clark Creek, which is outside of the project corridor.

Cherokee Darter

During the aquatic survey, two separate samples were taken within the stream identified as Stream 29 in the *Ecology Technical Report* (Parsons Brinckerhoff, 2010d). At sample S-14, the Preferred Alternative would be maintained within the current roadway pavement and existing right-of-way and would have no direct impacts (e.g., culvert extension/replacement, bridge piers within stream channel, etc.) to Stream 29. Sample location S-15 is beyond the proposed project limits and, therefore, would not be directly affected. However, the Preferred Alternative does have the potential to indirectly impact these streams. Indirect impacts from the Preferred Alternative may include stormwater run-off, increases of silt and sediment being released into the streams from exposed soil and potential increase of petroleum products being introduced into the streams from construction equipment.

To avoid and minimize potential impacts to streams, GDOT would maintain and implement best management practices (BMPs) that may include silt fencing, straw bales, retention/detention basins, fiber mats, and grassing of exposed soil. In addition to the BMPs, the P3 Developer would be required to implement protective measures to prevent potential impacts to the Cherokee darter as a result of project construction. The proposed project would have no direct effects on Streams 15 and 16 where the Cherokee darter was collected (more than 1.5 miles from the study area). Importantly, it would also have no effect on Stream 29 that provides potentially suitable habitat for the species. In addition, implementation of BMPs and adherence to protective measures identified in the P3 Developer Agreement would further protect the species. The USFWS concurred with FHWA's "may affect – not likely to adversely affect" determination in a letter, dated June 22, 2010; and a copy of this letter is provided in Appendix D.

Chattahoochee Crayfish

No individual Chattahoochee crayfish specimens were observed during the aquatic field surveys. Potentially suitable habitat was observed in Streams 1, 6, 7 and 14. Although potentially suitable habitat was observed during the aquatic field surveys, it is unlikely that the Chattahoochee crayfish occurs within the streams crossed by the proposed project given the degraded stream conditions. There would be no direct impacts to the streams identified as providing potentially suitable habitat for the Chattahoochee crayfish (bridged crossing). The proposed project would be maintained within the current roadway pavement and existing right-of-way at Stream 1 and Stream 14. Stream 6 and Stream 7 would be bridged by the proposed project and no construction activity would occur within the stream channels. However, the Preferred Alternative does have the potential to indirectly impact these streams. Indirect impacts from the Preferred Alternative may include stormwater run-off, increases of silt and sediment being released into the streams from exposed soil and potential increase of petroleum products being introduced into the streams from construction equipment.

To avoid and minimize potential impacts to the streams, GDOT would maintain and implement BMPs that may include silt fencing, straw bales, retention/detention basins, fiber mats, and grassing of exposed soil. In addition to the BMPs, the P3 Developer would be required to implement additional protective measures to ensure that all reasonable efforts have been made to prevent potential impacts to the Chattahoochee crayfish as a result of project construction. Given the proposed project would have no direct impacts to the streams that have potentially suitable habitat for the Chattahoochee crayfish, implementation of BMPs, and the adherence with protective measures identified in the P3 Developer Agreement, the proposed project would have “no significant adverse affect” to Chattahoochee crayfish populations.

Lined Chub

No individual lined chub specimens were collected during the field surveys. Potentially suitable habitat for the lined chub was identified in Stream 60 (Little River). Stream 60 would not be directly impacted by the proposed project (bridge crossing). However, the Preferred Alternative does have the potential to indirectly impact these streams. Indirect impacts from the Preferred Alternative may include stormwater run-off, increases of silt and sediment being released into the streams from exposed soil, and potential increase of petroleum products being introduced into the streams from the construction equipment.

To avoid and minimize potential impacts to the stream, GDOT would maintain and implement BMPs that may include silt fencing, straw bales, retention/detention basins, fiber mats, and grassing of exposed soil. In addition to the BMPs, the P3 Developer would be required to implement protective measures to ensure that all measures have been taken to prevent potential impacts to the lined chub as a result of project construction. Given the proposed project would have no direct impacts to the stream that provides potentially suitable habitat, implementation of BMPs, and the adherence with protective measures identified in the P3 Developer Agreement, the proposed project would have “no significant adverse affect” to lined chub populations.

5.13.3 Bald and Golden Eagle Protection Act

The Preferred Alternative would not “take” bald eagles, as defined by the Bald and Golden Eagle Protection Act.

5.13.4 Potential Impacts on Neotropical/Migratory Birds

As directed under Executive Order 13186, in furtherance of the Migratory Bird Treaty Act (16 USC 703-711), actions must be taken to avoid or minimize impacts to migratory bird resources and to prevent or abate the detrimental alteration of the environment for the benefit of migratory birds, as practicable. GDOT assesses potential impacts to migratory birds that may result from conversion of habitat that is considered suitable for nesting. GDOT would survey under bridges and within large culverts that would be reconstructed or removed as part of a proposed project. Demolition or reconstruction of any bridge or culvert that is considered to be suitable nesting habitat for migratory birds, such as the barn swallow (*Hirundo rustica*), cliff swallow (*Hirundo pyrrhonota*), or Eastern phoebe (*Sayornis phoebe*), would be scheduled to take place at a time outside the breeding season of migratory birds.

Four vegetative communities occur adjacent to and within the proposed project corridor that include planted pine forest, upland hardwood/pine forest, open field, and bottomland hardwood forest. These communities are primarily small, fragmented, and degraded communities that have been substantially disturbed due to the urban growth in the area, frequent land use changes, and ongoing roadway improvements. The frequent disturbances along the edge and within the interior of these vegetative communities have contributed to the lack of native plant species diversity, dense understory of the wooded communities with a high invasive species component and proliferation of predatory animals and parasitic bird species. As a result, the vegetative communities are of low quality and are likely of little importance to the migratory bird species using these areas. Furthermore, the Kennesaw Mountain National Battlefield Park (NBP), a designated Important Bird Area, is approximately one mile from the proposed project corridor and would provide more suitable foraging and nesting opportunities for migratory bird species than would these degraded and disturbed vegetative communities.

Impacts to forested habitat would cause only minor displacement of wildlife habitat. Most of these impacts would occur in previously impacted forest edge habitats and small (less than 5 acres) fragmented forest tracts and would not affect interior portions of contiguous woodland habitat necessary to support certain migratory bird species. The roadway reconstruction and widening would have some potential for impacting edge habitat in areas where new right-of-way would be obtained. The impacts to forest edge communities would be temporary, as successional regeneration would replace any forest edge habitats displaced within the required right-of-way limits. However, the impacts to the fragmented forested tracts would be permanent. The majority of the bird species found using community edges and fragmented forested tracts are typically adapted to disturbed landscapes and human activity.

Therefore, the Preferred Alternative would only have a minimal effect on migratory bird species using the vegetative communities surrounding the existing road corridors due to the limited quantity of land that would be impacted and the existing disturbance to these communities. Soil disturbance and the slight disturbance to the vegetative communities could attract predators, nest parasites, and invasive plant species into areas adjacent to the project limits, but available foraging and nesting habitat for migratory bird species requiring large forested tracts would not change substantially.

The I-75 and I-575 roadway corridors encounter numerous streams, drainages, and secondary road corridors that require bridge or culvert structures to cross these natural and man-made features. These bridge and culvert structures provide potentially suitable nesting habitat for many migratory bird species, particularly the barn swallow and/or eastern phoebe (*Sayornis phoebe*). Therefore, a field survey of the bridge and culvert structures within the proposed project corridor was conducted to document potential nesting bird habitat and document the actual presence of any bird nests at the bridge and culvert locations. While bird nests were not observed at every bridge location, all of the bridge structures (including bridges over roads and streams) provide potentially suitable nesting habitat for migratory bird species. The culvert structures observed to be potentially suitable nesting habitat were those that were approximately 5 feet by 5 feet or larger. The smaller culvert structures appeared to be too small to provide potentially suitable nesting habitat, given that they periodically fill with water during heavy rainfall events.

Because of the presence of potential nesting habitat for migratory birds within the proposed project corridor, the P3 Developer would be required to implement protective measures at the bridge and culvert structure locations during the breeding seasons for the barn swallow and eastern phoebe, or as long as birds are observed actively nesting.

5.13.5 Mitigation Measures

No mitigation would be required because there would be no adverse effect to threatened and/or endangered species or neotropical/migratory birds as a result of the Preferred Alternative. On August 10, 2011, the US Fish and Wildlife Service concur with the determination presented in the *Addendum to the June 2010 Ecology Technical Report* (Parsons Brinckerhoff, 2011a) that impacts to streams along the project corridor are unavoidable and necessary to implement the proposed project and states GDOT's mitigation proposal satisfies the agency's responsibilities under the Fish and Wildlife Coordination Act (see Appendix D).

BMPs would be implemented to ensure that the federally listed Cherokee darter and the potential habitat for the Cherokee darter, state-listed Chattahoochee crayfish, and lined chub identified within the proposed project corridor would not be impacted by the proposed project. The BMPs may include silt fencing, straw bales, retention/detention basins, fiber mats, and grassing of exposed soil. In addition field surveys of the bridge and culvert structures would be conducted prior to and during the construction activities to ensure nesting and/or potential bird nesting habitat is not disturbed. Furthermore, the P3 Developer would implement protective measures, which are summarized below.

1. The P3 Developer shall advise all project personnel employed to work on this project about the potential presence and appearance of the federally protected barn swallow (*Hirundo rustica*), a neo-tropical migratory bird species, and that there are civil and criminal penalties for harming, harassing, or killing barn swallows (or damaging their nests), which are protected under the Migratory Bird Treaty Act of 1918. Pictures and habitat information would be provided to the contractor at the preconstruction conference.
2. Due to the presence of active barn swallow nests, removal of the existing bridge/culvert structures along the I-75 project corridor work shall be done outside of the breeding season of barn swallows, which begins April 1 and extends through August 31. The P3 Developer may construct or demolish any bridges or culverts if restrictive netting is employed to keep birds from nesting on the structures. Prior to any construction or demolition of any bridges or culverts an independent survey for migratory birds must be conducted and must document that these nests are not present or are not in use.
3. In the event any incident occurs that causes harm to the barn swallow, or that could be detrimental to the continued existence of barn swallows along the project corridor, the P3 Developer shall report the incident immediately to the project engineer who in turn would notify:

   a. USFWS, Athens Office at (706) 613-9493;

   b. GDNR, Wildlife Resources Division, Nongame and Endangered Wildlife Program at (478) 994-1438;

   b. FHWA, Georgia Division at (404) 562-3630; and

   c. GDOT, Office of Environmental Services at (404) 631-1101.

   In the event of possible harm to barn swallows, the above agencies and the project engineer shall be notified immediately and all activity shall cease pending consultation by the Department with the USFWS and the lead federal agency.

4. Following project completion, a report summarizing any incidents with barn swallows shall be submitted by the P3 Developer to:
   a. The project engineer;
   b. USFWS, 105 Westpark Drive, Suite D, Athens, Georgia 30606;
   c. FHWA, Georgia Division, 61 Forsyth Street, Suite 17T100, Atlanta, Georgia, 30303;
   d. GDNR, Wildlife Resources Division, Nongame and Endangered Wildlife Program, 116 Rum Creek Drive, Forsyth, Georgia 31029; and
   e. GDOT, Office of Environmental Services, 600 W. Peachtree Street, Atlanta, Georgia 30308.
5. All costs pertaining to any requirement contained herein shall be included in the overall bid submitted unless such requirement is designated as a separate pay Item in the proposal.

5.14 Water Resources

The potential impacts of the No-Build and Preferred Alternatives on surface waters, floodplains, and Waters of the US are described in this section. Background information about existing conditions is found in Section 3.12. Additional information regarding the analysis of ecosystem impacts is presented in the *Ecology Technical Report – Ecology Assessment/ Description of Jurisdictional Wetlands, Non-Wetland Waters of the US, and Protected Species Survey* (Parsons Brinckerhoff, 2007a and 2010bd) and *Addendum to June 2010 Ecology Technical Report* (Parsons Brinckerhoff, 2011a). Additional technical information is compiled in the *Hydraulic and Hydrological Technical Report* (Parsons Brinckerhoff, 2011g). In addition, the series of maps in Appendix I show the location of water resources located along the project corridor.

5.14.1 Surface Waters and Riverine Systems

Surface water includes all waters on the surface of the earth, including rivers, streams, ponds, lakes, marshes, and wetlands; transitional coastal and marine waters; and surface waters present as ice and snow. Installation of new drainage structures, extension of existing structures, relocation of streams, or use of fill materials could result in losses of aquatic habitat from those surface waters.

As shown in Table 5-20, the Preferred Alternative would affect approximately 3,025 linear feet (0.99 acre) of streams. The Preferred Alternative would result in impacts to five streams within the study area: Streams 1E, 5, 8, 18A and 22 (refer to Appendix I for the location of the streams). The Preferred Alternative would extend the existing culvert by approximately 25 feet at Stream 1E, 100 feet at Stream 5 and 50 feet at Stream 22. The Preferred Alternative would require the relocation of 1,450 linear feet of Stream 8 and the relocation of 1,400 linear feet of Stream 18A. All of the impacts would occur within the hydrologic unit code (HUC) 03130001 and 03150104, the Upper Chattahoochee and Etowah River drainage basins, respectively. Both of these watersheds are designated as USEPA Region 4 Priority Watersheds. Coordination with the USFWS, as per the requirements of the Fish and Wildlife Coordination Act (FWCA), was conducted for the 3,025 linear feet (0.99 acre) of stream impacts as a result of the proposed project. The USFWS concurred, in a letter dated August 23, 2011 (see Appendix D), with the determination that the stream impacts are unavoidable and necessary to implement the proposed project.

Table 5-20. Potential Impacts to Surface Waterways by Watershed (linear feet)

Watershed Basin	No-Build Alternative	Preferred Alternative	
		Temporary Impacts (LF[1])	Permanent Impacts (LF)
Chattahoochee Basin			
Sope Creek Tributaries	0	0	1,400
Sope Creek	0	0	0
Poplar Creek	0	0	0
House Creek	0	0	0
Rottenwood Creek Tributaries	0	0	1,575
Rottenwood Creek	0	0	0
Total Chattahoochee Basin	0	0	2,975
Etowah Basin			
Chastain Branch	0	0	0
Clark Creek Tributaries	0	0	0
Clark Creek	0	0	0
Noonday Creek Tributaries	0	0	50
Noonday Creek Tributary (ephemeral[2])	0	0	0
Noonday Creek	0	0	0
Little River Tributaries	0	0	0
Little River	0	0	0
Total Etowah Basin	0	0	50
Total (perennial & intermittent)	**0**	**0**	**3,025**
Total (ephemeral)	**0**	**0**	**0**

Notes:
1. LF = lineal feet.
2. Ephemeral stream impacts are considered wetland impacts.
Sources: Parsons Brinckerhoff, 2010d and 2011a.

In order to minimize impacts, the Preferred Alternative would cross the majority of the streams in the study area using a bridge. If a bridge is constructed, the Preferred Alternative would span the stream in its entirety, resulting in no impacts to the streams. In some instances, the streams cross under the existing roadway via a culvert. In those instances where all work would take place within the existing right-of-way, no changes would be made to the existing culvert. Therefore, the Preferred Alternative would not impact the stream.

An increase in the amount of impervious pavement surfaces, increases in traffic volumes, and consequent increases in pollutants washed from the road surface into streams could affect water quality. Pollutants could include grease, oil, metals, nutrients, nitrogen, and deicing salts.

5.14.1.1 Evaluation of Practicable Alternatives

The project corridor has been surveyed for waters of the US as required by the provisions of Executive Order 11990, and subsequent federal regulations.

Practicable alternatives were evaluated to avoid impacts to waters of the US in the project corridor. Since the proposed project consists of an existing roadway corridor, avoiding waters of the US is often not possible and minimizing impacts is often difficult. Numerous factors limit the avoidance and minimization of waters of the US impacts. These include the location of waters of the US in relation to the existing roadway, potential impact to sites eligible or potentially eligible for inclusion in the NRHP, and the potential displacement of additional residences, businesses or institutions. The waters of the US encountered by the project corridor are primarily located within the existing highway right-of-way; and given their location relative to the existing roadways, avoiding all impacts would not be possible.

Measures taken during the conceptual design phase to minimize impacts to jurisdictional waters of the US included reducing cut and fill limits, adjusting slope ratio, adjusting the design and location of the managed lane interchanges, reducing the amount of required right-of-way (when possible), and installing retaining walls (where possible), to reduce the amount of required fill. Additional measures to minimize impacts to wetlands were evaluated. These were eliminated based on feasibility; impacts they may cause to nearby residences, businesses, and/or private property; and exorbitant costs to implement such minimization measures.

The Preferred Alternative would have fewer impacts to waters of the US than previous build alternatives considered in the AA/DEIS and the SDEIS. The Preferred Alternative is expected to reduce impacts made by previous build alternatives to wetlands and streams by approximately 3.9 acres and 13,177 linear feet, respectively. Additionally, impacts to waters of the US may be further reduced once the design of the Preferred Alternative has been fully developed.

Based upon the above considerations, it is anticipated that there is no practicable alternative to the proposed construction in waters of the US and that the proposed action includes all practicable measures to minimize harm in waters of the US, which may result from such use.

5.14.1.2 Mitigation Measures for Impacts to Surface Waterways and Riverine Systems

The placement of fill material in surface waterways and riverine systems (i.e., non-wetland waters of the US) requires a permit from the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) [33 USC 1344]. Section 404 defines the procedures by which the USACE Chief of Engineers may issue a permit for discharge of dredged or fill material into jurisdictional non-wetland waters of the US.

The USACE issues permits based on the Section 404(b)(1) guidelines, which are intended to "… restore and maintain the chemical, physical, and biological integrity of waters of the US through the control of discharges of dredged or fill material." The guidelines require that practicable alternatives be considered that would avoid or minimize impacts to jurisdictional waters. The guidelines also require the use of minimization measures, such as using silt screens to control turbidity and timing the discharge to avoid wildlife migrations. Where avoidance or minimization measures are not possible, compensatory mitigation would be required. Refer to Section 5.14.1.1 for a discussion on practicable alternatives considered.

Construction of the proposed project is expected to produce some temporary sediment loading to the streams. Environmental harm would be minimized by using standard sedimentation, erosion, and hydrologic control measures, including the following:

1) Preservation of roadside vegetation beyond the limits of construction, where possible. All of the stream buffers (both perpendicular and longitudinal) would be protected from the clear zone expansion efforts of this project.

2) Early re-vegetation of disturbed areas so as to minimize soil erosion. In addition, those stream buffers that are already encroached by current maintenance (mowing and bush hogging) would be restored by reduction of clearing in those locations.
3) The project would include the use of slope drains, detention/retention structures, surface, subsurface and cross drains, designed as appropriate or needed, so that discharge would occur in locations and in such a manner that surface and subsurface water quality would not be affected (the outlets may require aprons, bank protection, silt basins, and energy dissipaters).
4) The project would include construction features for the control of predicted erosion and water pollution in the plans, specifications and contract pay items (Georgia Standard Specifications – Section 161 through 171 and 700 through 715 identify the pollution control measures that may be used).
5) The dumping of chemicals, fuels, lubricants, bitumens, raw sewages, or their harmful waste into or alongside of streams or impoundments, or into natural or man-made channels leading thereto, would be prohibited.
6) Compliance with terms of the National Pollutant Discharge Elimination System (NPDES) permits for construction activities would be required, to include preparation and submittal of a project Notice of Intent (NOI) and a Notice of Termination (NOT). The NPDES permit also requires preparation and implementation of erosion, sedimentation, and pollution control plan and a comprehensive monitoring program. Best management practices outlined in the erosion, sedimentation, and pollution control plan must be consistent with, and no less stringent than, practices set forth in the *Manual for Erosion and Sedimentation Control in Georgia* (Georgia Soil and Water Conservation Commission, 2002).

Due to the amount of unavoidable impacts to non-wetland waters of the US, a USACE Section 404 Individual Permit would be required for the proposed project. The estimated 3,025 linear feet of stream impacts would be mitigated in accordance with the April 2004 USACE *Standard Operating Procedure* (SOP) for compensatory mitigation. A total of 17,396.25 stream mitigation credits would be withdrawn from a USACE-approved commercial mitigation bank or from a GDOT-owned bank that serves HUC 03130001 and HUC 03150104.

The GDOT and/or the P3 Developer would obtain all required permits and the P3 Developer would be accountable to carry out all permit conditions.

5.14.2 Groundwater

The Preferred Alternative could affect groundwater quality. Minor amounts of direct contamination could be associated with incidental losses of grease, fluids, oils, and other contaminants that escape secondary containment systems for the roadways. The increased impervious surface may result in localized lowering of groundwater levels, as a result of reduced infiltration. The amount of the infiltration of precipitation may be marginally reduced by the increase in impervious surface areas. The storm water management facilities would create new sources of groundwater recharge.

5.14.3 Floodplains

5.14.3.1 Potential Effects

A floodplain survey of the project corridor was conducted as required by Executive Order 11988 and 23 CFR 650, Subpart A. This survey determined that the Preferred Alternative would cross the 100-year floodplains associated with Little River, Noonday Creek, Noonday Creek tributaries and Tate Creek in the Etowah Basin and Poor House Creek, Poplar Creek, Rottenwood Creek, Rottenwood Creek tributaries, Sope Creek and Sope Creek tributaries in the Chattahoochee Basin (see Table 5-21). These floodplains provide shading, bank stabilization, and food and cover for wildlife and fish. Other values associated with these floodplains include natural flood and erosion control through the reduction of flood velocities and peaks as well as flood storage and conveyance. These floodplains filter nutrients and process organic waste while facilitating infiltration and aquifer recharge.

Table 5-21. Potential 100-Year Floodplain Impacts by Watershed (acres)

Watershed Basin	No-Build Alternative	Preferred Alternative
Etowah Basin		
Little River	0	0.64
Noonday Creek	0	4.95
Noonday Creek Tributaries	0	1.37
Tate Creek	0	0.00
Subtotal	**0**	**6.96**
Chattahoochee Basin		
Poor House Creek	0	0.56
Poplar Creek	0	0.00
Rottenwood Creek	0	2.35
Rottenwood Creek Tributaries	0	5.99
Sope Creek	0	0.64
Sope Creek Tributaries	0	0.26
Subtotal	**0**	**9.80**
TOTAL	**0**	**16.76**

Sources: Parsons Brinckerhoff, 2011a and 2011f.

The project would result in approximately 16.8 acres of encroachment into these floodplains. The design of the improvement would avoid longitudinal encroachments to the extent possible, and its construction would not constitute uneconomic, hazardous, or incompatible use and development of these floodplains. Maps showing the location of these impacts are presented in Appendix I, Environmental Constraints Map.

The streams and the associated 100-year floodplains primarily intersect the alignment of the Preferred Alternative perpendicularly at the existing bridge and culvert structures along I-75 and I-575. The Preferred Alternative would require widening, replacement, and/or extension of existing bridge and culvert structures. In some cases, the proposed improvements also would require additional fill.

Project impacts to the natural and beneficial floodplain values of the area are expected to be minimal. There may be some loss of vegetation and wildlife habitat. However, these would be temporary losses because the vegetation should re-establish itself in the vicinity, which would in turn aid in providing useful cover for native wildlife. Standard design practices would preclude changes in the natural moderation of floods by these affected watercourses. Impacts to the floodplains have been minimized or avoided by crossing the floodplain with appropriately sized bridges and culverts at or near perpendicular angles, where practicable.

Hydraulic and hydrological studies were conducted for the I-75 proposed managed lane crossings of Hope Creek and Rottenwood Creek, Sope Creek, Elizabeth Branch, Noonday Creek Tributary #6, and Noonday Creek, and the I-575 proposed managed lane crossings of Noonday Creek (South and North) and Little River. The study for Sope Creek was conducted in 2011. The studies for the other crossings were conducted during 2009. The analysis can be found in the appendices of the *Hydraulic and Hydrological Report* (Parsons Brinckerhoff, 2011g). The following provides a summary of the findings of those studies.

I-75 Corridor

Hope Creek and Rottenwood Creek

This site is located in a community that participates in the National Flood Insurance Program (NFIP) administered by Federal Emergency Management Agency (FEMA) so NFIP regulations apply. Both Hope Creek and Rottenwood Creek have been studied by FEMA previously and at the proposed crossings are designated as a Zone AE flood area. The site is also within a designated floodway. Due to the location of the proposed alignment of the bridges, it would be necessary to encroach on the regulatory floodway. Encroachment would occur within the project right-of-way. The proposed bridges would create an increase in the base flood elevations and floodway elevations, but the floodways would still meet GDOT hydraulic design criteria. In accordance with FEMA guidelines, community coordination with FEMA would be required for this site to revise the effective base flood elevations, floodway widths and floodway elevations. This also would address the re-alignment of Hope Creek. If the community agrees with the proposed changes to the floodway, then a Conditional Letter of Map Revision (CLOMR) would have to be submitted to FEMA. The P3 Developer would be responsible for community coordination, the CLOMR and the subsequent Letter of Map Revision (LOMR).

Sope Creek

Sope Creek is a FEMA studied waterway with a regulatory floodway. This site is also within a designated floodway. A FEMA no-rise certificate would be obtained for this proposed crossing. Since this site is subject to NFIP regulations, community coordination would be required and would be the responsibility of the P3 Developer.

Elizabeth Branch

This site is located in a community that participates in the National Flood Insurance Program administered by FEMA so NFIP regulations apply. Elizabeth Branch has been studied by FEMA previously and at the proposed crossing is designated as a Zone AE flood area. This site is also within a designated floodway. Modeling was performed to provide a no-rise condition. A FEMA no-rise certificate would be obtained for this proposed crossing. Since this site is subject to NFIP regulations, community coordination would be required and would be the responsibility of the P3 Developer.

Noonday Creek Tributary #6

Noonday Creek tributary #6 is a FEMA studied waterway with a regulatory floodway. The crossing would not encroach vertically or horizontally on the current regulatory floodway elevation or width. Therefore, the proposed construction would be consistent with the regulatory floodway due to bridging and excluding fill from the floodway. In accordance with section NS 23 CFR 650A, coordination with FEMA would not be required.

Noonday Creek
Noonday Creek is a FEMA studied waterway with a regulatory floodway. The crossing would not encroach vertically or horizontally on the current regulatory floodway elevation or width. Therefore, the proposed construction would be consistent with the regulatory floodway due to bridging and excluding fill from the floodway. In accordance with section NS 23 CFR 650A, coordination with FEMA would not be required. However, since this site is located in a developing area of Cobb County, a FEMA no-rise certificate has been obtained and coordination with the community would be conducted. The P3 Developer would be responsible for community coordination.

I-575 Corridor

Noonday Creek South
Noonday Creek is a FEMA studied waterway with a regulatory floodway. The crossing would not encroach vertically or horizontally on the current regulatory floodway elevation or width. Therefore, the proposed construction would be consistent with the regulatory floodway due to bridging and excluding fill from the floodway. In accordance with section NS 23 CFR 650A, coordination with FEMA would not be required. However, since this site is located in a developing area of Cobb County, a FEMA no-rise certificate has been obtained and coordination with the community would be conducted. The P3 Developer would be responsible for community coordination

Noonday Creek North
Noonday Creek is a FEMA studied waterway with a regulatory floodway. The crossing would not encroach vertically or horizontally on the current regulatory floodway elevation or width. Therefore, the proposed construction would be consistent with the regulatory floodway due to bridging and excluding fill from the floodway. In accordance with section NS 23 CFR 650A, coordination with FEMA is not required. However, since this site is located in a developing area of Cherokee County, a FEMA no-rise certificate was obtained and community coordination would be conducted. The P3 Developer would be responsible for community coordination.

Little River
Little River is a FEMA studied waterway upstream of the proposed I-575 crossing. Since there is no established floodway at the site, no FEMA or community coordination is required.

The GDOT has coordinated this project with the responsible agencies that have jurisdiction over the floodplains. A Northwest Corridor agency briefing meeting was held on January 27, 2010 to provide agencies with an update on changes to the project and the status of the project. The FEMA was one of the governmental agencies invited to attend the meeting. In addition, a coordination letter advising FEMA of the revisions to the project was mailed to the agency on August 23, 2010. Copies of these letters are in Appendix D. FEMA coordination would continue as a CLOMR would be required for the Hope and Rottenwood Creek crossings and community letters of concurrence would be required for all of the above discussed crossings, except Noonday Creek tributary #6 and Little River.

The *Federal-Aid Highway Program Manual*, *Volume 6, Chapter 7, Section 3, Subsection 2 (FHPM 6-7-3-2)*, contains FHWA's policies and procedures for the location and hydraulic design of highway encroachments on floodplains.

The proposed project would not significantly impact floodplain areas because all measures would be taken to allow conveyance of the 100-year floods. Additionally, during the design stage, pursuant to Section 404 of the CWA, a permit from the USACE would be required and would be secured in advance of placement of fill material or commencement of construction activities on any bridge structures.

The proposed crossing of the floodplains in the project area is not considered a significant floodplain encroachment because:

- There is no potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route due to the construction of the Preferred Alternative.
- The water crossings would be designed to convey floodwaters so that there would be no significant risk due to the encroachments in the floodplains; and
- There would be no significant adverse impacts on the natural and beneficial floodplain values as described earlier in this section.

5.14.3.2 Only Practicable Alternative

Executive Order 11988 directs all federal agencies to refrain from conducting, supporting or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A.

Practicable alternatives were evaluated to avoid impacts to 100-year floodplains. Since the majority of the project would be constructed within existing right-of-way, a number of factors limit the avoidance of floodplain impacts. These include the location of the floodplains in relation to the existing highway, potential impacts to sites eligible or potentially eligible for inclusion in the NRHP, the potential displacement of additional residences, businesses or institutions and additional potential impacts on environmental justice populations. The Preferred Alternative was identified because it would result in reduced impacts to human, cultural and biological resources and natural and beneficial uses compared to the other alternatives considered. While the No-Build Alternative would eliminate impacts to floodplains, it would not meet the purpose and need for the project.

Due to the course of the streams/rivers and the existing Northwest Corridor Project alignment, there is no practicable alternative that would successfully accomplish the objectives of this project without encroachments onto these floodplains. The Preferred Alternative affects floodplains to the minimum extent possible.

5.14.3.3 Mitigation Measures for Impacts to Floodplains

To reduce the estimated impacts, modifications to the Preferred Alternative would be considered during final engineering, as appropriate. These revisions would include: using bridge structures over stream corridors rather than culverts, increasing the slope ratio (e.g., using 2:1 instead of 4:1) at the 100-year floodplain crossings, and placing retaining walls at the 100-year floodplain crossings. Prior to construction, such revisions would be incorporated into the project design.

5.14.4 Wetlands

5.14.4.1 Potential Effects

The majority of wetland impacts of the Preferred Alternative would occur in jurisdictional wetlands (i.e., wetland waters of the US). Study area wetlands include forested, forested/emergent, scrub-shrub/emergent, scrub/forested, herbaceous/scrub/shrub, and isolated wetlands. Appendix I, Environmental Constraints Map, shows the location of wetlands located along the project corridor. Isolated wetlands, however, have been determined by the USACE to be non-jurisdictional, and those impacts are calculated separately.

Table 5-22 summarizes impacts to jurisdictional wetlands for the Preferred Alternative. The No-Build Alternative would have no effects on wetlands. The Preferred Alternative, however, would result in an estimated 0.1 acre of temporary impacts and 0.2 acre of permanent impacts.

Table 5-22. Potential Wetland Impacts by Watershed (acres)

Watershed Basin	No-Build Alternative	Preferred Alternative Temporary Impacts (acres)	Preferred Alternative Permanent Impacts (acres)
Chattahoochee Basin			
Wetland Impacts	0	0	0.2
Open Water Impacts	0	0	0
Ephemeral Stream Impacts	0	0	0
Subtotal	0	0	0.2
Etowah Basin			
Wetland Impacts	0	0.1	0
Open Water Impacts	0	0	0
Ephemeral Stream Impacts	0	0.	0
Subtotal	0	0.1	0
TOTAL	**0**	**0.1**	**0.2**

Sources: Parsons Brinckerhoff, 2010d and 2011a.

5.14.4.2 Evaluation of Practicable Alternatives

The project corridor has been surveyed for waters of the US as required by the provisions of Executive Order 11990, and subsequent federal regulations. Refer to Section 5.14.1.1 for a discussion on the evaluation of practicable alternatives considered.

5.14.4.3 Mitigation Measures for Impacts to Wetlands

Wetland waters of the US are also regulated by the USACE and the placement of fill material in wetland waters of the US also requires a permit from the USACE under Section 404 of the CWA [33 USC 1344]. In addition, the USACE uses the Section 404(b)(1) guidelines to evaluate the impacts to wetland waters of the US and issue or deny a permit based on this evaluation.

Construction of the proposed project would be expected to produce some temporary sediment loading to the wetlands. Environmental harm would be minimized by using standard sedimentation, erosion, and hydrologic control measures listed Section 5.14.1.2 above.

Due to the amount of unavoidable impacts to wetland waters of the US, a USACE Section 404 Individual Permit would be required for the proposed project.

Mitigation would also be required for the 0.3 acre of jurisdictional wetland/open water impacts based on the April 2004 USACE SOP for compensatory mitigation. The GDOT would withdraw a total of 1.93 wetland/open water credits from a USACE-approved commercial mitigation bank or from a GDOT-owned bank that serves HUC 03130001 and HUC 03150104.

5.15 Geology and Soils

This section discusses potential effects of the No-Build and Preferred Alternatives on geologic resources and measures to mitigate potential adverse effects. Geologic resources include geology, soils, and seismic risk. Section 3.13 describes the study area existing conditions for these topics. Under the No-Build Alternative, there would be no effects to geologic resources; however, there would be effects resulting from the Preferred Alternative associated with the excavation and construction required for constructing the managed lanes.

5.15.1 Geology

The near surface bedrock layer that underlies the project corridor is a deep weathered granite that extends several hundred feet below the surface. Pier and pile construction for the support of bridges would first be examined through geotechnical investigations and subsurface studies at specific locations. The effects of the Preferred Alternative on the geology or topography within the project corridor are expected to be minimal.

5.15.2 Soils

No long-term effects on the soils of the project corridor are expected from the Preferred Alternative. It is not anticipated that problem soils with a high potential for subsidence or instability would be encountered during construction of the Preferred Alternative. The Preferred Alternative would be constructed using BMPs to minimize any potential for soil erosion.

There are no designated prime or unique farmlands located within the study area. As such, there is no concern for potential effects on these lands protected by the Farmland Protection Policy Act.

5.15.3 Faults

The Brevard Fault zone runs southwest to northeast across Alabama, Georgia, and North Carolina; however, it is not considered an active fault (GEMA, 1999). As such, earthquakes are not expected in the study area. Neither the No-Build Alternative nor the Preferred Alternative would be affected by earthquakes.

5.15.4 Mitigation Measures

Soil erosion and sedimentation in and around the study area for the Preferred Alternative would be minimized through the implementation of standard soil erosion and hydrological control measures. The P3 Developer would implement the following measures:

- Preservation of vegetation beyond the limits of construction where possible;
- Early re-vegetation of disturbed areas to hold soil movement to a minimum;

- Inclusion of construction features for the control of predicted erosion and water pollution in the plans, specifications, and contract pay items [Georgia Standard Specifications - 1993, Section 161 through Section 171 and Section 700 through Section 715 identify the pollution control measures that can be used]; and
- Fill material would be obtained from a borrow area that is free of contaminants and pollutants.

5.16 Hazardous Materials

This section describes the potential for discovering hazardous or contaminated materials during construction of the alternatives and recommends mitigation measures to reduce this risk. Additional information regarding the analysis of hazardous materials is presented in the *Contamination Screening Evaluation Report* (Parsons Brinckerhoff, 2010k) prepared in support of this FEIS.

5.16.1 Analysis

The methodology used to assess potential risks from hazardous materials contamination is based on preliminary information and is intended to reduce, but not eliminate, uncertainty regarding property environmental conditions. A Level 1 Contamination Screening of the project corridor was prepared pursuant to the FHWA's Technical Advisory T 6640.8A, dated October 30, 1987.

A hazardous materials rating system was developed to evaluate the risks of identified potentially contaminated sites. The ratings system is based on proximity to right-of-way to be acquired and anticipated project construction and the contamination concerns identified in the literature and field investigations (see Section 3.14). The contaminated site ratings are No, Low, Medium, and High. They are defined as follows:

- No – After a review of available information, there is no evidence that the site would be contaminated. It is possible that contaminants could have been handled on the site, but contamination should not be expected.
- Low – A former or current activity on the site has a hazardous waste generator ID number, however, based on best available information, there is no reason to believe the site is contaminated.
- Medium – After a review of best available information, the site is known or likely to have soil and/or water contamination; and the property does not need remediation, is being remediated (e.g., air stripping of the groundwater, etc.), or monitoring continues to be required.
- High – After a review of best available information, the property is identified as having potential contamination onsite.

Further assessment would be required prior to right-of-way acquisition to determine the actual presence and/or levels of contamination and the need for remedial action.

5.16.2 Hazardous Materials Sites

Based on the above described approach, the project study team identified a total of 156 potentially contaminated sites in the study area. A total of 122 sites are located along I-75 and 34 sites are located along I-575. Site ratings for potential contamination are as follows:

- No or Low rated sites - 145 sites
- Medium rated sites - 11 sites
- High rated sites - 0 sites.

All of the Medium-rated sites are located along I-75. Most of the sites posing potential risks are located in close proximity of existing highway interchanges, typically fronting on either side of the cross street immediately adjacent to the on- and off-ramp intersections (see Figure 5-19). Few are located along the edge of the highway right-of-way. A majority of the properties either are current or former sites of gasoline stations or automotive, distribution, or trucking service businesses. Other sites include a manufacturing/processing plant, a used car dealership, a warehouse, a restaurant, and a poultry processing plant.

The purchase of additional right-of-way would not involve all of the properties identified as potentially contaminated. Of the 11 Medium-rated sites along I-75, right-of-way would be purchased from only four properties and construction easements would be obtained from an additional four properties with potential contamination. No additional right-of-way or easement purchases would be required of the remaining three Medium-rated sites.

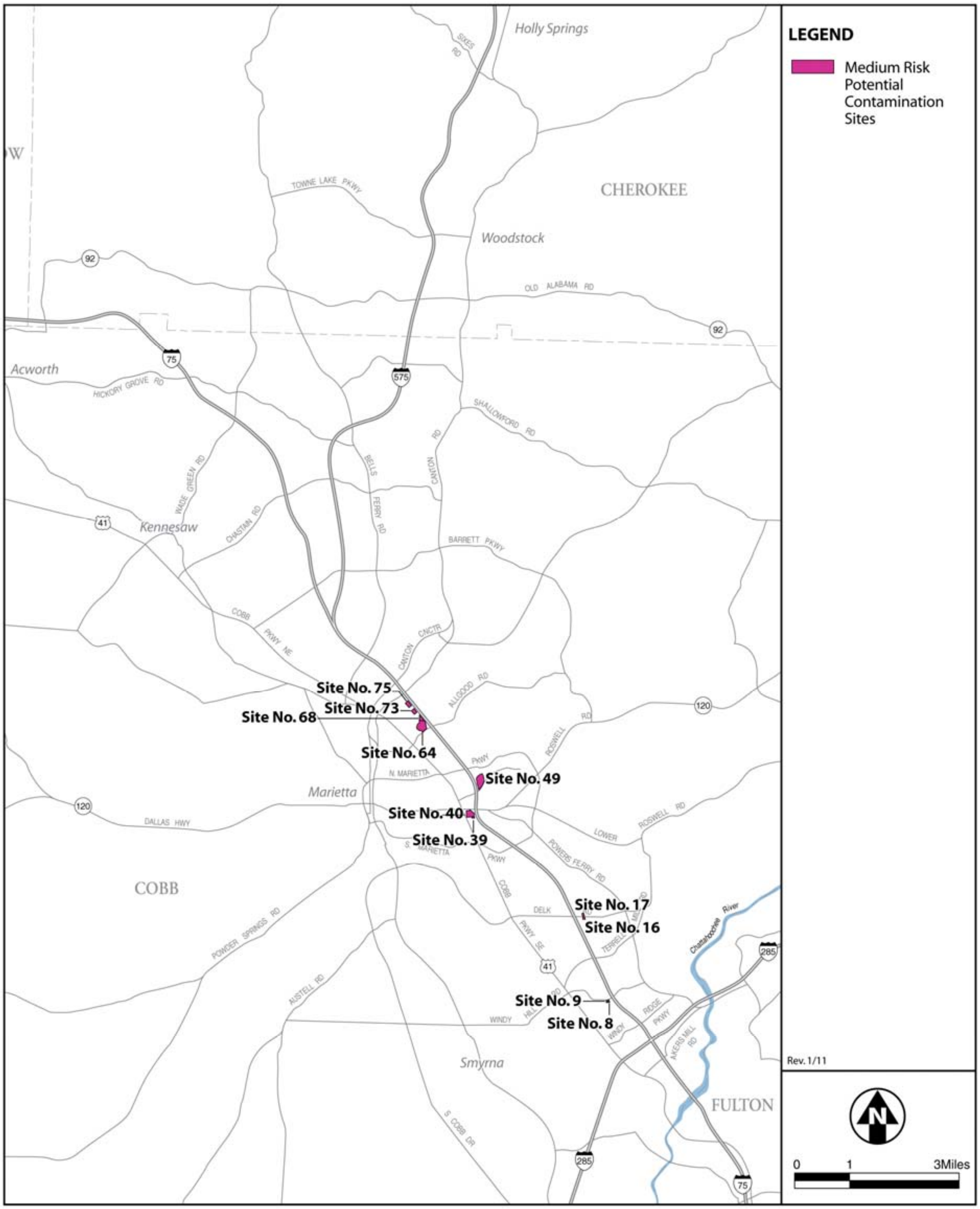
However, contaminated materials also can migrate from one property to another. Contamination may be in liquid form or it may be dissolved in groundwater, and can flow on the surface of the ground or below ground level to other properties down-gradient from where the original contamination occurred. In addition, contaminated materials can migrate to adjacent properties along buried utilities. For these reasons, properties adjacent to properties suspected of being contaminated or properties generally located in urbanized areas often can be contaminated though there is no public information that might indicate a risk to contamination. These risks would be further investigated prior to right-of-way acquisition.

5.16.3 Mitigation Measures

Mitigation measures can reduce the risk of purchasing contaminated properties that could require long-term remedial action, let alone affect construction costs and activities. A Level 2 contamination assessment would be conducted at all sites where right-of-way is required. The P3 Developer would perform the Level 2 contamination assessment within six months of the acquisition of any parcel contemplated for the project, where a Level 1 investigation has indicated a potential for contamination. If the property is privately owned and access is not available, such investigations as geotechnical borings would be performed on adjacent publicly owned property, such as an adjacent roadway, to obtain information that could indicate the potential extent and type of contamination.

The Level 2 contamination assessments would include field screening with an organic vapor analyzer and the collection of soil and groundwater samples for laboratory analysis, where applicable. If the assessment indicates no evidence of soil or groundwater contamination, the rating of the site could be revised downward. Typically, the rating of a field-tested site with no evidence of contamination is revised to Low. Because of the nature of the businesses conducted or formerly conducted (e.g., petroleum storage), some sites can remain rated as Medium even if field-testing does not confirm the presence of contamination.

If substantial time has elapsed since the original contamination screening or Level 1 contamination assessment has occurred, public records would again be reviewed prior to conducting the Level 2 contamination assessment to identify any potential changes in contamination concerns and/or remedial action ongoing.



Source: Parsons Brinckerhoff, 2010k.

As the databases used in these investigations are frequently updated and are generally considered “stale” after six months, a limited due diligence transaction screening investigation (American Society for Testing and Materials [ASTM] E1528) would be conducted for all properties immediately prior to purchase. The investigations to assess potential risk of contamination would be used to help determine fair market value of the property, including potential construction and/or long-term cleanup costs.

Hazardous waste materials associated with normal operations of the proposed project would primarily be associated with runoff of contaminants entrained in storm water. Contaminants likely to be in storm water runoff include fuel, lubricants, heavy metals, compounds from tires, and automobile engine coolants, such as ethylene glycol. The P3 Developer would design storm water and water quality treatment facilities to collect and retain pollutants resulting from traffic operations. Additional mitigation measures for hazardous materials during construction are described in the next section.

5.17 Construction Impacts

Construction of the proposed project would inconvenience and/or disturb residents, businesses, and business customers adjacent to construction areas and would temporarily affect the natural environment. In contrast to the long-term direct effects described in earlier sections of this chapter, construction impacts would be short-term and would occur only during the construction period. This section describes anticipated construction impacts that would occur under the Preferred Alternative. The No-Build Alternative is not discussed because no construction activities would occur associated with the alternative. Where negative impacts are identified for the Preferred Alternative, potential mitigation measures to avoid, reduce, or minimize the impact also are discussed. Parklands, historic resources, and other ESA would be noted on the construction plans for the projects.

5.17.1 Anticipated Construction Activities

Implementation of the Preferred Alternative would require construction of new roadway facilities within the Northwest Corridor. Construction would be completed by the P3 Developer, who would be responsible for designing, building, operating, maintaining and financing the project. The P3 Developer would seek to construct the entire project on an accelerated schedule through an integrated design-build process, rather than the traditional design-bid-build approach. Construction is expected to take about four years.

GDOT and the P3 Developer are responsible to carry out final design and construction implementing all commitments for mitigation. All construction would be performed in accordance with plans and specifications prepared by the P3 Developer. The P3 Developer also would prepare engineering documents (plans and specifications) to guide the construction work. These documents would be in accordance with GDOT standards and specifications. The specifics of how the project is constructed, commonly called the “means and methods,” would be left to the discretion of the P3 Developer; but must be within the framework of the project design specified in the construction contract documents and as evaluated in this FEIS. Those documents, and more specifically the special conditions portion of the contract specifications, would identify any restrictions on the means and methods necessary to assure compliance with the mitigation requirements of this FEIS. However, it should be noted that variations and innovative approaches may be used by the P3 Developer to achieve schedule and/or budget goals.

The vast majority of the construction work would be performed outside of the existing travel lanes, but largely within the existing right-of-way. Where construction activities would affect the general-purpose lanes, in particular near the I-75/I-285 interchange and near the I-75/I-575 interchange, the existing number of lanes would be maintained by widening I-75 and I-285 to the outside and shifting traffic in order to construct the ramps in the median. However, some lane closures are expected to be required during the construction of the project. Construction of the managed lane bridges over cross streets and highway ramps would result in closure of lanes during off-peak periods. During final design the full extent and durations of closures would be identified and minimized.

5.17.2 Acquisitions and Easements

The final project engineering design proposed by the P3 Developer, including required property acquisitions, would be approved by GDOT. Once approved, every attempt would be made to acquire all required right-of-way prior to the start of construction. Again, required right-of-way is limited to the portion of the Northwest Corridor south of the I-75/I-575 interchange. Such purchases would occur in compliance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended [42 USC 4601 et seq. and 49 CFR Part 24] and the Georgia Relocation Assistance and Land Acquisition Policy Act [Title 22 OCGA Chapter 4]. The purchase of needed property for right-of-way, as well as any easements needed for the operation of the transportation improvements, would be permanent long-term direct effects of the project (see Section 5.3).

5.17.3 Land Use

The only temporary change in land use likely to occur during the construction period would be associated with the construction area, material laydown areas, equipment storage areas, stockpiling of excavated material or debris, and/or construction worker parking areas. Usually, these work areas are located along the project corridor and within the existing or acquired public right-of-way to the greatest extent possible. At this time, the specific locations of required temporary construction staging areas have not yet been determined.

In addition, parcels that were acquired for needed right-of-way for the proposed transportation project may not be fully needed for long-term use by the GDOT. If so, GDOT would conform to Title 23 710.403(3) management for the regulations and laws pertaining to property disposals.

5.17.4 Population and Employment

Potential temporary changes in population and employment related to construction would be associated with workers hired for project construction. The estimated average annual number of workers needed to construct the proposed project has been calculated as part of the economic impact analysis in Section 5.17.5 below. The P3 Developer would be required to make good faith efforts to meet a project specific goal that has not been determined. The P3 Developer is obligated to comply with applicable federal and State laws/regulations related to Disadvantaged Business Enterprises (DBEs).

Because of the small number of workers that would be needed to construct the proposed project, in comparison to available labor force, the regional construction labor force would be expected to provide workers needed to construction the proposed project. It is not expected that large numbers of workers would move to the region in order to be hired specifically for construction of the proposed project. Some workers, however, may move to the Atlanta region as part of normal labor force migration. As a consequence, it is not expected that there would be an increased demand on local housing, public services, or schools.

A small number of workers with special skills may be needed during construction that exceeds those available in the regional work force. For example, these workers could include special welders. If the regional availability of these special skilled workers is not sufficient, then these workers would come from outside of the Atlanta region. As specialized workers, they usually would not be needed for long periods of time, and as such, they would likely reside on a temporary basis in local motels or apartments. Families would not be expected to accompany these workers. As a result, the influx of workers would not cause an increased demand on area housing or public services.

5.17.5 Economic Impacts

The construction of the Preferred Alternative would affect the local and regional economy. These effects would be felt to varying degrees throughout the region in terms of increased economic output, employment, and earnings. The design and construction of the proposed project within the I-75/I-575 corridor would result in substantial construction expenditures considering the estimated capital cost is $968.3 million (see Section 2.6). This is a year-of-expenditure cost estimate for the accumulated costs across the estimated 45 months of construction. The expenditures include completing the final engineering plans, hiring local contractors to perform the construction labor, and purchasing of materials and equipment.

Total employment and income impacts are associated with three types of employment. Direct employment includes on-site construction employment. Indirect employment includes off-site employment, manufacture, preparation of supplies and equipment. This measures the subsequent intra- and inter-industry purchases of inputs resulting from the initial change in output of directly affected industry. The third category is induced employment, which includes employment generated to fulfill demands for goods and services to newly employed households; and it covers changes in household spending that result from changes in earnings through direct and indirect employment effects.

In April 2010, the Fiscal Research Center at the Georgia State University published an analysis of potential economic impacts from project construction (Mathews et al., 2010). This analysis, however, was based on a preliminary capital cost estimate of $922.8 million – not the current slightly larger estimate. The results of the analysis of construction employment spending effects are summarized in Table 5-23. Over the entire construction period extending through 2014, the proposed improvements would conservatively generate almost 10,000 person years of direct, indirect, and induced employment and nearly $528.7 million in wages. Most of this employment and the associated wages would be within the construction sector and within the region. Total number of direct jobs is estimated to be about 5,000 person years. Considering the ARC forecasts over 143,000 construction jobs at the start of project construction, it is fully anticipated that the regional construction work force would be able to supply the needed labor. The proposed project would not attract construction workers to move to the region for employment.

5.17.6 Neighborhoods and Community Facilities

The biggest potential impact on neighborhoods that would occur during construction would be the effects on residents living within two to three blocks of the project construction area and nearby construction material laydown and equipment storage areas. These residents would experience increased levels of noise, light and glare, and dust – especially for those with

Table 5-23. Estimated Direct, Indirect, and Induced Economic Impacts

Alternative	Estimated Direct Employment (person years)	Indirect and Induced Employment (person years)	Total Employment (person years)	Total Wage Earnings (millions)
No-Build Alternative	0	0	0	$0
Preferred Alternative	5,225	4,480	9,705	$528.7

Source: Mathews et al., 2010.

windows with a direct line-of-sight to construction activities. During daytime hours, people generally have a higher tolerance of increased noise levels. Noise associated with nighttime construction activities is not anticipated except on rare occasions. For example, setting the bridge beam installation would occur at night to minimize impacts to traffic. A more detailed discussion of construction noise effects is in Section 5.17.13. Light and glare along the project corridor and at material laydown and equipment storage areas, however, would continue through the nighttime hours for security reasons. The mitigation measures of using directional lighting and shielding should substantially reduce these effects.

Like others in the neighborhood, residents adjacent to the project corridor would have minor changes in access within the neighborhood due to temporary short-term detours during the construction period. Drivers may try to avoid construction-related traffic on or near the corridor by driving through residential neighborhoods. Mitigation measures would include good signage of detour routes and prohibition of through-traffic in neighborhoods to minimize these effects. The duration of these effects would be different along the project corridor, depending on project construction approach and phasing. But, for many residents, the duration would be many months, and/or could occur repeatedly during the estimated four years of construction.

The primary effect on community facilities would be potential changes in access getting to and from community facilities, for both employees and patrons. Some community facilities, such as religious institutions, schools, and hospitals would be more sensitive to potential increases in noise levels, and these effects are discussed in more detail in Section 5.17.13. No other construction effects would occur to community facilities.

5.17.7 Environmental Justice

Construction would occur along the Northwest Corridor and could affect several adjacent minority and low-income communities. Construction associated with the managed lanes would occur along the entire length of the project corridor from Akers Mill Road north to Acworth on I-75; and between the I-75/I-575 interchange north to the Sixes Road interchange on I-575. North of the I-75/I-575 interchange, however, all construction activities would be concentrated in the existing highway median. For construction activities concentrated in a particular area or communities, the adverse effects of construction (e.g., noise, dust, light and glare, traffic detours, nighttime construction) would be mitigated to address potential disproportionate affects on the minority and low-income populations residing within these construction areas. Mitigation measures for construction noise are addressed in Section 5.17.13.2. Mitigation measures for construction dust are discussed in Section 5.17.12. Other mitigation for construction areas include:

- The P3 Developer would be required to develop a communication plan for project construction that includes special measures to effectively communicate with minority, low-income, and limited English proficient populations living and working in the Northwest Corridor.
- Public communication during construction would include public media specific to study area minority, low-income, and other environmental justice populations. In particular, written communication would be translated into Spanish and Portuguese.

5.17.8 Safety and Security

The general effect of construction activities on public safety agencies – fire, police, and emergency response services – would be related to changes in access on the highway. Coordination and planning in advance of construction activities as well as ongoing coordination during the construction period would minimize these effects.

Prior to construction, GDOT, the P3 Developer, and agencies that provide emergency response would prepare an emergency response plan that addresses coordination with construction activities and emergency responders. In addition, security fencing, lighting, and guards may be used by the P3 Developer to deter potential theft of construction materials in the project corridor as well as from materials laydown and equipment storage areas.

5.17.9 Visual

Changes in visual quality would occur during construction of the Preferred Alternative. Construction demolition activities would create dust and a temporary influx of vehicles, debris piles, dumpsters, fencing, signage, and other construction vehicles and equipment. Increased light and glare would occur along the project corridor and at construction laydown and equipment storage areas. This light and glare generally would be limited to early morning and early evening periods, except at materials laydown and equipment storage areas, unless nighttime construction is necessary. Stockpiled construction material and machinery would require security fencing. Construction signing, new traffic patterns, lines of vehicles waiting for flaggers, and detour signs throughout the area would be visible to viewers.

The length of project construction would make storing and replanting existing trees, shrubbery and other vegetation until completion of construction infeasible. Instead, new landscaping features would be provided near the end of construction. Some streetscape elements could be removed, rehabilitated, if required, and restored to their original or nearby locations.

5.17.10 Parklands

Potential construction effects on parklands are limited to the Bob Callan Trail and Olde Rope Mill Park. The Preferred Alternative would cross over the Bob Callan Trail via two bridges. During the construction of these bridges, this section of the Bob Callan Trail would be temporarily closed in order to protect the safety of the trail users. The temporary trail closures would occur at night, after the normal operating hours of the trail. There would be no permanent adverse impacts to the trail.

The construction impacts to Olde Mill Park are expected to be minimal because the park is approximately 600 feet away from the proposed alignment of the managed lane in the highway median. As such, the alignment of existing lanes would not change. Proposed construction activities would be contained within the existing public right-of-way. No equipment and materials laydown and staging areas would be located near the park. The P3 Developer would not be allowed to use parkland for temporary use during the construction period.

Visitors to the park may experience increased levels of noise, light and glare, and dust associated with the construction activities. Light, glare, and dust effects would be lessened because of the distance between the highway median area, where construction would occur, and the adjacent parkland. In addition, the mature trees growing along the boundaries of the highway and in the park would block light and glare. They also would filter dust particulates out of the air, except during winter months when fewer people would be expected to use the facilities.

5.17.11 Historic and Archaeological Resources

Based on research conducted on the study area and consultation with state agencies, there are no NRHP-eligible resource located in close proximity to the corridor that could be affected by construction activities. The SHPO concurred that there are no archaeological sites listed in or eligible for the NRHP within the APE. As such, there would be no construction effects on either historic or archaeological resources.

5.17.12 Air Quality

Fugitive Dust and Mobile Source Emissions

Short-term increased fugitive dust and mobile source emissions from construction sites and mobile source emissions from trucks and construction equipment are construction-related impacts that would result during construction of the Preferred Alternative. These effects would occur wherever construction activities would occur and at the sites used for construction material laydown and equipment storage.

Fugitive dust is airborne particulate matter, generally of a relatively large particulate size. Construction-related fugitive dust would be generated by haul trucks, concrete trucks, delivery trucks, and other earth moving vehicles operating around the construction sites. This would be due primarily to particulate matter re-suspended (“kicked up”) by vehicle movement over paved and unpaved roads, dirt tracked onto paved surfaces from unpaved areas at access points, and material blown from uncovered haul trucks.

In order to minimize the amount of construction dust generated, the following preventive standard BMP measures would be used to minimize potential particulate emissions:

- Minimize land disturbance;
- Use watering trucks to minimize dust, especially during demolition activities;
- Cover trucks when hauling dirt;
- Stabilize the surface of dirt piles, if not removed immediately; and
- Limit vehicular paths and stabilize these temporary roads.

Since emissions of CO from motor vehicles increase with decreasing vehicle speed, traffic congestion during construction, such as the temporary reduction of roadway capacity and the increased queue lengths, could result in short-term elevated concentrations of CO.

Greenhouse Gases

According to the working draft of the report, *Quantifying Greenhouse Gas Emissions from Key Industrial Sectors in the US* (USEPA, 2008), the construction sector produced six percent of total US industrial GHG emissions in 2002. The major sources of emissions in the construction sector relate to fossil fuel combustion, primarily from construction equipment, and purchased electricity. In order to minimize GHGs during construction, the following BMP measures would be implemented to the extent practicable:

- Reduce equipment idling time;
- Reduce fuel usage through increased fuel efficiency;
- Use alternative fuel vehicles;
- Properly maintain equipment;
- Provide driver training to improve operating efficiency;
- Use properly sized equipment;
- Replace older, less fuel-efficient equipment with newer, more efficient equipment; and
- Reuse/recycle waste construction materials.

Diesel Exhaust

The National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential carcinogen. In order to minimize worker exposure to diesel exhaust during construction, the following BMP measures would be implemented:

- Position exhaust pipes so that diesel fumes are directed away from the operator and nearby workers; and
- Require diesel equipment operators to perform routine inspection and maintenance of filtration devices.

The following measures would be implemented to the extent practicable:

- Use low-sulphur diesel fuel;
- Retrofit engines with exhaust filtration devices to capture diesel particulate matter (DPM) before it enters the workplace; and
- Ensure that new equipment purchased is equipped with the most advanced emission control systems available.

5.17.13 Noise

Construction activities associated with the Preferred Alternative would have short-term noise impacts on receptors in the immediate vicinity of construction activities. Impacts on adjacent communities during construction would include noise from the operation of construction equipment, noise from construction activities and delivery vehicles traveling to and from the site. The level of impact would depend on the noise characteristics of the equipment being used, activities involved, the construction schedule, and the distance of equipment from sensitive receptors.

Typical noise levels of construction equipment expected to be used during construction are presented in Table 5-24. At a typical noise receptor, the noise levels would be highest during the early phases of construction, when excavation and heavy daily truck traffic would occur. Average noise levels for typical construction equipment, measured at 50 feet from the construction site, range from 81 dBA for generators and pumps to 89 dBA for asphalt spreaders to 101 dBA for pile drivers. The total hourly energy average dBA noise level, equivalent sound level L_{eq} (1 hour), at a distance of 50 feet from the construction activity would be approximately 85 dBA.

Table 5-24. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA)[1]	Equipment	Typical Noise Level (dBA)[1]
Air Compressor	81	Pile Driver (Impact)	101
Backhoe	80	Sonic	96
Ballast Equalizer	82	Pneumatic Tool	85
Ballast Tamper	83	Pump	76
Compactor	82	Rail Saw	90
Concrete Mixer	85	Rock Drill	98
Concrete Pump	82	Roller	74
Concrete Vibrator	76	Saw	76
Crane, Derrick	88	Scarifier	83
Crane, Mobile	83	Scraper	89
Dozer	85	Shovel	82
Generator	81	Spike Driver	77
Grader	85	Tie Cutter	84
Impact Wrench	85	Tie Handler	80
Jack Hammer	88	Tie Inserter	85
Loader	85	Truck	88
Paver	89		

Note:
1. Measurements taken 50 feet from the source.
Sources: FTA, 2006; Parsons Brinckerhoff, 2011h.

Noise levels at receptors located at known distances from the construction site boundary can be estimated by assuming a 6 dBA reduction for every doubling of distance from the construction site activities.

5.17.13.1 Analysis of Construction Noise Impacts

Construction noise would be similar to the noise generated by typical construction projects in urban and suburban areas. Preliminary analysis of construction noise assumes an hourly L_{eq} noise level of 85 dBA at a distance of 50 feet from the construction site boundary. This noise level has been found to be consistent with noise levels from roadway construction activities where maximum noise level from individual construction equipment is limited to 86 dBA.

The results of preliminary construction noise analysis are presented in the detailed tables found in the *Noise Technical Report* (Parsons Brinckerhoff, 2011h). The tables show where the anticipated construction noise levels are estimated at each noise monitoring site. The results of the analysis show that except for eight sites (M3, M7, M9, M11, M13, M14, M15, and M27), all of the other monitoring sites show construction noise increases of more than 5 dBA over the existing noise levels.

In general, construction-related noise would occur during weekday daytime hours. Depending on the type of construction activity, however, some construction activities could occur during weekend or nighttime periods. For example, this could occur if construction activities require complete closure of traffic lanes on roadways that are extremely congested during weekdays. Nighttime construction activities could result in adverse noise impacts, especially to sensitive receptors such as adjacent residences as people would be sleeping during nighttime periods.

Local governments in Cobb and Cherokee Counties have noise ordinances. In general, these ordinances prohibit construction noise between 10:00 p.m. or 11:00 p.m. until 7:00 a.m. Monday through Saturday and all day on Sunday. The City of Woodstock has the most restrictive noise ordinance and it limits construction-related noise adjacent to residential areas noise to 55 dBA between 10:00 p.m. and 7:00 a.m. and to 60 dBA between 7:00 a.m. and 10:00 p.m. Variances to these noise ordinances or a special permit or approval would be required if construction were to occur during nighttime hours and/or on Sunday. Approval of such variances or permits would require preparation of a construction noise abatement plan to address anticipated construction noise levels.

5.17.13.2 Construction Noise Abatement

To the extent possible, construction noise impacts would be minimized. The following noise abatement measures would be incorporated into the construction plans and specifications in order to minimize or prevent adverse construction noise impacts at sensitive receptors in the study area:

- The P3 Developer would comply with all state and local sound control and noise level rules, regulations, and ordinances that would apply to any work performed pursuant to the contract.
- The P3 Developer would develop a detailed construction noise mitigation plan, which would list all proposed construction equipment and types of construction activities as well as methods proposed to avoid, reduce, or minimize noise impacts, particularly during nighttime hours in proximity to residential areas in order to comply with state and local government noise regulations.
- Internal combustion engines would be equipped with a muffler of a type recommended by the manufacturer and shall not be operated without the muffler.
- Project-specific construction noise abatement measures to minimize, to the greatest extent possible, noise impacts outside the construction zone would include:
  - Keeping the public informed when work is going to be done.
  - Limiting the number and duration of onsite idling equipment.
  - Maintaining all construction equipment in good repair.
  - Reducing noise from all stationary equipment and facilities by using suitable enclosures.
  - Scheduling truck loading, unloading, and handling operations to minimize construction site noise.

5.17.14 Ecosystem

One federally threatened species, the Cherokee darter, was found in Stream 29 within the study area. In addition, potentially suitable habitat for one federally-listed species (Cherokee darter) and one state-listed species (Chattahoochee crayfish) is present with the study area. Potentially suitable habitat was present for the state-listed lined chub in the Little River just outside of the project limits. Specific protective measures, including BMPs, for the federally listed Cherokee darter, the State-listed Chattahoochee crayfish, and lined chub would be included in the P3 Developer Agreement to minimize the potential effects on terrestrial and aquatic habitat.

5.17.15 Water Resources

The Georgia Erosion and Sedimentation Act of 1975, as amended, requires a 25-foot vegetative buffer for warm water non-trout streams and a 50-foot vegetative buffer for cold water trout streams. However, buffer encroachments that would occur in conjunction with a bridge or culvert may be exempt from the need for a buffer variance. As of July 2007, the roadway drainage feature exemption includes/exempts all buffer encroachments within the 50-foot from edge of culvert, or 100-foot from edge of bridge footprint. This exemption also extends to the project right-of-way, though all encroachments must be necessary for construction to be considered exempt. The July 2007 interpretation includes all tributaries or unassociated state waters, including the water being crossed.

Based on the July 2007 exemption criteria, most of the streams crossed by the Preferred Alternative are exempt and would not require a buffer variance. However, longitudinal buffer encroachments at five stream locations would not be exempt and would require a 25-foot buffer variance as per 391-3-7-05 Buffer Variance Procedures and Criteria. A summary of the five streams that would require a 25-foot buffer variance is provided in Table 5-25.

Table 5-25. Summary of Streams Requiring a 25-foot Buffer Variance

Resource Name	HUC (8-digit) / Lat./Long.	Classification	Amount of Buffer Impacted Linear Feet (acres)
Stream 8 (Unnamed Rottenwood Creek Tributary)	03130001 33°56′ 5.88″N 84°29′ 44.42″W	Perennial/Warm water	2,150 (0.64)
Stream 36 (Unnamed Noonday Creek Tributary)	03150104 34°3′ 11.10″N 84°33′ 24.23″W	Intermittent/Warm water	325 (0.30)
Stream 36-A Unnamed Noonday Creek Tributary	03150104 34°3′8.995″N, 84°33′30.935″W	Intermittent/Warm water	104 (0.06)
Stream 54 (Unnamed Noonday Creek Tributary)	03150104 34°5′ 58.67″N 84°31′ 47.49″W	Intermittent/Warm water	650 (0.74)
Stream 55 (Unnamed Noonday Creek Tributary)	03150104 34°6′ 2.27″N 84°31′ 51.61″W	Perennial/Warm water	420 (0.48)

Source: Parsons Brinckerhoff, 2011a.

Depending on the type of construction activity and/or structure at the buffer encroachment locations, some of the buffer impacts may be temporary or permanent. In any event, the buffer impacts would be mitigated in accordance with the Georgia Erosion and Sedimentation Act of 1975.

The Preferred Alternative would result in approximately 153 acres of new or increased impervious area that would require new storm water facilities. The new storm water facilities would consist of curbs, drainages, and catch basins to collect and convey the storm runoff. If possible, the conveyance systems would use existing storm water collection pipes.

In-water construction activity at Streams 5 and 22 (refer to Table 5-9) related to the Preferred Alternative and demolition work would temporarily increase turbidity and the suspension of sediment, some of it contaminated, into area streams. Activities that could result in water quality degradation include the removal of existing bridges or culverts, construction of new bridge foundations and supports, and construction of new culverts. Suspension of sediments in the water would be minimized through the use of cofferdams, caissons, or temporary casings. Cofferdams would be used to isolate the work area from the river or creek flow, thereby reducing the potential for sediment entrainment, or transport, in river or creek water. The suspension of sediments into the flow of the streams would be an impact associated with the Preferred Alternative. However, the use of BMPs during construction would minimize the suspension of sediments, thereby minimizing impacts. Spill control measures would be used to minimize the release of petroleum, paint, concrete, and other potentially toxic materials during the construction over and near streams. To minimize the effects associated with storm water runoff during construction on land, temporary erosion and sedimentation control measures would be used.

5.17.16 Geology and Soils

Construction of the Preferred Alternative would require land clearing, grubbing, removal of topsoil, and other site preparation work. Since the improvements under the Preferred Alternative would mostly occur within the existing right-of-way, construction would create minimal impacts. The debris resulting from clearing and stripping would be removed from the study area or stockpiled for later use in landscaped areas, as appropriate. The prepared ground surface would have high erosion potential, if exposed during the rainy season or in the presence of surface water. Surface water flow across exposed soils would remove sediment and deposit it in down-gradient areas. The amount of erosion and sedimentation would depend on the amount of soil exposed and/or disturbed, weather conditions, and/or groundwater conditions, and the erosion control measures implemented. Eroding surface soils and run-off could flow into storm water drains, into existing culverts, and/or onto adjacent properties or streets. Potential drainage onto unstable slopes could cause slope instability. These effects could be mitigated through proper design and construction practices.

Fill embankments constructed for the Preferred Alternative could cause settlement. Potential settlement could affect underlying and adjacent utilities or structures as well as walls or structures constructed on the fill embankment.

Deep foundations could be required to support new bridge structures. Drilled shafts or driven piles are proposed to support the bridge structures. Caving or sloughing of soil within the open-hole excavations could affect adjacent structures and/or buried utilities.

Mitigation measures would include the following:

- Preservation of vegetation beyond the limits of construction where possible;
- Early re-vegetation of disturbed areas to hold soil movement to a minimum;
- The use of temporary down drains, over-side drains, detention/retention structures, and surface, subsurface and cross drains, designed as needed so that discharge would occur in locations and in such a manner that surface and subsurface water quality would be unaffected (the outlets may require aprons, bank protection, silt basins and energy dissipaters);
- Prohibition from the dumping of chemicals, fuels, lubricants, bitumen, raw sewage, or other harmful waste into or alongside of streams or impoundments, or into natural or manmade channels leading thereto;
- No construction activity or stockpiling would occur in wetland areas outside of the project right-of-way. Within the proposed and existing right-of-way, fill and construction activities within streams and wetlands would be limited by applicable permits; and
- The fill material would be obtained from a borrow area that is free of contaminants and pollutants.

5.17.17 Hazardous Materials

Construction of the Preferred Alternative may require removal of potentially hazardous materials from the right-of-way. These could include underground petroleum storage tanks (active, inactive, leaking), contaminated soils and groundwater, other containers holding petroleum products or hazardous materials (e.g., 55-gallon drums), automotive or train parts, and other potentially hazardous materials. Existing monitoring wells within the excavation area also should be identified on the property as they may need to be removed or relocated.

Building material demolition debris could contain regulated substances. Prior to construction, an investigation for asbestos containing materials and lead-based paint should be conducted for any structures that would be demolished as part of planned construction activities.

Construction excavation activities or the management of contaminated materials during construction could expose workers to health and safety risks. Public health could be at risk, albeit very low, due to activities associated with construction, including the transport of contaminated materials and/or potential accidental offsite release of contaminated materials.

Construction mitigation measures should be implemented to reduce potential risks from hazardous materials. Consistent with usual construction practices, a Spill Prevention, Control, and Countermeasure (SPCC) Plan would be prepared to prevent and mitigate potential effects to water resources from the potential release of hazardous materials. A health and safety plan would be prepared to address potential worker or public health and safety issues as well as emergency response procedures.

5.18 Indirect and Cumulative Effects

This section assesses the potential indirect and cumulative effects related to the proposed project. Title 40 CFR, Section 1508(1) defines indirect and cumulative effects (impacts) as:

- Indirect Effects – "...are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include induced growth and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8[b]).
- Cumulative Effects – "...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Reasonably foreseeable actions/projects include:

- A project identified in a local or regional comprehensive land use plan;
- A subdivision plat that has been filed with the local government, county or other plat-approving agency;
- Population/development trends that are identified in local or regional comprehensive land use plans;
- Planned transportation improvements by city or county governments; and
- Local or regional infrastructure projects that could impact resources (schools, hospitals, etc.).

Actions that are not usually considered reasonably foreseeable include:

- Possible, but not likely actions/projects; and
- Actions that have little or no influence on the transportation decision.

In general, resources within the project study boundary have experienced negative cumulative effects primarily due to the pressures caused by the large population and housing growth that the area has experienced over the long term since the 1960s (see Table 5-26 and Table 5-27).

Table 5-26. Population Growth Between 1960 and 2000

	1960 Population	2000 Population	Percent Change
Cherokee County	23,011	141,903	517%
Cobb County	114,174	607,751	432%
City of Acworth	2359	13,422	469%
City of Kennesaw	1507	21,675	1,338%
City of Marietta	25,565	58,748	130%
City of Smyrna	10,157	40,999	304%
City of Woodstock	726	10,050	1,284%

Sources: US Census Bureau, 1960 and 2000.

Table 5-27. Housing Growth Between 1960 and 2000

	1960* Number of Housing Units	2000 Number of Housing Units	Percent Change
Cherokee County	6,823	51,937	661%
Cobb County	33,127	237,522	617%
City of Marietta	7,915	25,227	219%
City of Smyrna	2,918	19,633	573%
City of Acworth	1,232*	5,453	343%
City of Kennesaw	986*	8,670	779%
City of Woodstock	287*	4,102	1,329%

Note: * Data not available for 1960 as some communities unincorporated. The 1970 data is provided.
Sources: US Census Bureau, 1960, 1970, and 2000.

5.18.1 Study Area

The study area for the assessment of indirect and cumulative effects is linear, consisting of the existing highway, additional project right-of-way, adjoining neighborhoods, and connected ecosystems. It begins at Akers Mill Road, just south of the I-285/I-75 interchange and extends northward to the intersection of I-75 and I-575, where it splits. It continues on I-75 to the north terminus at Hickory Grove Road and follows I-575 to the second terminus at Sixes Road.

The above area is considered to be the project limit of influence for indirect and cumulative effects based on the following:

- The project is not expected to induce changes to existing or planned land use (see Section 5.2).
- Additional right-of-way requirements are limited. As shown in Table 2-8, except for one segment, no more than 110 feet of right-of-way would generally be anticipated for the new reversible lane system, including the new managed-lane interchanges and slip ramps. However, up to about 150 feet of additional right-of-way would be required between South Marietta Parkway and SR 3 Conn/Roswell Road. Additional right-of-way would be required for the relocation of Frey's Gin Road at its intersection with SR 3 Conn/Roswell Road. No additional right-of-way would be required along I-75 between the I-75/I-575 interchange and Hickory Grove Road.
- The area described captures the full area of neighborhoods and natural resources that could be directly or indirectly affected by the project as well as by other past, present, and reasonably foreseeable future actions and result in a cumulative impact on those neighborhoods or natural resources.

Much of the land within the study area includes urban areas as well as urbanizing areas with commercial, industrial, and residential developments adjacent to the existing highway. The vegetation communities are primarily small, fragmented, and disturbed forested tracts (planted pine, upland hardwood/pine and bottomland hardwood forests), old field communities, and scrub-shrub communities.

5.18.2 Indirect Effects

Indirect effects could occur in the event project implementation resulted in one or both of the following:

- Development or redevelopment that is not currently planned for the study area.
- Traffic shifts on the existing surface street system.

A discussion of each follows.

5.18.2.1 Existing and Future Land Use Trends and Induced Development

Over the past two decades, the population and residential development have substantially increased within the two-county area that encompasses the Preferred Alternative. According to long-term population projections (see Table 3-3) and employment forecasts (see Table 3-10), the region is predicted to continue to grow long term despite the current recession regardless of whether or not the Preferred Alternative is selected and implemented.

As discussed in Section 3.1.3 and Section 5.2, each local government in Georgia is required to prepare and implement a comprehensive plan consistent with Georgia Planning Act of 1989. The ARC, Cobb and Cherokee Counties, and the cities of Marietta, Smyrna, Acworth, Kennesaw, and Woodstock are responsible for developing land use plans, policies and strategies within the study area. The policies provide the basis for zoning, growth management and land use restrictions. The current regional plan and local comprehensive plans and their accompanying future land use maps portray a continued focus on higher density development capable of serving regional markets and trade areas and areas that provide the retail and service needs of several neighborhoods and communities, encouraging low to medium intensity office, retail and commercial service. They also focus residential development away from the areas immediately adjacent to I-75 and in areas along I-575 northeast of the I-75/I-575 interchange. These plans and policies were developed with public and local agency input and represent the communities' vision for the future. These plans and policies project continued long-term population and employment growth regardless of whether or not the Preferred Alternative is selected and implemented.

The Preferred Alternative has been developed as a way to manage congestion created by the already established land use patterns in the region. As mentioned above and discussed in Section 5.2, land use plans and future land use maps for the area paint a vision of continued growth with a focus on higher density development along the I-75 corridor and residential development beyond that and along I-575. Given the current and projected residential and employment trends and the future land use plans for the area, the Preferred Alternative is not likely alter development trends in the area or induce development that is not already planned for development would be planned according to the local jurisdictions.

5.18.2.2 Traffic Shifts

The project would not result in substantial shifts of traffic within the existing surface street system such that increases in traffic would be noticeable and/or require new traffic control measures. The project is projected to result in a 1 to 3 percent decrease in average daily traffic (ADT) on primary arterials that parallel I-75 and I-575 (see Section 4.3.1).

These traffic shifts are the result of the complex and interrelated factors caused by the limited new capacity in the I-75 and I-575 corridors. The construction of the managed lanes adds some additional capacity to the project area as a whole, and to I-75 and I-575 in particular. This added capacity would be expected to cause a shift in traffic from parallel facilities such as US-41/Cobb Parkway. This is logical due to overall better travel time. The shift, however, would not be expected to be one-to-one. Rather, less traffic would shift from the parallel primary arterials than is forecast in the managed lanes. This would cause a reduction in travel times for the general-purpose lanes under the Preferred Alternative in comparison to the No-Build Alternative. As noted in Figure 4-9 and Figure 4-10, the travel time savings would range from approximately 10 to 18 percent in 2035, depending on the length and location of the trip.

In the traffic analysis, some minor changes in traffic patterns were noted with the construction of the four new managed lane/local access interchanges on I-75. The new interchanges would add traffic to the cross streets at Terrell Mill Road, SR 3 Conn/Roswell Road, Big Shanty Road, and Hickory Grove Road. However the peak hour volumes are relatively small due to the single- or two-lane capacity of the managed lanes. These volume increases were not significant enough to require any overall improvements to the roadways beyond the immediate interchange ramps. Some minor volume changes were noted at the existing interchange locations on I-75 due to redistribution to the new managed lane interchanges. None of these changes necessitated any changes in the existing roadway configurations.

On I-575, slip ramps would provide access to the managed lanes. Overall traffic volumes are expected to shift to the north as drivers seek to improve travel times by using and even increasing the length of the trip in the managed lanes. Overall volumes are expected to be reduced at all existing interchanges with the exception of Sixes Road.

A modal shift of trips to transit vehicles was also noted in the analysis. This shift reduced the overall traffic volume in the corridor under the Preferred Alternative, while the number of trips remained constant. In addition, more trips were made in higher capacity transit vehicles.

No development or redevelopment or substantial shifts in traffic on the existing surface street system are expected to be induced in the study area by the project.

5.18.3 Cumulative Effects

By definition, cumulative effects would occur if impacts from the proposed project combine with past, present, and reasonably foreseeable future actions, as outlined below, to result in substantial adverse impacts within the ICI study area.

5.18.3.1 Actions Considered

Within the ICI study area, past actions include those that have resulted in a change from agricultural and woodland uses to urban features that include:

- Existing freeway and roadway system;
- Residential areas;
- Industrial facilities; and
- Commercial areas.

Present actions include:

- Proposed project; and
- Current development and redevelopment and associated infrastructure.

Reasonably foreseeable future actions include:

- Additional planned transportation improvements; and
- Future planned development and redevelopment and associated infrastructure as discussed in Section 3.1.2.

Additional planned transportation improvements in the study area are shown in Tables 2-4 and 2-5. Those listed as included in the No-Build Alternative are considered reasonably foreseeable. These include projects listed as long range, as well as those shown as programmed for implementation. The reasonably foreseeable projects could contribute to cumulative effects to the extent their implementation would affect the same neighborhoods or natural resources as the proposed project.

The *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a) identifies a regional system of interconnected managed lanes throughout the Atlanta area. The regional system of managed lanes is of limited capacity, providing one or two travel lanes, sometimes in a reversible lane configuration and sometimes as bi-directional facilities. The facilities are all to be variably tolled, providing the opportunity to operationally manage usage by varying the toll rate. This enables the lanes to achieve a consistent travel time in comparison to the adjacent general-purpose lanes and a revenue stream to assist in paying for construction.

The construction of the lanes provide some limited congestion relief benefit, however by design and operation they are intended to be free flow facilities with few lanes. They do not, nor are they intended to, resolve or even substantially improve congestion in the general-purpose lanes. Since they are limited capacity facilities and are tolled, the implementation of the regional plan is unlikely to impact growth and development in the Northwest Corridor either indirectly or cumulatively.

Cobb County has been awarded $1.3 million from the Federal Transit Administration through the Alternatives Analysis Grant Program to conduct an Alternatives Analysis for a potential transit project along US-41/I-75 from the MARTA Arts Center Station in Atlanta to Acworth. This route is directly parallel and close to the alignment of the Preferred Alternative. The study is anticipated to commence in the fall of 2011. As this evaluation has not yet begun, it was not considered in this FEIS.

Potential development and redevelopment activities described in the *City of Marietta Comprehensive Plan 2006-2030, The Roadmap to Marietta's Future* (Marietta, 2006) would occur in the vicinity of the project and other transportation improvements in the study area. Therefore, the potential cumulative effects of these activities also are addressed in the sections that follow.

5.18.3.2 Acquisitions and Displacements

The Preferred Alternative would displace six residential properties and seven commercial properties. It is anticipated that residential and business relocations would occur in the vicinity of the proposed displacements. As discussed in Section 5.3.1.2, an adequate supply of replacement housing is available, and GDOT would provide a list of available and comparable housing to all displaced households to assist them in finding and securing replacement housing. The 15 persons whose residences would be displaced might relocate and be in different school districts, near different commercial areas, and use different surface streets. However, because of the number of people involved, the overall effect of these project relocations is considered negligible.

Also, as addressed in Section 5.3.1.3, GDOT has committed to assisting the displaced businesses in finding replacement commercial properties reasonably comparable with current properties or facilities and helping the businesses to relocate within the same area. As a result, these impacts also would be negligible.

As described in Section 3.1.3.3, the Comprehensive Plan outlines the City's overall policy to foster urban growth and development. The plan defines 20 "character" areas within the city. These are unique areas of the city that contain characteristics that separate them from the surrounding area, with the "Corridors" character area applicable to the proposed project. As stated in the plan, Corridor districts are found along major arterial and collector roads and are primarily commercial in nature. The commercial aspect would remain, but would be made more pleasing and inviting. This would be accomplished by transitioning roadways to boulevards, adding landscaped medians, sidewalks, streetscape enhancements, and other measures. The Comprehensive Plan also states that high- to moderate-density residential uses should be added in areas of transit-oriented development. At this time, however, there are no specific programmed redevelopment projects for transit or other facilities. The Comprehensive Plan shows existing residential areas as remaining residential.

The transportation project that might contribute to a cumulative impact is listed as #9 in Table 2-4 and shown of Figure 2-2. It is described as a 5.9-mile widening and grade separation of US 41 (Cobb Parkway) between Windy Ridge Parkway and SR 120 (North Marietta Parkway). This project would affect more than one neighborhood within the Corridor designation described above, although the affected neighborhoods would remain intact. The widening would occur exclusively within a business area that is outside the neighborhoods affected by the proposed project. Based on visual observation, the businesses along Cobb Parkway have sufficient setback that the widening could affect some business-related parking, but no apparent displacements would occur.

As a result, other than the residences and businesses affected by the Preferred Alternative, it is reasonable and foreseeable that other residences and businesses would remain. Within the Corridor area where the focus of future plans is on enhancements, no cumulative impacts related to development or redevelopment are anticipated.

Based on the above, the contribution of the proposed project to cumulative effects of the identified transportation, development or redevelopment projects that might occur in the future is anticipated to be negligible.

5.18.3.3 Land Use

Cumulative impacts on land use could vary significantly depending on land use and growth policies and strategies put in place by the ARC, Cobb County, the City of Marietta and other agencies and local governments responsible for land use planning and policies. If the current policies are followed, most new residential development would be focused in areas away from regional and community centers and most nonresidential development would be focused along major arterials, highway interchanges, and high-capacity mass transit routes and collectors. If the land use policies are not followed and enforced through zoning and other means, then residential and commercial development could spread outside areas targeted for growth. This is true regardless of whether the No-Build or Preferred Alternative is selected and implemented.

5.18.3.4 Economic Resources

As with land use, cumulative impacts on economic resources could vary substantially depending on whether growth policies and strategies are followed. If growth occurs outside the areas targeted for growth, the local jurisdictions could experience increased costs to provide and maintain services.

The Preferred Alternative, in combination with other planned improvements could enhance investment, productivity and economic activity in the Northwest Corridor. For example, in 2035 it is estimated that without implementation of the Preferred Alternative, 300,000 households would be within a 45-minute drive of the Cumberland activity/employment center in the afternoon peak period. With the managed lanes, this number would grow to 700,000, a 130 percent increase in total households with access to this vital employment center (HNTB, 2011).

5.18.3.5 Environmental Justice

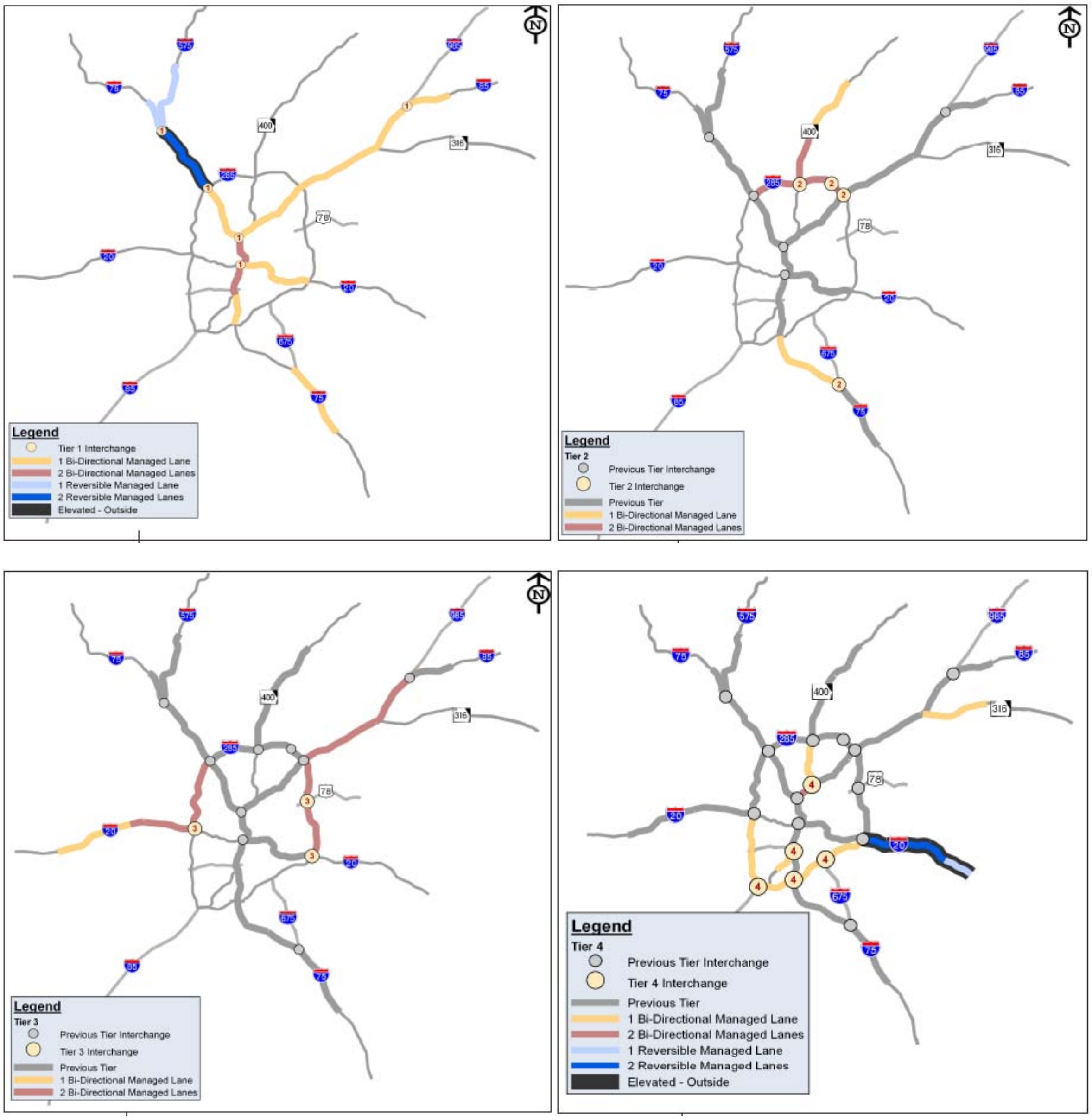
The Preferred Alternative would displace 13 existing properties (6 residences and 7 commercial properties with 12 businesses) that include 15 residents and 33 employees from existing locations on the west side of I-75 between North Marietta Parkway and South Marietta Parkway. The proposed action would not adversely affect the community character or cohesion of these neighborhoods (see Section 5.5.1).

The residential displacements are scattered over three different neighborhoods, while the businesses are concentrated in a single location. Because of the number of residential displacements and the minimal effect on the neighborhoods, as described in the previous section, the project contribution to the cumulative effect of displacements, when combined with other development-related displacements of minority and low-income persons, is expected to be negligible.

Tolling Effects of the Atlanta Regional Managed Lane System Plan

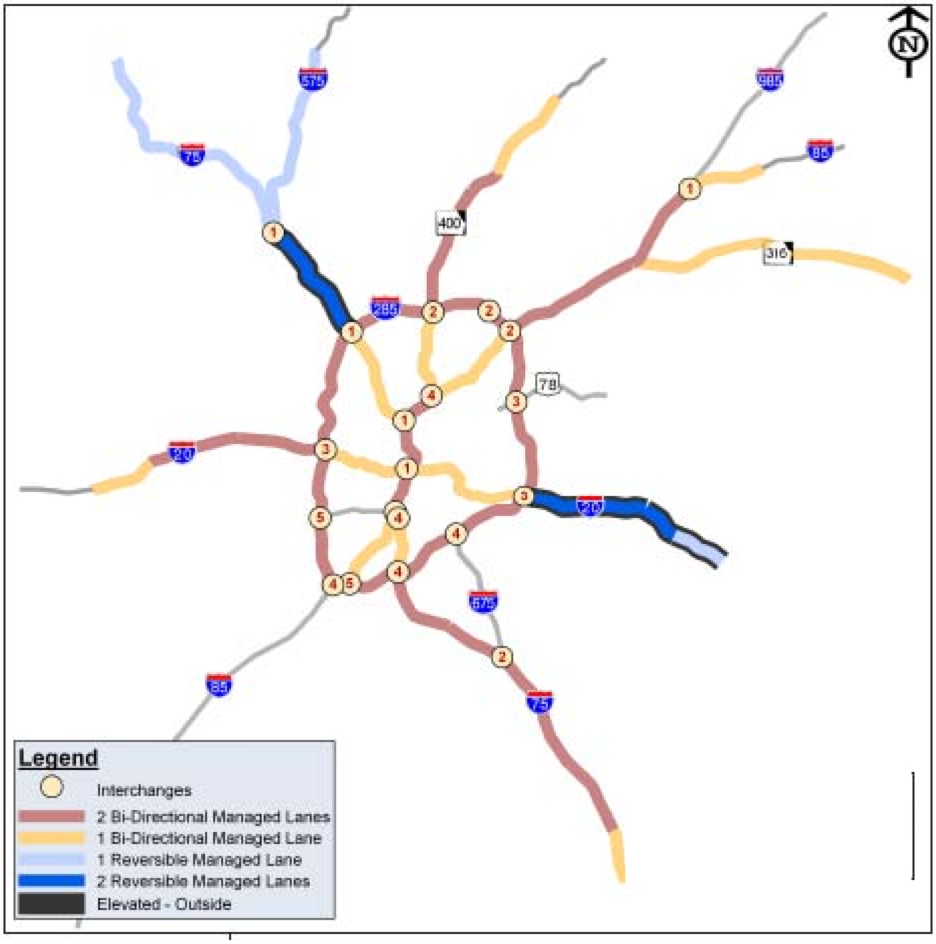
Since cumulative effects include the potential effects of not only past and present actions, but also future actions, the potential effects of the whole *Atlanta Regional Managed Lane System Plan* (GDOT, 2010a) on environmental justice populations needs to be considered. As discussed in Section 3.1.4.2, the *Atlanta Regional Managed Lane System Plan* was adopted by the State Transportation Board in 2009. It stated that all new capacity lanes within limited access corridors in metropolitan Atlanta shall be managed lanes. The plan recommends the managed lanes be divided into five tiers as a way to prioritize projects. This reflects the reality that sufficient resources are not available to construct the entire system at once, but that it would be developed over time. Figure 5-20 illustrates the plans for tiers 1 through 4. Tiering places the focus on the most critical projects first (Tier 1), allowing the system to gradually expand into a fully realized network of managed lanes over time. Figure 5-21 shows the complete proposed managed-lane system.

Figure 5-20. Managed Lanes System by Tier



Source: GDOT, 2010a.

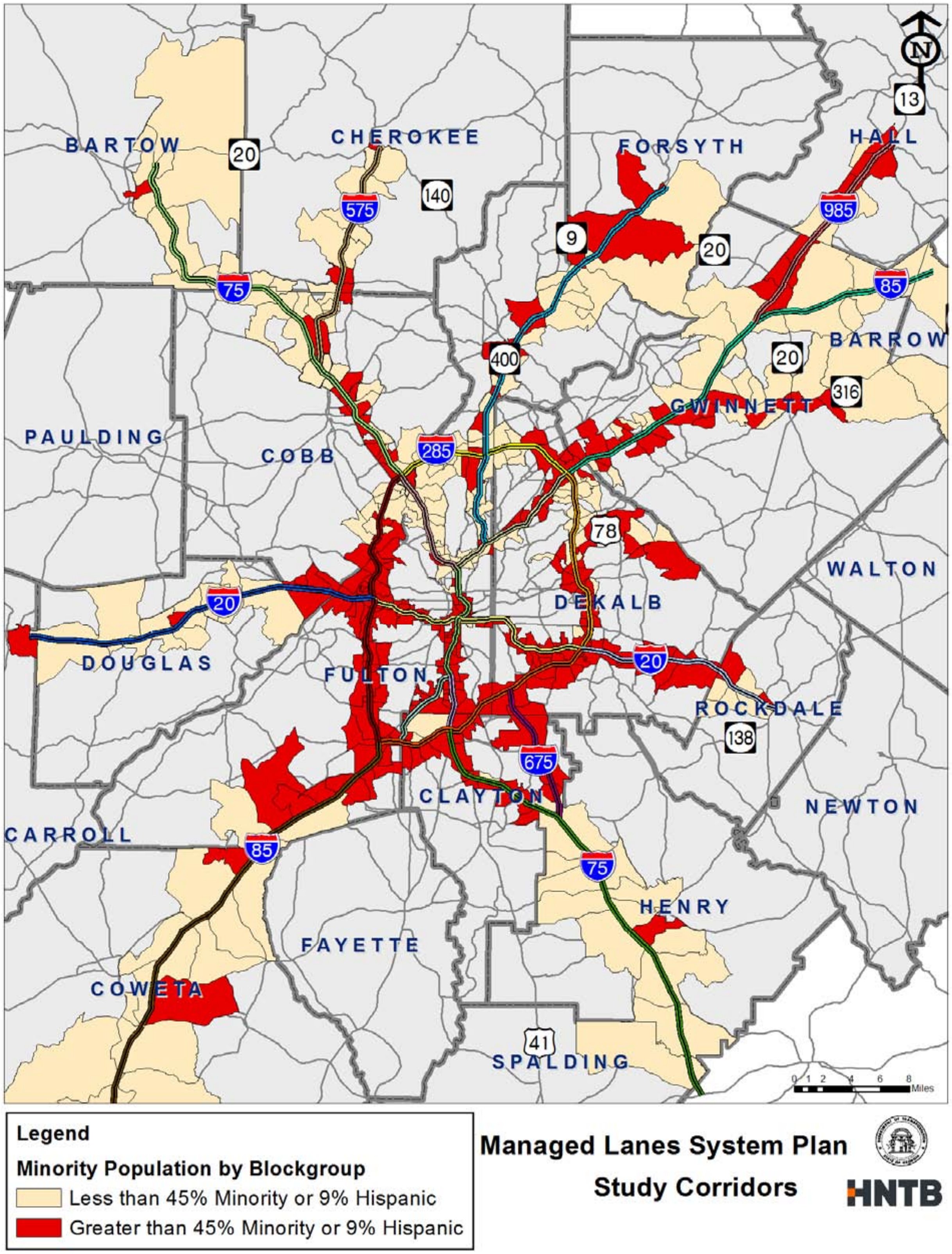
Figure 5-21. Complete Managed Lanes System



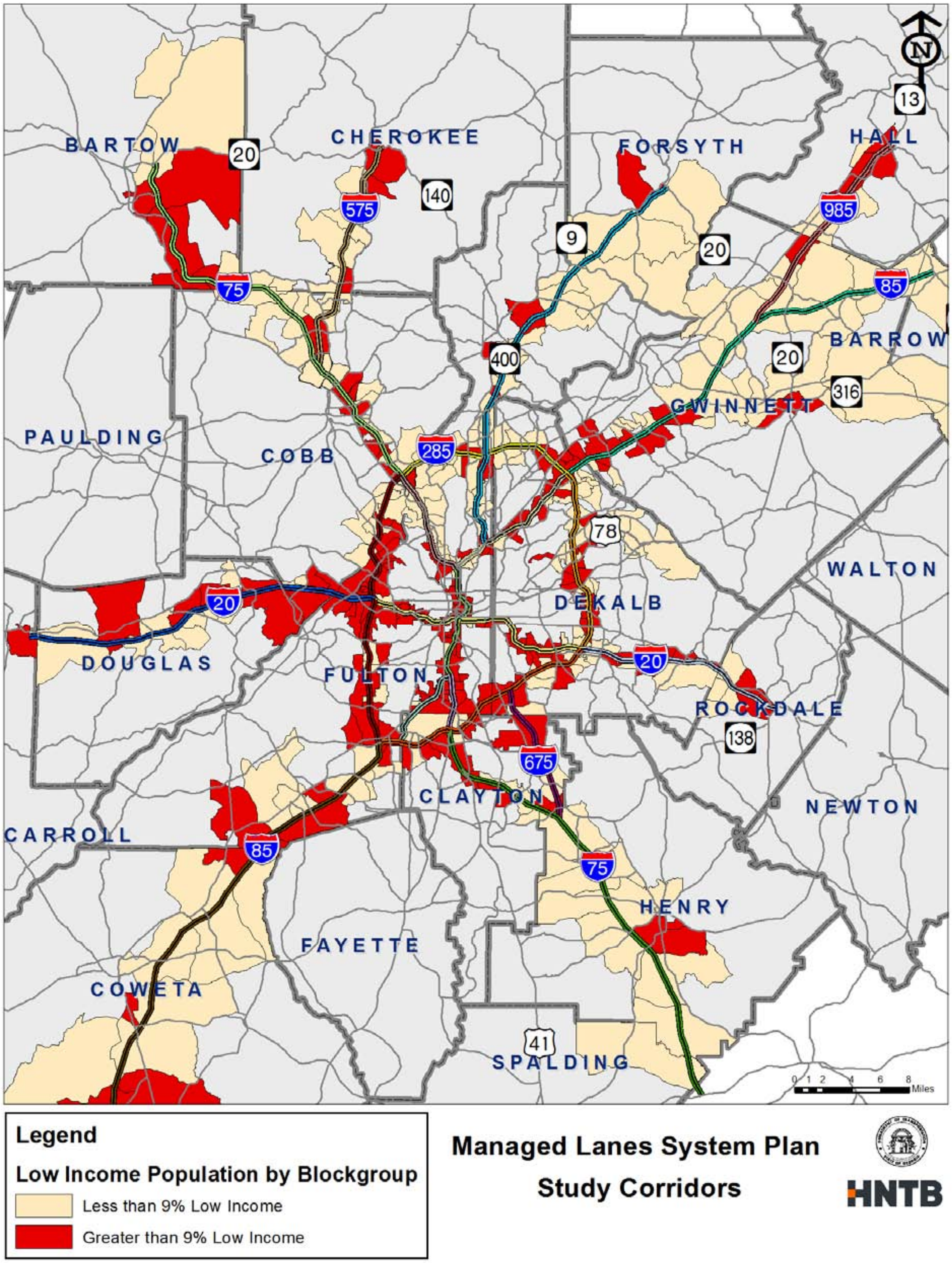
Source: GDOT, 2010a.

An evaluation of the social equity effects of the *Atlanta Regional Managed Lane System Plan* was completed in January 2010. Figure 5-22 shows the minority population in this managed lane study area. Figure 5-23 shows the low-income population in the managed lane study area. As discussed in Section 5.6.3.2, the *Atlanta Regional Managed Lane System Plan, Technical Memorandum 9: Social Equity and Environmental Effects Evaluation* (HNTB, 2010) report provides a high level study of the regional effects of managed lanes on environmental justice populations and the potential air quality effects. The study concluded that environmental justice communities are not disproportionately impacted by managed lanes and that the congestion reduction resulted in the potential for air quality benefits.

An earlier study, *HOT Lane Environmental Justice Analysis* (SRTA, 2006) that looked at the effects of tolling on environmental justice populations found that while regional implementation of HOT lanes did not appear to disproportionately impact any particular group when it did not include converting existing HOV or SOV lanes to HOT operation, implementation of HOT lanes would create localized environmental justice concerns.



Source: HNTB, 2010.



Source: HNTB, 2010.

In summary, while the cumulative effect of the Atlanta Regional Managed Lane System on environmental justice populations in the study area is not anticipated to be disproportionate, some areas of concern do exist. Key methods of addressing these concerns include an educational campaign, inclusive payment methods (e.g. a cash payment option) and access to information regarding the operations and benefits of managed lanes.

5.18.3.6 Visual Quality and Aesthetics

As addressed in Section 5.8, the Preferred Alternative would not affect visual character or visually sensitive resources. It would, however, result in a moderate effect on visual quality, as vertical structures associated with the managed lanes would be visible from some locations. Also, where the freeway is at- or above-grade, it would be seen from adjacent properties. Mitigation would include context–sensitive finishes for walls and to enhance areas where the project can be seen from adjacent properties and roadways.

In the context of visual effects, cumulative impacts would occur with implementation of multiple projects in the same viewshed. Because of the existing urban and developing environment along the I-75 and I-575 corridors and scattered nature of the potential transportation and development/redevelopment projects, which would affect a range of discrete views and visual settings, cumulative visual impacts are not anticipated.

The primary visual change of the proposed project would be the new vertical element created by the two managed lanes along I-75/I-575 from the southern project terminus at Akers Mill Road to Bells Ferry Road, about 1 mile south of the I-75/I-75 interchange. The two managed lanes would generally be constructed on an elevated structure on the west side of the existing highway. Where appropriate, the managed lanes would be elevated on stabilized earthen walls supported by retaining walls. Where the lanes are on new structures, the height would vary; in some places it would be built over existing overpasses and bridge structures. At these locations, the visual impact would be of ever-higher roadways, but views across the highway would not be obstructed. Where the managed lanes would be on earthen walls, views across the highway would be completely obstructed.

Other reasonably foreseeable proposed transportation projects involve widening existing roadways or construction of new at-grade surface streets, with no substantial vertical elements. Because these projects cross, rather than parallel I-75 or I-575, they would result in a different type of visual impact and would not increase the impact associated with the project. Also, within the heavily developed urban environment of the study area, these projects would provide a marginal contribution to visual change in the corridor.

The development described in the City of Marietta's *Comprehensive Plan 2006-2030* (Marietta, 2006) would change the visual environment within the immediate area of any project. Along the Corridor area west of I-75, such change would involve activities such as transitioning Cobb Parkway to a boulevard and adding landscaped medians and streetscape enhancements.

5.18.3.7 Air Quality

The cumulative effect of the past, present and reasonably foreseeable actions within the study area are not expected to adversely affect air quality in the region. The proposed project is included in the ARC's recently adopted *PLAN 2040* RTP (ARC 2011b). A conformity determination conducted for this RTP was updated for the FY 2012-2017 TIP (ARC, 2011c) and the Volume II: *PLAN 2040 Conformity Determination Report* (ARC, 2011d).

The results of the eight-hour ozone emissions analysis conducted for the *PLAN 2040* RTP and the FY 2012-2017 TIP demonstrated adherence to the 20-county motor vehicle emission budgets established in the Atlanta Early Progress State Implementation Plan (73 FR 9206). As such, *PLAN 2040* RTP and the FY 2012-2017 TIP have demonstrated conformity to the eight-hour ozone standard.

The results of the $PM_{2.5}$ emissions analysis conducted for the *PLAN 2040* RTP and the FY 2012-2017 TIP demonstrated adherence to the level of emissions necessary to meet the No Greater Than Base Year Test. As such, the *PLAN 2040* RTP and FY 2012-2017 TIP have demonstrated conformity to the annual $PM_{2.5}$ standard.

Based on the technical analysis conducted by ARC, it has been determined that the *PLAN 2040* RTP and the FY 2012-2017 TIP demonstrate compliance with the Clean Air Act, as amended in 1990, in accordance with all conformity requirements detailed in 40 CFR Parts 51 and 93 and 23 CFR Part 45. As the proposed project is part of both the *PLAN 2040* RTP and the FY 2012-2017 TIP, cumulative impacts are not expect to adversely affect the air quality in the region.

5.18.3.8 Noise

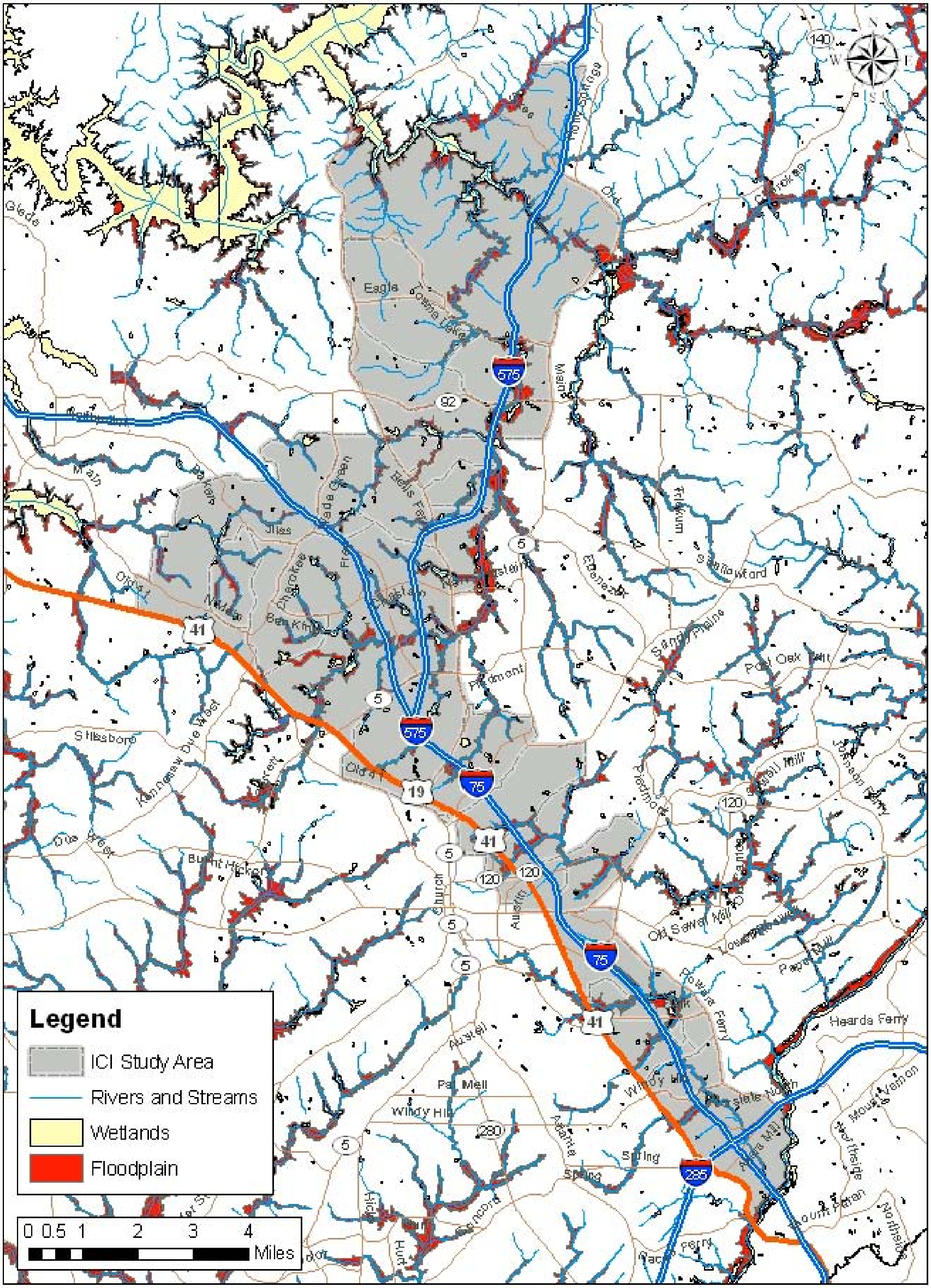
As discussed in Section 5.12.1 and the *Noise Technical Report* (Parsons Brinckerhoff, 2011h), there is a separate project (AR-917, P.I. No. 611150) to add a third general-purpose lane in each direction on I-575 assumed in the travel demand modeling of the No-Build Alternative and the Preferred Alternative. The addition of a third general-purpose lane in each direction is not part of the Northwest Corridor Project. Recognizing that this future project may cause separate noise impacts, an additional noise analysis including this future project was conducted for purposes of identifying appropriate mitigation. This additional analysis was undertaken to minimize overdesign and potentially reduce future costs associated with the removal and reconstruction of proposed sound barriers that may be provided.

The results of the analysis of the 2035 noise for the Preferred Alternative include projected traffic volumes and speeds for the project, forecast background traffic growth, traffic growth resulting from other planned and programmed projects in the area, and improvements in speed resulting from capacity improvements. The results of these analyses represent direct, indirect, and cumulative noise impacts in areas where the project could influence traffic. These results are presented in the *Noise Technical Report* (Parsons Brinckerhoff, 2011h).

5.18.3.9 Water Quality

The Preferred Alternative would require an additional 85 to 150 feet of right-of-way along the approximately 10-mile segment between Akers Road and the I-75/I-575 interchange. Within this area, the project would permanently affect water resources as follows: 17 acres of floodplain fill, 3,025 linear feet of surface water, and 0.3 acre of wetland. The surface water and wetland impacts would be mitigated by withdrawals of mitigation credits from existing USACE-approved or GDOT-owned stream and wetland mitigation banks.

Cumulative impacts would occur to the extent other development, redevelopment and transportation projects would affect streams, wetlands and floodplains. Therefore, the 44,022-acre indirect and cumulative impacts (ICI) study area was evaluated specifically for potential cumulative impacts to floodplains, streams and wetlands, which are shown on Figure 5-24.



Sources: GDOT, 1996 and 1997; FEMA, 2006 and 2008; and USFWS, 1999.

Planned highway improvements (future highway projects) in the ICI study area are shown in Table 5-28 and Figure 2-2. The potential impacts of these projects to floodplains, streams, and wetlands were calculated assuming a 500-foot width from the centerline of the linear projects (a 1,000-foot corridor) and a 500-foot radius from the center of interchanges and intersections. The resulting potential impacts are addressed below. The estimates are conservative, as the width/radius of many of the improvements includes existing roadways where development has already occurred. The specific characteristics of these projects, while unknown, are unlikely to affect the full width of such a corridor.

Floodplains

The ICI study area has an extensive network of streams and associated floodplains, many of which are traversed by the project corridor. Within the ICI study area floodplains comprise approximately 4,816 acres. The existing project right-of-way includes about 138 acres of floodplain; the proposed project right-of-way includes less than 10 acres of additional floodplains since the majority of the project is located within existing right-of-way. The corridors for other planned highway improvements include approximately 142 acres of floodplains based on the corridor width assumptions described above. As shown on Figure 5-25, the project corridor has 13 floodplain crossings with associated streams. Other planned highway projects would have about eight floodplain crossings with associated streams.

The project corridor is highly urbanized, with commercial, industrial, and residential development, and the surrounding study area is becoming increasingly urban. Therefore, as noted in Section 5.18.1 above, the area along the project corridor is mostly developed and, in some cases, older development may be within 100-year floodplains and already taken into account in floodplain mapping. Current and future development/redevelopment and associated infrastructure would occur within the parameters of existing local ordinances that govern development in floodplains. These ordinances avoid or minimize encroachments into floodplains and restrict land use that is incompatible with the natural function of floodplains.

The future highway projects shown on Table 5-28 are governed by Executive Order 11988, Floodplain Management; USDOT Order 5650.2, Floodplain Management and Protection; and Title 23, Section 650 of the Code of Federal Regulations. Floodplain impacts and significant encroachments are not permitted unless there is no practicable alternative.

As described above, there is a potential for reasonably foreseeable future transportation and development projects to affect floodplains. They would be required to comply with the ordinances and regulations that restrict development in floodplains and affects on flood elevations. Therefore, no significant cumulative impact to floodplains is expected.

Wetlands

Wetlands are scattered throughout the ICI study area, as shown on Figure 5-24 and Figure 5-26. As shown, most are within floodplains and/or associated with navigable waters and, therefore are within USACE jurisdiction under the Clean Water Act, with additional protection provided by the floodplain ordinances and regulations described above. Two substantial wetland systems occur at the southerly and northwest boundaries of the ICI study area.

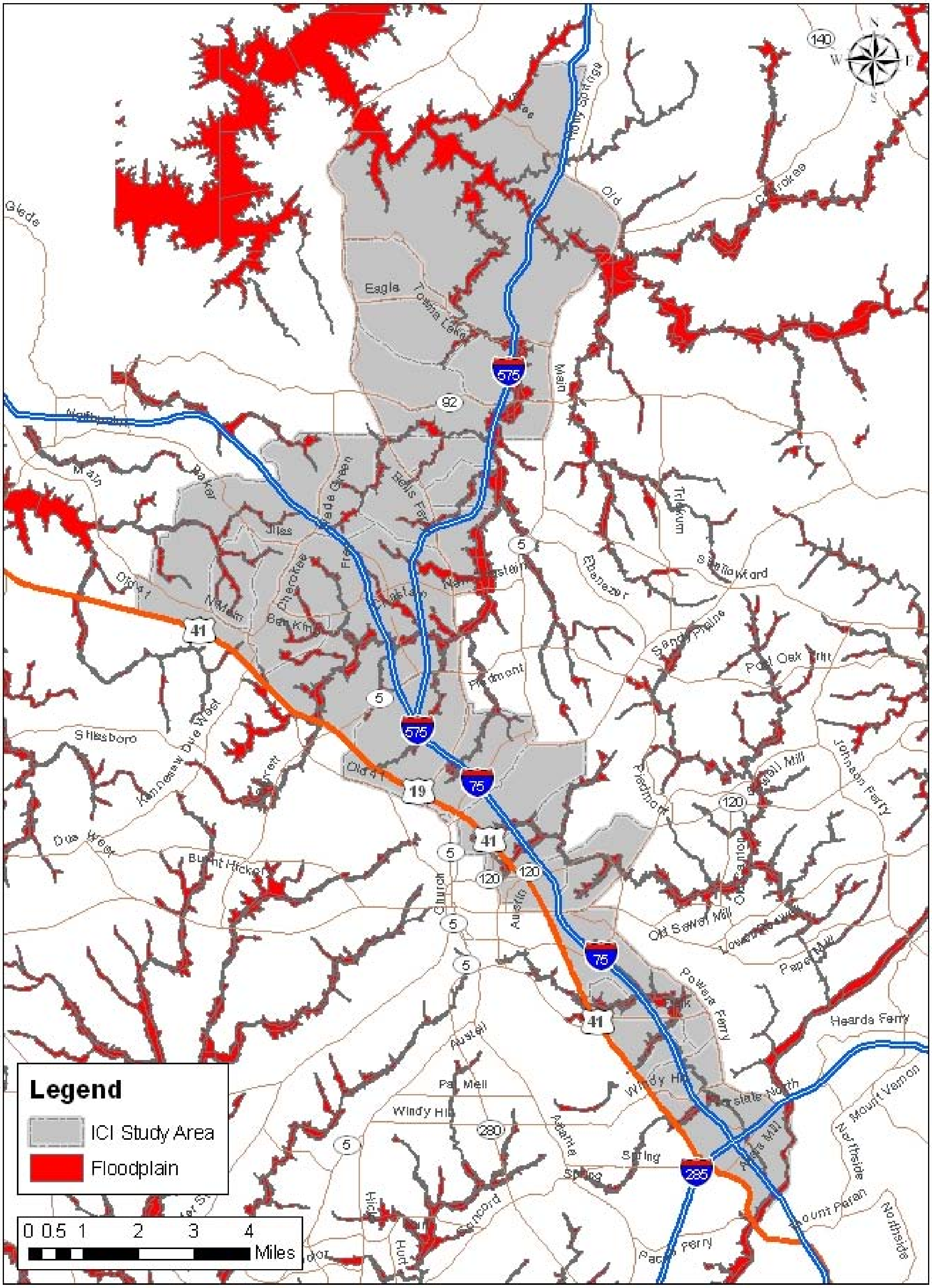
Table 5-28. Planned Highway Improvements Evaluated in ICI Study Area

	Project	Roadway Segment	Total Project Miles	Miles in ICI Study Area
1	Northwest Corridor (I-75 and I 575 Managed Lanes)	Akers Mill Road to Town Center Area on I-75; and I-75 to SR 20 on I-575	20.0	29.7[3]
2	I-575 Widening (+2 lanes)	I-75 North to SR 5 Business in Cherokee County	20.1	20.1
3	I-285 North Managed Lanes (+4 lanes)	I-75 North in Cobb County to I-85 North in DeKalb County	13.2	2.3
4	I-285 West Managed Lanes (+4 lanes)	I-20 West in City of Atlanta to I-75 North in Cobb County	9.6	1.3
6	Shiloh Road/Shallowford Road (+2 lanes)	From Cherokee Street/Wade Green Road to Canton Road	4.8	4.0
7	Bells Ferry Road Widening (+2 lanes) – 3 projects	Southfork Way to North of Sixes Road	5.2	3.0
8	I-575 at Ridgewalk Parkway	New Interchange	N/A	N/A
9	US 41 Cobb Parkway Widening (+4 lanes) and Grade Separation at Windy Hill Road – 5 projects	Windy Ridge Parkway to SR 120 (North Marietta Parkway)	5.9	5.9
11	Big Shanty Road Widening (+2 lanes)	Busbee Parkway to Chastain Meadows Parkway	0.7	0.7
		Chastain Meadows Parkway to Bells Ferry Road	0.4	0.4
12	Big Shanty Road Extension (4 lanes) – 2 projects	Busbee Parkway to Chastain Road	0.9	0.9
14	I-75 Improvements	I-285 North to Delk Road	N/A	N/A
15	South Barrett Parkway Reliever – Greers Chapel Road Widening (+2 lanes)	US 41 (North Cobb Parkway) to Shiloh Valley Drive	1.0	1.0
16	South Barrett Parkway Reliever – New Alignment (4 lanes)	Greers Chapel Road South of Intersection with Barrett Parkway to Bells Ferry Road	1.6	1.6
17	Sixes Road Bridge Widening (+2 lanes)	At I-575	N/A	N/A
18	Sixes Road Widening (+2 lanes)	I-575 to Old SR 5 (Holly Springs Parkway)	0.3	0.3
19	Leland Drive Extension (+2 lanes widening; 4 lanes new)	Windy Hill Road to Terrell Mill Road	0.8	0.8
20	Windy Hill Road Westbound Widening (+1 lane)	East of Powers Ferry Road to Spectrum Circle	0.2	0.2
21	Powers Ferry Road Northbound Widening (+1 lane)	Wildwood Parkway to Terrell Mill Road	0.3	0.3
22	Jiles Road (+2 lanes)	Cherokee Street/Wade Green Road to US 41 (North Cobb Parkway)	3.3	3.3

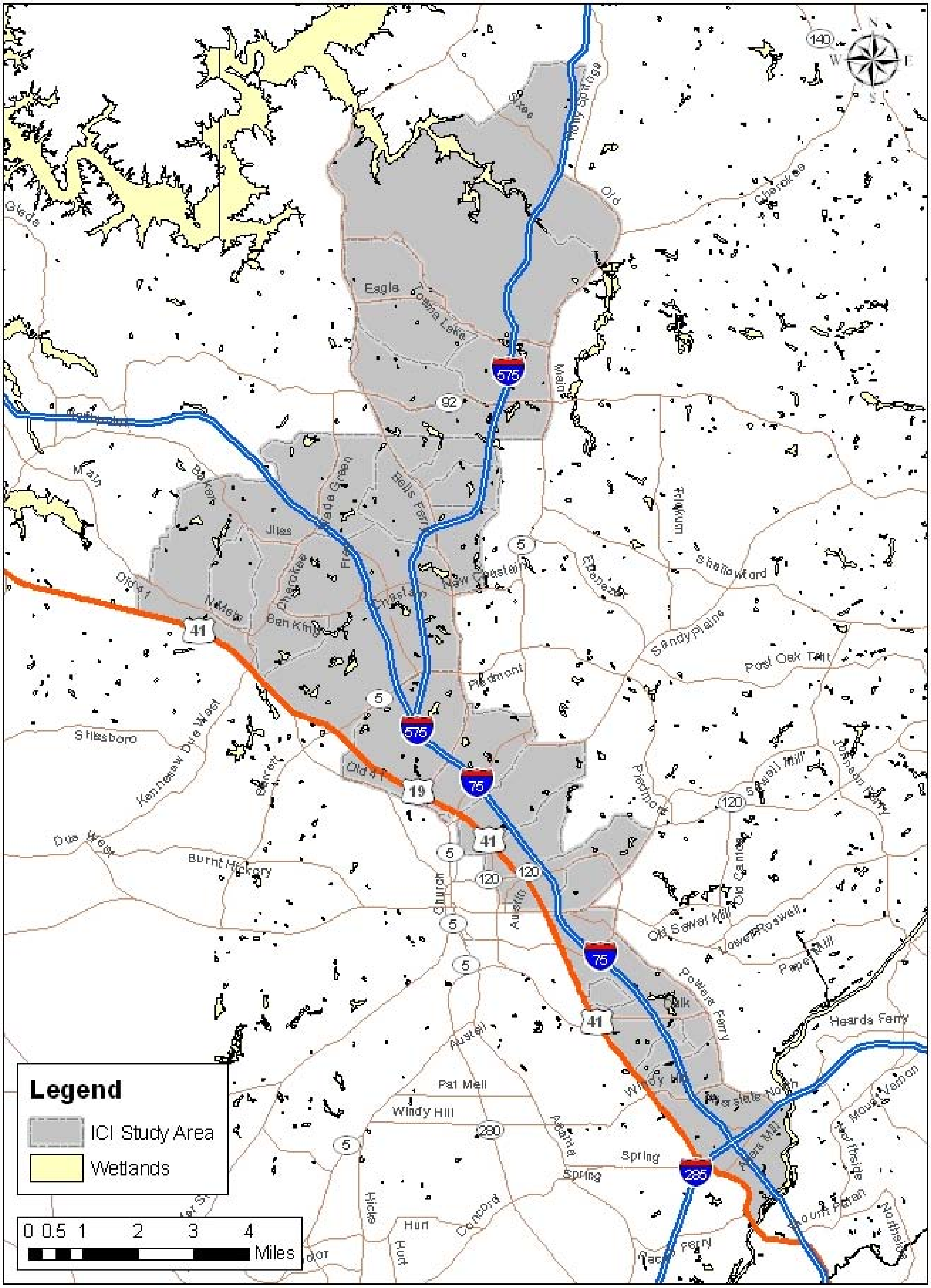
Notes:

1. Project numbers shown in this table are the same as shown in Figure 2-2 of this FEIS.
2. Projects and total project miles were derived from *Envision6* TIP through Amendment 7 adopted December 2, 2009.
3. The length of the Northwest Corridor Project (Project 1 above) was not correctly reflected in the *Envision6* TIP through Amendment 7. The correct project and ICI distance is 29.7 miles. See sections 2.3.1.1 and 2.3.1.5.
4. Projects 5, 10, 13 and 23 are not included; they are outside the ICI study area.

Source: ARC, 2009d.



Sources: FEMA, 2006 and 2008.



Source: USFWS, 1999.

Overall, jurisdictional and non-jurisdictional wetlands comprise approximately 1,312 acres of the ICI study area. An estimated 1,021 acres of these wetlands are within floodplains. A few wetlands may have been part of a larger system in the past. However, the pattern shown on Figure 5-26 is characteristic of their location within Georgia's piedmont region, where wetlands tend to be relatively small and found adjacent to streams.

The wetlands within floodplains are unlikely to be affected by ongoing or future development projects as they would be protected by floodplain development restrictions. Future development/redevelopment projects may have the potential to affect jurisdictional and non-jurisdictional wetlands that are outside of floodplains. However, these future projects would be required to be in compliance with Sections 404 of the CWA, as amended, which require a permit prior to placement of fill in wetlands.

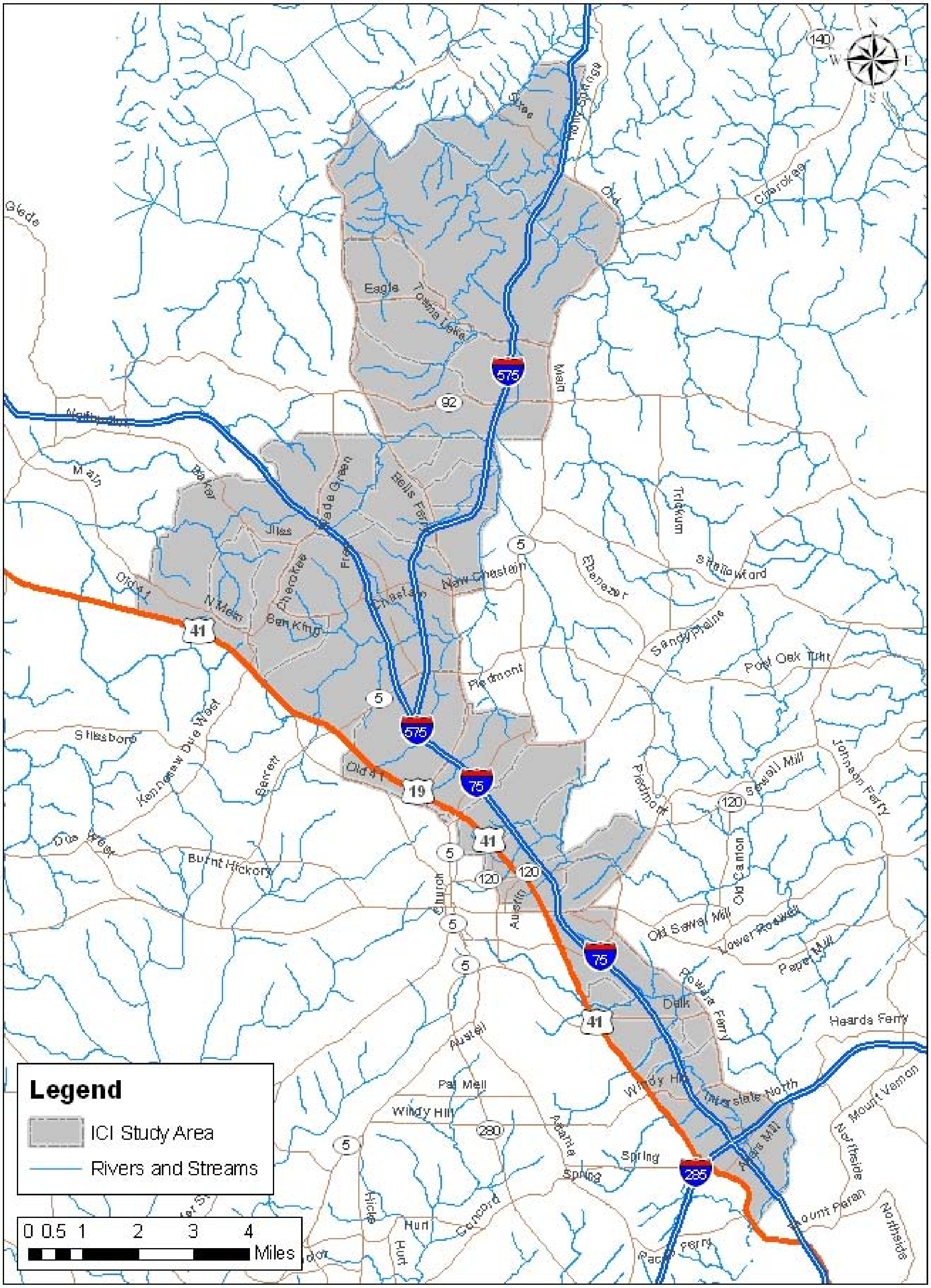
The proposed project is expected to affect 0.3-acre of jurisdictional wetland. Within the ICI study area, 35 acres of wetlands are within planned highway improvement corridors using the conservative assumptions described above. It can be expected that efforts would be made to avoid, minimize, and mitigate wetland impacts in developing these projects as per Section 404 of the CWA, as amended, and Executive Order 11990, which requires federal agencies to avoid use or modification of wetlands unless there is no practicable alternative.

Cumulative impacts to wetlands within floodplains are not anticipated for two reasons: no notable wetland systems would be affected by a combination of projects that would substantially deteriorate their function, and small wetland impacts would be avoided, minimized, or mitigated by federal law and regulation.

Streams

Streams in the ICI study area are shown on Figure 5-27. As shown, approximately 119 miles of jurisdictional streams are within the ICI study area and are subject to regulation by the USACE in accordance with requirements of the CWA. The project corridor has 19 stream crossings. No new crossings are required by the project. Based on available data, approximately 4 miles of streams are within the corridors of future projects using the corridor width assumptions described above, which would include about nine stream crossings. New development/redevelopment and future transportation projects affecting streams would be required to implement stream protection measures in accordance with requirements of the Georgia Erosion and Sedimentation Act of 1975, as amended and implemented by the GDNR Environmental Protection Division. These measures include provision of a 25-foot vegetative buffer for warm-water non-trout streams and a 50-foot vegetative buffer for cold water trout streams. Encroachments to these buffers generally require a stream buffer variance that includes requirements for erosion control measures.

Other requirements for land-disturbing activities that may result in soil erosion and sedimentation include BMPs such as minimizing cut and fill, timely vegetation and re-vegetation, trapping runoff by use of debris basins, sediment basins, silt traps or similar measures. Also, permits require submittal of erosion and sedimentation control plans. Therefore, although streams could be affected by reasonably foreseeable future actions, based on protection requirements, cumulative impacts to streams and related effects to water quality are not anticipated.



Sources: GDOT, 1996 and 1997.

5.19 Summary of Potential Impacts and Mitigation Measures

Table 5-29 summarizes the potential environmental impacts of the No-Build Alternative and the Preferred Alternative and potential mitigation measures. The potential impacts include those related to: property acquisitions; land use; population and employment; neighborhoods and community facilities; environmental justice; safety and security; visual quality; parklands; historic and archaeological resources; air quality; noise and vibration; ecosystems; water resources; geology and soils; contamination; construction impacts; and indirect and cumulative impacts. Except for construction impacts, which are short-term effects, all of the effects are considered long term.

Table 5-29. Summary of Potential Environmental Impacts and Mitigation Measures

Impact	No-Build Alternative	Preferred Alternative	Mitigation Measures for Preferred Alternative
Acquisitions and Displacements	• No impact.	• 13 full and 63 partial acquisitions, totaling 76 acquisitions. • 6 residential and 7 commercial properties, including 12 businesses.	• The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 requires that relocation and advisory assistance be provided to all eligible individuals and businesses displaced by a proposed project in accordance with the provisions of the Act. • Property acquisition would occur after the Record of Decision. Property owners would be paid fair market value for property acquired. • Relocatees would be provided assistance to locate and acquire available properties elsewhere.
Land Use	• Not fully supportive of ARC planning policies and local plans/policies.	• Supportive of ARC planning policies and local plans/policies.	• No mitigation required. • Local jurisdictions should work with Cobb County DOT and GDOT to determine appropriate access control and/or other development requirements that allow the development review and approval process to further the managed-lane objectives.
Population and Employment	• No impact.	• Residential and business acquisitions would result in the displacement of an estimated 15 people and 33 employees.	• Same as acquisitions and displacements mitigation.
Economic Impacts	• No impact.	• Approximately $105,000 reduction in property taxes due to acquisitions.	• No mitigation required.

Table 5-29. Summary of Potential Environmental Impacts and Mitigation Measures (continued)

Impact	No-Build Alternative	Preferred Alternative	Mitigation Measures for Preferred Alternative
Neighborhoods and Community Facilities	• No impact.	• Community effects would be limited to a small number of neighborhoods adjacent to the highway, primarily located on the west side of I-75 in the Marietta area. Effects include potential increases in noise levels. • Disruptions would be on the edges of existing neighborhoods, so no substantial change to cohesion. • No effects to community facilities or cohesion in any neighborhoods along the project corridor.	• A final decision on the installation of sound barriers would be made upon completion of additional detailed noise abatement analysis based on final design and public outreach to those property owners.
Environmental Justice	• No impact.	• Acquisition of 5 (of 6 total) residential and 7 commercial parcels located in minority and low-income neighborhoods. • Displacement of 15 people, 12 businesses, and 33 employees in low-income and minority neighborhoods. • Disproportionate and adverse impacts as a result of property acquisitions.	• Every effort would be taken to reduce potential property acquisitions effects through project refinement. • Community outreach would be proactively conducted to solicit community input on needed or desired community amenities to maintain connectivity during the Notice of Availability period of the FEIS. • The project mailing list begun during the AA/DEIS would be maintained, updated, and kept current throughout final design and construction activities to ensure all interested citizens would be notified about meetings and project news. • Potential methods to mitigate tolling for minority and low-income populations, such as special programs to facilitate use of the managed-lane system for low-income populations would be explored. • Relocation assistance would be provided.
Safety and Security	• No impact.	• Emergency response times would improve.	• No mitigation required. • As appropriate, design features that may aid emergency access would be considered during future stages of project development.

Table 5-29. Summary of Potential Environmental Impacts and Mitigation Measures (continued)

Impact	No-Build Alternative	Preferred Alternative	Mitigation Measures for Preferred Alternative
Visual Quality and Aesthetics	• No impact.	• Potential to generate less than substantial visual impacts to viewers of the road from adjacent land uses, but not out of context with the existing highway setting. • The use of aesthetic finishes, treatments, and landscaping can create a positive change in the corridor by creating a potentially unifying visual element along the highway for both views from the roadway and views of the roadway from adjacent properties and roadways.	• The height of walls would be mitigated visually through the use of context-sensitive aesthetic finishes or treatments and, where possible, landscaping. Community outreach to this end would be implemented during final design.
Parklands and Other Section 4(f) Properties	• No impact.	• No impact to Chattahoochee River National Recreation Area, Olde Rope Mill Park, or a baseball field in the Deer Run Neighborhood. • No right-of-way or easements required from parklands. • Temporary construction impacts would occur on the Bob Callan Trail, but no anticipated permanent adverse impacts. Because the trail is a Section 4(f) resource and the project would have temporary impacts on the trail, the project would need to comply with the requirement for Section 4(f) approval based on Section 774.13(d). • Would not prevent the future construction of any of the programmed or proposed trails within the study area.	• Coordination with Cobb County Department of Transportation for the Bob Callan Trail section. • Pedestrian and bicycle traffic on the Bob Callan Trail would be maintained by means of an approved traffic control plan during construction of proposed bridges. • Conditions to be provided in Transportation Management Plan (TMP). • Precautions would be taken to ensure the safety of the trail users during the construction. • The trail facility would not be used for construction staging. • Construction of the managed lanes over Bob Callan Trail would be of limited duration. • Construction of the proposed bridge widening would occur at night when the Trail is closed. The Trail would remain open during the day during normal operating hours. • No change in ownership would occur for any parklands. • Any impact to the Bob Callan Trail due to construction activities would be mitigated by restoring the Trail to pre-construction conditions.

Table 5-29. Summary of Potential Environmental Impacts and Mitigation Measures (continued)

Impact	No-Build Alternative	Preferred Alternative	Mitigation Measures for Preferred Alternative
Historic and Archaeological Resources	• No impact.	• No impact.	• No mitigation required.
Air Quality	• No impact.	• Not expected to violate current applicable NAAQS or MSAT levels. • Project is in a non-attainment area for $PM_{2.5}$. Based on the results of the interagency consultation process, it was determined that the project is not a project of air quality concern and a quantitative hot-spot analysis is not required.	• Based on the results of the interagency consultation process, it was determined the project meets the standards of the Clean Air Act and 40CFR93.123(b)(1). • No mitigation required.
Noise	• No impact.	• Along I-75, road traffic noise would affect approximately 1,451 Activity Category B sites, 467 Activity Category C sites, and 59 Activity Category E sites. • Along I-575, road traffic noise would affect 139 Activity Category B sites and 19 Activity Category C sites.	• A final decision on the installation of sound barriers would be made upon completion of additional detailed noise abatement analysis based on final design and public outreach to those property owners.
Ecosystems	• No impact.	• No effect on 10 threatened and endangered species. • "May affect, not likely to adversely affect" Cherokee darter. • "No significant adverse affect" to Chattahoochee crayfish and lined chub.	• Use best management practices during design and construction to ensure that the Cherokee darter and its potential habitat, the Chattahoochee crayfish and the lined chub are not impacted. • In accordance with the Migratory Bird Treaty Act of 1918, right-of-way clearing would preferably be conducted outside the general bird nesting season. • Conduct and document independent survey for migratory birds prior to any construction or demolition of any bridges or culverts. • Minimize clearing, cutting, and pruning trees where possible along the corridor.

Table 5-29. Summary of Potential Environmental Impacts and Mitigation Measures (continued)

Impact	No-Build Alternative	Preferred Alternative	Mitigation Measures for Preferred Alternative
Water Resources	• No impact.	• 3,025 linear feet of streams impacted. • 17 acres of 100-year floodplain impacted. • 0.3 acre of wetlands impacted. • CLOMR and LOMR required for crossing of Hope Creek and Rottenwood Creek	• Use best management practices during design and construction phases. • During design phase, avoid and minimize impacts by: reducing cut and fill limits, adjusting slope ratio, adjusting design and location of the managed-lane interchanges, reducing the amount of right-of-way, and exploring use of bottomless culverts or bridges over stream crossings. • For temporary sediment loading, use standard sedimentation, erosion, and hydrologic control measures. • Preserve roadside vegetation beyond the limits of construction, where possible. • Act in accordance with the April 2004 USACE Standard Operating Procedure for affected stream beds and wetlands. • GDOT would work closely with the USACE to fully assess and potentially provide rehabilitation and restoration of wetlands in the corridor. • Coordinate with USACE for GDOT to use a commercial mitigation bank or within GDOT's mitigation banking system. • Obtain a Section 404 Individual Permit and a NPDES Permit.
Geology and Soils	• No impact.	• No impact.	• Implement best management practices to minimize soil erosion and sedimentation in and around the study area.
Hazardous Materials	• No impact.	• 11 medium-rated potentially contaminated parcels are located along I-75. • Of these 11 medium-rated parcels, 8 parcels could be affected by potential right-of-way purchase and construction easements.	• Conduct a Level II assessment at all sites where right-of-way is required.

Table 5-29. Summary of Potential Environmental Impacts and Mitigation Measures (continued)

Impact	No-Build Alternative	Preferred Alternative	Mitigation Measures for Preferred Alternative
Construction Impacts	• No impact.	• Short-term impacts related to noise, visual quality, dust, vehicular access, and water quality. • 0.7 mile of longitudinal encroachments to 25-foot vegetative buffers as a result of the construction activities.	• Sequence contractor activities to minimize disruptions of traffic, parking, and access. • Implement maintenance of traffic plan. • Contain construction activities within as small an area as possible. • Construction noise and hours to be limited. • Develop storm water management plans and sedimentation and erosion control plans. • Comply with Georgia mitigation requirements for stream buffer variance.
Indirect and Cumulative Effects	• No impact.	• No adverse indirect or cumulative effects.	• No mitigation required.

5.20 Permits and Other Federal Actions Needed

The following permits and federal actions would be required to implement the Preferred Alternative:

Government Actions:

- FHWA approval of the *I-75/I-575 Interchange Justification, Modification and Interstate Systems Analysis Report* (IMR/IJR/SA)
- FHWA issuance of the NEPA Record of Decision
- FHWA approval of the Final Project Management Plan
- Secretary of Transportation approval of the TIFIA loan, if available
- FHWA approval of tolling authority
- FHWA approval of the Financial Plan
- FHWA authorization of federal funding for right-of-way and construction
- SRTA approval of the tolling policy proposed by the P3 Developer
- FEMA approval of a Conditional Letter of Map Revision (CLOMR) and FEMA issuance of a Letter of Map Revision (LOMR) for the crossing of Hope Creek and Rottenwood Creek

Permits:

- USACE Section 404 Individual Permit
- USACE 401 Water Quality Certification

- FEMA No-Rise Certification for Floodways
- Stream Buffer Variance
- National Pollution Discharge Elimination System (NPDES) Stormwater General Permit for Construction Activities
- Noise Ordinance Variance (for nighttime construction work)
- Street Use Permit

CHAPTER 6
CONSULTATION AND COORDINATION

6. CONSULTATION AND COORDINATION

Good communication among agencies, stakeholders, the public, and affected property owners is of paramount importance to the overall success of this transportation project. Public involvement and agency coordination are especially important in the implementation of the National Environmental Policy Act of 1969, as amended (NEPA), environmental review process. Because of the regional importance of the Northwest Corridor Project, numerous stakeholders have been invited to attend outreach activities. Stakeholders include, but are not limited to, the cities of Atlanta and Marietta, Cobb County, Cherokee County, the Metropolitan Atlanta Rapid Transit Authority (MARTA), the Cobb Chamber of Commerce, the Midtown Alliance, the Latin-American Association, the Town Center and Cumberland Community Improvement Districts (CIDs), educational institutions, military installations, major employers and business owners, homeowners groups, property owners, environmental interest groups, minority and low-income communities, and members of the general public.

This chapter provides an overview discussion of the public involvement events and agency coordination activities that have been conducted to engage stakeholders in the public decision-making process for this project since the initial Notice of Intent to prepare the Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS). For a detailed description of public involvement and agency coordination activities that occurred prior to the publication of the AA/DEIS, the reader should consult AA/DEIS Chapter 6. For a detailed description of public involvement and agency coordination activities that occurred between the publication of the AA/DEIS and the Supplemental Draft Environmental Impact Statement (SDEIS), the reader should consult SDEIS Chapter 6.

The engagement of stakeholders and members of the public is reflected in comments received on the two prior environmental documents. The comments on the AA/DEIS are reproduced in Appendix K of this Final Environmental Impact Statement (FEIS). However, as the project has substantially changed since the publication of the AA/DEIS and the Preferred Alternative is not directly related to the build alternatives evaluated in that document, many of these comments are no longer pertinent. Responses to all of these comments, however, are included in Appendix K following the individual comment letters, forms, and emails. Comments on the SDEIS and the Two-Lane Reversible Alternative also are reproduced for public review and can be found with the Georgia Department of Transportation's (GDOT) responses in Appendix J. In addition, Appendix D contains reproductions of tribal and government agency correspondence since project initiation.

All materials for meetings with agencies and other project stakeholders, including meeting minutes and summaries, are contained in the project files because they are considered part of the environmental compliance record. As part of the administrative record, copies can be requested for review at the main office of GDOT.

6.1 Public Involvement Program

Generating public awareness, and ultimately public acceptance and support, are key objectives of the project's public involvement program. In preparation for the AA/DEIS, the project study team prepared the *Public Involvement Plan* (Sycamore Consulting, 2004). This document was a "living document" and has been updated several times over the past several years. The project study team developed a new plan to guide efforts related to the preparation of the SDEIS (Sycamore Consulting, 2009a). This plan was then updated in March 2010 when the project study team learned a Brazilian community resided in the project corridor (Sycamore Consulting, 2010). And in May 2011, the plan was again updated to outline outreach activities to be conducted in support of the FEIS and the GDOT noise policy (Sycamore Consulting, 2011).

The public involvement program was designed to engage agencies, stakeholders, and the public as participants and encourage them to provide meaningful input into the public decision-making process. The program established various formats for information exchange and established communication ties with existing community groups and organizations. Outreach efforts have included educating the public on the purpose and progress of the project by highlighting local issues, technical considerations, and potential environmental impacts. The paragraphs below describe the tools and techniques used to date in the public involvement program.

6.1.1 Project Mailing List and Database

In order to promote a discourse with those affected by the proposed transportation project, the project study team compiled a database of residents, business and property owners, elected officials, neighborhood organizations, and other affected parties at the start of the public involvement activities in 2005. As outreach activities have occurred, this mailing list database has been updated. At the start of the SDEIS, an estimated 1,500 stakeholder names were listed. The list includes stakeholder names, addresses, telephone numbers, emails, and other contact information. GDOT used this list to contact people and distribute announcements of upcoming events, meeting invitations, newsletters, meeting summaries, and other important project information. The project study team continues to engage new stakeholders and add them to the database. Just prior to the publication of this FEIS, over 1,600 names were listed in the database.

6.1.2 Project Hotline

Since project initiation, the project study team has maintained a project-specific telephone hotline at (404) 377-4012. During business hours, callers may speak to a project representative or leave a message; and during non-business hours, callers may leave a message and/or request a call-back during business hours. Callers can ask questions or leave comments. In addition, the hotline has used pre-recorded messages to announce the dates, times, and locations of upcoming public meetings. Recorded messages also have been posted to answer general questions from the public. All calls are documented. The hotline number has been published in the project information booklet, project newsletter, flyers, fact sheets, and on the project website.

6.1.3 Project Website and Other Electronic Media

Ongoing project information has been posted on a project website. Prior to the publication of the AA/DEIS, the website was at Uniform Resource Locator (URL): *www.nwhovbrt.com*. After the publication of the AA/DEIS, the project study team created a new project website at URL: *www.nwcproject.com*. This current website provides updated project information about the Preferred Alternative. A link was posted on the old website directing the public to the new website. A link from the current website to the old website also was provided so the public could read historical information about the project. In addition, a letter was distributed to all database stakeholders informing them of the new website.

At both project websites, the public has been able to read about the project history, background, process, schedule, and alternatives. The public can access and download project documents, newsletters, and other project-related materials. In addition, the public has been able to directly submit email comments through the websites. The current email address for comments is *nwcpcomments@projectsolvemail.com*. A total of 298 such email comments were received prior to the publication of the SDEIS. More than 50 email comments were received prior to the publication of this FEIS. Some of these email comments had attached comment letters.

Associated with the public outreach for the SDEIS, the project study team also used the social media tools Facebook (*http://www.facebook.com/pages/ Northwest-Corridor-Project/317782841180?ref=ts*) and Twitter (*http://twitter.com/i75xi575*) to further promote project awareness and disseminate information in a timely manner. More than 60 friends on Facebook and six Twitter followers submitted comments.

6.1.4 Newsletters and Fact Sheets

Newsletters and fact sheets have been an integral part of the public involvement program. These materials have continued to be distributed throughout the project study to provide stakeholders with detailed information about the project, to announce opportunities for public input, and to chronicle project-related feedback and activities.

Through May 2007, the publication of the AA/DEIS, a total of four newsletters had been distributed. The newsletters in March 2005 and June 2005 explained the proposed project, the planning process, schedule, and alternatives under consideration. Stakeholders were told about project information resources and where they could be found, including both physical access (e.g., libraries, GDOT offices) and remote access (e.g., Internet-based website). Methods that stakeholders could use to submit comments also were explained. The first newsletters also highlighted the station area planning efforts for the proposed bus rapid transit system, which is no longer part of the proposed project. The November 2005 newsletter provided a summary of public concerns as well as announced the November 15, 2005 public information open house. A fourth newsletter distributed in the fall of 2006 provided updates to the project study and alerted stakeholders of upcoming public involvement activities leading to the publication of the AA/DEIS.

After the publication of the AA/DEIS, additional newsletters and fact sheets were distributed. Newsletters were published in the winter, spring, and fall of 2010. The newsletters highlighted revisions to the project. In particular, the new Two-Lane Reversible Alternative (the SDEIS Build Alternative) was described. In addition, the newsletters provided an update for the project schedule and identified ways for the public to stay involved and submit comments. Distributed fact sheets address the following topics: the project purpose and need statement, project description, and the GDOT public-private partnership (P3) process. Copies of these newsletters and fact sheets are posted on the project website.

In each case, paper copies of the newsletters and fact sheets have been distributed widely. They have been sent to agencies and stakeholder organizations, distributed at public meetings, and emailed to the database of general public stakeholders. Specifically, they have been delivered to the following: Cobb County, City of Marietta, and Cherokee County government offices, Cobb and Cherokee county libraries, social service organizations, and a number of churches. Newsletters and fact sheets originally were prepared in English and Spanish. With the identification of the Brazilian population in the project area in March 2010, subsequent newsletters starting with the fall 2010 newsletter and fact sheets were translated into Portuguese.

6.1.5 Stakeholder Meetings

A wide variety of stakeholder meetings have been held in support of the project's NEPA environmental review process. These have included meetings that were separately held for representatives of government agencies, organizations, groups, and citizens, as well as meetings all stakeholders were invited to. There were very large public information meetings and public hearings. There were interagency meetings, community leadership meetings, and neighborhood meetings. There were meetings held for special interest groups such as the trucking industry, emergency incident management, or property owners that might be affected by property acquisition. In some instances, just a few representatives of the project study team were invited to attend community organization meetings, such as the speakers bureau events. Other times, informal display board and kiosk events were held at community facilities (e.g., churches and transit centers) or social service organizations. These stakeholder meetings are described in the paragraphs below.

6.2 Project Scoping

The NEPA regulations require that one of the very first public outreach efforts is associated with initiating the NEPA environmental scoping process. The purpose of scoping is to provide an opportunity for all interested parties to participate in the development and refinement of the project purpose and need, alternatives, and environmental analysis.

For this project, the initial scoping activities occurred in July 2004. The project study team sent notices to tribal, federal, state, regional, and local government agencies. Public meetings were announced through newspaper display advertisements. A total of 59 interest groups were invited to the community leadership briefing on July 27, 2004. An additional 54 government agencies were invited to the interagency meetings held on August 4 and 19, 2004. With the addition of the truck-only lanes in August 2005, an additional round of agency and public scoping meetings were held in early 2006. Interagency meetings were held in January 2005 and January 2006.

Four public information open house (PIOH) meetings were held as part of the scoping process. These meetings were held in various locations in the project area between August 2004 and April 2006. Invitations were sent to elected officials, government agencies, and residents with display advertisements appearing in three regional newspapers and notices placed on corridor billboards. Between about 110 and 270 persons attended each of these meetings. Between August 2004 and May 2006, a total of nine speakers bureau events were held with project area organizations and community groups. Additional special-interest group meetings were held with local government representatives, the trucking industry, minority and low-income populations, potentially affected property owners, and others.

A scoping information booklet was developed for use at these scoping meetings as well as for distribution at subsequent meetings prior to the publication of the AA/DEIS. In particular, this booklet presented the transportation needs for the Northwest Corridor, described the project alternatives, and outlined the NEPA environmental review process.

6.3 Station Area Planning

Special community outreach activities were conducted for the originally proposed Bus Rapid Transit (BRT) transit stations, which were part of the high-occupancy vehicles (HOV)/truck-only lanes (TOL)/BRT and HOV/TOL/Reduced BRT Alternatives evaluated in the AA/DEIS. In particular, the purpose of these meetings was to involve the community in the development of land use and circulation plans for each of the proposed BRT stations. By soliciting community input, the project study team hoped that the proposed transit stations would be designed to better fit into the individual context of each neighborhood and support neighborhood cohesion and values.

A total of 14 meetings were held to coordinate the station area planning efforts with local governments. Two phases of community meetings were held. Following a kick-off meeting, six community meetings were held in both the northern and southern portions of the corridor to capture community input for the three northern BRT stations and four southern BRT stations. These meetings occurred in April, May, and June 2005. In February 2006, the second phase of the station area planning effort began. This second phase included a series of three public meetings and charrette meetings for each of the five proposed BRT stations. Individual meetings were held with key corridor stakeholders, too. Between May and August 2006, additional meetings were held with the technical staff of local governments with land use jurisdiction over the proposed five BRT stations.

Prior to the publication of the SDEIS, however, the BRT element of the proposed project was dropped from further consideration. Furthermore, the Preferred Alternative evaluated in the FEIS does not include modification or construction of any transit stations. As the BRT element and transit stations are no longer part of the proposed project, no additional outreach regarding station area planning has occurred.

6.4 Coordination with Affected Parties

To broaden the public outreach efforts and gain a more comprehensive understanding of the project's potential impacts on specific affected parties, additional coordination meetings were held with special interest groups. A total of 11 stakeholder interviews were conducted with organizations operating in low-income and minority communities during the fall of 2005. The purpose of these interviews was to determine appropriate and effective avenues for outreach to minority and low-income constituencies residing within the project area, to gain insight about perceived impacts to these populations and to gather input on how the project could incorporate strategies to best meet the needs of these populations. Two information forums were arranged in December 2005 and May 2006 with trucking industry representatives to brief them on the project and obtain their input on the truck-only lanes and tolling concepts that have since been eliminated for consideration. Two workshops were held in February and March 2006 with state and local emergency response agencies to discuss incident management issues for the Northwest Corridor Project. There were five meetings held with potentially affected property owners during the summer of 2006 to review the project timeline leading up to construction and the property acquisition process.

6.5 Comments Leading to Preparation of the AA/DEIS

The public outreach described above in Sections 6.1 through 6.4 resulted in over 470 comments on the four build alternatives evaluated in the AA/DEIS. This number includes repetition of some issues from multiple commenters. The submitted comments included comment forms, emails, hotline messages, letters, and verbal comments identified in public meeting court reporter records.

Comments included support of the project, opposition to the project, and questions about the project. Comments supported the original HOV/BRT alternative, the U2 Concept (elevated HOV lanes located to either side of the existing highway lanes), the elimination of the Bells Ferry and Allgood Road BRT stations, and center alignment for the HOV lanes and TOLs. There were comments supporting and opposing the proposed truck-only lanes. Other comments opposed the high-occupancy-toll (HOT) lanes and mandatory use and tolling for the TOLs and HOV access at Allgood Road. Concern was expressed over construction traffic impacts, noise impacts of the truck-only lanes, and potential increases in air pollution. A substantial number of comments were received concerning project costs and funding. Questions included in the comments asked about property acquisition procedures and the timing of acquisition.

These comments guided the fine-tuning of the purpose and need statement, development of the project alternatives, and environmental analysis presented in the AA/DEIS.

6.6 AA/DEIS Comments

Following publication of the AA/DEIS in May 2007, an estimated 850 comments were received on the Northwest Corridor Project. Again, this number of comments included repetition of some the same issues. The comments included substantial comments from 13 federal, state, and local governments; 19 businesses and organizations; 11 trucking industry representatives; and over 70 individuals. Copies of the comments as well as the court reporter documents for the three public hearing open house events are reproduced in Appendix K of this FEIS.

The comments received on the AA/DEIS addressed three main topics – the design and operation of the alternatives, the environmental impacts, and the financial feasibility of the project. Substantial opposition was expressed concerning the proposed truck-only lanes due primarily to the negligible benefit provided and the proposed mandatory use of the tolled facilities. Comments pointed out that the proposed operating plans for the bus service for both the BRT and Reduced BRT element of the proposed project were unreasonable and provided exceptionally high transit service at a substantial cost to the region. Agencies, major stakeholders, and members of the public supported the proposed HOV or HOT lanes, but voiced concern that the AA/DEIS did not evaluate the HOV element of the proposed project as a stand-alone build alternative. Substantial negative comment was received concerning the large footprint of the project (including two HOV and two TOL lanes in each direction on I-75) and its substantial adverse impacts on adjacent neighborhoods and property owners. Comments also called attention to the very high cost of construction and the operation costs of all of the proposed build alternatives. Comments considered the proposed project potentially infeasible and/or inappropriate allocation of public funds for the construction and operation of a single transportation project.

6.7 Project Refinement and Renewed Outreach

As GDOT progressed with refining the Northwest Corridor Project in response to comments on the AA/DEIS, the project stakeholders were provided with ongoing opportunities to provide comments. These activities are described in the several sections below.

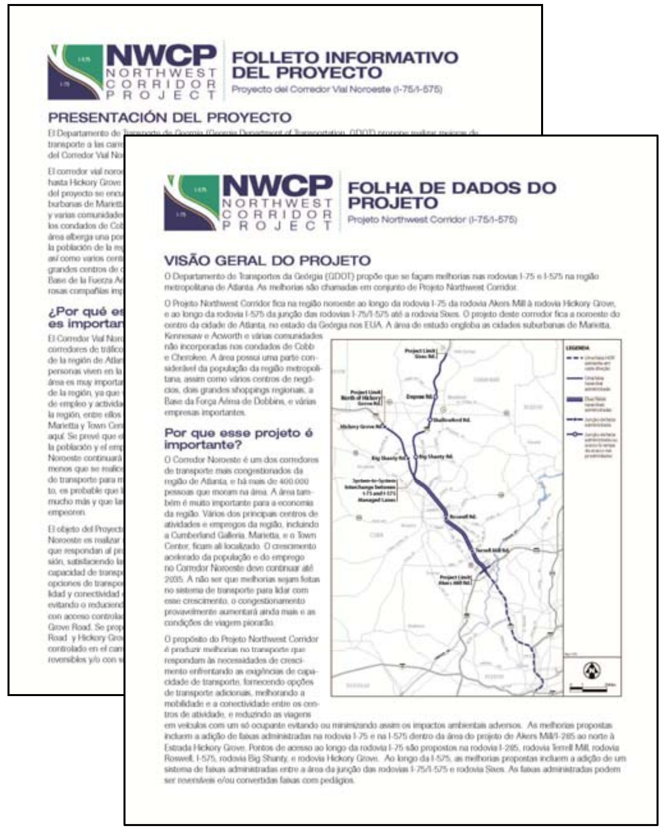
6.7.1 A Second Notice of Intent

To ensure agencies and members of the public were informed about changes in the proposed project, the Federal Highway Administration (FHWA) and GDOT decided to prepare a SDEIS and issue a second Notice of Intent in the *Federal Register* (see Appendix A). This notice was published on December 24, 2009. The notice advised interested parties of a new build alternative – the Two-Lane Reversible Alternative. The notice also alerted agencies and the public that community meetings were planned to describe the alternative and to solicit comments.

Immediately following the publication of the second Notice of Intent, a letter was distributed to the over 1,500 stakeholders listed on the project mailing list database. This letter described the Two-Lane Reversible Alternative, provided the address of the updated project website, and outlined ways comments could be submitted.

6.7.2 Additional Newsletters

Leading up to the publication of the SDEIS, three additional project newsletters were distributed to the stakeholders listed on the project mailing list database. The winter 2010 newsletters highlighted the nature of the AA/DEIS comments and reduced funding available for the project. It described the new concepts evaluated and the new SDEIS Build Alternative proposed for detailed evaluation. In addition, it described the planned design-build public-private partnership arrangement for construction of the project. The second newsletter published in spring 2010 described recent community outreach events, comments received on the proposed managed-lane system, and provided more detailed information about managed lanes and the operation of reversible-lane systems. With the publication of the SDEIS in September 2010, a third newsletter was published and distributed to over 1,500 stakeholders. This newsletter announced the publication of the environmental document, the availability of new information on the project website, and the two public hearing open house events held on October 21 and 26, 2010.



Spanish and Portuguese translations of the spring 2010 project fact sheet.

All three newsletters were printed in English and Spanish, and the third newsletter was also translated into Portuguese. The English language versions were sent to all stakeholders listed on the mailing list database. The translated versions were distributed at community meetings, kiosk events, and public hearing open houses. These materials were posted on the Internet, as well.

6.7.3 Small Group Meetings

Leading up to the publication of the SDEIS, the project study team met with civic, business, community, faith-based, minority, low-income, and other special interest groups. The purpose of these meetings was to provide information about the project, listen to public concerns, answer questions, and seek continued participation and support. Interaction with these organizations and communities helped GDOT establish closer relationships, facilitate communication and involvement, and develop a base of support for project implementation. These meetings were held in March and April 2010. On December 14, 2010, members of the project study team met with representatives of the Atlanta Area Council of the Boy Scouts of America to discuss potential environmental impacts to their regional Volunteer Service Center building located adjacent to the Northwest Corridor.

6.7.4 Press Releases

Newspaper articles and press releases were published regarding the Northwest Corridor Project. In June 2009, an article was published in the Atlanta Journal-Constitution (AJC) detailing the changes to the Northwest Corridor Project alternatives and quoting GDOT's State Innovative Program Delivery Engineer, Darryl VanMeter. An additional AJC article published in November 2009 announced GDOT's P3 Program and discussed the Northwest Corridor Project as one of GDOT's top priority transportation projects. In March 2010, GDOT distributed a press release to multiple media outlets announcing the continuation of the environmental process for the Northwest Corridor Project, the avenues by which the public could submit comments, and the address of the new project website. In addition, press releases were distributed prior to the public hearing open house meetings held in October 2010 and local television news programs announced the meetings.

6.7.5 Meetings with Government Agencies

Over 85 agencies, organizations, and stakeholders were invited to participate in a project stakeholder briefing held on Wednesday, January 27, 2010 following the publication of the second Notice of Intent. A total of 17 agencies represented by 31 persons attended the meeting. The briefing was held at the Cobb Chamber of Commerce. Invitees included local governments, elected officials, social service organizations, community organizations, transit providers, and federal, state, and local agencies. A complete list of invitees to this agency briefing meeting is contained in Appendix D.

In addition, the project study team consulted with a number of local, state, and federal agencies during the preparation of technical reports supporting the SDEIS. These agencies include the following: Atlanta Regional Commission (ARC), Georgia Department of Natural Resources, Wildlife Resources Division, GDOT Archaeologist, the State Historic Preservation Officer (SHPO), Georgia Department of Transportation, State Materials and Research Engineer, U.S. Department of Interior, Federal Emergency Management Agency, U.S. Environmental Protection Agency (USEPA), and the FHWA. Copies of communications with these agencies and others are reproduced in Appendix D. For those organizations that submitted formal comment on the AA/DEIS, copies of the comment letters and responses are found in Appendix K of this FEIS.

6.7.6 Coordination with Minority and Low-Income Populations

The public involvement process for the Northwest Corridor Project has continued to include outreach techniques tailored to meet the needs of minority, non-English speaking, limited English proficient, and low-income populations that may be affected by the project. Care was taken to ensure that outreach events were held at locations accessible for all potential users of the proposed managed-lane system (i.e., those commuters located in the travel shed of Cobb and Cherokee Counties as identified through traffic analyses).

During the development of the SDEIS, minority and low-income population outreach included three staffed public outreach kiosk events and a fourth unstaffed event. The first two events were held on March 8, 2010 at the Cobb County Motor Vehicle Tag Office and on March 14, 2010 at the Transfiguration Catholic Church. The locations were selected due to their proximity to low-income populations and church outreach to Spanish-speaking populations. At these events, fact sheets were distributed in English and Spanish. Verbal comments were recorded in a meeting summary. Citizens could review the project area map, pick up a fact sheet, and hear a brief overview of the Northwest Corridor Project from a member of the project study team. At the church, team members were available to discuss the project at the kiosk before and after both the English and Spanish religious services. At these kiosk events, a Spanish interpreter was available.

An unstaffed kiosk display was set up for two weeks starting April 9, 2010 at the Cobb County Center for Family Resources. This social service organization assists low-income persons, particularly those on the verge of becoming homeless. The team members talked to social service staff to see if any additional comments, reactions, or concerns had been expressed to staff by people reviewing the project information. The project study team also asked family resources staff for their own interpretation of any potential project impacts on low-income populations served by the organization.

A fourth kiosk event occurred on August 19, 2010 at the Cobb Community Transit Marietta Transfer Center. The target audience for this event was the project area transit-dependent population. The transfer center is a major hub for regional transit services. Two staff members as well as Spanish and Portuguese translators were present at the kiosk. Over 60 newsletters were distributed, including 19 in Spanish. Comments received at this event generally supported the proposed managed lanes.

Through comments received at a kiosk event held in March 2010, the project study team learned the project area has a substantial Portuguese-speaking Brazilian population. For these residents, a special outreach plan was developed. It included contacting organizations and places of worship in the project area to ask if project information could be distributed to their members and how this could best be accomplished. In April 2010, a Portuguese translation of the project fact sheet was sent to four churches serving the Brazilian community, as well as the Atlanta-Rio de Janeiro Sister Cities Committee, the Brazilian Community Association of Atlanta, and the Brazilian-American Chamber of Commerce of Georgia.

Attendees at the August 19, 2010 Kiosk at the Marietta Transfer Center

Pursuant to Section 106 of the National Historic Preservation Act, notices also were sent to the following eight tribal governments: Alabama-Coushatta Tribe of Texas, Chickasaw Nation, Eastern Band of Cherokees Indians of North Carolina, Muscogee (Creek) Nation of Oklahoma, Poarch Band of Creek Indians, Seminole Nation of Florida, Thlopthlocco Tribal Town, and the United Keetoowah Band of Indians.

Additional outreach activities will be conducted during the review period following the publication of the Notice of Availability for the Final Environmental Impact Statement in the Federal Register.

6.8 Comments Affecting Preparation of the SDEIS

As described in the above sections, the project study team has maintained ongoing community outreach activities to solicit comments on the proposed Northwest Corridor Project. A total of 44 additional public comments were received that contributed to the preparation of the SDEIS. Table 6-1 lists the number of comments received by type. Copies can be found in Appendix J of this FEIS.

Table 6-1. Response by Comment Type

Comment Type	Number of Responses
Written Comment Form	2
Information Kiosks	18
Project Email	21
Project Hotline	2
Letter Mail	0
GDOT Phone Call	1
Total Number of Responses	**44**

In general, the comments submitted expressed support for the project. One comment expressed opposition to the project, specifically about the managed-lanes concept. No comments question the purpose or need for the project. Specific comments focused on suggestions for refining the proposed SDEIS Build Alternative, available funding sources, and concerns over specific environmental impacts. The following list outlines the major themes raised in these comments.

- Support for the new alternative – the Two-Lane Reversible Alternative
- Suggestions for design and operation revisions for the proposed alternative
- Suggestions to include future transit options, particularly rail transit
- Concern over cost and funding sources for the project
- Concerns about tolling for the managed-lane system
- Questions about environmental impacts to specific properties
- Potential impacts and additional traffic congestion along specific roads
- Additional noise impacts
- Potential effects on the Brazilian population in the Roswell Road area
- Traffic congestion during project construction.

6.9 Soliciting Additional Public Input

Prior to the start of the SDEIS comment period, notices for public hearing open house events were published in local newspapers including the *Atlanta Journal Constitution*, *Marietta Daily Journal*, *Cherokee Tribune*, and *Mundo Hispanico*. The public hearing open house events were the meetings described in the NOI published in December 2009 (see Appendix A). In addition, there were public service announcements on local radio stations.

The project study team hosted two public hearing open houses on October 21 and 26, 2010. The first meeting was held at the Woodstock High School in Cherokee County. The second meeting was held at the Double-Tree Hotel in Marietta in Cobb County. The format of these meetings was similar to past public hearing open house events. Members of the project study team greeted attendees near the door and encouraged them to view the posted display boards and discuss their concerns with members scattered around the room. A recorded presentation by the GDOT project manager included a video simulation of the proposed Two-Lane Reversible Alternative. The recording looped so that people attending a various times could see the entire presentation. A court reporter recorded public comments and meeting attendees were encouraged to fill out comment cards available on a centrally located table.

The purpose of these two large meetings was to invite agencies, stakeholders, and the public to provide comments on the SDEIS. In particular, comments were solicited on the Build Alternative, as well as the environmental analysis presented in the document. There were a number of ways for agencies, organizations, stakeholders, and members of the public to submit comments. All comments were welcomed.

To encourage broad public participation, Spanish and Portuguese language translators were present at the public hearing open house events to facilitate submittal of comments from individuals with limited-English proficiency. Telephone numbers also are listed on the project website to alert persons with disabilities, a hearing impairment, or limited-English proficiency that they could call for assistance in either attending the public hearings or making comments on the SDEIS.

6.10 SDEIS Comments

The comment period for the SDEIS extended from September 17 to November 3, 2010. During this time, GDOT received comment letters from two federal agencies, 36 persons representing stakeholders and organizations, and 56 citizens (see Appendix J). These included six letters, 34 comment forms, and 52 email comments – some of which attached letters. One detailed letter was submitted in Spanish. In addition, 11 citizens provided verbal comments for the court reporter present at the two public hearing open house events held on October 21 and 26, 2010.

These comments were both positive and negative about the Two-Lane Reversible Alternative. Some comments were very general in nature, while others expressed very specific concern about one or more potential environmental effects on individual properties. Major topics addressed by the comments received included the following:

- General support, even excitement, over the proposed managed-lane system.
- Strong opposition expressed generally about the proposed managed-lane system.
- Requests for clarification about the engineering design (horizontal or vertical alignment) or operation of the managed-lane system and its connections with existing highways and HOV lanes in the Northwest Corridor.
- Recommendations that additional reversible lanes should be provided north of the I-75/I-575 interchange, and questions about the number, location, and type of accesses proposed for the managed-lane system.
- Recommendations that additional transit should be included as part of the proposed transportation improvements, or provided in place of the proposed project with particular support expressed for future rail transit.

- Strong displeasure in the proposed tolling of the reversible lanes, inquiries about tolling policies for specific types of vehicles, and questions about how the tolls would be collected from local as well as out-of-state residents.
- Confusion about how toll rates would be set and how toll revenues would be dispersed between GDOT and the selected P3 Developer.
- Requests for additional information about project financing and sources of funding.
- Concerns drivers may not be willing to pay tolls, which could result in potential increased congestion on nearby arterial roads and/or financial infeasibility of the project.
- Concern about enforcement of carpools and payment of tolls.
- Concerns about visual impacts of retaining walls, sound barriers, and elevated portions of the managed-lane system.
- Concerns about safety of the reversible lanes as a new type of travel lane in the region and when the directional flow reversed on the facility, potential higher risk for crashes, and operational difficulties that could arise with snow and ice on the elevated portions of the managed-lane system.
- Site-specific concerns about potential construction-related congestion and effects on private property access, and similar issues during operation especially near the proposed managed-lane interchanges.
- Specific concerns about potential noise impacts at individual properties, requests for confirmation that the noise analysis evaluated these properties, inquiries about the height of potential sound barriers, and/or displeasure that increased noise levels would adversely change the outdoor use of individual properties.
- Concerns were expressed about potential adverse changes in property values.

6.11 Ongoing Agency Coordination

The project study team has continued to coordinate with government agencies from project initiation through preparation of this FEIS. As part of this effort, the project lead agencies, the FHWA and GDOT, have met on a regular basis. In addition, GDOT has coordinated with numerous government agencies regarding statutory and regulatory compliance issues of the proposed project. In Appendix D, over 40 agency written correspondences are presented to document these ongoing agency coordination efforts.

Initial agency coordination began in November 2002 with GDOT sending notification to initiate the Section 106 process to 13 public entities and a number of tribal governments. Through April 2007, correspondences document receipt of the early coordination information and requests by tribal governments to be a consulting party. Correspondence letters related to a number of technical reports were sent between State of Georgia agencies addressing concurrence on which historic properties are eligible for listing on the National Register of Historic Places (NRHP) and whether any archaeological resources would be adversely affected. A Finding of No Historic Properties Affected was concurred by the SHPO on April 27, 2007.

Over 20 correspondences were sent following the publication of the AA/DEIS in May 2007. Specifically, the National Geodetic Survey, Office of Environmental Policy and Compliance, and the USEPA sent comment letters on the AA/DEIS in July 2007, including requests for additional information due to environmental concerns. In September 2009, the Chickasaw Nation requested to defer consultation on the project. The GDOT sent letters in January 2010 to project stakeholders and agencies for open house and briefing meetings. During this period, various Georgia State agencies provided concurrence on updated findings in various project technical reports due to changes in the project. The GDOT requested the FHWA, which requested the US Fish and Wildlife Service, to initiate informal consultation under the Fish and Wildlife Coordination Act and Section 7 of the Endangered Species Act in June 2010. The GDOT issued determinations on negative findings on re-evaluations on potential effects on historic and archaeological resources due to changes in the area of potential effect (APE). In June, the US Fish and Wildlife Department also determined that the project would not likely affect the Cherokee Darter, adverse effects to streams were reduced and minimized during design, and remaining effects to steams would be unavoidable. The GDOT notified the Cobb County Department of Transportation in August 2010 of anticipated temporary impacts to the Bob Callan Trail during project construction and received concurrence of no adverse effect. That same month, the GDOT requested the Federal Emergency Management Agency early coordination regarding potential effects on floodplains.

Additional formal agency coordination has occurred since the publication of the SDEIS in September 2010. On November 2, 2010, the US Department of Interior responded that its review concluded that the SDEIS analysis of potential impacts to Section 4(f) resources was adequate and the agency concurred with Section 4(f) approval based on information provided in the SDEIS. In November, the Office of Environmental Policy and Compliance sent a letter stating the agency had environmental concerns and requested additional information be addressed in this FEIS considering changes in the project since the agency's letter in August 2007. On November 2, 2010, the USEPA responded that the SDEIS Two-Lane Reversible Alternative was rated "EC-2," meaning that environmental concerns exist and that additional information should be provided in the FEIS. In particular, USEPA expressed concern about MSATs, air and water quality impacts, environmental justice impacts, greenhouse gases, and construction and traffic noise impacts.

In February 2011, GDOT provided FHWA with documentation of the agency's commitment of funds for right-of-way and construction phases of the project. On February 10, 2011, the FHWA sent out for review its recommendation that the proposed project was not a project of air quality concern, was exempt from "hot spot" requirements, and met the statutory and regulatory transportation conformity requirements. The USEPA concurred with this recommendation on February 16, 2011. Moreover, on September 6, 2011, the FHWA approved the conformity determination in the recently adopted *PLAN 2040 Regional Transportation Plan* (*PLAN 2040* RTP) (ARC, 2011b), which means the project is part of the recently adopted RTP and the new *FY 2012-2017 Transportation Improvement Program* (ARC, 2011c).

Limited agency coordination has been conducted related to the protection of 10 stream 100-year floodplains in two watershed basins that are crossed by the project corridor. Technical studies were conducted between 2009 and 2011; and the GDOT State Bridge Engineer reviewed these draft reports. However, county coordination did not occur. The P3 Developer will be required to complete the evaluation, documentation, and approval process based on the final project design. Copies of the reports and the GDOT correspondence can be found in the *Hydraulic and Hydrological Technical Study* (Parsons Brinckerhoff, 2011g). To initiate federal agency coordination, the Federal Emergency Management Agency (FEMA) was invited to attend the January 27, 2010 Agency Briefing meeting and a coordination letter advising FEMA of the project design revisions was mailed on August 23, 2010 (see Appendix D). The Practical Alternatives Review (PAR) (GDOT, 2011) report for the Northwest Corridor Project was forwarded to the resource agencies and the PAR coordination process was completed on September 21, 2011 (see Appendix D). Coordination will continue with FEMA regarding potential floodplain impacts since a Conditional Letter of Map Revision (CLOMR) will be required for the Hope Creek and Rottenwood Creek crossings and community letters of concurrence will be required for most of the stream crossings.

On August 10, 2011, the U.S. Fish and Wildlife Service (USFWS) sent a letter to FHWA acknowledging notification of changes in project design that required relocation of Stream #8, a tributary to Rottenwood Creek, and the federal agency concurred that impacts to the stream are unavoidable and necessary to implement the proposed project. Moreover, the letter indicated the proposed mitigation fully satisfies GDOT's responsibility under the Fish and Wildlife Coordination Act.

Additional investigations and Section 106 review occurred in August and September 2011. On September 2, 2011, the SHPO concurred that an additional historic resource (Resource 20) is eligible for listing on the National Register of Historic Places. The SHPO concurred that this resource would not be adversely affected on September 16, 2011, which also documented that GDOT had fulfilled its responsibilities under Section 106 of the National Historic preservation Act of 1966, and subsequent amendments.

On September 15, 2011, the GDOT and State Road and Tollway Authority (SRTA) signed a Joint Resolution on funding for the Northwest Corridor Project. The resolution concludes it is advisable, feasible, and in the best interest of the transportation needs of the citizens of the State of Georgia that the Northwest Corridor Project be completed; the GDOT should issue the final Request for Proposals to accomplish the construction and operation of the project; the imposition of tolls is necessary for the financing of the project; and the maximum amount of public funds to be made available for the design, building, financing, operation, and maintenance of the project shall not exceed $300,000,000.

Additional federal, state, and local government coordination will continue to occur through preparation and approval of all construction permit applications for the proposed project.

6.12 The Next Step

Consultation and coordination with government agencies, stakeholders, and members of the public will continue through the completion of the environmental review process with the publication of the Record of Decision (ROD). Additional consultation and outreach will continue through project final design, construction, and operation.

Following the issuance of the Notice of Availability, a number of outreach activities are planned (Sycamore Consulting, 2011). The FEIS was posted on the project website *www.nwcproject.com*. Paper copies have been sent to the following libraries: Atlanta-Fulton County Library, Cobb County Library, and the Sequoyah Regional Library. A newsletter highlighting key points of the FEIS, ways to submit comments, and upcoming public involvement activities was distributed. Information kiosks will be held at malls, churches, service organizations, and other public meetings such as city council or county commission meetings. Project team members will be available upon request to present project updates to special interest groups. In addition, a public meeting will be held to discuss with property owners the potential sound barriers and effects on their property.

The review period for the FEIS will extend for 30 days following the publication date, after which FHWA may issue a ROD. Following the issuance of the ROD, FHWA may make a final decision regarding implementation of the Northwest Corridor Project.

If the Preferred Alternative is selected for implementation, GDOT and the P3 Developer both will meet with property owners to make final decisions regarding potential sound barriers and mitigation for visual impacts. The P3 Developer also will respond to public complaints during construction.

6.13 Statute of Limitations

Pursuant to Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) and 23 United States Code (USC) Section 139 (I), the FHWA intends to publish a notice in the *Federal Register* following publication of the NEPA ROD for the proposed Northwest Corridor Project. This notice would indicate that the agency has taken final action with respect to compliance with NEPA for the Northwest Corridor Project. If such a notice is published, claims seeking judicial review of this federal action will be barred unless such claims are filed within 180 days after the publication date of the *Federal Register* notice. The period of time for filing such claims may also be limited to a shorter time period as allowed in the federal laws governing judicial review of this type of federal action. If no notice is published in the *Federal Register*, then the period of time that otherwise is provided by the federal laws governing such claims would apply. At minimum, the period of time may only be limited by the Administrative Procedures Act of 1946 (5 USC Section 706 et seq.)], which allows claims to be filed up to six years after the federal action.

In addition, pursuant to SAFETEA-LU and 23 USC Section 139 (I), the FHWA intends to publish a notice in the *Federal Register* once the U.S. Army Corps of Engineers has taken final agency action by issuing permits and approvals for the Northwest Corridor Project. If such a notice is published, claims seeking judicial review of this additional federal action also will be barred unless such claims are filed within 180 days after the publication date of the *Federal Register* notice. The period of time for filing such claims may be limited to a shorter time period as allowed by law. If no notice is published, then the period of time that otherwise is provided by federal laws governing such claims would be up to six years after the federal action pursuant to the Administrative Procedures Act of 1946 (5 USC Section 706 et seq.).

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CHAPTER 7
EVALUATION OF ALTERNATIVES

7. EVALUATION OF ALTERNATIVES

This chapter presents the results of the evaluation and trade-offs analysis conducted for the Preferred Alternative developed for improving transportation conditions in the Northwest Corridor. The purpose of this chapter is to bring together the evaluation results, both qualitative and quantitative, for the Preferred Alternative. In this way, the benefits, transportation impacts, environmental consequences, and costs can be evaluated by decision-makers against the stated project goals presented in Chapter 1, Purpose and Need. Consideration of these evaluation results will facilitate the decision on the final alternative for improving Interstate 75 (I-75) and I-575 in the Northwest Corridor.

7.1 Results of Evaluation against Project Goals

As described in Chapter 1, goals were identified for the Northwest Corridor Project and used to develop alternatives for addressing transportation needs in the project area. The identified transportation needs include the following:

- Reduce congestion
- Improve mobility by reducing travel time and increasing reliability
- Improve access by improving connectivity between regional activity centers
- Improve safety by reducing congestion related crashes
- Reduce vehicle emissions by improving vehicular travel efficiency and increasing the proportion of high-capacity vehicles.

Based on the transportation needs, goals were developed for the Northwest Corridor Project. The goals address project effectiveness, environmental impacts, equity, cost effectiveness, and financial feasibility. The project goals are listed below:

- Improve transportation effectiveness of I-75 and I-575 that also contributes to the improved performance of the regional transportation system.
- Provide additional transportation choices or options to increase the capacity of I-75 and I-575.
- Improve the quality of life by improving mobility and minimizing adverse effects on both natural resources and the built environment.
- Improve transportation equity by providing an equitable distribution of benefits and impacts to all populations.
- Provide cost-effective and affordable transportation improvements.

Measures of effectiveness were used to evaluate how well the Preferred Alternative meets these project goals. These measures of effectiveness and the methodology used to evaluate the effectiveness of the Preferred Alternative are discussed in Chapter 4, Transportation Impacts, and Chapter 5, Environmental Consequences.

The Preferred Alternative would address project needs by providing managed lanes on I-75 and I-575 that would increase the capacity of the transportation system in the Northwest Corridor to accommodate existing and future travel demand. As a result, congestion in the general-purpose lanes under the Preferred Alternative is forecast to be less than what is projected under the No-Build

Alternative. The reduction in congestion would be greater in the opening year of the project than in 2035. As identified in Chapter 3, Affected Environment, most crashes on I-75 and I-575 are congestion-related. With the projected reduction in congestion under the Preferred Alternative, congestion-related crashes on I-75/I-575 are expected to be less under the Preferred Alternative compared to the No-Build Alternative.

Because travel times by auto and transit would decrease with the proposed improvements to I-75 and I-575, mobility would be improved over the No-Build Alternative. The proposed managed lanes also would provide for more reliable travel times for users of these lanes as compared to travel in the general-purpose lanes. The users of the managed lanes would include drivers and passengers in high-occupancy vehicles (HOVs), single-occupancy vehicles (SOV), and transit passengers. As a result, access to the regional activity centers in Downtown Atlanta, Midtown, Perimeter Center, Buckhead, Cumberland-Galleria, and Town Center would be improved over the No-Build Alternative. The managed-lane improvements to I-75 and I-575 also would attract traffic from parallel arterials, which could reduce congestion on nearby arterials (see Section 4.3.1).

In terms of air quality, the project is not predicted to cause or exacerbate a violation of the currently applicable National Ambient Air Quality Standards (NAAQS). Furthermore, it is anticipated that the project would have no measurable impact on regional mobile source air toxics (MSAT) levels. While the metropolitan area is classified as non-attainment for particulate matter ($PM_{2.5}$), the project has undergone a required interagency consultation process that determined the project is not a project of air quality concern and a quantitative hot-spot analysis is not required. The US Environmental Protection Agency (USEPA) concurred that the proposed project is not a project of air quality concern on February 16, 2011 (see Appendix D). Moreover, the project was listed in the adopted *Envision6 2030 Regional Transportation Plan* (RTP) (ARC, 2007b) and on September 6, 2011, the FHWA approved the conformity determination for the recently adopted *PLAN 2040* RTP (ARC, 2011b), which means the project is part of a conforming RTP and the new *FY 2012-2017 Transportation Improvement Program* (ARC, 2011c).

The effectiveness of the Preferred Alternative in achieving the project purpose and satisfying the need for transportation improvements in the Northwest Corridor is evaluated using project goals and a set of evaluation criteria and measures that specifically reflect each goal. A summary of the effectiveness of the Preferred Alternative against project goals is presented in Table 7-1 and discussed in this section.

7.1.1 Goal: Improve Transportation Effectiveness

The primary goal of the Northwest Corridor Project is to improve the effectiveness of I-75 and I-575, accommodate additional travel, and contribute to the improved performance of the regional transportation system.

7.1.1.1 Effectiveness of Preferred Alternative to Improve Travel in the Corridor

The effectiveness of the alternatives can be measured through analysis of changes in traffic volumes and corresponding changes in total vehicle miles of travel (VMT) and vehicle hours of travel (VHT) throughput, levels of service, and average travel times. Travel time savings for vehicle trips also were measured. The effectiveness analysis is based on projected changes in 2035 under the Preferred Alternative, as compared to the No-Build Alternative. The

Table 7-1. Summary of Effectiveness of Preferred Alternative

Project Goal/Criteria/Measures	Effects of Preferred Alternative Compared to No-Build Alternative
Goal: Improve Transportation Effectiveness	
• Effectiveness of Preferred Alternative in Improving Travel in the Corridor	
Changes in 2035 Highway Traffic Volumes	On I-75 and I-575, an increase in total ADT and a decrease in general-purpose lane ADT.
	Largest increase in total ADT on I-75 south of Delk Road (9 percent increase) and on I-575 south of Chastain Road (10 percent increase). All of total increase is in the managed lane, as general-purpose lane ADT's decrease for all highway segments.
	Largest general-purpose lane ADT decrease is on I-75 south of Chastain Road (3 percent decrease).
Changes in 2035 Highway Throughput	On I-75 and I-575, the average increase in total daily VMT throughput is 9 to 10 percent.
	Largest increase in VMT throughput on I-75 occurs during evening peak period in the northbound direction.
Changes in 2035 Highway Levels of Service (by Lane Group)	On I-75 and I-575 general-purpose lanes, marginal reduction in congestion during the southbound morning peak and northbound evening peak periods, with most of the highway segment level of service improvements occurring on I-75 north of I-575.
	On I-75 and I-575, all managed-lane segments operate between LOS B and LOS D during the southbound morning peak and northbound evening peak periods; most segments would operate at LOS C.
Changes in 2035 Average Travel Times (by Highway Segment)	Southbound morning peak period:
	• On I-75 general-purpose lanes, reduction in travel time between Hickory Grove Road and Akers Mill Road averages 8 minutes.
	• On I-75 managed lanes, travel times are 49 to 51 percent lower than in the general-purpose lanes.
	• On I-575/I-75 general-purpose lanes, reduction in travel time between Sixes Road and Akers Mill Road averages 8 minutes.
	• On I-575/I-75 managed lanes, travel times 39 to 51 percent lower than in the general-purpose lanes.
	Northbound evening peak period:
	• On I-75 general-purpose lanes, reduction in travel time between Akers Mill Road and Hickory Grove Road averages 14 minutes.
	• On I-75 managed lanes, travel times 56 to 63 percent lower than in the general-purpose lanes.
	• On I-575/I-75 general-purpose lanes, reduction in travel time between Akers Mill Road and Sixes Road averages 16 minutes.
	• On I-575/I-75 managed lanes, travel times 55 to 61 percent lower than in the general-purpose lanes.

Table 7-1. Summary of Effectiveness of Preferred Alternative (continued)

Project Goal/Criteria/Measures	Effects of Preferred Alternative Compared to No-Build Alternative
Changes in 2035 Travel Time Savings	On I-75:
	• 4,304 total daily VHT savings.
	• VHT savings of 3,743 during the northbound evening peak period (40,667 total vehicle hours traveled).
	On-I-575:
	• 1,250 total daily VHT savings.
	• VHT savings of 1,894 during the northbound evening peak period (18,383 total vehicle hours traveled).
• Effectiveness of Transit in Improving Travel in the Corridor	
Changes in 2035 Transit Service	Transit service frequency, service coverage, and hours of service would be the same as the No-Build Alternative, except for minor changes in bus routings with buses operating in the managed lanes on I-75 and I-575.
Changes in 2035 Transit Reliability	Transit service reliability would be substantially improved. On I-75 and I-575, all managed-lane segments operate between LOS B and LOS D during the southbound morning peak and northbound evening peak periods; most segments would operate at LOS C.
Changes in 2035 Transit Travel Time Savings	Reductions in travel time would be substantial. The travel time would be greatly reduced as compared to travel in the general-purpose lane, but would take longer than individual vehicles in the managed-lane system due to transit stops along the corridor.
• Effectiveness of the Preferred Alternative in Improving Access to Activity Centers	
Changes in 2035 Travel Time to Activity Centers	Travel time to regional activity centers would be reduced for all modes of travel – SOV, HOV, and transit.
	The reduction of travel times to activity centers from both outside and within the study area would be greatest for SOV and HOV, with an average travel time reduction of about 10 percent for both modes.
	The average reduction in travel times to regional activity centers by transit would decrease by only about 1 percent as the transit network is fixed.
	HOV and transit would have the highest percentage reduction in travel times. SOV travel time would be reduced, but by a smaller percent.
Goal: Provide Additional Transportation Choices	
Changes in 2035 SOV trips	Reduced transit travel time through the use of managed lanes expected to result in a shift from SOV to HOV/transit, which would reduce congestion in the general-purpose lanes. The reduction in daily SOV trips is forecast to be about 9,000, and most of these trips would be diverted to HOV/transit during peak periods when congestion is most severe.
Goal: Improve the Quality of Life	
Effects on Natural Resources	The Preferred Alternative would not cause or exacerbate a violation of NAAQS. Project is consistent with regional air quality goals.
	Ecosystem impacts, no effect on 10 threatened or endangered species,

Table 7-1. Summary of Effectiveness of Preferred Alternative (continued)

Project Goal/Criteria/Measures	Effects of Preferred Alternative Compared to No-Build Alternative
	"may affect, not likely to adversely affect on one species, and "No significant adverse affect" on two species.
	Water quality impacts, with impacts to surface waters and riverine systems, wetlands, and floodplains, which would require mitigation.
	Geology and soil impacts, due to excavation and construction activities. Impacts would be minimal and short term.
	The Preferred Alternative would require the acquisition of hazardous material sites. However, the cleanup of these sites would result in an improvement to the natural environment.
Effects on the Built Environment	No permanent recreational parkland impacts.
	A total of 76 parcels affected by full or partial acquisition.
	Acquisition of 6 residential parcels, with an estimated 15 displaced people, and 7 commercial parcels, with 12 displaced businesses and an estimated 33 displaced employees.
	All residential and commercial properties acquired located in minority and low-income neighborhoods. Design efforts would be taken to reduce potential property acquisitions. Community outreach would be proactively conducted.
	Noise impacts would be due to modified roadway and traffic characteristics and proximity to sensitive noise receptors (residences). Impacts would be mitigated.
	No impacts to visual character or visually sensitive resources, but a less than substantial impact on visual quality that would be mitigated.
	No impacts to NRHP-listed or -eligible historic or archaeological resources.
	Travel time savings for environmental justice neighborhoods similar to savings for the study area as a whole.
Goal: Improve Transportation Equity	
2035 Travel Time by User Groups	Travel time savings for environmental justice neighborhoods would improve under the Preferred Alternative. The benefits would be similar to the travel time savings for the study area as a whole for SOV, HOV, and transit modes.
Goal: Provide Cost-Effective and Affordable Transportation Improvements	
Total Year-of-Expenditure Capital Cost	$968.3 million

Notes:
HOV = high-occupancy vehicle
NAAQS = National Ambient Air Quality Standards
SOV = single-occupancy vehicle
VMT = vehicle miles of travel
LOS = level of service
NRHP = National Register of Historic Places
ADT = average daily traffic
VHT = vehicle hours of travel

effectiveness of the Preferred Alternative in the opening year would be greater because less growth is projected than in 2035.

Traffic Volumes

Use of the proposed managed lanes on I-75 and I-575 was predicted by analyzing changes in traffic volumes. Average daily traffic (ADT) volumes in 2035 were projected for the general-purpose lanes under the No-Build Alternative and the general-purpose and managed lanes under the Preferred Alternative. Projected traffic volumes on both I-75 and I-575 and for arterials parallel to I-75 and I-575 for the No-Build and the Preferred Alternatives are discussed in Chapter 4, Transportation Impacts.

Under the Preferred Alternative, capacity along the I-75 and I-575 corridors would increase, which would allow for increases in traffic volumes on both highways despite no increase in the number of general-purpose lanes. Compared to the No-Build Alternative, traffic volumes on I-75 under the Preferred Alternative are projected to increase by 10 to 11 percent south of I-575 and by about 8 percent north of I-575. Traffic volumes are projected to increase by up to 11 percent on I-575. Daily traffic volumes for the managed lanes on I-75 under the Preferred Alternative are projected to range from 17,000 north of I-575 to 39,000 south of I-575. The managed lane on I-575 north of I-75 is projected to have a daily volume of up to 14,000. Use of the managed lanes is expected to result in minor decreases in traffic using the general-purpose lanes on I-75 and I-575.

Average daily traffic volumes also were projected for the parallel arterials, including Cobb Parkway (US 41), Powers Ferry Road, Canton Road, and Bells Ferry Road. Under the Preferred Alternative, ADT volumes along Cobb Parkway (US 41) are projected to decrease by 1 to 2 percent, from 57,500 north of Barrett Parkway to 52,900 south of Delk Road. Projected ADT volumes along Powers Ferry Road, Canton Road, and Bells Ferry Road are projected to decrease by 2 to 3 percent under the Preferred Alternative compared to the No-Build Alternative.

Throughput

Throughput is defined as the number of vehicles or persons passing a given point on a roadway facility during a particular time period. Throughput can be used to measure effectiveness of a facility to accommodate travel demand.

Throughput on I-75 and I-575 was calculated on a daily basis, and by peak period and travel direction (i.e., southbound during the morning peak period and northbound during the evening peak period). In addition, the throughput analysis measured the number of vehicles or persons passing a given point, and the total miles and hours of travel over the length of the facility.

The best measures of throughput were determined to be total VMT and daily VMT per lane mile, as they best reflect overall use of the facility. The VHT numbers reflect use of the facility, not increased vehicle delay, and the differences were determined to be similar to measurement of VMT. Person miles of travel (PMT) and person hours of travel (PHT) showed no substantial difference in total PMT or daily PMT per lane mile.

A summary of the projected 2035 daily VMT, VMT per lane mile and peak period, and peak direction VMT on I-75 and I-575 under the No-Build Alternative and the Preferred Alternative is presented in Table 7-2. The results show the Preferred Alternative would substantially increase daily throughput compared to the No-Build Alternative. The Preferred Alternative would increase daily throughput on I-75 and I-575 by 9 to 10 percent. During peak periods, the highest increase in

Table 7-2. Comparison of VMT Throughput on I-75 and I-575, 2035

	Location	No-Build Alternative	Preferred Alternative	Percent Change
Both Directions	**I-75**			
	Total Daily	3,751,846	4,112,589	10
	Daily VMT Per Lane Mile	24,070	19,854	-18
	I-575			
	Total Daily	1,534,886	1,680,033	9
	Daily VMT per Lane Mile	21,536	17,998	-16
Peak Direction	**I-75**			
	AM Period Southbound	513,802	628,476	22
	PM Period Northbound	573,053	706,068	23
	I-575			
	AM Period Southbound	244,955	290,669	19
	PM Period Northbound	271,670	329,945	21

Notes: VMT = vehicle miles of travel; AM = morning; and PM = evening.
Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

throughput would be on northbound I-75 during the evening peak period, an increase of 23 percent. On I-575, the highest increase in throughput would be in the northbound direction during the evening peak period – a 21 percent increase. In the southbound direction during the morning peak period, I-575 would have a 19 percent increase in throughput.

Level of Service

One of the identified transportation needs for the Northwest Corridor is to reduce congestion. The severity of roadway congestion is "measured" by a rating system referred to as level of service (LOS). The level of service for roadways describes the quality of traffic flow, and as such, it is often a good measure to compare the effectiveness of alternatives in reducing congestion. It is reported using letter designations from A to F. The LOS A rating represents the best operating conditions (free traffic flow) and LOS F designates the worst operating conditions (stop and go conditions, substantially reduced speeds, and difficulty maneuvering).

As discussed in Chapter 4 (see Section 4.3.5), the general-purpose lanes on I-75 and I-575 under the No-Build Alternative and Preferred Alternative are projected to experience congested conditions during peak periods in 2035. This is because the highways operate at congested conditions today, and the Preferred Alternative would not increase the number of general-purpose lanes. The Preferred Alternative would add managed lanes to both I-75 and I-575. The increase in number of these special lanes, however, would not provide sufficient additional capacity to result in LOS D for the general-purpose lanes. This is because traffic that is currently diverted to parallel arterial roadways due to existing congestion on the highways would likely return to using the highways with improved operation. This in turn would fully use any potential available capacity. As a result, the general-purpose lanes on I-75 and I-575 under the Preferred Alternative are projected to continue to experience congestion during peak periods in 2035. Although traffic flow may not be at the desired LOS D, the congestion under the Preferred Alternative is expected to be less than what is projected under the No-Build Alternative. This would result in a shortening of the number of hours of congestion per day.

A comparison of 2035 VMT and VHT in Table 4-10 for the Preferred Alternative in comparison to the No-Build Alternative showed that daily VMT per lane mile on I-75 would decline by 21 percent daily, while VHT per lane mile would decline by 27 percent. This indicates that the hours of congestion on I-75 would decrease under the Preferred Alternative compared to the No-Build Alternative, which is an identified need for the project.

Under the Preferred Alternative, the level of service analysis for the proposed managed lanes on I-75 determined that the southbound managed lanes would operate at LOS B to LOS D during the morning peak period north of I-285 (see Table 4-14). During the evening peak period, LOS B to LOS D is projected for the two-lane segment south of I-575, and LOS C is projected for the one-lane segment south of Big Shanty Road.

On I-575 during the morning peak period, the single managed lane was projected to operate at LOS B or LOS C (see Table 4-15). This indicates free-flow, or near free-low, operations under the Preferred Alternative. During the evening peak period, the single managed lane would operate at LOS C to LOS D along all highway segments.

Average Travel Times

Travel time is a key measure in the evaluation of the effectiveness of the Preferred Alternative. It is also a measure that is widely understood by the general public. As such, improvements in travel times are considered to be an indicator of improved mobility, which is another of the identified needs to be addressed by the proposed project. By reducing travel times for travelers using the Northwest Corridor, mobility can be considered improved.

The Preferred Alternative is expected to reduce travel times in the general-purpose lanes; and the managed lanes are expected to have lower travel times than the general-purpose lanes. Travel times in 2035 were projected under the No-Build Alternative and Preferred Alternative using the Atlanta Regional Commission (ARC) 2008 Travel Demand Forecasting Model (ARC, 2008b). The results are presented in Section 4.3.6, and they are summarized in this section.

Under the No-Build Alternative, the average travel time on I-75 in the southbound direction from north of Hickory Grove Road to Akers Mill Road is projected to be approximately 61 minutes in the morning peak period. During the evening peak period, the average travel time on I-75 in the northbound direction from Akers Mill Road to north of Hickory Grove Road is projected to be approximately 76 minutes. On I-575, the average travel time during the morning peak period in the southbound direction from Sixes Road to Akers Mill Road is projected to be almost 74 minutes. In contrast, the average travel time during the evening peak period in the northbound direction of I-575 from Akers Mill Road to Sixes Road is projected to be approximately 97 minutes.

In contrast under the Preferred Alternative, the average southbound travel time during the morning peak period on I-75 from north of Hickory Grove Road to Akers Mill Road would be approximately 52 minutes in the general-purpose lanes and 27 minutes in the managed lanes. This compares to 61 minutes in the general-purpose lanes under the No-Build Alternative. During the evening peak period, the average northbound travel time on I-75 from Akers Mill Road to north of Hickory Grove Road is projected to be approximately 62 minutes in the general-purpose lanes and 35 minutes in the managed lanes. This compares to 76 minutes in the general-purpose lanes under the No-Build Alternative. For I-575, the average travel time in the southbound direction from Sixes Road to Akers Mill Road is projected to be approximately 65 minutes in the morning peak period in the general-purpose lanes and under 34 minutes in the managed lanes, as compared to 74 minutes in the general-purpose lanes under the No-Build

Alternative. During the evening peak period, the average travel time on I-575 in the northbound direction from Akers Mill Road to Sixes Road is projected to be approximately 82 minutes in the general-purpose lanes and 45 minutes in the managed lanes, as compared to 97 minutes in the general-purpose lanes under the No-Build Alternative. Thus, average travel times in the general-purpose lanes on I-75 and I-575 would decrease compared to the No-Build Alternative and travel time in the managed lanes would be substantially less than in the general-purpose lanes. The reduction in travel times in the general-purpose lanes and lower travel times in the managed lanes are indications of the improved mobility provided by the Preferred Alternative.

Travel Time Savings

Travel time savings is another measure of effectiveness as it measures the cumulative reduction in travel time for all users. Travel time savings can also be considered to be an indicator of improved mobility, which is an identified transportation need in the corridor. The ARC 2008 Travel Demand Forecasting Model (ARC, 2008b) was used to project travel time savings in 2035 for vehicle trips under the No-Build Alternative and Preferred Alternative.

As discussed in Section 4.3.6, the total travel time savings in 2035 was projected to be 36,600 hours daily for the Preferred Alternative. The savings in travel time under this alternative would result from the improved operating speeds on the highway and parallel roadways and shorter distances to the highway access points at the new managed-lane interchanges. Thus, the Preferred Alternative would be effective in improving mobility as measured through travel time savings.

7.1.1.2 Effectiveness of Transit in Improving Travel in Corridor

Key attributes in making transit an attractive mode compared to travel by SOVs are transit service frequency, hours of service, service coverage, and reliability of service. An improvement in these attributes generally results in an increase in transit ridership and benefits to transit users. Under the Preferred Alternative, transit service frequency, service coverage, and hours of service would be the same as the No-Build Alternative, except for minor changes in bus routings for access to the managed lanes. However, the reliability of transit service would be improved with buses operating in the managed lanes on I-75 under the Preferred Alternative. In comparison, buses would operate in the general-purpose lanes under the No-Build Alternative. The improved reliability of service would reduce travel times and make transit more competitive with travel by SOV. The result of the improved reliability would be lower transit operating and maintenance costs and potential for increased transit ridership.

7.1.1.3 Effectiveness of the Preferred Alternative in Improving Access to Activity Centers

The Preferred Alternative also was evaluated on the basis of how well it would improve access to regional activity centers, which was also identified as a need to be addressed by the Northwest Corridor Project. The regional activity centers are Downtown Atlanta, Midtown, Perimeter Center, Buckhead, Cumberland-Galleria, and Town Center. In general, because the Preferred Alternative would improve both highway and transit travel times on I-75 and I-575, access to the regional activity centers would be improved over the No-Build Alternative. One measure that reflects the level of improved access is travel time by SOV, HOV, and transit for representative trips from the study area to these regional activity centers. The ARC 2008 Travel Demand Forecasting Model (ARC, 2008b) was used to project such travel times.

Comparison of travel times by SOV, HOV, and transit of the Preferred Alternative with the No-Build Alternative indicates that travel times to regional activity centers would be reduced for all modes (see Table 7-3).

Table 7-3. Average Travel Times by Mode for Travel to Activity Centers, 2035

Representative Trips from the Study Area to Activity Centers		Transit		SOV		HOV	
		No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative	No-Build Alternative	Preferred Alternative
Downtown	Time in Minutes	88	85	51	46	44	39
	% Change from No-Build		-3%		-10%		-11%
Midtown	Time in Minutes	85	83	48	43	41	36
	% Change from No-Build		-2%		-10%		-12%
Perimeter Center	Time in Minutes	108	107	49	44	49	44
	% Change from No-Build		-1%		-10%		-10%
Buckhead	Time in Minutes	100	98	55	50	53	48
	% Change from No-Build		-2%		-9%		-9%
Cumberland-Galleria	Time in Minutes	62	61	28	24	28	24
	% Change from No-Build		-2%		-14%		-14%
Town Center	Time in Minutes	69	72	22	22	22	22
	% Change from No-Build		4%		0%		0%
Average	Time in Minutes	85	84	42	38	40	36
	% Change from No-Build		-1%		-10%		-10%

Sources: ARC, 2008b; Parsons Brinckerhoff, 2011i.

The greatest reduction in travel times would be for HOV and SOV users – a reduction of up to 14 percent. Travel times by HOV to regional activity centers outside the study area (e.g., Downtown Atlanta, Midtown, Perimeter Center, and Buckhead) would decrease by 9 to 12 percent, while travel times to Cumberland-Galleria and Town Center within the study area would decrease by up to 14 percent. Travel times by SOV to regional activity centers outside the study area also would decrease under the Preferred Alternative, but the difference would be slightly lower than for HOV travel. For travel to activity centers within the study area, travel times for SOV users would be the same as HOV users.

Travel times to regional activity centers by transit would be reduced by as much as 4 percent over the No-Build Alternative. The average decrease in travel times for transit is projected to be about

1 percent, compared to 10 percent for SOV and HOV users. The reason for the lower reduction in travel times by transit is that the transit network is fixed. With transit, there is no choice of route for access to the managed lanes. In contrast, auto users have a choice of route based on congestion. Thus, the Preferred Alternative would meet the need of improving access to activity centers.

7.1.2 Goal: Provide Additional Transportation Choices

This goal reflects a desire to provide additional transportation choices in the Northwest Corridor that are competitive with SOV travel. Although HOV and transit choices are currently available for travelers using the I-75/I-575 corridor, the lack of continuous managed lanes north of Akers Mill Road reduces the effectiveness of these lanes to accommodate existing and future travel demand in the corridor. By increasing the effectiveness of transit by reducing transit travel time through use of the managed lanes, trips would be expected to shift from SOV to transit, which would reduce congestion in the general-purpose lanes. Reduced congestion is an important purpose for the corridor.

The Preferred Alternative would provide additional transportation choices through the addition of managed lanes on I-75 and I-575. The improvements would reduce travel times and improve the reliability of travel for HOV and transit. One way that the effectiveness of the alternative to achieve this goal can be measured is through changes in the number of SOV trips. The greater the reduction in SOV trips, the more effective the alternative. A reduction in SOV trips indicates that the Preferred Alternative is influencing the mode people choose to travel and encouraging use of HOV and transit.

The 2035 projection of person trips by highway mode would total 27.114 million daily person trips under the No-Build Alternative. Under the Preferred Alternative, the number of highway person trips is projected to decrease to 27.111 million, or by 3,000 person trips daily as a result of the new managed lanes on I-75 and I-575 under the ETL tolling policy. Although the reduction in trips may appear to be small in number compared to the total number of trips, the magnitude of the impact is greater considering that most of the trips that would be diverted to transit would occur during peak periods when congestion is most severe.

7.1.3 Goal: Improve the Quality of Life

This goal is intended to evaluate the extent that the Preferred Alternative improves or maintains quality of life in the area. Although quality of life is largely a personal preference, the condition of the surrounding environment in which a person lives and works is important. Quality of life can be maintained by ensuring that adverse effects on the surrounding environment are minimized. Mobility also is important in defining quality of life because it affects the ease of access to employment, community services, shopping, cultural resources, and recreational facilities. Alternatives that increase mobility by reducing travel times or expanding transit service coverage can be considered to improve quality of life. Effects on mobility, however, were discussed in the previous section. This section will assess how well the Preferred Alternative improves quality of life by reducing potential adverse effects on natural resources and the built environment.

As proposed, the Preferred Alternative would require new right-of-way for the construction of reversible lanes and managed-lane interchanges. On I-75, from Akers Mill Road to the I-75/I-575 interchange, construction would be limited to the west side of the existing travel lanes, with most segments requiring no more than 85 feet of additional right-of-way (the South Marietta Parkway to SR 3 Connector/Roswell Road segment would require up to 150 feet of right-of-way). This western alignment would minimize potential adverse effects to various natural resources and features of the built environment, including streams, wetlands, and two cemeteries that are on the east side of the corridor south of the I-75/I-575 interchange. North of this interchange, a single reversible lane would be constructed within the existing median on both I-75 and I-575.

7.1.3.1 Effects on Natural Resources

In suburban areas, such as the Northwest Corridor Project, residents typically place importance upon having a high quality natural environment. Lakes, streams, wetlands, and groundwater should be clean. Soils should not be contaminated. Open spaces and natural habitat areas should be able to support naturally occurring plant and animal species. The adverse effects of the Preferred Alternative on these environmental resources are discussed in detail in Chapter 5, Environmental Consequences. This section provides an overview of these effects in terms of adverse effects on perceived quality of life.

In support of the identified project need, air quality would not be adversely affected by the Preferred Alternative. The proposed project is part of an approved, conforming *FY 2012-1017 Transportation Improvement Program* (TIP) (ARC, 2011c), and the regional effects of the project are consistent with air quality goals (ARC, 2011d). While the region is in non-attainment for $PM_{2.5}$, the required interagency consultation process determined that the project is not of air quality concern and a quantitative hot-spot analysis is not required. The USEPA concurred that the proposed project is not a project of air quality concern on February 16, 2011 (see Appendix D).

Few ecosystem impacts would occur under the Preferred Alternative, with minimal overall impacts to terrestrial and aquatic biota habitats. The Preferred Alternative is “not likely to adversely affect” the Cherokee darter, would have “no significant adverse affect” to the Chattahoochee crayfish and lined chub, and is expected to have “no effect” on any other threatened and endangered species. Efforts would be made to prevent potential impacts to streams that have potentially suitable habitat for federally and state-listed species. This would include conducting field surveys of bridge and culvert structures where nesting and/or potential nesting habitat for migratory birds could occur to ensure species would not be disturbed by project construction.

The Preferred Alternative would have water quality impacts and impacts to surface waters including: 17 acres of 100-year floodplains, 3,025 linear feet of streams, and 0.3 acres of wetlands. The alternative would have non-life or property threatening impacts to floodplains. Mitigation measures for water quality impacts would include using best management practices during design and construction; avoiding/minimizing impacts during the design phase; using standard sedimentation, erosion and hydrologic control measures; and following the 2004 US Army Corps of Engineers (USACE) Standard Operating Procedure for affected streambeds and wetlands.

The Preferred Alternative would have geology and soil impacts, due to the excavation and construction activities required to build the managed lanes. The impacts would be minimal and short term. Best management practices would be used to minimize soil erosion and sedimentation.

The Preferred Alternative would require the acquisition of contaminated properties. Of the 11 medium-rated sites along I-75, four sites would be purchased for right-of-way and on four additional sites construction easements would be required. Excavation and construction activities would result in the removal and proper off-site disposal of any existing underground storage tanks, building materials with asbestos or lead-based paint, and contaminated sediments. A construction spill prevention, containment, and counter-measure plan and a health and safety plan would be prepared to minimize additional public exposure of contaminated materials. These measures would result in an improvement in the natural environment.

As a result, the overall effects of the Preferred Alternative would not result in substantial adverse effects on natural resources that contribute to the perceived quality of life.

7.1.3.2 Effects on the Built Environment

A key issue affecting the perceived quality of life with regard to the built environment is adverse effects on community cohesion. Impacts on community cohesion are typically due to property acquisitions that substantially disrupt adjacent communities. Additionally, effects on the character of the built environment, such as visual quality and historic and archaeological resources, also affect the perceived quality of life. The Preferred Alternative would require the purchase of adjacent private land and the construction of retaining walls and structures. Impacts to the built environment would be considered adverse effects on the quality of life, but mitigation could avoid, reduce, or minimize these effects. The effects on the built environment resulting from the Preferred Alternative are summarized below.

Property acquisitions for the Preferred Alternative would affect a total of 76 parcels. Of this total, 63 parcels would be partial acquisitions, which would generally be a narrow strip of land. The remaining 13 properties would require full acquisition of six residential properties and seven commercial properties. With no property acquisitions required along I-575, residents along I-575 would not experience a change in the quality of life due to adverse effects on the built environment under the Preferred Alternative.

The Preferred Alternative would displace two owner-occupied single-family residences and four tenant-occupied single-family residences. The residential acquisitions would result in displacing an estimated 15 persons. Only one residential unit is located in a neighborhood subdivision, so the project would not substantially affect community cohesion in the one subdivision. Moreover, no multi-family residences that function as a community would be displaced. As such, the project effect on community cohesion would be minimal due to residential acquisitions.

Under the Preferred Alternative, a total of 12 commercial businesses on seven acquired properties would be displaced (see Table 5-3). This required property acquisition would result in the displacement of an estimated 33 employees. The businesses, however, do not appear to represent businesses that function as neighborhood focal points, such as community facilities, nor do they provide services or products that cannot be found elsewhere in the study area. The types of businesses include automotive, financial, land development, trailer sales, dentistry, and restaurant businesses. Moreover, the names of the businesses do not appear to indicate minority or ethnic ownership or culturally-based services. For example, the restaurant is called Chicago Delights. Therefore, the effect on community cohesion due to the acquisition of these commercial properties would be minimal.

However, all of the acquired properties and displaced households, businesses, and employees are located in minority and low-income neighborhoods. It is uncertain if the property owners, household members, business owners, or employees are predominantly minority or low-income. The displacement effects are anticipated to be disproportionate and adverse for low-income and minority communities, and as such, require mitigation. All property acquisition and relocations would be conducted in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 United States Code [USC] 4601 et seq. and 49 *Code of Federal Regulations* [CFR] Part 24 and 23 CFR Part 710) and the Georgia Relocation Assistance and Land Acquisition Policy Act (Title 22 Official Code of Georgia Annotated [OCGA]

Chapter 4). On-going public outreach to minority and low-income populations in the study area, refinement of the Preferred Alternative, and further investigation of effects will allow further clarification of potential environmental justice impacts and the need for additional mitigation measures.

The Georgia Department of Transportation (GDOT) and State Road and Tollway Authority (SRTA) also are working together to develop the project's tolling policy to facilitate use of the proposed managed-lane system by low-income populations with limited financial resources, e.g., households with no bank account or credit cards. For example, SRTA may provide a payment mechanism for such persons that would allow them to establish a cash account or pre-paid account. Such transactions may occur at walk-in customer service centers or retail outlets located throughout the region. Additionally, SRTA would offer cash-backed pre-paid transponder accounts and would accept cash payments for video-toll invoices and violation notices.

As 12 of the 13 acquired parcels are located along I-75, between South Marietta Parkway and North Marietta Parkway, residents in adjacent neighborhoods in the Marietta area could perceive an adverse effect on their quality of life under the Preferred Alternative, but it would be minor considering the small number of properties affected. These effects on quality of life also are localized compared to the large area encompassed by the Northwest Corridor Project. This is especially true considering there are several hundred thousand residents and businesses located in the very large, nearly two-county area that would benefit from the Preferred Alternative.

The Preferred Alternative would result in noise impacts due to modified roadway and traffic characteristics and proximity to sensitive noise receptors – the majority of which are adjacent residences. The most reasonable available abatement measure consists of erecting sound barriers within the highway right-of-way. Analysis has been conducted to identify the location and size of potentially feasible sound barriers (see Section 5.12). A final decision on the installation of sound barriers will be made upon completion of detailed noise abatement analysis based on final design and a public involvement process. Best management practices and compliance with local noise ordinances would minimize construction effects of noise. As such, adverse noise effects would be mitigated and would not result in adverse effects on the perceived quality of life.

The Preferred Alternative also would have visual impacts. The existing visual quality of I-75 and I-575 within the Northwest Corridor ranges from low to moderate. The Preferred Alternative would have varying horizontal and vertical alignments along the corridor, e.g., transitions from the west side of the highway to the median and from at-grade to aerial. This would introduce noticeable changes. However, given the existing visual context of the highway corridor, such changes would not be substantial. Where anticipated sound barriers or retaining walls may be introduced, the Preferred Alternative could block views. The Preferred Alternative would not impact visual character or visually sensitive resources, but would result in a moderate impact on visual quality.

The Preferred Alternative would have no permanent impacts on recreational parklands. The alignment of the Preferred Alternative would cross one existing Cobb County recreational trail, the Bob Callan Trail, via bridges. The section of the trail that would be crossed by the managed lanes lies within the existing GDOT right-of-way. No physical impacts to the trail are anticipated. The trail would be subject to temporary closures during construction of the structures for safety reasons, but these closures would be scheduled to occur at night when the trail is closed to the public. Because the trail is a Section 4(f) resource and the project would have temporary impacts on the trail, the project will need to comply with Section 4(f) requirements stipulated in 23 CFR Section 774.13(d). In addition, one recreation unit within the Chattahoochee River

National Recreation Area is in the vicinity of the southern terminus of the project; however, the park would not be affected by the Preferred Alternative. The only other parklands are located near I-575 and Ridgewalk Parkway in Cherokee County and include the Olde Rope Mill Park and a baseball diamond. The Preferred Alternative would have no effect on either of these parks as construction would occur within the highway median, not to the exterior of the existing travel lanes towards the parklands. Moreover, sound barriers are not proposed on the east side of I-575 near this location.

The Preferred Alternative has no identified National Register of Historic Places (NRHP)-listed or eligible historic or archaeological resources within the area of potential effect (APE).

7.1.4 Goal: Improve Transportation Equity

The goal to improve transportation equity was developed to ensure that the Northwest Corridor Project provides an equitable distribution of benefits and impacts. The equity of the alternatives was evaluated with respect to the relative distribution of benefits and impacts to all residents and businesses within the corridor and to environmental justice populations in the corridor. In accordance with federal regulations on environmental justice, the Preferred Alternative was evaluated to determine whether or not it would result in disproportionate impacts on minority and/or low-income populations.

Estimated changes in travel time for various transportation users were used to evaluate the effectiveness of the Preferred Alternative to improve mobility. These users include all users in the two-county region with the exclusion of the South Cobb traffic analysis district (see Figure 3-2). This is the “benefit area” used for the traffic modeling analysis. Compared to current conditions, the Preferred Alternative is expected to reduce travel times compared to the No-Build Alternative. To demonstrate equity among transportation users, it was important to evaluate whether or not environmental justice populations in the benefit area receive similar benefits as those received by the general population.

For this analysis, three transportation user groups were identified to represent environmental justice populations that could be affected, adversely and/or beneficially, by the Preferred Alternative. The first user group is identified as environmental justice neighborhoods. This user group consists of neighborhoods (represented by census tract block groups) within the benefit area that has a higher proportion of minorities, Hispanic, and/or low-income persons compared to the average for the entire benefit area. These environmental justice neighborhoods could have a higher proportion of one or more of the environmental justice groups. The analysis showed the benefit area included 281 neighborhoods, with 76 low-income neighborhoods (persons living below the federal poverty level), 70 minority neighborhoods (non-White residents), and 58 Hispanic neighborhoods. Based on the 2000 census data, many of these neighborhoods have overlapping geographical areas, e.g., neighborhoods that were both minority and low-income. According to the 2000 Census, the net 105 environmental justice neighborhoods have a population of approximately 233,000 (US Census Bureau, 2000), which comprised approximately 35 percent of the population of the benefit area in 2000. These neighborhoods are scattered throughout Cobb and Cherokee Counties.

The second user group consists of only those environmental justice neighborhoods that would sustain displacement of households as a result of the Preferred Alternative. Examining this subgroup of environmental justice neighborhoods determined whether or not the neighborhoods that would experience adverse effects on neighborhood cohesion would receive increased mobility benefits over other transportation users. In total, there are nine neighborhoods in the benefit area that would sustain displacements and they are generally located adjacent to the I-75 highway. This user group has a total population of 25,639 (US Census Bureau, 2000), which comprises only about 4 percent of the population of the benefit area.

The third user group includes transit-dependent neighborhoods. Households in these neighborhoods are dependent on transit for their mobility as they do not have access to a vehicle for personal use. Transit-dependent neighborhoods were defined as those neighborhoods with more than 4 percent of households dependent upon transit, which is above the average for the entire benefit area. An estimated 24 percent of the benefit area households are transit-dependent and the population of this user group is 160,675 (US Census Bureau, 2000). Most of these neighborhoods are concentrated in an area that is located west and southwest of Smyrna in the very southwestern portion of the benefit area.

Table 7-4 summarizes the results of the analysis of average travel times by these different environmental justice user groups. Information is presented for the Preferred Alternative compared to the No-Build Alternative. The results represent an average of travel time from the study area to regional activity centers (i.e., Midtown, downtown Atlanta, Perimeter Center, Buckhead, Cumberland-Galleria, and Town Center). A more detailed table of travel time savings by user group and activity center can be found in Appendix F.

Table 7-4. Change in Average Travel Time to Activity Centers by User Group Compared to the No-Build Alternative, 2035

User Groups	Travel Time (min.)		
	Transit	SOV	HOV
Benefit Area	-1	-4	-4
All Environmental Justice Neighborhoods	0	-3	-3
Environmental Justice Neighborhoods with Displacements	-1	-6	-7
Neighborhoods with Transit- Dependent Households	1	0	0

Notes: SOV = single-occupancy vehicle; HOV = high-occupancy vehicle.
SOV and HOV travel time savings in this table are for all SOV and HOV vehicles regardless of whether they are using the managed lanes or the general purpose lanes.

The analysis of the Preferred Alternative highway travel times found that on average the environmental justice neighborhoods would receive travel time savings nearly the same as the benefit area as a whole. Compared to the No-Build Alternative, these users would receive a slight reduction in travel time savings for SOVs and HOVs – three minutes travel time savings compared to four minutes savings received by all users. This difference is negligible, though, and should be considered essentially the same magnitude of benefit.

The transit-dependent users would receive no reduction in average highway travel time compared to the No-Build Alternative. As mentioned above, however, the neighborhoods with transit-dependent households are concentrated in the very most southwestern portion of the benefit area. Looking at a study area map, one can see this part of the study area is essentially due west of the I-75/I-285 interchange and portions of the area are actually located closer to I-285 than I-75. As such, it is questionable whether or not a substantial portion of these users would use I-75 to access regional activity centers. In fact, lack of reduction in average travel times for HOV vehicles from transit-dependent neighborhoods to regional activity centers under the Preferred Alternative actually is an expected finding considering the geographic location of these neighborhoods. The north-south managed lanes on I-75 do not meet their needs to travel northeasterly or easterly to the regional activity centers located in Cobb County (i.e., Cumberland-Galleria and Town Center). Moreover, access to Downtown Atlanta, Midtown, Perimeter Center, and Buckhead, is likely more direct via I-285 or via I-285 and I-75 south of the I-75/I-285 interchange.

For transit users, the analysis also found that on average the environmental justice neighborhoods would receive no travel time savings while all users in the benefit area would receive an average of one minute of transit travel time savings. For environmental justice neighborhoods that would sustain the effects of displacement, the benefits are the same as what would be received by all users in the benefit area. Environmental justice neighborhoods with displacement would receive an average of one minute of travel time savings (equal to all users in the benefit area), while the transit-dependent neighborhoods would experience a one minute average increase in transit travel time.

In part, it is the unique distribution of the transit-dependent neighborhoods that skew these results of the travel time savings. The project study team reviewed a map showing the locations of traffic analysis zones (TAZs) characterized as transit-dependent based on substantially higher proportions of households with no access to a personal vehicle (US Census Bureau, 2000). When compared to a map of major local and express transit routes in the area, it was noted that the I-75 corridor does not appear to be a major travel route for residents of the transit-dependent TAZs.

7.1.5 Goal: Provide Cost-Effective and Affordable Transportation Improvements

Cost-effectiveness goes beyond cost-benefit in that it measures benefits beyond those that can be put into strictly monetary terms. In cost-benefit analysis, the cost of the project is compared to the monetized benefits that accrue to the public, such as travel time savings, fuel cost savings, etc. Cost-effectiveness goes beyond the direct monetary benefits of the project. It examines other benefits to the project such as providing additional transportation options, enhancing the overall quality of life, and providing transportation equity benefits that are difficult to assign a monetary value. These components in the I-75/I-575 corridor are at a low level and will continue to be unmet needs, or to deteriorate under the No-Build Alternative. The Preferred Alternative provides benefits to the residents and users of the corridor that are both tangible, such as reduced travel time in both the general purpose and managed lanes, and intangible, such as improved trip reliability.

The Preferred Alternative and its benefits to improve transportation effectiveness, provide additional transportation options or choices, improve quality of life, and improve transportation equity, also comes with a financial cost. And, the cost must be affordable within the resources available to the region.

As identified in Chapter 2, the Preferred Alternative is estimated with a 70 percent probability to have a total project cost less than or equal to $968.3 million. This figure is presented in escalated year-of-expenditure (YOE) dollars and is the amount required through completion of project construction in 2015. This cost estimate includes preliminary and final design as well as construction costs.

A further consideration is GDOT's ability to finance the capital and operating costs of the Preferred Alternative. A financial feasibility analysis identifies the financial implications of the proposed project, which enables federal and local decision-makers to judge the practicality of building and operating the alternative. As such, the financial feasibility criterion relates to all decisions that have substantive differences in capital and operating costs.

Capital funding for the project would be provided by GDOT, with federal assistance provided through Federal Highway Administration (FHWA) and through a public private partnership with a selected private developer. A total of $128.8M in federal funds and $282.2M in State funds (including $250 million in GARVEE Bonds) are identified in the fiscally constrained *PLAN 2040, FY 2012-2017 Transportation Improvement Program (ARC 2011c)*. Combined with the anticipated $1.026 billion in private funding there are sufficient funds identified ($1.4B) to implement the Northwest Corridor Project.

In support of the private funding for the project, GDOT issued a Request for Qualifications (RFQ) to develop the project on February 26, 2010. Through this procurement, GDOT intends to select an engineering/contractor team to enter into a public-private partnership (P3) Developer Agreement. Under this agreement, the P3 Developer would design, construct, finance, operate, and maintain the proposed managed-lane system on I-75 and I-575. The P3 program is intended to seek innovative project delivery and innovative financing solutions from the private sector. Moreover, GDOT has concluded that harnessing private-sector innovation and resources through a P3 Developer Agreement would be the best way to ensure cost-effective and expedited delivery of the proposed project. In February 2011, GDOT submitted information to FHWA documenting the expected commitment of funds for the P3 Developer Agreement. The P3 Developer Agreement is anticipated to allow the P3 Developer to use toll revenues from the managed lanes as well as identified public funding to support financing of the project. In addition, GDOT anticipates that approximately $411 million from public sources would be available for the project. The agency also anticipates assisting the P3 Developer in accessing the Transportation Infrastructure Finance and Innovation Act (TIFIA) program and other potential sources of funding. Section 2.7 discusses the project's financial feasibility in more detail.

In accordance with FHWA's Major Project Management Framework, an Initial Financial Plan (IFP) would be required for the project (FHWA, 2007). The Initial Financial Plan could be submitted and approved by FHWA before right-of-way acquisition, but would need to be approved prior to authorization of federal-aid funding for construction. As such, GDOT requested that the IFP be submitted to FHWA for approval after the award of the P3 Developer Agreement. At that time the capital costs and sources and uses of funds provided by the P3 Developer and necessary public funds would be finalized. On July 5, 2011, the FHWA concurred with GDOT's request and the financial plan will be based on a concession approach for the project. If the project were to be implemented using a traditional design-bid-build approach, the financing plan and the estimates of capital costs, operating costs, and sources of funds would likely increase because of inflation occurring over a longer project construction period.

7.2 Comparison of Alternative Trade-Offs

The purpose of the trade-offs analysis is to provide decision-makers with an evaluation of the Preferred Alternative across five perspectives – effectiveness, impacts, cost, financial feasibility, and equity. Decision-makers also will consider the evaluation results presented in this document to evaluate how well the Preferred Alternative meets the identified transportation needs and project goals.

The trade-offs analysis evaluates the Preferred Alternative compared to the No-Build Alternative. The results for this analysis are shown in Table 7-5.

Table 7-5. Comparison of Trade-Offs Between No-Build and Preferred Alternatives

Criteria/Measures	No-Build Alternative	Preferred Alternative
Effectiveness		
Transportation Effectiveness	●	✚
Additional Transportation Choices	●	✚
Quality of Life	●	✚
Cost-Effective and Affordable Transportation Improvements	●	✚
Transportation Equity	o	✚
Costs and Benefits	●	✚
Financial Feasibility	o	o

Note: The ratings include: ✚ Better ● Worse o Neutral

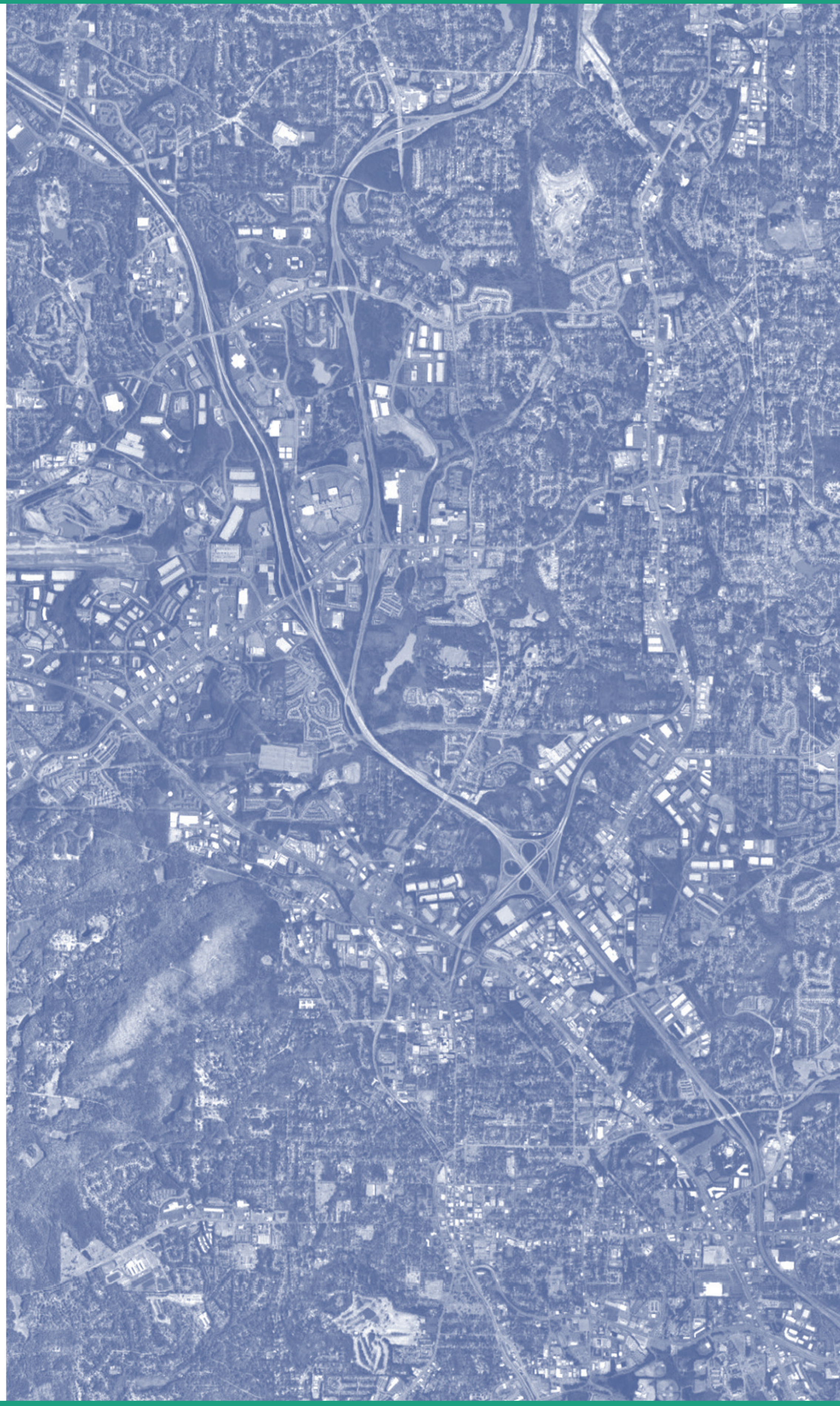
The No-Build Alternative encompasses planned highway and transit improvements that would be built whether or not the improvements in the Preferred Alternative are implemented. The exceptions are the planned long-range managed-lane improvements to I-285 and I-20 West because they are managed-lane projects that would allow users of the proposed I-75 managed lanes to continue in a free-flowing managed-lane system. As such, they would be expected to increase usage of the proposed managed lanes on I-75 and affect the benefits of the proposed improvements to I-75. The effects from improvements assumed under the No-Build Alternative are the responsibility of the agencies and jurisdictions implementing the improvements. Under the No-Build Alternative, there would be no adverse effects as a result of the proposed improvements of the Preferred Alternative, but the benefits of the Preferred Alternative, likewise, would not occur.

Compared to the No-Build Alternative, the improvements under the Preferred Alternative would be more effective in meeting the project goals used to assess how well the alternatives address the transportation needs identified in Chapter 1, Purpose and Need. Most importantly, the Preferred Alternative would provide additional transportation options that increase transportation system capacity in the Northwest Corridor and would improve access to activity centers. The improvements would improve mobility and support the investments consistent with local land use plans without causing adverse impacts on the environment. The improvements would be provided on an equitable basis in terms of benefits provided to the various population groups. In this sense, the Preferred Alternative would generally not result in disproportionate impacts. Like the rest of the population, minority, low-income, and transit-dependent populations using the managed lanes would experience substantially reduced travel time compared to the No-Build Alternative. The Preferred Alternative would result in noise and water quality impacts and minimal ecosystem and geology and soil impacts. The required interagency consultation process determined that the project is not of air quality concern and a quantitative hot-spot analysis is not required. Additionally, no permanent recreational parkland impacts would occur long-term, although the Bob Callan Trail would be temporarily impacted during construction. The acquisition of property may result in subsequent cleanup of potentially hazardous material sites. The Preferred Alternative would have some visual impacts and residential and business displacements; however, the latter impacts would be minimal, as acquisitions would be few and would not affect community facilities or neighborhood cohesion.

In terms of costs, the Preferred Alternative would achieve the purpose and need in an efficient manner. Although implementation of the Preferred Alternative represents a substantial investment of financial resources, the Preferred Alternative is financially feasible.

7.3 Selection of Final Alternative to be Implemented

No earlier than 30-days after the publication of this Final Environmental Impact Statement (FEIS), FHWA may issue a Record of Decision (ROD) and may make a final decision for the project. The ROD is required in order for the project to move forward into final design, right-of-way acquisition, and construction.



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