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Justification Report For Final Environmental Impact Statement

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1. Introduction

The purpose of this of this report is to review changed conditions since the May 2007 publication of the *Northwest I-75/I-575 Corridor Alternatives Analysis/Draft Environmental Impact Statement* (AA/DEIS) that require reconsideration and refinement of the build alternatives evaluated in the AA/DEIS, to identify potential environmental impacts associated with several new build concepts, and to describe GDOT's recommended approach for addressing the preferred alternative in a Final Environmental Impact Statement (FEIS).

A number of factors affect the decision to refine the alternatives evaluated in the AA/DEIS. They include: review of the AA/DEIS comments, implementation of a new regional 2008 Travel Demand Forecasting Model by the Atlanta Regional Commission (ARC) (ARC 2008a), adoption of new Georgia Department of Transportation (GDOT) plans and policies addressing elements of the alternatives evaluated in the AA/DEIS, and changed economic conditions affecting funding and feasibility for project implementation. In particular, GDOT has decided to eliminate the truck-only lane (TOL) element and the bus rapid transit (BRT) element of the proposed alternatives for reasons presented in this report. As a result of this decision, GDOT has reconsidered the project alternatives.

Several additional traffic operational concepts have been identified that represent a revision to the HOV/TOL alternative evaluated in the AA/DEIS. Analysis of these new build concepts indicates they are consistent with the project purpose and need statement, result in less environmental impacts than the alternatives evaluated in the AA/DEIS, provide improved transportation services over the No-Build alternative, and provide these benefits at a lower cost. Additional financial analysis is planned to assist with the final identification of the preferred alternative for the Northwest Corridor Project. Community outreach also is planned to ensure agency, stakeholder, and public concerns have been resolved by the proposed refinements. A formal action by GDOT's decision-making body is required before environmental analysis of the preferred alternative can proceed.

In light of these circumstances, GDOT has evaluated how to move forward with project development and comply with required environmental review under the National Environmental Policy Act (NEPA). This evaluation has studied the new information and changes in project conditions. Preliminary travel demand forecasting has been conducted on the several new build concepts. Potential environmental impacts associated with these concepts were identified and compared to the HOV/TOL Alternative without the truck lanes. This effort is summarized in the following chapters:

- Chapter 2 summarizes the project purpose and need, the screening of potential alternatives, the alternatives evaluated in the AA/DEIS, and the unresolved issues in the AA/DEIS.

- Chapter 3 describes the changed conditions and issues affecting how GDOT moves forward with project planning – conceptual engineering and environmental review.
- Chapter 4 explains the development of the new build concepts.
- Chapter 5 summarizes the travel forecasting model results using the new 2008 ARC model.
- Chapter 6 provides a qualitative assessment of the potential environmental impacts of the new build concepts and compares these effects to those of the No-Build and HOV/TOL Alternatives evaluated in the AA/DEIS.
- Chapter 7 outlines planned community outreach and agency coordination prior to adoption of the preferred alternative.
- Chapter 8 summarizes the conclusions of the analysis and recommends the appropriate environmental review process to address potential environmental impacts of the preferred alternative and ensure compliance with NEPA.
- A list of references and several attachments of detailed data used in the analysis contained in this report follow at the back of the document.

2. Alternatives Considered in the AA/DEIS

This chapter reviews the alternatives considered and evaluated in the *Northwest I-75/I-575 Corridor AA/DEIS* and identifies the unresolved issues in the AA/DEIS. It also summarizes the project purpose and need used for consideration and development of the alternatives in the AA/DEIS.

2.1 Purpose and Need Statement

The purpose and need for the Northwest Corridor Project is clearly stated in Section 1.2 of the AA/DEIS. The text below is a quote from that section.

Multimodal 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 increasingly become difficult and time consuming for commuters and interstate travelers using I-75 and I-575 within the Northwest Corridor. The congestion equally affects single-occupancy vehicles (SOVs), HOVs, buses, and commercial vehicles. In addition, there 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 project study area and pressures for continued urbanization are projected to result in substantial increases in both population and employment, which would lead to highway congestion.

To address these concerns, the purpose of the Northwest I-75/I-575 Corridor Project is to address the following needs:

- *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 I-75/I-575 Corridor Project. These goals were developed based on the transportation needs of the study area and were used to identify the alternatives...... 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 to additional travel and to contribute to the improved performance of the regional 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 effects to 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.*

A number of different quantifiable measures were developed to assess the effectiveness of each alternative in meeting the project goals (see Table 2-1). As goals, however, it is not necessary that all of the alternatives meet the goals equally well. In fact, the ability of some alternatives to better meet some goals compared to others identifies the distinct advantages and disadvantages of the alternatives and highlights the trade-offs between the alternatives. Chapter 7 of the AA/DEIS discusses the measures of effectiveness and trade-offs of the alternatives evaluated in detail in the AA/DEIS.

Table 2-1. Project Measures of Effectiveness

1. Improve transportation effectiveness • traffic volume • vehicle hours of travel • level of service • average travel time • travel time savings • transit level of service • transit ridership • system user benefits • travel time to activity centers
2. Provide additional transportation choices • addition of HOV, HOT, TOL, TOT, express bus service • reduced SOV person trips
3. Improve quality of life • effects on natural resources • effects on the built environment
4. Improve transportation equity[1] • highway travel times to activity centers by user groups • transit travel times to activity centers by user groups for transit-walk access • transit travel times to activity centers by user groups for transit-drive access
5. Provide cost-effective and affordable improvements • year of expenditure capital costs • 2030 transit operation and maintenance costs • financial feasibility • cost effectiveness for transit elements

Note:
HOV = high-occupancy vehicle
HOT = high-occupancy toll
TOL = truck-only lane
TOT = truck-only lane toll
SOV = single-occupancy vehicle

1. User groups evaluated for transportation equity included residents living in the benefit area, disadvantaged neighborhoods, disadvantaged neighborhoods with displacement and transit-dependent neighborhoods.

2.2 Screening of Potential Alternatives

The build alternatives evaluated in the Northwest I-75/I-575 Corridor Project AA/DEIS were selected from a number of alternatives developed to address the project purpose and need. Some of these alternatives were considered in earlier studies prior to the initiation of the NEPA process for the proposed project, and others were considered during scoping for the AA/DEIS. A brief description of these alternatives and the extensive alternatives screening process is presented below.

2.2.1 GRTA Transit Alternatives

In the initial phase of the project, the Georgia Regional Transit Agency (GRTA) evaluated a number of transit alternatives in the *Northwest Corridor Connectivity Study* (GRTA 2003). This study investigated various transit modes and alternative alignments for the corridor between Midtown 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. Transit modes evaluated included: express bus, bus rapid transit, light rail, heavy rail, grade-separated transit, and regional rail. One or more corridor alignments were examined for each transit mode.

With the public input clearly showing a preference for either bus rapid transit (BRT) or light rail transit (LRT), GRTA identified the following three resulting candidate alternatives:

1. An express bus/HOV alternative with express buses operating along I-75 from the Metropolitan Atlanta Rapid Transit Authority (MARTA) Arts Center Station north to the Busbee park-and-ride lot near Town Center,
2. A light rail alternative operating from the MARTA North Avenue Station north along Northside Drive to Marietta Parkway, and
3. A BRT/HOV alternative with BRT service operating from the MARTA Arts Center Station north along Northside Drive to Kennesaw.

Following additional analysis, GRTA decided to eliminate the light rail alternative based on cost and cost-effectiveness analysis. GRTA also decided the express bus/HOV alternative concept would achieve nearly the same benefits as the rapid bus alternative, but at a substantially reduced cost. Therefore the preferred transit alternative was the express bus/HOV alternative.

2.2.2 GDOT HOV Alternatives

Concurrent with the GRTA study, GDOT was studying alternative concepts for extension of HOV lanes on both I-75 and I-575. The HOV concepts proposed two HOV lanes in each direction from Akers Mill Road south of the I-285/I-75 interchange north to the I-75/I-575 interchange, and one HOV lane in each direction north on I-75 to its terminus at Hickory Grove Road as well as one HOV lane in each direction on I-575 north to the Sixes Road interchange. The HOV lanes would be constructed in the center median of both highways north of the I-75/I-575 interchange.

To the south of the I-75/I-575 interchange, the existing median on I-75 is too narrow for construction of four HOV lanes. As such, roadway widening would be required. The HOV alignments evaluated included placing the four HOV lanes in the I-75 median, two lanes on either side of the highway (either at-grade or elevated), or all four HOV lanes to either the west or east side of the highway (either at-grade or elevated). These alternative concepts were referred to as U1, U2, U3, and U4, respectively.

Direct access ramps would provide separated access to the HOV lanes, which would require the construction of separate HOV interchanges. Slip ramps were eliminated because of concern with weaving and insufficient distances between the existing general-purpose interchanges on I-75. Concepts to construct general-purpose lanes, buffer-separated HOV lanes, or TSM improvements were eliminated from consideration because they did not meet the purpose and need statement, nor were they consistent with GDOT policies.

2.2.3 Combining the GRTA and GDOT Alternatives

Realizing that there were many common goals associated with the two transportation studies, GDOT and GRTA decided to combine their individual projects in May 2004 as a means to more efficiently move through the federally required environmental review process. The expectation was that this decision would expedite implementation of transportation improvements in the Northwest Corridor. The alternatives presented during scoping in May 2004 included: the No-Build Alternative, an HOV Alternative, an HOV/Transit/Transportation System Management (TSM) Alternative, and an HOV/BRT Alternative. All of the potential alignments (i.e., the U1, U2, U3, and U4 concepts) also were presented during the AA/DEIS scoping process.

Subsequently, additional preliminary environmental analysis was conducted to evaluate the four HOV configurations. Major environmental constraints identified for the corridor included the following:

- Constructing the four HOV lanes in the median and widening the highway to maintain the same number of existing general-purpose lanes would require reconstruction of all of the bridges that span the highway between Akers Mill Road and the I-75/I-575 interchange. This approach would result in substantial construction cost as well as substantial disruption to travel on the highway during construction.
- To the south of Windy Hill Road, locating the HOV lanes on the east side of the existing highway would create substantial design challenges to connect the I-75 travel lanes to I-285 and would impact the existing tunnel.
- Placing the HOV lanes on the east side of the existing highway near Terrell Mill Road and Delk Road would result in substantial impacts to Rottenwood Creek, which runs parallel to the highway for about one-half mile. Smaller

streams are located on both sides of the highway elsewhere along the highway corridor.

- Locating the HOV lanes on the east side of the highway would result in significant adverse impacts to the Gresham Cemetery (near Gresham Road) and the Tucker Cemetery (north of Marietta Parkway) as both abut the right-of-way on the east side of the highway. State law prohibits ground-disturbing activities within the boundaries of cemeteries.
- Aligning the HOV lanes on the east side of the highway would result in the displacement of a substantial number of single-family dwellings, whereas land uses elsewhere along the corridor are fairly similar on the two sides of the highway.
- Because of these significant adverse impacts associated with the HOV lanes on the east side of the highway, the proposed HOV lanes would need to cross over to the west side of the highway one or more times if the HOV lanes were to be located mostly on the east side of the highway. These bridge crossings over the highway would substantially increase project construction costs.

Based on this analysis, GDOT was able to identify a preferred alignment for the proposed HOV facilities. The U1 concept for the median placement of the HOV lanes was disproportionately more disruptive during construction compared to other alternatives due to required widening of the entire I-75 corridor south of I-575 and reconstruction of all of the overpass interchanges. Both the U2 and U4 concepts would result in significant adverse impacts to residential land uses, water and biological resources, and archaeological resources on the east side of the highway. So, without substantial additional expenditures for an alignment that crosses over the highway several times, GDOT determined that the U3 concept calling for all four HOV lanes on the west side of the highway would result in the least environmental impacts.

Comments received during scoping also included suggestions for other alternatives not previously considered that were subsequently eliminated from consideration. These suggestions included: HOT lanes, elevated HOV lanes in the median of I-75, reversible HOV lanes, conversion of existing general-purpose lanes to HOV, and travel demand strategies. Each of these alternative concepts could have multiple configurations and potentially would reduce ROW and environmental impacts.

Most of these concepts were eliminated. Of these new ideas for project alternatives, the proposal to elevate the four HOV lanes in the median of I-75 south of the I-575 interchange was eliminated because the alternative would be substantially more expensive than the proposed HOV Alternative without reduced environmental impacts. The concept for reversible HOV lanes in the I-75 median was eliminated because this alignment would not substantially reduce right-of-way requirements (considering the need for full-width shoulders) while it would introduce additional operation and maintenance costs. In addition, the traffic modeling performed using the 13-county regional model showed that the forecast traffic directional flow split was less than the recommended 65/35 split for optimal reversible lane system operations (AASHTO 2004) at the opening year.

Additionally, the modeling results indicated that the peak-to-off-peak split would be less than 60:40 at the horizon year which is undesirable for a reversible system. The concept to convert existing general-purpose lanes to HOV lanes was eliminated because it would substantially reduce reliability in the remaining general-purpose lanes in the highway without providing any improvement in mobility. And, the TDM strategies concept was eliminated as it alone would not meet the project purpose and need and it would provide only a minimal improvement for overall traffic volumes, travel demand, and mobility. The proposal to consider high occupancy toll (HOT) lanes, however, was carried forward as an operations option for the alternatives evaluated in the AA/DEIS.

2.2.4 Addition of Truck Lanes to the Alternatives

In November 2004, GDOT received a Public-Private Initiative to construct HOV/HOT and truck-only lanes along I-75. Based on State legislation, the Code of Georgia, and other guidance and policy regarding public-private initiatives, along with the results of a SRTA study evaluating the effectiveness of truck only lanes in the Region, GDOT decided to incorporate the truck-only lanes into the proposed project for the Northwest Corridor. At the time, the agency felt the addition of truck-only lanes would further increase mobility for users of both the highway and the HOV lanes. This decision renewed study efforts to refine the project alternatives. In particular, the agencies evaluated how many truck-only and HOV lanes should be evaluated in the AA/DEIS and how these facilities should be integrated with the existing highway facilities, e.g. median, eastside, westside, and/or elevated alignments.

2.3 Alternatives Evaluated in the Draft AA/EIS

The final refinement of the alternatives proposed to be evaluated in the AA/DEIS was presented to the public in November 2005. These alternatives included the following build alternatives: the HOV/TOL Alternative, the HOV/TOL/TSM Alternative, the HOV/TOL/BRT Alternative, and the HOV/TOL/Reduced BRT Alternative. Moreover, tolling of SOV use of the HOV lanes as well as tolling of the truck-only lanes were presented as operational options to address potential funding shortfalls. Thus, the truck-only element was integrated into the several HOV, BRT, and TSM alternatives selected through the lengthy and comprehensive alternatives screening process conducted by GRTA and GDOT for the Northwest Corridor. Each of the alternatives and the design and operational options evaluated in the AA/DEIS are summarized below.

2.3.1 No-Build Alternative

The No-Build Alternative is required by NEPA for baseline analysis. For this project, the alternative included all existing and planned long-range improvements for the highway, transit services, and transit facilities within the project corridor and the region.

The highway system network was assumed to consist of all existing highways defined by the Atlanta Regional Commission (ARC) 2004 Regional Travel

Demand Model plus proposed improvements in the *Mobility 2030 Regional Transportation Plan* (RTP) (ARC 2004a). Key highway improvements in the RTP included a new interchange on I-575 at Rope Mill Road, a new collector-distributor system on I-75 from I-285 to Delk Road, and the widening of several arterial roads including SR-92, SR-140, Bells Ferry Road, Big Shanty Road, and US-41. The RTP also included widening of I-575 from four to six lanes, but this improvement was excluded from the No-Build Alternative in order to avoid overstating the benefits of the HOV lanes proposed for I-575. Similarly, the planned HOV improvements for I-285 were excluded from the No-Build Alternative because they would affect the quantification of benefits for the proposed I-75 improvements. Moreover, neither of these two excluded projects was included in the *Mobility 2030, 2006-2011 Transportation Improvement Program* (TIP) (ARC 2006), so they were at risk of not being constructed.

The transit system network under the No-Build Alternative was consistent with 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 express and local bus services would operate in the study area. Two transit centers, four park-and-ride lots, and a vehicle maintenance and storage facility were included. Short-range improvements included expansion of the park-and-ride lot at the Marietta Transfer Center plus construction of a new park-and-ride garage at the Cumberland-Galleria. To avoid overstating the project benefits, the proposed long-range BRT services for I-285 were excluded because they would affect the use of the proposed improvements to I-75, they were not included in the TIP, and therefore they may not be constructed.

All facilities and services under the No-Build Alternative were also included under each of the build alternatives described below.

2.3.2 Build Alternatives

The build alternatives (HOV/TOL, HOV/TOL/TSM, HOV/TOL/BRT, and HOV/TOL/Reduced BRT Alternatives) all provided for the extension of the HOV lanes on I-75 and I-575 and the addition of truck-only lanes on I-75. The HOV and truck-only lane improvements were essentially the same throughout the I-75 and I-575 corridor for all build alternatives. The primary difference among the build alternatives was the type and level of transit improvements.

- The HOV/TOL Alternative was a highway project that provided for only a minimum expansion of transit services. The transit services under the HOV/TOL Alternative were similar to the No-Build Alternative, but with express bus routes operating in the proposed HOV lanes and providing only a minimal increase in service frequency.
- The HOV/TOL/TSM Alternative was a lower-cost transit alternative. It included a major expansion of express bus service operating in the proposed 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 instead of express bus service, transit

services were provided with a BRT system. The alternative included five BRT stations at proposed HOV interchanges on I-75 (Town Center, Marietta, Franklin Road, Terrell Mill Road, and Cumberland-Galleria). New or expanded park-and-ride facilities at a number of locations also were included along with expansion of the existing Cobb County Transit (CCT) bus maintenance facility and construction of a new bus maintenance facility.

- The HOV/TOL/Reduced BRT Alternative was very similar to the HOV/TOL/BRT Alternative, except instead of five BRT stations, it had only three stations (Town Center, Marietta, and Franklin Road). This alternative was a reduced-cost version of the HOV/TOL/BRT Alternative.

2.3.2.1 Design Options

- Inside TOL Option – Location of the truck-only lanes were proposed in the median of I-75 south of I-575, instead of split to the outside of the roadway.
- Allgood Flyover Option – The HOV interchange at Allgood Road was proposed to replace a flyover between the general-purpose lanes and the inside HOV lanes south of Allgood Road.
- Roswell Road Interchange Alignment Option – The alignment of I-75 south of the Roswell Road HOV interchange would be modified to shift the roadway to the east between South Marietta Parkway and Roswell Road to avoid displacement and relocation of an adjacent church located southwest of the Roswell Road interchange.

2.3.2.2 Operational Options

- HOT Lane Option – This option allowed SOV access to the HOV lanes by paying a toll. The lanes would be managed by pricing to assure that the SOVs using the HOV lanes would not adversely affect the level of service for transit use.
- TOT Lane Option – This option required all trucks using the truck-only lanes to pay a toll. The tolls would be applied as a lane management tool to assure free-flow conditions, but also to provide a source of revenue. Under this operation option, the truck-only lanes could be mandatory or voluntary for through-trucks.

2.4 Alternatives Considered and Eliminated

As described above, a number of alternatives were evaluated and screened prior to the selection of the four alternatives, three design options, and two operational options that were evaluated in the AA/DEIS. These corridor alternatives included highway, transit, truck-only lanes, and managed-lane alternative concepts. The following paragraphs briefly describe the reasons various attributes of these alternatives were eliminated.

Four different highway alternatives were considered including: adding general-purpose lanes, conversion of general-purpose lanes to HOV lanes, and implementation of either transportation demand management (TDM) or transportation system management (TSM) improvements alone (see Table 2-2). Adding more general-purpose lanes was only briefly considered. As a metropolitan region that is not in compliance with air quality standards, the Federal government will not contribute funds for the construction of new general-purpose lanes and will not approve a RTP with general-purpose lanes. As GDOT would need some Federal funding to construct the proposed project, this alternative for the I-75 corridor was not financially feasible. None of the other three highway initial alternatives met the purpose and need for the Northwest Corridor Project. They would not reduce congestion, improve reliability, improve access, reduce travel time, increase mobility, and/or reduce vehicle emissions. As such, none of the freeway alternatives were considered for detailed evaluation in the AA/DEIS.

Table 2-2. Highway Alternatives Considered and Reasons Eliminated

Highway Alternatives Considered	Reason Eliminated
1. Add general purpose lanes	• Inconsistent with RTP (2004) and 2006-2011 TIP (2006) • Does not meet purpose and need as it would not improve mobility or reduce vehicle emissions
2. Convert general-purpose lanes to HOV lanes	• Does not meet purpose and need as it would not reduce congestion, improve reliability, or reduce travel time
3. Travel demand management (TDM) improvements alone	• Does not meet purpose and need as it would not reduce congestion, reduce travel demand, or increase mobility
4. Transportation system management (TSM) improvements alone	• Does not meet purpose and need as it would not reduce congestion, improve mobility, improve access, improve safety, or reduce vehicle emissions

Notes:
RTP = regional transportation plan (ARC 2004a)
TIP = transportation improvement program (ARC 2006)

More than eight transit alternatives were considered for the I-75 corridor. These included the following: heavy rail, automated guideway, commuter rail, light rail, BRT, express bus and HOV, and transit-only improvements. Table 2-3 lists brief explanations as to why most of these alternatives were eliminated. Heavy rail and commuter rail would have adverse effects on historic resources, rated low on cost criteria compared to other alternatives, and were not supported by the public. The public did support LRT alternatives because these alternatives would serve more activity centers, however, the public had concerns about potential substantial adverse environmental effects south of I-285. BRT services in the northern portion of the corridor along US 41 proved not to make regional improvements in mobility. Rather, BRT or express bus services on I-75 rated highest, though only the BRT initial alternative was carried forward for detailed evaluation in the AA/DEIS.

During the alternatives refinement period following public scoping, GDOT announced their decision that the proposed project would be modified to include truck-only lanes. This decision was largely made in response to a Public-Private Initiative received in November 2004. Four of the TOL alternatives reflected

Table 2-3. Transit Alternatives Considered and Reasons Eliminated

Transit Alternatives Considered	Reason Eliminated
1. Heavy rail, automated guideway on a fully grade-separated alignment, and commuter rail	• All rated as fair to poor performance against project goals and objectives, particularly adverse effects on historic resources • Heavy rail and commuter rail ranked lowest on cost • Public opposition against commuter rail and automated guideway alternatives
2. LRT using CSX railroad tracks from I-285 to South Marietta Parkway	• Environmental impacts (especially historic resources) more extensive than the LRT using US 41, the CSX railroad tracks, and back to US 41 • Public comments supported other LRT alternatives as they served more activity centers
3. LRT along I-75 to Kennesaw	• Does not meet goals and objectives as well as other LRT alternatives • Public very concerned about environmental impacts along I-75 south of I-285, particularly adverse effects on community park and wildlife sanctuary sites on the west side of I-75
4. LRT along Riverside Drive, I-285, I-75 and North Marietta Parkway	• Rated less well compared to BRT/HOV transit alternative in terms of cost and cost effectiveness, also unaffordable
5. Transit-only improvements and no HOV	• Does not meet purpose and need as no increase in reliability, reduction in congestion, or improvement in mobility
6. BRT using I-75 north to Cumberland-Galleria, US 41 to Marietta, then I-75 to Kennesaw	• Does not meet purpose and need as well as the BRT alternative that travels along US 41 between Riverside and Marietta
7. Express bus and HOV on I-75	• Rated less well compared to BRT/HOV alternative due to lower user benefits despite lower environmental impacts and cost effectiveness
8. BRT and HOV on I-75	• Carried forward into the AA/DEIS

Notes:
LRT = light rail transit
BRT = bus rapid transit
HOV = high-occupancy vehicle

different locations for the TOL lanes – two or four lanes either in the median or to the outside of the general-purpose lanes. All assumed the HOV lanes would be located in the median. Due to substantial additional right-of-way requirements and cost, alternatives placing all four TOL lanes to the outside of the either the northbound or southbound general-purpose lanes were eliminated. The alternative carried forward in the AA/DEIS placed two TOL lanes to the outside of both the northbound and southbound general-purpose lanes. A design option evaluated in the AA/DEIS placed the TOL lanes in the median for a limited-access facility. In addition, a tolled TOL facility was evaluated as an operational option. Table 2-4 summarizes this decision-making.

Table 2-4. Truck-Only Lane Alternatives and Reasons Eliminated

Truck-Only Lane Alternatives Considered *(assumed HOV lanes in median)*	Reason Eliminated
1. TOL lanes to outside of the northbound general purpose lanes	• Substantial additional cost compared to TOL in median or split to outside
2. TOL lanes to outside of the southbound general purpose lanes	• Substantial additional cost compared to TOL in median or split to outside
3. TOL lanes to outside of both directions of general purpose lanes	• Carried forward into the AA/DEIS.
4. TOL in median for a lower cost limited access facility	• Carried forward as a design option in the AA/DEIS.
5. TOT facility	• Carried forward as an operational option in the AA/DEIS.

Notes:
TOL = truck-only lane
TOT = truck-only toll

A total of 16 different alternatives for managed lanes were investigated (see Table 2-5). As defined in the AA/DEIS, a managed lane is a lane that increases freeway efficiency by packaging various operational and design elements. Alternatives included different interchange concepts, buffer separation or barrier concepts between managed lanes and general-purpose lanes, location of the managed lanes, number of managed lanes, as well as lane management alternatives. The two lane management alternatives included reversible lanes as well as HOT lanes. In either case, the lane management operation could be adjusted at any time of day in terms of types of vehicles and toll costs to better match regional goals and ensure free-flow of traffic.

Table 2-5. Managed-Lane Alternatives and Reasons Eliminated

Managed-Lane Alternatives Considered	Reason Eliminated
Interchange Concepts	
1. Access to HOV lanes via general-purpose interchanges	• Not consistent with GDOT *HOV Policy Guidelines* (GDOT 2002) and *HOV Strategic Implementation Plan for the Atlanta Region* (GDOT 2003) • Does not meet purpose and need as would not improve safety or improve congestion at existing highway interchanges
2. Access to I-75 HOV lanes via slip ramps to/from the general-purpose lanes	• Inconsistent with design standards as there is inadequate weaving distances between the existing general-purpose interchanges
3. Access via separate HOV interchanges	• Carried forward into the AA/DEIS

Table 2-5. Managed-Lane Alternatives and Reasons Eliminated (continued)

Managed-Lane Alternatives Considered	Reason Eliminated
Separation and Barrier Concepts	
4. HOV lanes separated from general-purpose lanes by a buffer area or striping	• Does not meet purpose and need as it would not reduce mobility access control, service levels, and violations as well as barrier-separated HOV lanes • Would not allow consideration of HOT lane option for HOV lanes or use by transit • Inconsistent with *HOV Strategic Implementation Plan for the Atlanta Region* (GDOT 2003) • Does not prevent violators from crossing over into the HOV system at random and disrupting traffic flow • Cannot be converted to HOT lanes later
5. HOV lanes separated by barrier	• Carried forward into the AA/DEIS
Location of Managed Lanes	
6. I-75 South of I-575: Four elevated HOV lanes (two in each direction) located in I-75 median (recommended by public)	• Existing width of median is insufficient to accommodate footings for four elevated structures • Slight widening to accommodate footings places cost substantially higher (due to structures) compared to other HOV alternatives with no additional benefits
7. I-75 South of I-575: Two HOV lanes located at-grade to the outside of both the northbound and southbound lanes on I-75	• Proposal for at-grade configuration requires more extensive disruption to the general-purpose traffic compared to grade-separated configuration.
8. I-75 South of I-575: Four HOV lanes (two in each direction) located at-grade to outside of the northbound lanes only on I-75 south of I-575	• Proposal for at-grade configuration requires more extensive disruption to the general-purpose traffic compared to grade-separated configuration.
9. I-75 South of I-575: Four HOV lanes (two in each direction) located at-grade to outside of the southbound lanes only on I-75 south of I-575	• Proposal for at-grade configuration requires more extensive disruption to the general-purpose traffic compared to grade-separated configuration.
10. I-75 South of I-575: four at-grade HOV lanes (two in each direction) located in I-75 median	• Existing median has insufficient width to accommodate four managed lanes, despite least environmental impact of all alternatives considered and feasible cost • Carried forward into the AA/DEIS
11. I-75 North of I-575: One HOV lane in each direction in the median of I-75 to Wade Green Road	• Carried forward into the AA/DEIS
12. I-575: One HOV lane in each direction in the median of I-575 to Sixes Road	• Carried forward into the AA/DEIS

Table 2-5. Managed-Lane Alternatives and Reasons Eliminated (continued)

Managed-Lane Alternatives Considered	Reason Eliminated
Number of Lanes	
13. Three or one HOV lane in each direction on I-75 south of I-575; and two or more HOV lanes in each direction on I-575	• Inconsistent with the RTP (2004) based on the 2004 traffic model.
14. Two lanes in each direction on I-75 reduced to one lane in each direction north of I-575, and one lane in each direction on I-575	• Carried forward into the AA/DEIS
Other Managed Lanes	
15. Two reversible lanes at-grade with buffer separation (public recommended)	• Met purpose and need statement, but no substantial cost savings due to required full shoulder width for reversible segment and Increased operating costs and maintenance costs • Traffic model showed alternative met 65/35 traffic split in existing conditions but showed less than ideal directional traffic flow splits in the 2030 design year. The split was only 57/43 in the 2030 PM peak period on I-75 between I-285 and I-575.
16. HOT lanes (public recommended)	• Carried forward as an operational option in the AA/DEIS

Notes:
HOV = high-occupancy vehicle
HOT = high-occupancy toll
RTP = regional transportation plan (ARC 2004a)

The focus of the analysis of managed-lane alternatives was the HOV lanes. Access via general-purpose interchanges was inconsistent with adopted GDOT policies and the distances between existing general-purpose interchanges did not provide sufficient weaving distance to permit access to the managed lanes via slip ramps on I-75 south of the I-75/I-575 interchange. The use of buffer areas and striping for separation from general-purpose lanes did not provide a significant cost advantage compared to barrier separation and would not permit use of the managed lanes as HOT lanes. A number of alignment configurations were evaluated for the four managed lanes (two in each direction) proposed for the I-75 corridor south of I-575. The existing median is not wide enough and would require road widening, but the configuration proved to be best among the several alternatives considered. One managed lane in each direction for I-75 north of I-575 and for the I-575 north to Sixes Road were shown to be satisfactory configurations and consistent with the RTP (ARC 2004a).

The evaluation of the reversible managed lane and the HOT lane concepts were both shown to meet purpose and need. And the HOT lane alternative was carried forward for detailed analysis in the AA/DEIS. The 2004 travel demand forecasts indicated that a two-lane reversible managed-lane system met the desirable 65/35 directional flow split for optimal reversible lane system operations for baseline opening year conditions. However, the design year 2030 travel demand forecasts showed a decrease in directional demand to only 57/43 on I-75 between I-285 and I-575. For this reason, this managed-lane concept was not viewed as an ideal solution and was eliminated from further evaluation.

2.5 Trade-Offs of the Alternatives in the AA/DEIS

None of the build alternatives evaluated in the AA/DEIS are identified as preferred, but rather trade-offs of the alternatives are described in Chapter 7 of the AA/DEIS. The environmental document states that following the circulation of the AA/DEIS and completion of the review and comment period "a preferred alternative may be selected by GDOT and GRTA from among the build alternatives and roadway design and operational options evaluated."

The discussion of trade-offs presented in Chapter 7, however, does present preferences among the build alternatives evaluated in the AA/DEIS. Of all of the build alternatives evaluated, key stated preferences included the following:

- The BRT transit concept provided superior benefits over the Reduced-BRT concept.
- The Allgood Road interchange would have fewer adverse effects than the flyover concept.
- The HOT Lane Option was identified as preferred due to improved transportation effectiveness and financial feasibility over HOV alternatives.
- The placement of the TOL in the highway median was preferred as it was less expensive and would produce lower noise impacts on adjacent residences than the proposed placement of the TOL to the outside of the general-purpose lanes.
- The TOT Lane Option was identified as preferred due to improved effectiveness and financial feasibility over non-tolling alternatives, but analysis of "willingness to pay" indicated that the TOT lanes would likely need to be mandatory to be financially feasible.
- The BRT was identified as the transit alternative that would be the most effective in improving transportation in the corridor.

The AA/DEIS did not present preferences for the other proposed project design option to shift Roswell Road to the east to avoid impacts to a church instead of displacing several businesses.

2.6 Unresolved Issues in the Draft Environmental Impact Statement

The Northwest I-75/I-575 Corridor Project AA/DEIS included discussion of a number of issues that were unknown, uncertain, or requiring resolution related to the project and five alternatives – the No-Build Alternative and four build alternatives. These included the following:

- A number of traffic design and operational issues remained unresolved and needed to be addressed using the newly updated 2008 Atlanta Regional Commission (ARC) 20-county regional Travel Demand Forecasting Model.
- The Federal Transit Administration (FTA) had expressed concerns about the mode-choice model used to forecast BRT transit ridership and had advised GRTA that it could not accept the forecast as the basis for evaluating the project under the New Starts criteria for cost-effectiveness.
- All of the project alternatives assumed the planned 15th Street HOV interchange would be constructed. If this HOV interchange is not constructed, then different operating plans would need to be developed and they may not show the same benefits as presented in the AA/DEIS.
- The financial feasibility of HOV versus HOT lanes, tolling of the truck lanes, and mandatory or voluntary use of the truck lanes all may change considering the project operating costs and revenues depended on outcomes of the ARC Travel Demand Forecasting Model.

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3. Issues Affecting the Alternatives under Consideration

Since the publication of the *Northwest I-75/I-575 Corridor AA/DEIS* in May 2007, a number of events have occurred that affect selection of a preferred alternative and moving forward with the environmental review of the project. Review of the comments on the AA/DEIS identified substantial opposition to elements of the build alternatives. The national economy is now in a recession and GDOT has had to reevaluate funding opportunities for the proposed project. New transportation plans and policies have been adopted or passed that no longer support elements of the build alternatives evaluated in the AA/DEIS. In addition, ARC has updated its Travel Demand Forecasting Model from 13 to 20 counties. These issues described below are changed conditions since the AA/DEIS and affect the alternatives under consideration.

3.1 Summary of Significant DEIS Comments

At the close of the comment period for the AA/DEIS, GDOT had received over 850 individual comments from government agencies, stakeholders, and members of the public. Table 3-1 summarizes the key issues of concern that were identified from review of the comments.

3.2 Project Financial Feasibility Re-Evaluated

The following three sections discuss how changed economic conditions have caused GDOT to re-evaluate the financial feasibility of the project alternatives.

3.2.1 New Analysis of Financial Funding Opportunities

Since the publication of the AA/DEIS in May 2007, financial market conditions in the U.S. have deteriorated significantly, which has affected virtually all sources of debt and equity capital as well as the 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. As such, GDOT requested Georgia Transportation Partners (GTP) to evaluate funding opportunities for the proposed project.

GTP conducted a number of financial analyses in light of the unprecedented volatility and uncertainty in the financial markets (GTP 2009). GTP evaluated a range of financial scenarios to assist GDOT in deciding on the best plan to complete project financing by May 2010. The approach, however, also is very uncertain due to the foreseeable continued volatility of the financial markets. GTP evaluated toll revenue bonds, general obligation bonds, general obligation bonds with refinancing using toll revenue bonds, a concession, and system-backed financing. This analysis concluded that the general obligation bond scenario would provide the lowest overall cost of capital and it is the only financing option that currently provides certainty in these uncertain times. And

Table 3-1. Summary of Significant AA/DEIS Comments

No.	Comment Issues
The 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 (truck-only lanes) or TOT (truck-only toll lanes) elements of the project were not part of the adopted RTP (ARC 2004a) or the TIP (ARC 2006) 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 (bus rapid transit) 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 element of the proposed project was inconsistent with the GDOT proposal for highway improvements for the 2008-2013 transportation improvement program. At the time the AA/DEIS was published, the adopted TIP (ARC 2006) called for a managed lane system with tolling for all users – essentially a combined HOT and TOT facility.
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 Metropolitan Atlanta Regional Transit Authority (MARTA) Arts Center Station as part of the BRT or Reduced BRT elements of the proposed project would cause substantial adverse effects on 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 for the BRT and Reduced BRT elements of the project contributed to making the entire project financially infeasible long-term.

Notes:
HOV = high-occupancy vehicle
HOT = high-occupancy toll
BRT = bus rapid transit
TOL = truck-only lane
TOT = truck-only toll
TIP = transportation improvement program (ARC 2006)

due to the financial market constraints, and associated high cost of capital, a concession financing structure alternative would most likely increase the project funding shortfall. It should be noted that another detailed analysis of all possible financing scenarios will be prepared before the final decisions are made regarding the preferred alternative.

3.2.2 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 congressional districts, versus applying funds were they are needed most. The legislative requirements were amended in 2000 to require that 85 percent of the expenditures be balanced. Subsequently, the requirements were further reduced to 80 percent and expenditures on interstate highways were excluded. The balancing requirement continues to complicate the planning of funding for transportation improvements.

Funding for the Northwest Corridor Project has been affected by this legislative requirement. Current planning activities associated with the update of the ARC Regional Transportation Plan indicate that funding allocations for the project have changed. The amount of funding is declining and the year of funding is delayed.

3.2.3 Decline in Available GDOT Funds

In addition to the deterioration in the national economy and strength of the debt market, GDOT's funding sources have declined. The deterioration in the housing market and declining property values has resulted in decreased property tax revenues to the State government. Personal spending and sales tax revenues to the State government also have declined due to the recession, loss of jobs, and high unemployment. As a result, GDOT's forecast availability of construction and operation funding for the Northwest Corridor Project has declined. In fact, the GTP *Feasibility Report* (GTP 2007) indicated that all of the build alternatives evaluated in the environmental document 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.

3.3 A New Transportation Planning Framework for the Corridor

Since the publication of the AA/DEIS, a number of principles guiding transportation planning for the corridor have changed. The following sections discuss the State's new regional freight mobility plan and planning studies on the use of truck-only lanes and managed-lane systems for the Atlanta metropolitan area.

3.3.1 The New 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 2008b). 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 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 2008b). 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 truck-only lanes in the Atlanta region to improve freight mobility. This planning effort, however, concluded that the construction of truck-only lanes would not be cost effective.

3.3.2 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 2008b). This effort concluded that "the construction of a stand-alone truck-only lane 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 truck-only lanes as complementary treatments to current interstate highway facilities and key state routes. It assumed 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 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 10-15 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 truck-only lane 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 truck-only lanes would not alleviate corridor-level congestion, especially considering a substantial share of the truck traffic would continue to use the highway general-purpose lanes during off-peak periods.

The study concluded that truck-only lanes 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 significant benefits to all traffic, including truck traffic. ARC has recently initiated a follow-up effort to develop a truck route master plan for the Atlanta region.

3.3.3 A Regional Plan for a System of Managed Lanes

Following the publication of the AA/DEIS, combined efforts on the part of the State Transportation Board and the State Road and Tollway Authority (SRTA) were initiated 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 was cemented through 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; and will develop a plan for a system of managed lanes separated from the general-purpose lanes with strategic access points along the transportation corridors.

In fact, the State Transportation Board just recently adopted a resolution to guide the future development of the proposed network of congestion-priced lanes for the region. In April 2009, the Board adopted a resolution that identified vehicles types that shall have preferential use on HOT lanes, including: passenger vehicles occupied by three persons or more, all buses, motorcycles, alternative-fueled vehicles, and on-call emergency vehicles. The resolution goes on to proclaim that these vehicle types shall be allowed to use designated HOT lanes at any time without incurring a toll charge.

In addition, this past year, GDOT has been developing a Managed Lane System Plan for the Atlanta region. The purpose of this plan is to develop a system-side approach to the implementation of managed lanes that would be consistent with the ARC Managed Lane Policy and would be developed in coordinate with all of the transportation planning partners. The implementation strategy will consider revenue and funding options, constructability, demand, and impact issues. Key decisions to be reflected in the plan will include:

- Determine the occupancy of vehicles that will be allowed to use the facilities,
- Balance between maximizing revenue versus maximizing transportation efficiency,

- Decide the types of vehicles that will be able to access the managed lane system, and
- Consider converting general-purpose lanes to managed lanes.

The Georgia State Transportation Board is expected to adopt the Managed Lane System Plan in late 2009.

3.4 An Updated Travel Demand Forecasting Model

As identified in the AA/DEIS, a number of traffic design and operational issues need to be addressed using the newly adopted ARC 20-county 2008 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 because in December 2004 the US Environmental Protection Agency (EPA) designated the Atlanta metropolitan area as in non-attainment for fine particular matter ($PM_{2.5}$). The new non-attainment designation, however, covered a 20-county Atlanta region. As a result, the ARC initiated an effort to expand the travel demand model boundary to include the 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 in 2005 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. The project team has completed initial analysis for the Northwest Corridor Project. This analysis indicates 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 for the 13-county Atlanta region.

3.5 Conclusions Affecting the Alternatives

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 needed to be refined in response to the changed conditions. Table 3-2 summarizes the significant comments on the AA/DEIS and how these changed conditions respond to agency, stakeholder, and public concerns.

Table 3-2. Significant AA/DEIS Comments and Responses

No.	Comment Issues	Responses
The Alternatives		
1	Georgia Motor Trucking Association as well as numerous individual regional trucking firms submitted comments in opposition to separate truck-only facilities because they provided negligible benefit to either truck or other general-purpose traffic using I-75.	TOLs have been removed from the project; and trucks would not be allowed to use the managed lanes.
2	TOL or TOT elements of the project were not part of the adopted RTP (ARC 2004a) or the TIP (ARC 2006) at the time of the AA/DEIS in May 2007.	TOLs have been removed from the project; and trucks will not be allowed to use the managed lanes.
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.	The BRT element has been removed from the project and no New Starts funds would be sought for the justification of transit service use.
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.	Removal of TOL and the BRT element leaves the HOV or HOT element as the stand-alone alternative.
5	The proposed HOV element of the proposed project was inconsistent with the GDOT proposal for highway improvements for the 2008-2013 transportation improvement program. At the time the AA/DEIS was published, the adopted RTP (ARC 2004a) called for a managed lane system with tolling for all users – essentially a combined HOT and TOT facility.	The proposed reduced project would be consistent with STIP plans.
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.	The proposed reduced project would reduce right-of-way and property impacts to adjacent property owners.
2	Proposed increased number of buses traveling to Metropolitan Atlanta Regional Transit Authority (MARTA) Arts Center Station as part of the BRT or Reduced BRT elements of the proposed project would cause substantial adverse effects on Midtown Atlanta.	The BRT element has been removed; managed lanes would permit the use of express busses but would not increase the number of busses traveling to MARTA stations and/or using Midtown Atlanta streets over the No-Build Alternative.

Table 3-2. Significant AA/DEIS Comments and Responses (continued)

No.	Comment Issues	Responses
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.	The proposed reduced project will have substantially lower project costs and includes a plan to address financial feasibility.
2	The proposed mandatory use and required tolling of the truck-only lanes was strongly opposed by major trucking industry stakeholders.	TOLs have been removed from the project; and trucks would not be required nor allowed to use the managed lanes.
3	The exceptionally high level of transit service proposed for the BRT and Reduced BRT elements of the project contributed to making the entire project financially infeasible long-term.	The BRT element has been removed from the project and no New Starts funds will be sought for the justification of transit service use.

Notes:
HOV = high-occupancy vehicle
HOT = high-occupancy toll
BRT = bus rapid transit
TOL = truck-only lane
TOT = truck-only toll
RTP = regional transportation plan (ARC 2004a

In conclusion, elements of the alternatives evaluated in the AA/DEIS were eliminated from further consideration. First, the truck-only lane element, included in all four of the build alternatives considered in the AA/DEIS, was eliminated from further consideration 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 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. Without the BRT transit component of the alternatives, there was no longer a need for GDOT to continue to evaluate the TSM transit element of the project.

Moreover, continued GDOT consideration of the HOV element 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. The selection of the best managed-lane concept also needs to demonstrate its superior transportation effectiveness considering anticipated financial constraints.

4. Development of New Project Concepts

In response to the changed conditions described in the previous chapter, several new concepts were developed for consideration. These concepts, which are described in this chapter, represent a refinement of the HOV/TOL Alternative evaluated in the AA/DEIS.

The new concepts were developed primarily in response to public comments on the AA/DEIS, changes in project funding and financial feasibility, and the adoption of new transportation policies and plans by GDOT. Foremost was the need to consider lower-cost alternatives, including a phased approach to project construction. And the results from the new ARC 2008 Travel Demand Forecasting Model needed to guide development of the new concepts derived from the HOV/TOL Alternative evaluated in the AA/DEIS.

4.1 Consideration of Lower-Cost Alternatives

As described in the previous chapter, GDOT has faced a number of changes affecting the financial feasibility of the alternatives evaluated in the AA/DEIS, which required GDOT to consider lower-cost alternatives in order to move the proposed project forward. The first consideration was to reduce project costs by eliminating the BRT and TOL elements of the project.

The BRT element of the proposed project was determined to be particularly in jeopardy given the changes in financial feasibility. The BRT element was identified in the AA/DEIS as the most effective transit alternative. But, the environmental document also stated that implementation of the alternative would be largely dependent upon receiving FTA New Starts funds. The ability to receive these funds is a competitive process as individual projects must meet the FTA cost-effectiveness criteria. Chapter 7 of the AA/DEIS indicated that FTA had expressed concerns about the transit mode share forecast using the ARC 2004 Travel Demand Forecasting Model. The FTA advised GRTA that the agency could not accept the forecasts as the basis for evaluating the project under the New Starts criteria. It is uncertain if the proposed BRT element would meet FTA cost-effective measures using the new 2008 ARC model. More importantly, it is unlikely the proposed BRT element would be sufficiently competitive to obtain Federal funding in an era of declining program funding. Without the New Starts funding, GDOT would have to rely on local funding for implementation of either the TSM or Reduced BRT transit alternatives. The exceptionally high level of transit service proposed for the Reduced BRT element contributed to making the project infeasible long-term. Considering these financial issues and public sentiment, GDOT decided to eliminate the BRT element of the proposed project.

The truck-only element of the proposed project was eliminated from further consideration due to strong stakeholder and public opposition, especially considering the project was not financially feasible without mandatory use of the preferred TOT lane facilities. A 2008 GDOT transportation policy study on truck-only lanes also did not recommend such improvements for the I-75 corridor due to the high estimated construction costs, despite benefit-cost ratios that were positive. For these reasons, the truck-only lane element was eliminated from further consideration in an effort to define alternatives that are financially feasible long term.

As a result, both the BRT and truck-only elements of the proposed project were eliminated due to long-term financial infeasibility. GDOT subsequently initiated new studies to refine the proposed project such that the alternatives would meet the project purpose and need and provide for improved mobility and accessibility at an acceptable cost and level of environmental impacts.

4.2 Consideration of a Phased Project

Prior to the completion of the modeling for the project, PB prepared a memorandum to GDOT dated July 24, 2009 outlining an approach to reduce the initial construction cost for the proposed project. The memorandum is included in Attachment A.

The approach presented was based on several assumptions. They were:

- Modeling results based on the new ARC 20-county model would not provide any results inconsistent with the previous decisions upon which the build alternatives presented in the AA/DEIS were based.
- The peak to off-peak split would become more favorable to a bi-directional system as traffic operations approach the design horizon year.
- Funding for the build alternatives in the AA/DEIS would be severely limited and none of the build alternatives presented in the AA/DEIS would be feasible from a construction cost standpoint.
- The proposed build alternative that would logically be crafted based on the alternatives evaluated in the AA/DEIS after consideration of the comments received from the agencies and the general public would remain a bi-directional system on I-75 between I-285 and I-575.
- The transit element would no longer be a part of the proposed work based on the negative comments received from the City of Atlanta concerning the number of buses that would be operating on the streets of downtown Atlanta. Additionally, all supporting transit facilities such as transit stations and park-and-ride facilities would also be deleted.
- The truck-only lanes would be eliminated from further consideration based on comments from the trucking industry and revised policies at GDOT.
- The number of lanes on I-75 would be reduced from four lanes in each direction to two lanes in each direction between I-285 and I-575.
- The configuration of the proposed managed-lane systems on I-75 and I-575 north of the I-75/I-575 interchange would remain as proposed in the AA/DEIS.

The resulting configuration would have a reduced construction cost associated with it that would be consistent with the cost reductions required for financial feasibility. Given that the configuration remained beyond the financial reach of the funds available, it was suggested that GDOT might consider a phased approach to construction.

The first phase of the proposed construction would consist of the two lanes on the west side of the corridor operated as a reversible-lane system and the proposed improvements to I-75 and I-575 north of the I-75/I-575 interchange. At a future date, assuming that funds would become available and the peak to off-peak splits approach a ratio of 50:50, the second phase could then be implemented with appropriate system modifications at the project limits for changing operation from reversible to bi-directional managed-lane system.

However, after the completion of the modeling using the new ARC 20-County model, a different picture has emerged. It is clear, based on the new modeling data, the traffic flow is highly directional in both AM and PM peak periods at the design horizon year. This information raised a question about how effective a phased approach to ultimately construct a bi-directional system would be in the later stages of the project.

In order to obtain some insight into how well the first phase reversible-lane system would perform, the configuration was modeled using the new ARC 20-county model. The results indicate that the reversible-lane system would perform very well through the design horizon year. The performance was basically equal to the bi-directional system in the peak direction. In addition, operational characteristics in the off-peak direction indicated that the existing general purpose lanes performed acceptably through the design horizon year. This information led to the conclusion that the peak period benefits comparable to the bi-directional system could be realized with a significant reduction in cost by using a reversible-lane system configuration as a stand-alone project.

4.3 Approach to Travel Demand Forecasting

The ARC 2008 Travel Demand Forecasting Model for the 20-county Atlanta metropolitan region forecasts through the horizon year 2030. However, with a project opening year of 2015, the 20-year design horizon year is 2035. Through a post-processing approach, the project team used the 20-county land use data to extrapolate travel demand for the 2035 horizon year.

The model provides travel statistics about the average daily as well as AM and PM peak period traffic volumes. It is calibrated to replicate existing travel patterns by mode on the basis of existing land use and transportation facilities and services. The forecasted traffic output from the model is based on planned land use and transportation facilities and services through consideration of regional long-range land use and transportation plans adopted by the ARC. The resulting traffic forecasts cannot be precise, but it is considered valid for the purposes of comparing alternatives.

To start the new modeling analysis, the project team needed to forecast traffic for the No-Build Alternative. This alternative is only slightly different from the No-Build Alternative evaluated in the AA/DEIS. Changes include a somewhat different set of assumptions regarding transportation and transit improvement projects that would be implemented through 2035 based on the newly adopted RTP (ARC 2007b).

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. As described earlier, the project team had eliminated the TOL and BRT elements of the proposed project.

The HOV element of the proposed project was a bi-directional managed-lane system. Key attributes include extending the existing I-75 HOV lanes that terminate just south of I-285 from Akers Mill Road north to Hickory Grove Road. On I-575, the HOV lanes would extend from the I-575/I-75 interchange north to Sixes Road. The existing HOV system south of I-285 includes two lanes, one in each direction. Between I-285 and I-575, the proposed project would include four HOV lanes, two in each direction, for I-75. North of I-575, two HOV lanes would continue to provide additional roadway capacity of one lane in each direction north to Hickory Grove Road. On I-575, a two-lane HOV system was proposed with one lane in each direction.

As described in the previous section, early modeling efforts indicated that the peak period directional split in traffic volumes for 2035 was somewhat different from the results of the modeling supporting the AA/DEIS. The new 2008 Travel Demand Forecasting Model indicated stronger directional flows during peak periods. Moreover, these initial modeling efforts showed potential opportunities for a reversible managed lane system, not just a bi-directional managed-lane system.

The concept of reversible lanes has been discussed on two occasions during project development, and the concept was dropped from further consideration on both occasions. During 2002, there was a brief investigation into reversible lanes as a short-term, low cost, solution for the corridor. This investigation happened prior to the addition of the BRT element during the Interim Project (GDOT PI Number 0002039) concept development (see Section 4.4.1 below). In search of the Ultimate HOV Project, GDOT dropped the idea. So, when presenting the project alternatives at the 2004 scoping meeting, reversible lanes were not part of any of the project alternatives. Then, at the scoping meeting public comments included the suggestion that GDOT should consider a reversible-lane system. Investigation into the idea at that time, however, showed the concept was not as beneficial as the HOV Alternative. Traffic modeling conducted indicated that long-term traffic trends for the 13-county region would reduce the directional-split over time. Typically, a peak period directional volume split of approximately 65/35 is desirable (AASHTO 2004) for a reversible system. At that time, traffic modeling for the near-term period showed that the implementation of reversible lanes could be feasible as traffic exceeded a 70/30 split in the AM peak period and approximated a 65/35 split in the PM peak period for the base year. However, the traffic modeling also indicated that the traffic volume split for peak periods would decline to about 57/43 or less by 2030. These forecast traffic volumes indicated that the corridor would be a less than desirable candidate for reversible lanes.

The reversible lane concept would entail construction of new travel lanes, which would provide additional highway capacity during peak periods. In this way, underused capacity in the contra-flow travel lanes is not “wasted” public expenditure. During the AM peak period, both travel lanes would accommodate southbound traffic – the peak direction of travel on I-75. And, during the PM peak period, the directional flow of traffic on the managed lanes would be northbound. Traffic modeling indentified a need for two travel lanes south of the I-75/I-575 interchange and a single travel lane for both I-75 and I-575 north of this interchange.

Based on previous regional understanding of forecast peak period traffic conditions, however, the project team also suspected that due to “latent” demand, the number of reversible lanes on I-75 between I-285 and I-575 potentially could be increased from two to three lanes. This issue of “latent” demand was discussed in the AA/DEIS as the explanation for the apparent lack of improvement to I-75 in 2030 despite the proposed highway improvements. In Section 4.3.1.3, the discussion of arterial roadways parallel to the I-75 corridor explains that rather than an improvement in level of service on I-75, the highway improvements would reduce traffic volumes and increase level of service on the parallel arterials. With improved travel conditions on I-75, drivers would choose to leave the arterial system and use the highway system to reduce travel time.

As a result, the traffic modeling with the new ARC model investigated a total of five concepts. These included the no build concept, a bi-directional concept, two reversible lane system concepts, and a three-lane reversible lane concept. These concepts and the results of the traffic modeling are presented in the followings sections.

4.4 Reconsideration of Reversible Lanes

4.4.1 Early Studies of Reversible Lanes

The Interim Project on I-75 explored inexpensive ways to temporarily extend the existing HOV system while the Ultimate HOV Project concepts were being developed in parallel to examine the long-term requirements for the HOV systems on I-75 and I-575. The reversible-lane concepts for the Northwest Corridor that were originally considered for the Interim Project were part of a contra-flow system evaluation to explore short-term, low-cost solutions for the corridor in the early stages of project concept development prior to the addition of the transit and truck-only lane elements.

The reversible lanes on I-75 were considered to avoid replacing the bridges at Windy Hill Road, Delk Road and South Marietta Parkway since their spans were inadequate to allow an additional lane to be added. Therefore a contra-flow system with a movable barrier (zipper lanes) was viewed as a viable configuration. However, the result was a significant additional cost for the required equipment, maintenance and operating expenses without substantial right-of-way reductions or other cost savings.

The key points of prior project meeting minutes discussing the decision to evaluate and dismiss reversible (contra-flow) lanes are summarized below to provide the project history that lead to eliminating the reversible lanes at that time.

- The original project contract identified two approaches to extending the HOV system on I-75. The first approach was to develop an Interim Project that would extend the existing HOV system on I-75 from Akers Mill Road north to Wade Green Road. The Interim Project was explored simultaneously with the development of the Ultimate HOV Project for both corridors between January and October 2002.
- The criteria for the Interim Project were: to minimize those aspects of the work that would present problems in providing for starting construction in FY2003; to include no significant environmental impacts so NEPA compliance could be met through the preparation of a Categorical Exclusion; to not cause negative operational impacts on existing general-purpose lanes; and to be part of the ultimate vision by avoiding "throw-away" costs.
- At the time, ARC travel demand forecasting indicated that the ratio of peak to off-peak directional split on I-75 was 57/43. This made a reversible-lane system questionable since a split in the range of 60/40 or better is typically desired for operational efficiency.
- An initial issue on the contra-flow system was that the moveable barrier would require the minimal shoulders adjacent to the barrier to facilitate barrier movement, but would adversely affect emergency access.
- The approach for the reversible-lane concepts included the purchase of three barrier-moving machines to have appropriate capacity in case of possible failure of one of the machines. This significantly increased the project cost.

Some conclusions resulting from the traffic forecast analysis performed for this concept included:

- Removing a lane in the off-peak direction would not gridlock off-peak traffic but would adversely affect operations.
- If a contra-flow system were to be implemented, severe congestion would occur from Barrett Parkway to Wade Green Road due to a reduction from three to two lanes in the off-peak direction.
- The directional flow split would change to 64/36 from the originally derived ratio due to the over-stated off-peak volumes from the ARC 2004 Travel Demand Forecasting Model.
- It also was noted that the "throw-away cost" of the project associated with the replacement of the bridges at Windy Hill Road, Delk Road and South Marietta Parkway could be as much as 45 percent of the total construction cost.

As a result, the Director of Preconstruction decided to eliminate the contra-flow concept from consideration based on the time constraints associated with placing the Interim Project in operation by 2005.

There were several subsequent meetings to discuss the Interim Project. However, it was the consensus at the end of the concept development process that the Interim Project should be abandoned in favor of implementing the Ultimate HOV Project. In a letter to PB dated October 30, 2002, GDOT ordered PB to stop work on the development of the Interim Project concepts in favor of developing the Ultimate HOV Project.

For a complete discussion of the details of Interim Project process please see Attachment B.

4.4.2 The AA/DEIS Justification for Elimination

Reversible lanes for I-75 were examined during project concept development for the Ultimate HOV Project, but were not carried forward into the AA/DEIS as alternatives for detailed environmental analysis. The AA/DEIS discusses the elimination of reversible lanes in Section 2.3.3.3 quoted below.

> *A reversible lane concept was suggested as an alternative to reducing right-of-way impacts and costs. Upon study, 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. The American Association of State Highway and Transportation Officials (AASHTO) publication "A Policy on the Geometric Design of Highways and Streets" (AASHTO, 2001) reports that the right-of-way needed for a three-two-three reversible section is the same right-of-way requirement as a 10-lane conventional freeway with a 24-foot median. This is partially a result of the requirement for a full-width shoulder on each side of the reversible segment and required extra width at the access locations. Because the footprint of reversible lanes would not be substantially different there would not be a substantial reduction in capital cost...*
>
> *...In the project corridor, current traffic volumes are fairly directional in the peak periods, particularly in the a.m. peak period with over 70/30 in the a.m. peak period and nearly 65/35 in the p.m. peak period. However, the directional demand is 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 would make the corridor a less than desirable candidate for reversible lanes.*
>
> *Thus for several reasons, reversible lanes would not be an ideal solution. The reversible lanes would not substantially reduce right-of-way requirements. The capital and operating cost for the machinery to move the barriers would be excessive, and the off-peak directional traffic in the future could be adversely affected with the reduction in the number of*

lanes. For these reasons, reversible lanes were eliminated from consideration.

4.4.3 New Traffic Forecast Data Indicate Potential Feasibility

As mentioned above, the previous evaluations of the directional flow splits for the I-75/I-575 corridor were based on the ARC 13-county 2004 Travel Demand Forecasting Model. Specifically, the analysis was based on 2035 projections of no-build conditions, which determined the directional flow split was 57/43 and estimated to become more balanced in future years. The ARC Travel Demand Forecasting Model was updated in 2008 to include 20 counties in the Atlanta metropolitan area, including Bartow County immediately north of the project area. While the previous 13-county model was only able to estimate trip attractions and destinations in Bartow County, the new 20-county model includes business, residential and commercial land use and socio-economic forecast information for a more accurate transportation network forecast.

Travel demand forecasts using the 20-county model show a greater directional split for 2035 no-build conditions. Furthermore, when bi-directional and reversible-lane highway network concepts were tested, the peak hour directional distributions were even greater. This illustrated the strength of the latent demand in the peak period direction of travel. The data showed the highway off-peak direction is near capacity, not constrained in travel-time measures, and the peak direction is over-capacity and constrained. When additional managed lanes were included, the model showed vehicles traveling in the peak direction divert to the managed lane in nearly a 5:1 ratio compared to the off-peak direction. This travel demand would be equivalent to at least two managed lanes at capacity. Thus, the directional split with additional lanes in the peak direction is at, near, or exceeds the desirable 65/35 directional flow split.

4.4.4 Engineering Guidance for Reversible Lanes

As stated in the AA/DEIS, AASHTO recommends directional flow splits for peak period traffic volumes should be at or exceed a 65/35 split for reversible lanes. And, not meeting this threshold long-term was the primary reason reversible lanes for I-75 were originally eliminated from further consideration. However, a broader understanding of current implementation of managed-lane systems has encouraged re-consideration of the reversible-lane concept.

A 2004 National Cooperative Highway Research Program publication titled *Convertible Roads and Lanes* (NCHRP 2004) reports on a number of studies of reversible lanes. The publication includes a 1999 study by the Institute of Transportation Engineers on best practices for planning and analyzing reversible and contraflow lanes. This study suggests that a combination of criteria should be considered when evaluating reversible lanes. These criteria include:

- The average freeway speed should decrease by at least 25 percent during the trouble periods compared to normal speeds during uncongested periods.

- The travel demand should be greater than the freeway capacity.
- The traffic congestion problem should be both periodic and predictable.
- The ratio of major to minor traffic flows should be at least 2:1, and preferably 3:1.
- The reversible-lane system must be designed with adequate entrances and exits and they must provide easy transition between reversible directions.

Based on the travel demand forecasting results described in Chapter 5, the Northwest Corridor generally meets these several criteria. Only a few highway segments do not fully meet the 2:1 directional split ratio. This ratio, however, applies more to a reversible contra-flow system in which lane capacity is removed for the off-peak direction. Due to the preliminary results of the travel demand modeling, however, this would not be proposed for the I-75/I-575 corridor. Instead, the reversible lanes would add capacity in the peak direction. In fact, the 2035 traffic forecasts described in Chapter 5 show that traffic in the off-peak direction is not adversely affected by reversible-lane operations. Moreover, the traffic forecasts demonstrate reversible lanes in the Northwest Corridor would provide acceptable operating conditions though the 2035 design year.

4.5 Horizontal Alignment Issues

To the south of Windy Hill Road, locating the HOV lanes on the east side of the existing highway would create substantial design challenges to connect the I-75 travel lanes to I-285 and would impact the existing tunnel along with several businesses and governmental offices.

Placing the HOV lanes on the east side of the existing highway near Terrell Mill Road and Delk Road would result in substantial impacts to Rottenwood Creek, which runs parallel to the highway for about one-half mile. Smaller streams are located on both sides of the highway elsewhere along the highway corridor.

Locating the HOV lanes on the east side of the highway would result in significant adverse impacts to the Gresham Cemetery (near Gresham Road) and the Tucker Cemetery (north of Marietta Parkway) as both abut the right-of-way on the east side of the highway. State law prohibits ground-disturbing activities within the boundaries of cemeteries.

Aligning the HOV lanes on the east side of the highway would result in the displacement of a substantial number of single-family dwellings, whereas land uses elsewhere along the corridor are fairly similar on the two sides of the freeway.

Because of these significant adverse impacts associated with the HOV lanes on the east side of the highway, the proposed HOV lanes would need to cross to the west side at several locations to avoid those impact areas that are identified above and then cross back to the east side. This would introduce significant additional cost to the Project.

Because of these considerations, the optimum location of a reversible-lane system was determined to be on the west side of I-75 between I-285 and I-575.

4.6 New Managed-Lane Concepts

As a result of considering the new information available and comments received on the AA/DEIS, the project team decided to further investigate three new concepts for the Northwest Corridor Project. The main attributes of these concepts are presented in Table 4-1. These concepts are described in the sections below.

Table 4-1. New Managed-Lane Concepts

Corridor Segment	Concept A Bi-Directional	Concept B1 2-Lane Reversible	Concept B2 2-Lane Reversible Optional Slip Ramps	Concept C - 3-Lane Reversible
Segment 1 (I-75 South Section)	4 B lanes 4 MLI accesses	2 R lanes 4 MLI accesses	2 R lanes 4 MLI accesses	3 R lanes 4 MLI accesses
Segment 2 (I-75 Middle Section)	3 B lanes 2 MLI accesses	1 R lanes 2 MLI accesses	1 R lanes 2 MLI accesses	2 R lanes 2 MLI accesses
Segment 3 (I-75 North Section)	2 B lanes 1 MLI accesses	1 R lane 1 MLI accesses	1 R lane 1 MLI accesses	1 R lane 1 MLI accesses
Segment 4 (I-575 Section)	2 B lanes 5 MLI accesses	1 R lane 5 MLI accesses	1 R lane 3 slip ramp accesses in each direction	1-2 R lane* 5 MLI 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 the I-75/I-575 interchange north to Big Shanty Rd.
Segment 3 – I-75 North Section extends from Big Shanty Rd to Hickory Grove Rd.
Segment 4 – I-575 Section extends from the I-75/I-575 interchange north to Sixes Rd.
B = bi-directional lane
R = reversible lane
MLI = managed-lane interchange
* In this concept, two reversible lanes are proposed from I-575 to Big Shanty Road.

Concept A is a bi-directional managed lane system. Concept B is a reversible lane system with two lanes along I-75 south of the I-75/I-575 interchange (segment 1). This concept has managed-lane interchanges (direct access ramps), except an optional design for this concept could include slip ramps on I-575 (segment 4). The concept with the direct access ramps is referred to as Concept B1 and the concept with the slip ramps is Concept B2. While there are only minor differences between the two design options, the Concepts B1 and B2 can simply be referred to as Concept B. In contrast, Concept C is a reversible-lane system, but it would have three reversible lanes along I-75 south of the I-75/I-575 interchange (segment 1).

4.6.1 Concept A - Bi-Directional Managed Lanes

Concept A is essentially the same as the managed-lane element of the build alternatives evaluated in detail in the AA/DEIS, i.e. HOV lanes. However, the number of lanes has changed in response to comments from the DEIS and the proposed alignment would slightly differ.

For this concept, the existing two I-75 HOV lanes (one in each direction) that extend from downtown Atlanta to just south of Akers Mill Road would connect and transition to four HOV lanes (two in each direction) north of I-285. The four proposed HOV lanes on I-75 would connect to the general-purpose lanes on I-285 and the existing HOV lanes on I-75 south of Akers Mill Road, thus providing system-to-system connections. On I-75 between I-575 and Big Shanty Road, the managed lanes would transition to three and then two lanes. From Big Shanty Road, two HOV lanes would extend north to Hickory Grove Road.

On both I-75 and I-575, the two managed lanes (one in each direction) would be constructed in the median of the highway from the I-75/I-575 Interchange to north of Hickory Grove and Sixes Roads respectively. The single bi-directional lanes would join together and operate as two bi-directional lanes on I-75 between I-575 and I-285.

This concept would include access points to the new managed lanes on I-75 and I-575. Access points would be provided on I-75 at the following interchanges: I-285, Terrell Mill Road, Roswell Road, I-575, Big Shanty Road and Hickory Grove Road. On I-575, access points would be provided at I-75, Big Shanty Road, Shallowford Road and Dupree Road.

4.6.2 Concept B – Two Reversible Lanes with a Design Option

Concept B is different from Concept A in that the proposed managed lanes on both I-75 and I-575 north of the I-75/I-575 Interchange would be reversible lanes. This concept would be less costly to construct than Concept A due to the reduced number of travel lanes and interchange accesses. This concept would provide the same general capacity as the two managed lanes for peak period directional flow, e.g., towards downtown Atlanta during the AM peak periods. This concept, however, would not provide any expanded highway capacity for contra-flow traffic during peak periods.

The number of managed-lane access points on I-75 under Concept B would be identical to Concepts A and C. There are two options being considered for access on I-575:

- Option B1: On I-575, direct access ramps to the managed lane system would be provided at Big Shanty Road, Shallowford Rd and Dupree Road. This I-575 access is identical to Concepts A and C.
- Option B2: This option would eliminate any direct access to the cross streets and have only slip ramp accesses on I-575 between the managed lane and general purpose lane systems. In the southbound direction, the slip ramp access points are south of Barrett Parkway, south of Shallowford Road and at

the beginning of the system south of Sixes Road. In the northbound direction, the slip ramp access points are south of Big Shanty, north of Shallowford Road and at the end of the system 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.

Discussions of this option in later chapters of this report will refer to Concept B1 for the concept with direct access ramps on I-575, and Concept B2 will refer to the design option that includes the slip ramps on I-575.

4.6.3 Concept C – Three Reversible Lanes

Because the traffic forecast for the No Build Alternative using the new 2008 Travel Demand Forecasting Model demonstrated substantial latent demand on I-75, Concept C would increase the number of I-75 reversible lanes from two to three lanes from I-285 to I-575. The concept would provide increased highway capacity for peak period directional flow. This additional capacity would allow motorists currently using parallel arterial routes to obtain reduced travel times using the highway instead of the arterial roads.

On I-75 between I-575 and Big Shanty Road, the number of reversible lanes would be reduced to two lanes. North of Big Shanty Road, a single reversible lane would extend to north of Hickory Grove Road. On I-575, this concept includes two reversible lanes from I-575 to Big Shanty Road and one reversible lane north to Sixes Road. These managed lanes would be constructed entirely within the existing highway median between the existing northbound and southbound general-purpose travel lanes. The access points on I-75 and I-575 are identical to Concepts A and B1 including direct access points on I-575 at Big Shanty, Shallowford, and Dupree Roads.

5. Updated Traffic Modeling for the Managed-Lane Element of the Project

To move forward with the proposed project, the project team undertook a number of traffic modeling activities using the new ARC 2008 Travel Demand Forecasting Model. In part due to reduced funding available to GDOT for the construction and operation of the proposed project, GDOT re-considered the use of different types of managed lanes. The No-Build Alternative and several managed-lane concepts were evaluated using the same measures of effectiveness as presented in the AA/DEIS. Specific measures of effectiveness include average daily traffic volumes, peak period traffic volumes by directional flow and the flow splits for the directional flows, vehicle and person throughput, miles traveled, and hours traveled. This chapter summarizes the results of the modeling and Attachment C is a complete compendium of the travel demand forecasting results.

The project team made a number of assumptions for the travel demand forecasting. These assumptions include the following:

- The proposed additional general-purpose lane in each direction on I-575 that has been included in the ARC 2008-2013 TIP has been included in the No-Build Alternative. As such, these improvements also have been included for each of the build concepts.
- No improvements to I-285 have been included because they have not been defined.
- Vehicles with three or more occupants would be allowed to use the managed-lanes without paying a toll under each of the build concepts.
- For all of the managed lanes, a fixed tolling rate of $0.40 per mile was assumed (GTP 2009).

5.1 Average Daily Traffic

The first measure of effectiveness evaluates the average number of vehicles (all modes) that would use the 2035 No-Build Alternative compared to the bi-directional concept and two reversible-lane concepts (see Table 5-1). The evaluation is performed for three points along I-75 and one point along I-575. Both southbound and northbound traffic volumes are combined. The No-Build Alternative forecast traffic volumes along I-75 would increase substantially at the southern portion of the corridor compared to the northern portion in 2035. Specifically, the traffic volumes increase from about 179,000 at the north end to 340,000 at the south end – a near doubling of traffic volume along the corridor. In contrast, traffic volumes in the I-575 corridor are fairly constant at about 115,000 per day.

Table 5-1. Average Daily Traffic Volumes by Lane Group, 2035

Location	No-Build	Concept A	Concept B1	Concept B2	Concept C
I-75					
North of I-575					
Managed Lanes		26,000	18,000	17,000	26,000
GP Lanes	179,000	174,000	173,000	173,000	174,000
Total: All Lanes	179,000	200,000	191,000	189,000	200,000
S of Allgood Rd					
Managed Lanes		49,000	30,000	31,000	45,000
GP Lanes	266,000	258,000	257,000	256,000	264,000
Total: All Lanes	266,000	307,000	287,000	288,000	309,000
N of Terrell Mill Rd					
Managed Lanes		60,000	36,000	36,000	50,000
GP Lanes	340,000	322,000	326,000	325,000	331,000
Total: All Lanes	340,000	382,000	362,000	361,000	381,000
I-575					
North of I-75					
Managed Lanes		23,000	12,000	15,000	19,000
GP Lanes	115,000	109,000	110,000	110,000	117,000
Total: All Lanes	115,000	133,000	123,000	124,000	135,000

Notes:
GP = general-purpose lanes

Comparison of the No-Build Alternative to the bi-directional Concept A shows that this concept with one to two additional managed lanes in each direction on both I-75 and I-575 increases the total average daily traffic volumes by between 12-15 percent on I-75 and about 15 percent on I-575. Up to 60,000 vehicles daily would be using the managed lanes in the southern portion of I-75 and about 23,000 additional vehicles would be using the I-575 managed lanes. Though the number of general-purpose lanes would not changed, the traffic volumes have decreased somewhat, thereby slightly lessening traffic congestion in the general-purpose lanes. Note that the number of additional vehicles using the managed-lane system far exceeds the slight decrease in number of vehicles using the general purpose lanes.

Comparison of the bi-directional concept with the two reversible-lane concepts shows that on a daily basis the average number of vehicles using I-75 and I-575 in all cases exceeds the No-Build Alternative. Concept C may be equal to, or slightly exceed, the average daily traffic volumes of the bi-directional concept. Like the bi-directional concept, the reversible-lane concepts result in a reduction in congestion in the general-purpose lanes with substantial numbers of vehicles diverting to the managed lanes.

5.2 Peak Period Traffic Volumes

Peak period traffic volumes, as opposed to the average daily traffic volumes discussed above, provide a better understanding of the forecast traffic volumes during the periods when congestion is most severe. Table 5-2 and Table 5-3 below show AM and PM peak period traffic for I-75 and I-575. Traffic volumes are forecast for 12 points along I-75 and 11 points along I-575. The data also shows traffic volumes for southbound and northbound traffic.

Figure 5-1 through Figure 5-5 illustrate the 2035 peak period volumes for the No-Build Alternative and Concepts A through C, including general-purpose and managed-lane volumes, and the peak period directional splits.

For the No-Build Alternative, southbound traffic volumes clearly increase from north to south during the AM peak period, but they do not show continual increases from one point to the next. Rather, there are intermediate locations where congestion is higher, particularly near interchanges serving Marietta. But, because much of the traffic is southbound towards the region's major job centers to the south, traffic volumes southbound are substantially higher than northbound traffic. As expected, PM peak period traffic volumes are substantially higher in the northbound direction compared to the southbound direction of flow. Generally speaking, traffic volumes during the PM peak period are higher for the same locations as southbound traffic during the AM peak period.

The bi-directional system Concept A provides additional capacity to I-75 and I-575 in both directions. And the forecast 2035 traffic volumes for this concept show consistently higher volumes southbound for the AM peak period as well as the northbound traffic volumes for the PM peak period. The segment with the highest traffic volumes is the I-75 segment between Delk Road and Terrell Mill Road. During AM peak periods, southbound traffic volumes increase from about 46,000 to almost 55,000, nearly a 21 percent increase compared to the No-Build Alternative. During the PM peak period, northbound traffic volumes at Delk Road increase from about 54,000 to almost 65,000. In comparison, traffic volumes during AM and PM peak period off-peak directional flows are only slightly increased. At Delk Road, northbound AM peak period traffic volumes are almost 35,000 compared to 33,000 for northbound AM peak period traffic for the No-Build Alternative. Similar patterns are shown for the AM and PM southbound and northbound traffic volumes, respectively.

Table 5-2. AM Peak Period Traffic Volume by Directional Flow, 2035

Location	No-Build		Concept A		Concept B1		Concept B2		Concept C	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
I-75										
S of I-75 North Limit	21,000	16,000	22,000	16,000	22,000	16,000	22,000	16,000	22,000	16,000
S of Hickory Grove Rd	21,000	16,000	24,000	17,000	24,000	16,000	24,000	16,000	25,000	16,000
S of Wade Green Rd	21,000	16,000	25,000	16,000	24,000	16,000	24,000	16,000	25,000	16,000
S of Chastain Rd	21,000	16,000	25,000	16,000	24,000	16,000	24,000	16,000	25,000	16,000
S of Big Shanty Rd	21,000	17,000	25,000	18,000	25,000	17,000	25,000	17,000	28,000	17,000
S of Barrett Pkwy	24,000	18,000	29,000	19,000	28,000	18,000	28,000	18,000	31,000	18,000
S of I-75/I-5775	42,000	27,000	52,000	29,000	50,000	28,000	48,000	28,000	55,000	29,000
S of Canton Rd	38,000	25,000	48,000	26,000	46,000	25,000	44,000	25,000	51,000	26,000
S of N Marietta Pkwy	32,000	25,000	43,000	26,000	42,000	25,000	40,000	25,000	46,000	25,000
S of Roswell Rd	32,000	25,000	43,000	27,000	42,000	25,000	41,000	25,000	47,000	25,000
S of S Marietta Pkwy	41,000	31,000	51,000	32,000	49,000	31,000	49,000	31,000	54,000	32,000
S of Delk Rd	46,000	33,000	55,000	35,000	53,000	34,000	53,000	34,000	58,000	34,000
I-575										
S of I-575 North Limit	17,000	10,000	19,000	10,000	18,000	10,000	18,000	10,000	20,000	11,000
S of Sixes Rd	23,000	12,000	21,000	12,000	21,000	12,000	20,000	12,000	22,000	13,000
S of Rope Mill Rd	23,000	12,000	26,000	13,000	25,000	12,000	25,000	13,000	27,000	13,000
S of Town Lake Pkwy	24,000	13,000	27,000	14,000	26,000	13,000	26,000	13,000	29,000	14,000
S of Dupree Rd	24,000	13,000	27,000	14,000	26,000	13,000	28,000	13,000	29,000	14,000
S of SR 92	21,000	12,000	25,000	13,000	24,000	12,000	25,000	12,000	27,000	13,000
S of Shallowford Rd	21,000	12,000	25,000	13,000	24,000	12,000	23,000	12,000	27,000	13,000
S of Bells Ferry Rd	23,000	12,000	27,000	13,000	26,000	12,000	25,000	12,000	29,000	13,000
S of Chastain Rd	21,000	12,000	25,000	13,000	25,000	13,000	23,000	12,000	26,000	13,000
S of Big Shanty Rd	21,000	12,000	25,000	13,000	25,000	13,000	23,000	12,000	26,000	13,000
S of Barrett Pkwy	18,000	9,000	23,000	10,000	22,000	10,000	20,000	10,000	24,000	10,000

Note:
SB = southbound
NB = northbound

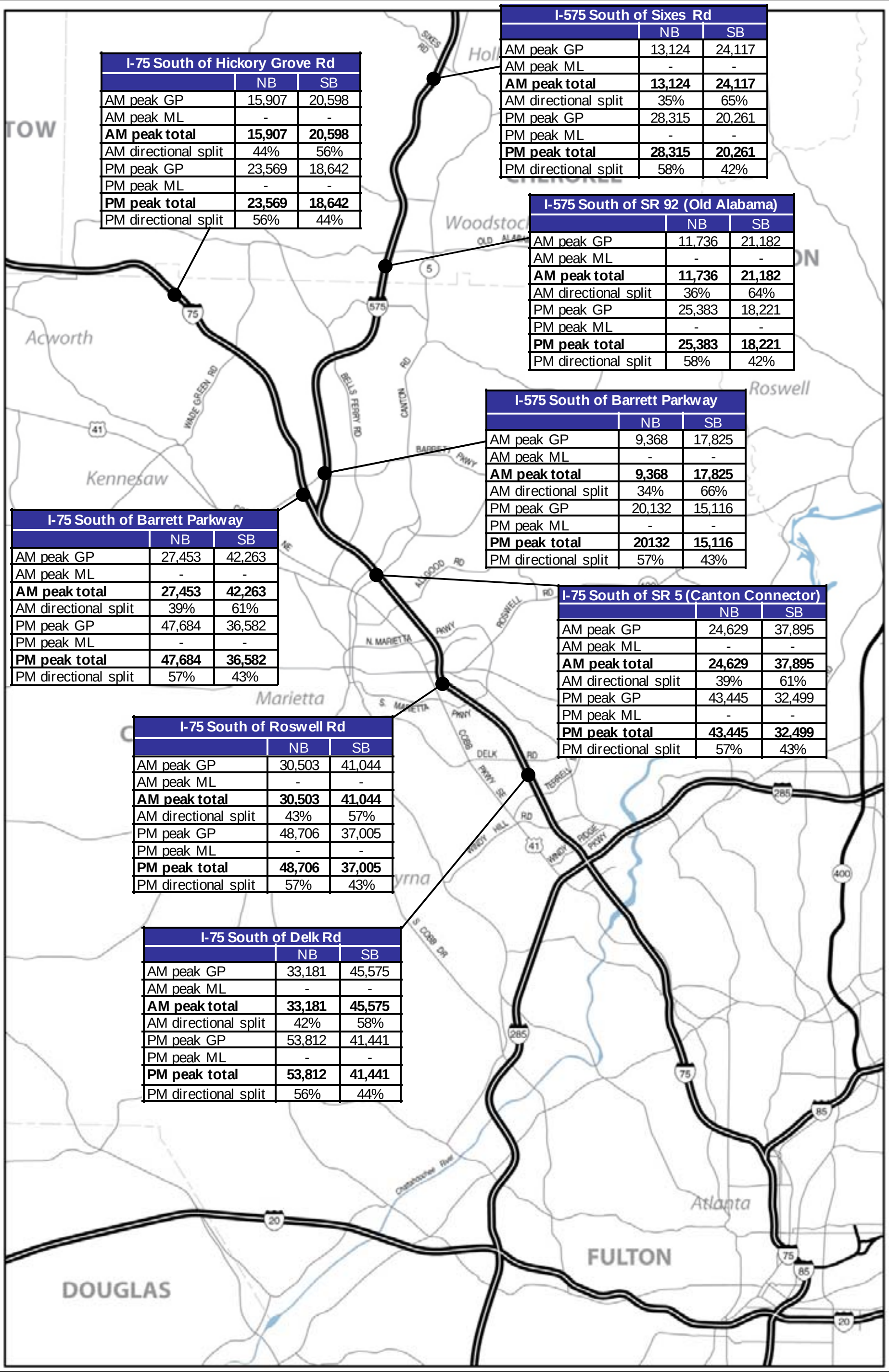
Table 5-3. PM Peak Period Volume by Directional Flow, 2035

Location	No-Build		Concept A		Concept B1		Concept B2		Concept C	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
I-75										
S of I-75 North Limit	19,000	26,000	20,000	27,000	19,000	27,000	19,000	27,000	19,000	28,000
S of Hickory Grove Rd	19,000	26,000	21,000	30,000	19,000	30,000	19,000	29,000	19,000	30,000
S of Wade Green Rd	19,000	24,000	20,000	29,000	19,000	28,000	18,000	28,000	19,000	29,000
S of Chastain Rd	19,000	24,000	20,000	29,000	19,000	28,000	18,000	28,000	19,000	29,000
S of Big Shanty Rd	19,000	23,000	22,000	29,000	20,000	29,000	19,000	28,000	20,000	33,000
S of Barrett Pkwy	21,000	28,000	23,000	33,000	22,000	33,000	21,000	32,000	22,000	37,000
S of I-75/I-5775	37,000	48,000	40,000	59,000	37,000	58,000	37,000	57,000	38,000	64,000
S of Canton Rd	32,000	43,000	36,000	55,000	33,000	55,000	32,000	53,000	34,000	61,000
S of N Marietta Pkwy	29,000	37,000	33,000	50,000	29,000	50,000	29,000	48,000	30,000	56,000
S of Roswell Rd	29,000	37,000	35,000	50,000	29,000	49,000	29,000	48,000	30,000	55,000
S of S Marietta Pkwy	37,000	49,000	42,000	60,000	37,000	59,000	37,000	58,000	37,000	65,000
S of Delk Rd	41,000	54,000	46,000	65,000	42,000	63,000	41,000	62,000	42,000	69,000
I-575										
S of I-575 North Limit	16,000	20,000	16,000	21,000	16,000	21,000	16,000	21,000	16,000	22,000
S of Sixes Rd	19,000	26,000	19,000	24,000	19,000	23,000	19,000	23,000	20,000	24,000
S of Rope Mill Rd	19,000	26,000	20,000	30,000	19,000	29,000	19,000	29,000	20,000	32,000
S of Town Lake Pkwy	20,000	28,000	21,000	32,000	20,000	32,000	20,000	31,000	21,000	34,000
S of Dupree Rd	20,000	28,000	21,000	32,000	20,000	32,000	20,000	33,000	21,000	34,000
S of SR 92	18,000	25,000	19,000	31,000	18,000	30,000	19,000	31,000	19,000	32,000
S of Shallowford Rd	18,000	25,000	19,000	31,000	18,000	30,000	19,000	30,000	19,000	32,000
S of Bells Ferry Rd	19,000	26,000	20,000	31,000	19,000	31,000	19,000	30,000	20,000	33,000
S of Chastain Rd	18,000	23,000	19,000	29,000	18,000	28,000	18,000	28,000	19,000	29,000
S of Big Shanty Rd	18,000	23,000	19,000	29,000	18,000	28,000	18,000	27,000	19,000	29,000
S of Barrett Pkwy	15,000	20,000	17,000	26,000	16,000	26,000	15,000	24,000	16,000	27,000

Note:
SB = southbound
NB = northbound

Figure 5-1

No-Build 2035 Peak Period Volumes



I-575 South of Sixes Rd

	NB	SB
AM peak GP	13,124	24,117
AM peak ML	-	-
AM peak total	**13,124**	**24,117**
AM directional split	35%	65%
PM peak GP	28,315	20,261
PM peak ML	-	-
PM peak total	**28,315**	**20,261**
PM directional split	58%	42%

I-75 South of Hickory Grove Rd

	NB	SB
AM peak GP	15,907	20,598
AM peak ML	-	-
AM peak total	**15,907**	**20,598**
AM directional split	44%	56%
PM peak GP	23,569	18,642
PM peak ML	-	-
PM peak total	**23,569**	**18,642**
PM directional split	56%	44%

I-575 South of SR 92 (Old Alabama)

	NB	SB
AM peak GP	11,736	21,182
AM peak ML	-	-
AM peak total	**11,736**	**21,182**
AM directional split	36%	64%
PM peak GP	25,383	18,221
PM peak ML	-	-
PM peak total	**25,383**	**18,221**
PM directional split	58%	42%

I-575 South of Barrett Parkway

	NB	SB
AM peak GP	9,368	17,825
AM peak ML	-	-
AM peak total	**9,368**	**17,825**
AM directional split	34%	66%
PM peak GP	20,132	15,116
PM peak ML	-	-
PM peak total	**20132**	**15,116**
PM directional split	57%	43%

I-75 South of Barrett Parkway

	NB	SB
AM peak GP	27,453	42,263
AM peak ML	-	-
AM peak total	**27,453**	**42,263**
AM directional split	39%	61%
PM peak GP	47,684	36,582
PM peak ML	-	-
PM peak total	**47,684**	**36,582**
PM directional split	57%	43%

I-75 South of SR 5 (Canton Connector)

	NB	SB
AM peak GP	24,629	37,895
AM peak ML	-	-
AM peak total	**24,629**	**37,895**
AM directional split	39%	61%
PM peak GP	43,445	32,499
PM peak ML	-	-
PM peak total	**43,445**	**32,499**
PM directional split	57%	43%

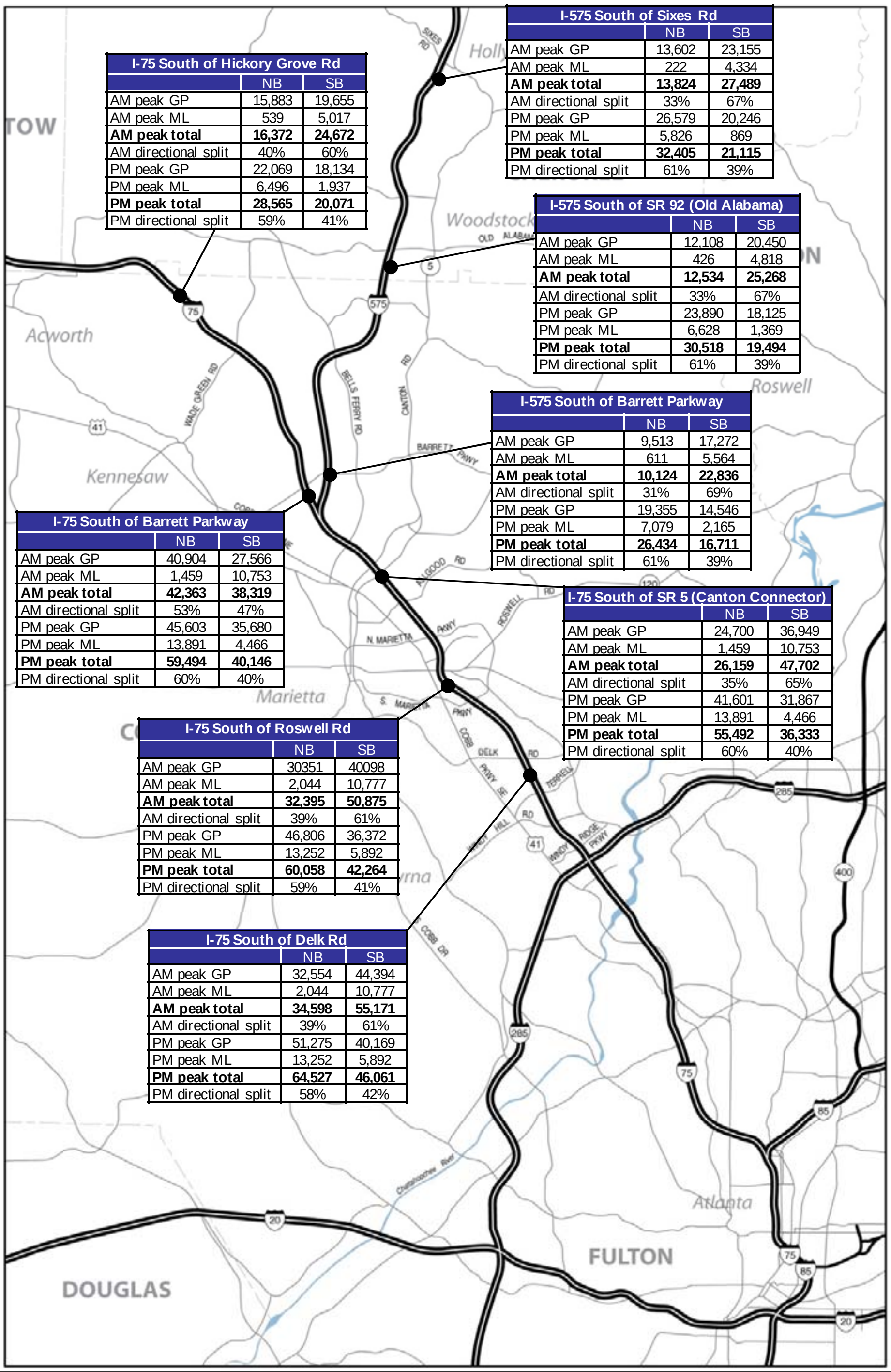
I-75 South of Roswell Rd

	NB	SB
AM peak GP	30,503	41,044
AM peak ML	-	-
AM peak total	**30,503**	**41,044**
AM directional split	43%	57%
PM peak GP	48,706	37,005
PM peak ML	-	-
PM peak total	**48,706**	**37,005**
PM directional split	57%	43%

I-75 South of Delk Rd

	NB	SB
AM peak GP	33,181	45,575
AM peak ML	-	-
AM peak total	**33,181**	**45,575**
AM directional split	42%	58%
PM peak GP	53,812	41,441
PM peak ML	-	-
PM peak total	**53,812**	**41,441**
PM directional split	56%	44%

Source: ARC 20-County Regional Model



I-575 South of Sixes Rd	NB	SB
AM peak GP	13,602	23,155
AM peak ML	222	4,334
AM peak total	**13,824**	**27,489**
AM directional split	33%	67%
PM peak GP	26,579	20,246
PM peak ML	5,826	869
PM peak total	**32,405**	**21,115**
PM directional split	61%	39%

I-75 South of Hickory Grove Rd	NB	SB
AM peak GP	15,883	19,655
AM peak ML	539	5,017
AM peak total	**16,372**	**24,672**
AM directional split	40%	60%
PM peak GP	22,069	18,134
PM peak ML	6,496	1,937
PM peak total	**28,565**	**20,071**
PM directional split	59%	41%

I-575 South of SR 92 (Old Alabama)	NB	SB
AM peak GP	12,108	20,450
AM peak ML	426	4,818
AM peak total	**12,534**	**25,268**
AM directional split	33%	67%
PM peak GP	23,890	18,125
PM peak ML	6,628	1,369
PM peak total	**30,518**	**19,494**
PM directional split	61%	39%

I-575 South of Barrett Parkway	NB	SB
AM peak GP	9,513	17,272
AM peak ML	611	5,564
AM peak total	**10,124**	**22,836**
AM directional split	31%	69%
PM peak GP	19,355	14,546
PM peak ML	7,079	2,165
PM peak total	**26,434**	**16,711**
PM directional split	61%	39%

I-75 South of Barrett Parkway	NB	SB
AM peak GP	40,904	27,566
AM peak ML	1,459	10,753
AM peak total	**42,363**	**38,319**
AM directional split	53%	47%
PM peak GP	45,603	35,680
PM peak ML	13,891	4,466
PM peak total	**59,494**	**40,146**
PM directional split	60%	40%

I-75 South of SR 5 (Canton Connector)	NB	SB
AM peak GP	24,700	36,949
AM peak ML	1,459	10,753
AM peak total	**26,159**	**47,702**
AM directional split	35%	65%
PM peak GP	41,601	31,867
PM peak ML	13,891	4,466
PM peak total	**55,492**	**36,333**
PM directional split	60%	40%

I-75 South of Roswell Rd	NB	SB
AM peak GP	30351	40098
AM peak ML	2,044	10,777
AM peak total	**32,395**	**50,875**
AM directional split	39%	61%
PM peak GP	46,806	36,372
PM peak ML	13,252	5,892
PM peak total	**60,058**	**42,264**
PM directional split	59%	41%

I-75 South of Delk Rd	NB	SB
AM peak GP	32,554	44,394
AM peak ML	2,044	10,777
AM peak total	**34,598**	**55,171**
AM directional split	39%	61%
PM peak GP	51,275	40,169
PM peak ML	13,252	5,892
PM peak total	**64,527**	**46,061**
PM directional split	58%	42%

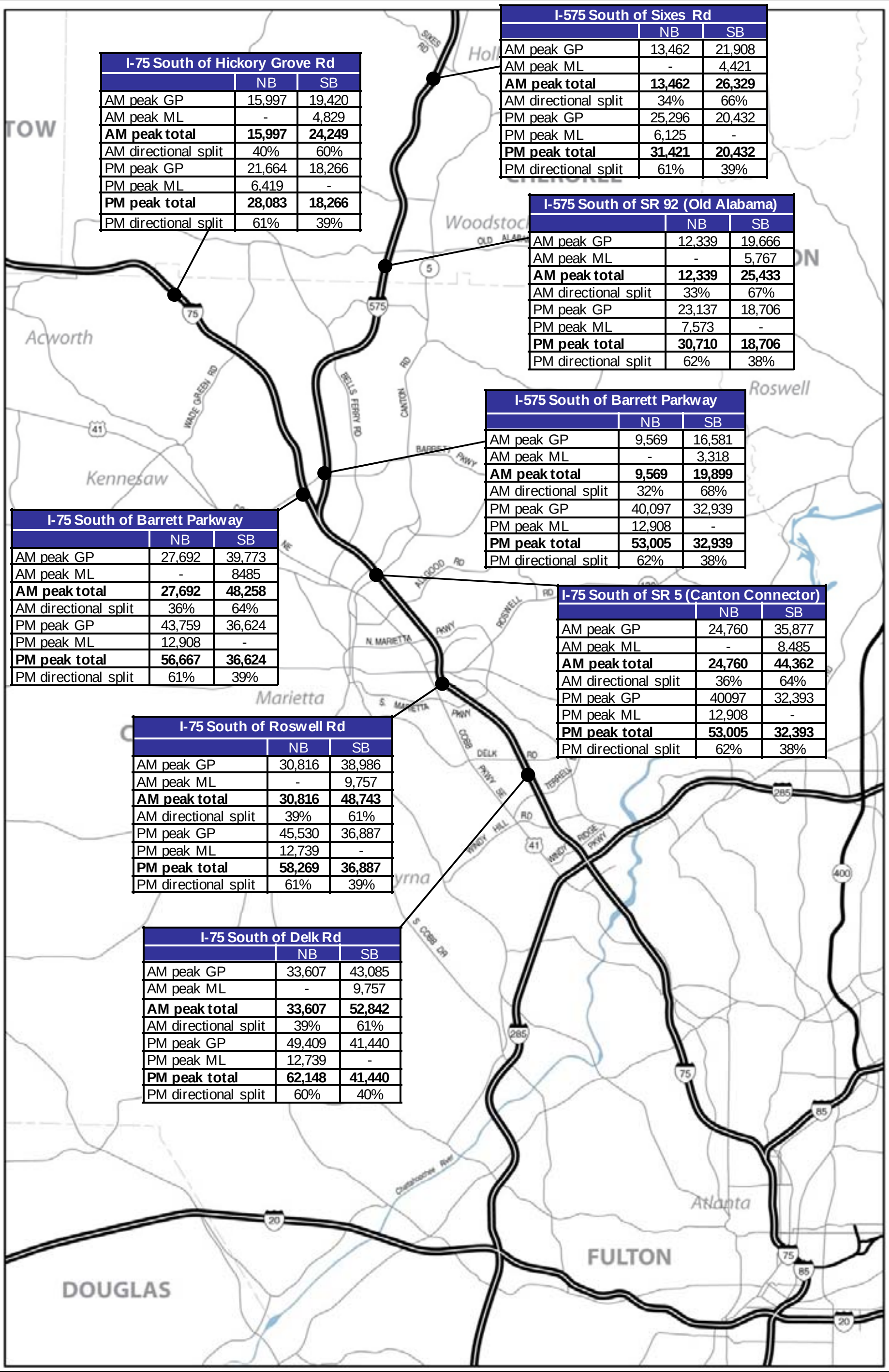
Figure 5-2

Concept A
Bi-Directional
2035 Peak Period Volumes

Source: ARC 20-County Regional Model

Figure 5-3

Concept B1
2-Lane Reversible
2035 Peak Period Volumes



I-575 South of Sixes Rd	NB	SB
AM peak GP	13,462	21,908
AM peak ML	-	4,421
AM peak total	**13,462**	**26,329**
AM directional split	34%	66%
PM peak GP	25,296	20,432
PM peak ML	6,125	-
PM peak total	**31,421**	**20,432**
PM directional split	61%	39%

I-75 South of Hickory Grove Rd	NB	SB
AM peak GP	15,997	19,420
AM peak ML	-	4,829
AM peak total	**15,997**	**24,249**
AM directional split	40%	60%
PM peak GP	21,664	18,266
PM peak ML	6,419	-
PM peak total	**28,083**	**18,266**
PM directional split	61%	39%

I-575 South of SR 92 (Old Alabama)	NB	SB
AM peak GP	12,339	19,666
AM peak ML	-	5,767
AM peak total	**12,339**	**25,433**
AM directional split	33%	67%
PM peak GP	23,137	18,706
PM peak ML	7,573	-
PM peak total	**30,710**	**18,706**
PM directional split	62%	38%

I-575 South of Barrett Parkway	NB	SB
AM peak GP	9,569	16,581
AM peak ML	-	3,318
AM peak total	**9,569**	**19,899**
AM directional split	32%	68%
PM peak GP	40,097	32,939
PM peak ML	12,908	-
PM peak total	**53,005**	**32,939**
PM directional split	62%	38%

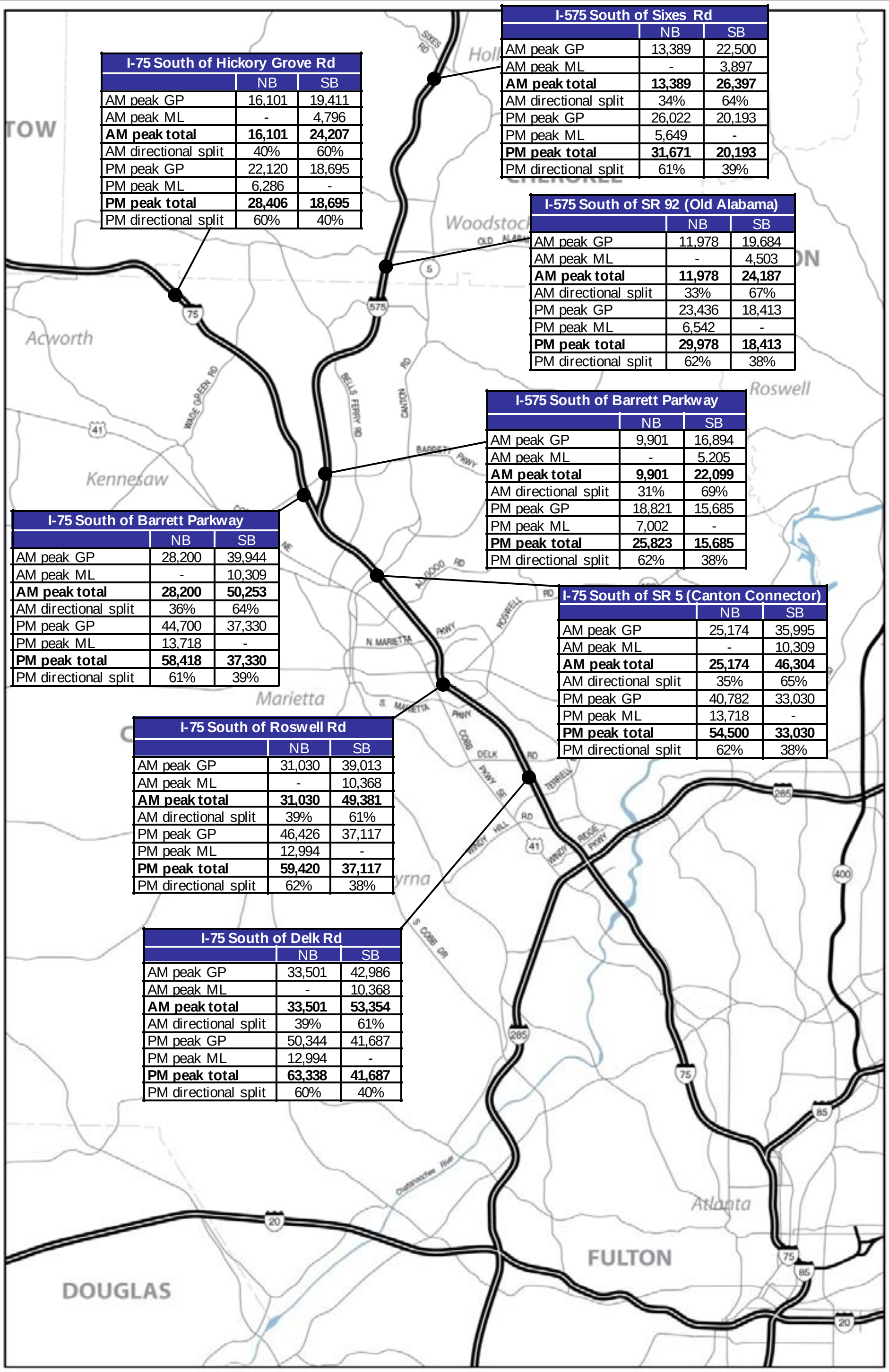
I-75 South of Barrett Parkway	NB	SB
AM peak GP	27,692	39,773
AM peak ML	-	8485
AM peak total	**27,692**	**48,258**
AM directional split	36%	64%
PM peak GP	43,759	36,624
PM peak ML	12,908	-
PM peak total	**56,667**	**36,624**
PM directional split	61%	39%

I-75 South of SR 5 (Canton Connector)	NB	SB
AM peak GP	24,760	35,877
AM peak ML	-	8,485
AM peak total	**24,760**	**44,362**
AM directional split	36%	64%
PM peak GP	40097	32,393
PM peak ML	12,908	-
PM peak total	**53,005**	**32,393**
PM directional split	62%	38%

I-75 South of Roswell Rd	NB	SB
AM peak GP	30,816	38,986
AM peak ML	-	9,757
AM peak total	**30,816**	**48,743**
AM directional split	39%	61%
PM peak GP	45,530	36,887
PM peak ML	12,739	-
PM peak total	**58,269**	**36,887**
PM directional split	61%	39%

I-75 South of Delk Rd	NB	SB
AM peak GP	33,607	43,085
AM peak ML	-	9,757
AM peak total	**33,607**	**52,842**
AM directional split	39%	61%
PM peak GP	49,409	41,440
PM peak ML	12,739	-
PM peak total	**62,148**	**41,440**
PM directional split	60%	40%

Source: ARC 20-County Regional Model



I-575 South of Sixes Rd

	NB	SB
AM peak GP	13,389	22,500
AM peak ML	-	3,897
AM peak total	**13,389**	**26,397**
AM directional split	34%	64%
PM peak GP	26,022	20,193
PM peak ML	5,649	-
PM peak total	**31,671**	**20,193**
PM directional split	61%	39%

I-75 South of Hickory Grove Rd

	NB	SB
AM peak GP	16,101	19,411
AM peak ML	-	4,796
AM peak total	**16,101**	**24,207**
AM directional split	40%	60%
PM peak GP	22,120	18,695
PM peak ML	6,286	-
PM peak total	**28,406**	**18,695**
PM directional split	60%	40%

I-575 South of SR 92 (Old Alabama)

	NB	SB
AM peak GP	11,978	19,684
AM peak ML	-	4,503
AM peak total	**11,978**	**24,187**
AM directional split	33%	67%
PM peak GP	23,436	18,413
PM peak ML	6,542	-
PM peak total	**29,978**	**18,413**
PM directional split	62%	38%

I-575 South of Barrett Parkway

	NB	SB
AM peak GP	9,901	16,894
AM peak ML	-	5,205
AM peak total	**9,901**	**22,099**
AM directional split	31%	69%
PM peak GP	18,821	15,685
PM peak ML	7,002	-
PM peak total	**25,823**	**15,685**
PM directional split	62%	38%

I-75 South of Barrett Parkway

	NB	SB
AM peak GP	28,200	39,944
AM peak ML	-	10,309
AM peak total	**28,200**	**50,253**
AM directional split	36%	64%
PM peak GP	44,700	37,330
PM peak ML	13,718	-
PM peak total	**58,418**	**37,330**
PM directional split	61%	39%

I-75 South of SR 5 (Canton Connector)

	NB	SB
AM peak GP	25,174	35,995
AM peak ML	-	10,309
AM peak total	**25,174**	**46,304**
AM directional split	35%	65%
PM peak GP	40,782	33,030
PM peak ML	13,718	-
PM peak total	**54,500**	**33,030**
PM directional split	62%	38%

I-75 South of Roswell Rd

	NB	SB
AM peak GP	31,030	39,013
AM peak ML	-	10,368
AM peak total	**31,030**	**49,381**
AM directional split	39%	61%
PM peak GP	46,426	37,117
PM peak ML	12,994	-
PM peak total	**59,420**	**37,117**
PM directional split	62%	38%

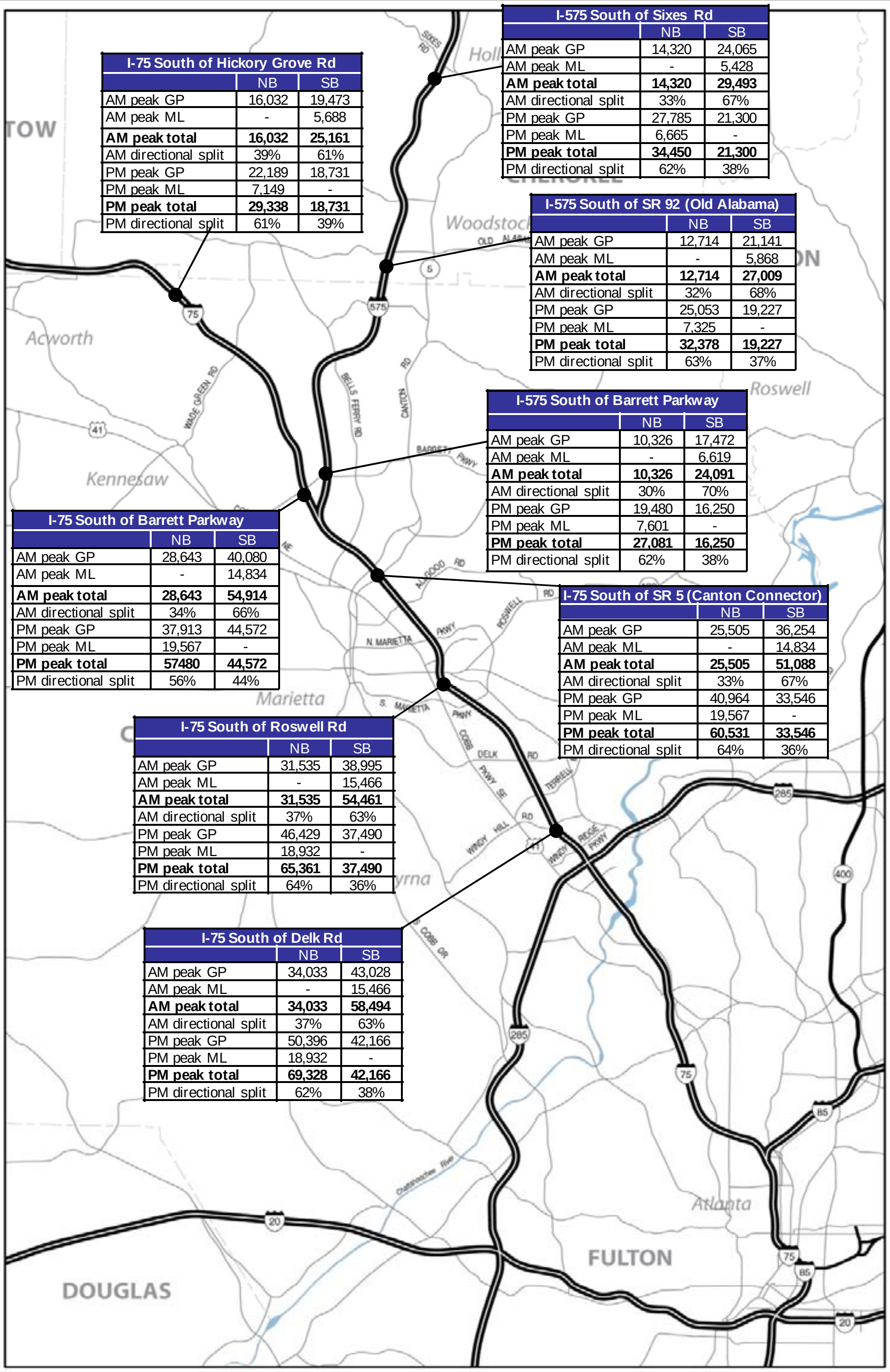
I-75 South of Delk Rd

	NB	SB
AM peak GP	33,501	42,986
AM peak ML	-	10,368
AM peak total	**33,501**	**53,354**
AM directional split	39%	61%
PM peak GP	50,344	41,687
PM peak ML	12,994	-
PM peak total	**63,338**	**41,687**
PM directional split	60%	40%

Figure 5-4

Concept B2
2-Lane Reversible
(Optional Slip Lanes)
2035 Peak Period Volumes

Source: ARC 20-County Regional Model



I-575 South of Sixes Rd	NB	SB
AM peak GP	14,320	24,065
AM peak ML	-	5,428
AM peak total	**14,320**	**29,493**
AM directional split	33%	67%
PM peak GP	27,785	21,300
PM peak ML	6,665	-
PM peak total	**34,450**	**21,300**
PM directional split	62%	38%

I-75 South of Hickory Grove Rd	NB	SB
AM peak GP	16,032	19,473
AM peak ML	-	5,688
AM peak total	**16,032**	**25,161**
AM directional split	39%	61%
PM peak GP	22,189	18,731
PM peak ML	7,149	-
PM peak total	**29,338**	**18,731**
PM directional split	61%	39%

I-575 South of SR 92 (Old Alabama)	NB	SB
AM peak GP	12,714	21,141
AM peak ML	-	5,868
AM peak total	**12,714**	**27,009**
AM directional split	32%	68%
PM peak GP	25,053	19,227
PM peak ML	7,325	-
PM peak total	**32,378**	**19,227**
PM directional split	63%	37%

I-575 South of Barrett Parkway	NB	SB
AM peak GP	10,326	17,472
AM peak ML	-	6,619
AM peak total	**10,326**	**24,091**
AM directional split	30%	70%
PM peak GP	19,480	16,250
PM peak ML	7,601	-
PM peak total	**27,081**	**16,250**
PM directional split	62%	38%

I-75 South of Barrett Parkway	NB	SB
AM peak GP	28,643	40,080
AM peak ML	-	14,834
AM peak total	**28,643**	**54,914**
AM directional split	34%	66%
PM peak GP	37,913	44,572
PM peak ML	19,567	-
PM peak total	**57480**	**44,572**
PM directional split	56%	44%

I-75 South of SR 5 (Canton Connector)	NB	SB
AM peak GP	25,505	36,254
AM peak ML	-	14,834
AM peak total	**25,505**	**51,088**
AM directional split	33%	67%
PM peak GP	40,964	33,546
PM peak ML	19,567	-
PM peak total	**60,531**	**33,546**
PM directional split	64%	36%

I-75 South of Roswell Rd	NB	SB
AM peak GP	31,535	38,995
AM peak ML	-	15,466
AM peak total	**31,535**	**54,461**
AM directional split	37%	63%
PM peak GP	46,429	37,490
PM peak ML	18,932	-
PM peak total	**65,361**	**37,490**
PM directional split	64%	36%

I-75 South of Delk Rd	NB	SB
AM peak GP	34,033	43,028
AM peak ML	-	15,466
AM peak total	**34,033**	**58,494**
AM directional split	37%	63%
PM peak GP	50,396	42,166
PM peak ML	18,932	-
PM peak total	**69,328**	**42,166**
PM directional split	62%	38%

Figure 5-5

Concept C
3-Lane Reversible
2035 Peak Period Volumes

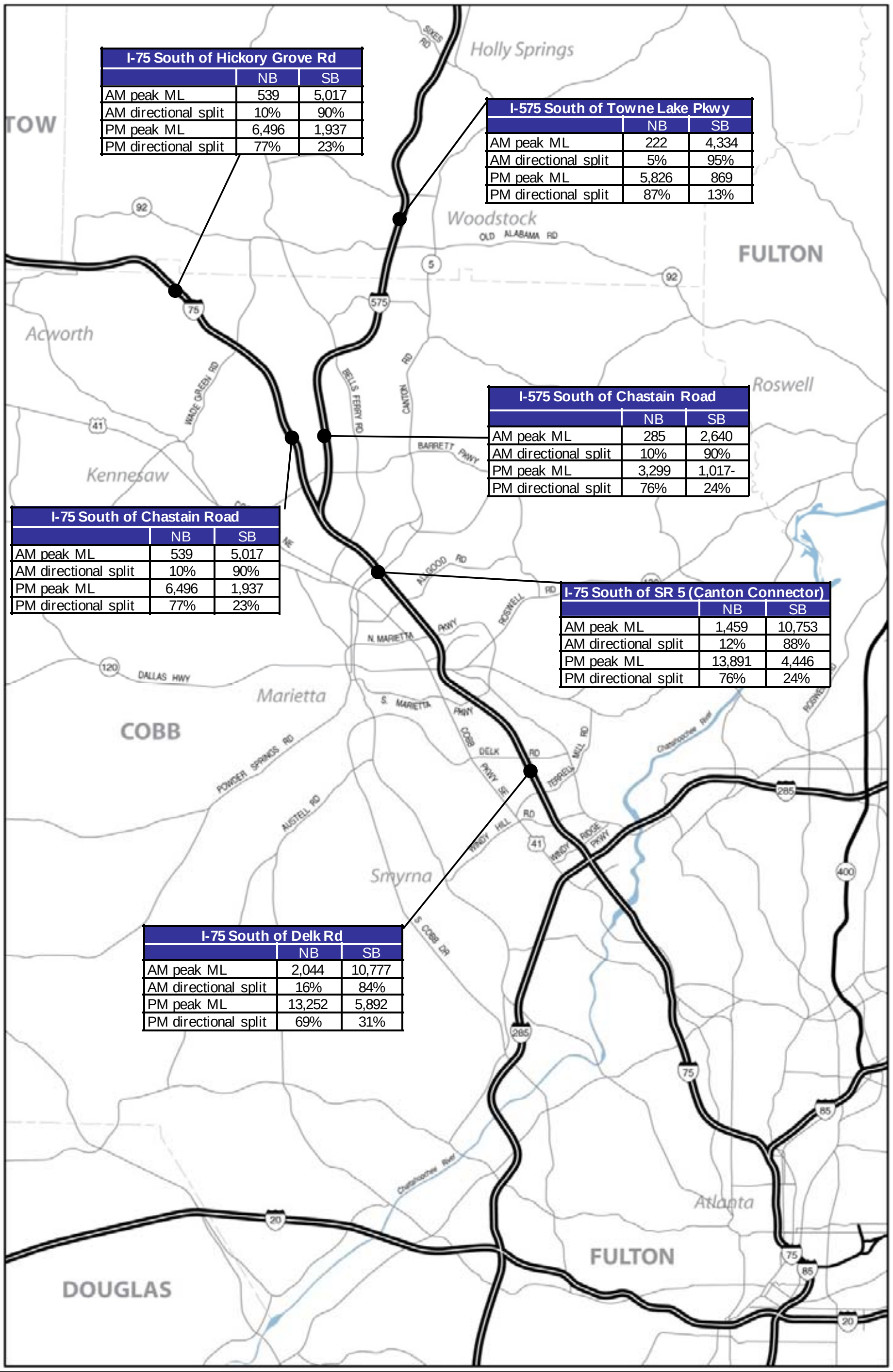
Source: ARC 20-County Regional Model

Figure 5-6 was added to illustrate the directional split for Concept A as a function of the managed-lane traffic only. The directional split for the managed lanes is much more pronounced than the directional split for all traffic.

Comparison of the bi-directional concept to the two reversible-lane concepts, however, show equal or higher traffic volumes for both peak periods. During the AM peak period, the southbound traffic on the reversible-lane concepts at Delk Road are between about 53,000 and over 58,000 compared to 55,000 for the bi-directional concept. Without additional lane capacity in the northbound direction during the AM peak period, however, the traffic volumes are less than for the bi-directional concept and are more similar to the traffic volumes of the No-Build Alternative or slightly higher. The higher traffic volumes northbound during the PM peak period for these concepts shows even higher usage than during the AM peak period. This is consistent with the pattern shown for the No-Build Alternative where traffic volumes during the PM peak period typically exceed those of the AM peak period. Again, these trends are also found along I-575 during the AM and PM peak periods.

Figure 5-6

**Concept A
Bi-Directional
2035 Peak Period
Volumes
(Directional split of only
managed-lane volumes)**



I-75 South of Hickory Grove Rd	NB	SB
AM peak ML	539	5,017
AM directional split	10%	90%
PM peak ML	6,496	1,937
PM directional split	77%	23%

I-575 South of Towne Lake Pkwy	NB	SB
AM peak ML	222	4,334
AM directional split	5%	95%
PM peak ML	5,826	869
PM directional split	87%	13%

I-575 South of Chastain Road	NB	SB
AM peak ML	285	2,640
AM directional split	10%	90%
PM peak ML	3,299	1,017-
PM directional split	76%	24%

I-75 South of Chastain Road	NB	SB
AM peak ML	539	5,017
AM directional split	10%	90%
PM peak ML	6,496	1,937
PM directional split	77%	23%

I-75 South of SR 5 (Canton Connector)	NB	SB
AM peak ML	1,459	10,753
AM directional split	12%	88%
PM peak ML	13,891	4,446
PM directional split	76%	24%

I-75 South of Delk Rd	NB	SB
AM peak ML	2,044	10,777
AM directional split	16%	84%
PM peak ML	13,252	5,892
PM directional split	69%	31%

Source: ARC 20-County Regional Model

5.3 Peak Period Flow Splits

One of the key measures to assess the effectiveness of managed lanes and the types of managed-lane system that could be effective in a study corridor is peak period directional flow splits. The build alternatives evaluated in the AA/DEIS include HOV lanes as well as a HOT lane operational option. Section 2.3.3.3 discussed reversible lanes and the reasons why this concept was not considered for detailed evaluation in the AA/DEIS. A key reason for eliminating this concept was due to the lack of appropriate peak period flow split data for the horizon year 2030. The ARC 2004 Travel Demand Forecasting Model had indicated flow splits on the I-75 corridor would be 57/43 or less.

As such, it is important to re-examine forecast traffic directional flow splits for the new concepts. "A Policy on Geometric Design of Highways and Streets" (AASHTO 2004) recommends reversible lanes if the peak period directional flow traffic volumes are split 65/35 or greater. This means 65 percent of the total freeway volume in the peak direction and 35 percent in the non-peak direction, or off-peak direction. Table 5-4 and Table 5-5 show the direction flow splits for both AM and PM peak periods for the build concepts. Flow splits that nearly meet or exceed the AASHTO recommended criterion are darkly shaded.

The analysis of the No-Build Alternative indicated that none of the locations along I-75 would come close to meeting the recommended 65/35 flow split during the AM peak period in 2035. Most of the I-575 corridor comes close to meeting the recommended criterion. No locations along either highway are forecast to come close to meeting the criterion in the PM peak period in 2035 for the No-Build Alternative. However, this is largely due to the No-Build model forecasts inability to consider latent demand in the peak direction. The off-peak direction demands are unconstrained yet approaches capacity while the peak-direction is highly constrained and thus the directional split ratios appear to be more evenly split than actual demand would otherwise indicate. This is why the build alternatives, which include increased capacity in the peak direction, show greater directional splits.

Of the managed-lane concepts, all showed directional flow splits coming close to meeting the criteria for most locations along I-575 during the AM peak period. The flow splits for locations along I-75 were weakest for the bi-directional concept and highest for the three-lane reversible concept – Concept C. The two-lane reversible concept is between these other concepts in number of locations meeting the criterion.

During the PM peak period, none of the locations along either I-75 or I-575 came close to meeting the flow split 65/35 criterion for the No-Build Alternative. The Build concepts all showed a substantial number of locations near to or exceeding the criterion. The three-lane reversible concept performed the best. These results clearly reverse a key factor in the rationale for eliminating a reversible-lane concept for detailed evaluation in the AA/DEIS.

Table 5-4. AM Peak Period Directional Flow Splits, 2035

Location	No-Build	Concept A	Concept B1	Concept B2	Concept C
I-75					
S of I-75 North Limit	56/44	58/42	57/43	58/42	58/42
S of Hickory Grove Rd	56/44	59/41	59/41	59/41	60/40
S of Wade Green Rd	56/44	60/40	60/40	60/40	61/39
S of Chastain Rd	56/44	60/40	60/40	60/40	61/39
S of Big Shanty Rd	55/45	59/41	60/40	60/40	62/38
S of Barrett Pkwy	58/42	60/40	61/39	61/39	63/37
S of I-75/I-5775	61/39	64/36	64/36	64/36	66/34
S of Canton Rd	61/39	65/35	65/35	64/36	67/33
S of N Marietta Pkwy	57/43	62/38	63/37	61/39	65/35
S of Roswell Rd	57/43	62/38	63/37	62/38	65/35
S of S Marietta Pkwy	57/43	61/39	61/39	61/39	63/37
S of Delk Rd	58/42	61/39	61/39	61/39	63/37
I-575					
S of I-575 North Limit	62/38	64/36	64/36	64/36	64/36
S of Sixes Rd	65/35	63/37	63/37	62/38	62/38
S of Rope Mill Rd	65/35	67/33	67/33	66/34	67/33
S of Town Lake Pkwy	65/35	67/33	66/34	66/34	67/33
S of Dupree Rd	65/35	67/33	66/34	67/33	67/33
S of SR 92	64/36	67/33	67/33	67/33	68/32
S of Shallowford Rd	64/36	67/33	67/33	65/35	68/32
S of Bells Ferry Rd	66/34	68/32	68/32	67/33	69/31
S of Chastain Rd	63/37	66/34	66/34	65/35	67/33
S of Big Shanty Rd	63/37	66/34	66/34	65/35	67/33
S of Barrett Pkwy	66/34	69/31	69/31	68/32	70/30

Note: Shaded area shows locations that generally meet transportation guidelines for a split in directional flow of traffic that support consideration of reversible managed lanes. Locations that meet the AASHTO guideline of 65/35 directional flow for reversible lanes are shaded dark grey. Locations with directional spits between 60/40 and 65/35 (and thus reasonably close to the AASHTO and ITE guidelines) are shaded light grey.

Table 5-5. PM Peak Period Directional Flow, 2035

Location	No-Build	Concept A	Concept B1	Concept B2	Concept C
I-75					
S of I-75 North Limit	43/57	42/58	42/58	41/59	41/59
S of Hickory Grove Rd	43/57	41/59	40/60	39/61	39/61
S of Wade Green Rd	44/56	41/59	40/60	39/61	39/61
S of Chastain Rd	44/56	41/59	40/60	39/61	39/61
S of Big Shanty Rd	46/54	43/57	41/59	40/60	37/63
S of Barrett Pkwy	44/56	41/59	40/60	40/60	37/63
S of I-75/I-5775	43/57	40/60	39/61	39/61	37/63
S of Canton Rd	43/57	40/60	38/62	38/62	36/64
S of N Marietta Pkwy	44/56	40/60	37/63	38/62	35/65
S of Roswell Rd	44/56	41/59	38/62	38/62	35/65
S of S Marietta Pkwy	43/57	41/59	38/62	39/61	36/64
S of Delk Rd	44/56	42/58	40/60	40/60	38/62
I-575					
S of I-575 North Limit	44/56	43/57	43/57	43/57	42/58
S of Sixes Rd	41/59	44/56	45/55	45/55	45/55
S of Rope Mill Rd	43/57	40/60	39/61	40/60	39/61
S of Town Lake Pkwy	42/58	39/61	39/61	39/61	38/62
S of Dupree Rd	42/58	39/61	39/61	38/62	38/62
S of SR 92	42/58	39/61	38/62	38/62	37/63
S of Shallowford Rd	42/58	39/61	38/62	39/61	37/63
S of Bells Ferry Rd	42/58	39/61	38/62	38/62	37/63
S of Chastain Rd	44/56	40/60	39/61	39/61	39/61
S of Big Shanty Rd	44/56	40/60	39/61	40/60	39/61
S of Barrett Pkwy	43/57	39/61	38/62	39/61	38/62

Note: Shaded area shows locations that generally meet transportation guidelines for a split in directional flow of traffic that support consideration of reversible managed lanes. Locations that meet the AASHTO guideline of 65/35 directional flow for reversible lanes are shaded dark grey. Locations with directional spits between 60/40 and 65/35 (and thus reasonably close to the AASHTO and ITE guidelines) are shaded light grey.

5.4 Peak Period Level of Service

The change in congestion as experienced by motorists is measured by level of service (LOS). Standardized terminology published in the *Highway Capacity Manual 2000* (TRB 2000) use letter designations from A to F to describe the quality of traffic flow. Letter A represents the best operating conditions (free-flow traffic) and LOS F designates the worst operating conditions (stop-and-go conditions, substantially reduced speeds, and difficulty maneuvering). The ARC regional transportation plan identifies LOS D or better as desirable in the Atlanta metropolitan area, which is consistent with the minimum acceptable LOS for urban areas by the American Association of State Highway and Transportation Officials (AASHTO). LOS D is the level at which speeds begin to decline and congestion affects the freedom to maneuver within the traffic stream.

Table 5-6 and Table 5-7 show the forecast 2035 LOS designations for the same highway locations for both the AM and PM peak periods and correspond to the traffic volumes presented in the previous section. On I-75, the southbound traffic conditions during the AM peak period are characterized as mostly LOS F under the No-Build Alternative. Southbound travel on I-575 during the AM peak conditions is only slightly better with LOS D and LOS E in three segments and all of the other locations LOS F. These conditions are expected since no improvements would be made to the general-purpose lanes under this concept. Because of the higher traffic volumes during the PM peak period, congestion is almost uniformly LOS F for both highways. During the AM peak period, traffic operations in the off-peak (northbound) direction are acceptable with mostly LOS C and LOS D conditions. During the PM peak period, traffic operations in the off-peak (southbound) direction are mixed LOS D through LOS F conditions, worse than off-peak direction traffic operations during the AM peak period.

These two tables show the LOS forecast for both directions of travel for the general-purpose lanes as well as the managed lanes for the bi-directional concept as well as the two reversible lane concepts. As described in the AA/DEIS, the managed lanes could be operated without tolls as HOV lanes or with a toll as high-occupancy toll (HOT) lanes (an operational option evaluated in the AA/DEIS). Since the tolling policy has not been addressed at this point for the managed-lane alternatives, the level of service may not be maintained at LOS C for the tabular data presented. The toll rate used in the modeling was fixed at $0.40 per mile (documentation provided by GDOT). Off-peak tolling rates for midday were set at $0.25 per mile and nighttime tolling rates were set at $0.10 per mile. In reality, the toll rate can be adjusted as required to achieve LOS C in the managed lanes.

During the AM peak period, the southbound general purpose lanes on both I-75 and I-575 are generally LOS F on I-75 and LOS E on I-575 under Concept A. The off-peak northbound general purpose lanes are largely LOS C and LOS D, somewhat worse compared to the No-Build Alternative. The level of service for the HOV lanes, however, show markedly improved conditions. Southbound travel in the HOV lanes on I-75 is almost uniformly LOS D and on I-575 conditions are mostly LOS C. Traffic would be free-flowing. No congestion

Table 5-6. AM Peak Period Level of Service by Directional Flow and Managed Lane, 2035

Location	No-Build		Concept A				Concept B1			Concept B2			Concept C		
	GP		GP		Bi-Dir		GP		Rev	GP		Rev	GP		3 Rev
	SB	NB	SB	NB	SB	NB	SB	NB	SB	SB	NB	SB	SB	NB	SB
I-75															
S of I-75 North Limit	F	D	F	E	n/a	n/a	F	D	n/a	F	D	n/a	F	D	n/a
S of Hickory Grove Rd	F	D	F	D	C	A/B	F	D	C	F	D	C	F	D	D
S of Wade Green Rd	F	D	F	E	D	A/B	E	E	C	F	E	C	F	E	D
S of Chastain Rd	F	D	F	E	D	A/B	E	E	C	F	E	C	F	E	D
S of Big Shanty Rd	F	E	F	E	D	A/B	F	E	D	F	E	D	F	E	C
S of Barrett Pkwy	E	D	E	D	D	A/B	E	D	D	E	D	D	E	D	C
S of I-75/I-5775	F	D	F	D	D	A/B	F	D	D	E	D	C	F	D	D
S of Canton Rd	F	D	F	D	D	A/B	F	D	D	F	D	C	F	D	D
S of N Marietta Pkwy	F	D	F	D	D	A/B	F	D	D	F	D	C	F	D	D
S of Roswell Rd	F	D	F	D	D	A/B	F	D	D	F	D	D	F	D	D
S of S Marietta Pkwy	F	D	F	D	D	A/B	F	D	D	F	D	D	F	D	D
S of Delk Rd	F	D	F	D	D	A/B	F	D	D	F	D	D	F	D	D
I-575															
S of I-575 North Limit	D	C	E	C	n/a	n/a	E	A/B	n/a	E	A/B	n/a	E	C	n/a
S of Sixes Rd	F	C	F	C	n/a	n/a	E	C	n/a	E	C	n/a	F	C	n/a
S of Rope Mill Rd	F	C	F	C	C	A/B	F	C	C	E	C	C	F	C	D
S of Town Lake Pkwy	F	C	F	D	C	A/B	F	D	C	F	D	C	F	D	D
S of Dupree Rd	F	C	F	D	C	A/B	F	D	C	F	D	E	F	D	D
S of SR 92	F	C	E	C	C	A/B	E	C	C	E	C	E	E	C	D
S of Shallowford Rd	F	C	E	C	C	A/B	E	C	C	E	C	C	E	C	D
S of Bells Ferry Rd	E	A/B	E	A/B	C	A/B	D	A/B	C	D	A/B	C	E	C	D
S of Chastain Rd	F	C	F	C	D	A/B	F	C	C	E	C	C	F	C	E
S of Big Shanty Rd	F	C	F	C	D	A/B	F	C	C	E	C	A/B	F	C	E
S of Barrett Pkwy	E	A/B	E	C	E	A/B	E	C	D	E	C	C	E	C	F

Note: SB = southbound directional flow; NB = northbound directional flow; GP = general-purpose lanes; Rev = reversible lane system; Bi-Dir = bi-directional lane system; n/a = conditions not applicable in this segment.

Table 5-7. PM Peak Period Level of Service by Directional Flow and Managed Lane, 2035

Location	No-Build		Concept A				Concept B1			Concept B2			Concept C		
	GP		GP		Bi-Dir		GP		Rev	GP		Rev	GP		3 Rev
	SB	NB	SB	NB	SB	NB	SB	NB	NB	SB	NB	NB	SB	NB	NB
I-75															
S of I-75 North Limit	F	F	F	F	n/a	n/a	F	F	n/a	F	F	n/a	F	F	n/a
S of Hickory Grove Rd	F	F	F	F	A/B	E	F	F	E	F	F	E	F	F	E
S of Wade Green Rd	E	F	E	F	A/B	E	E	F	E	E	F	E	E	F	F
S of Chastain Rd	E	F	E	F	A/B	E	E	F	E	E	F	E	E	F	F
S of Big Shanty Rd	F	F	F	F	A/B	F	F	F	F	F	F	F	F	F	E
S of Barrett Pkwy	E	F	E	F	A/B	F	E	F	F	E	F	F	E	F	E
S of I-75/I-5775	E	F	E	F	A/B	E	E	F	E	E	F	E	E	F	E
S of Canton Rd	E	F	E	F	A/B	E	F	F	E	E	F	E	F	F	E
S of N Marietta Pkwy	E	F	E	F	A/B	F	E	F	F	E	F	E	E	F	E
S of Roswell Rd	E	F	E	F	A/B	F	E	F	E	E	F	E	E	F	E
S of S Marietta Pkwy	E	F	E	F	A/B	F	E	F	E	E	F	E	F	F	E
S of Delk Rd	E	F	E	F	A/B	F	E	F	E	E	F	E	F	F	E
I-575															
S of I-575 North Limit	D	E	D	F	n/a	n/a	D	E	n/a	D	E	n/a	D	F	n/a
S of Sixes Rd	E	F	E	F	n/a	n/a	E	F	n/a	E	F	n/a	E	F	n/a
S of Rope Mill Rd	E	F	E	F	A/B	D	E	F	D	E	F	E	E	F	E
S of Town Lake Pkwy	F	F	F	F	A/B	E	F	F	E	F	F	E	F	F	F
S of Dupree Rd	F	F	F	F	A/B	E	F	F	E	F	F	F	F	F	F
S of SR 92	E	F	E	F	A/B	E	E	F	E	E	F	F	E	F	F
S of Shallowford Rd	E	F	E	F	A/B	E	E	F	E	E	F	E	E	F	F
S of Bells Ferry Rd	D	F	D	E	A/B	E	D	E	E	D	E	E	D	E	F
S of Chastain Rd	E	F	E	F	A/B	F	E	F	F	E	F	E	E	F	F
S of Big Shanty Rd	E	F	E	F	A/B	F	E	F	F	E	F	E	E	F	F
S of Barrett Pkwy	D	F	D	F	A/B	F	D	E	F	D	E	E	E	F	F

Note: SB = southbound directional flow; NB = northbound directional flow; GP = general-purpose lanes; Rev = reversible lane system; Bi-Dir = bi-directional lane system; n/a = conditions not applicable in this segment.

would be experienced by motorists using the off-peak direction northbound lane(s) during the AM peak period with LOS A/B conditions. During the PM peak period, the traffic conditions generally remain LOS F for northbound general purpose lanes on both I-75 and I-575 under Concept A. With the higher traffic volumes during PM peak period, the level of service for the HOV lanes is improved compared to the general purpose lanes, but not to the same extent as during the AM peak period. On I-75, the northbound HOV lanes largely operate at LOS E and LOS F and largely LOS E for the No-Build Alternative on I-575. The southbound HOV lanes for both highways during the PM peak period operate at LOS A/B.

Review of these results provided the basis for the evaluation of reversible-lane system concepts for the project corridor. As mentioned above, traffic analysis supporting the AA/DEIS had indicated a substantial latent demand. A substantial portion of the commute traffic was shown to use parallel arterial roadways instead of the highways due to severe congestion levels on the highways. These motorists could reduce their travel time during the peak periods by using the arterial roadways in place of the highways. As a result, level of service analysis of build alternatives in the AA/DEIS continued to show severe congestion levels after substantial highway improvements increased capacity. The LOS A/B designations for the off-peak direction managed lanes for the bi-directional concept during both AM and PM peak periods also provided the basis for evaluation of a reversible-lane system for the project corridor. The LOS A/B represented substantial public expenditure that would be under-used when additional capacity could potentially be used by the primary directional flow of traffic.

In fact, the analysis of the level of service for the reversible concepts did show the construction of only two reversible lanes on I-75 south of I-575 would provide similar transportation services for substantially less public expenditure. The reversible-lane system concept would have primarily LOS C for the managed lanes, similar to congestion levels on the southbound HOV lanes during the AM peak period. On I-575, congestion on the southbound managed lanes would be LOS C, somewhat less congested compared to the southbound HOV lanes on I-575 for the bi-directional concept. Similar congestion patterns were forecast for the PM peak period.

The three-lane reversible lane system, however, showed surprising high usage. During the AM peak period, congestion on I-75 would generally be LOS C and LOS D. Congestion during the PM peak period would be higher resulting in generally LOS E and LOS F, similar congested conditions for the two-lane reversible concept. It appears that adding three lanes to the peak direction results in very little improvement in the LOS of the general purpose lanes. This would validate the assertion that the latent demand of traffic using parallel arterial roadways was sufficiently high to construct a third reversible lane.

The magnitude of these benefits in terms of throughput, vehicle and person miles traveled, and vehicle and person hours of travel is discussed in the following sections. And though no studies have been completed to evaluation changes in congestion levels on the parallel arterial roadways under each of the several concepts evaluated, it would be expected that congestion on these roadways would substantially improve, especially under the three-lane reversible lane system concept (Concept C).

5.5 Vehicle and Person Throughput

Up until this point in the discussion, all of the analysis has focused on the number of vehicles using the highway travel lanes, including general-purpose, HOV, or reversible lanes. Analysis of vehicle throughput compared to person throughput measures the benefit of highway improvements in terms of people who actually travel on the highway. The vehicle throughput is the assigned projected vehicle trips by use group (drive alone, two-person carpools, three-person carpools, etc.). Person throughput is calculated by multiplying vehicle occupancy rates by the number of vehicles with defined occupancy. The measure of person throughput, however, represents highway person throughput exclusive of transit person throughput. Vehicle and person throughput was forecast for four locations each along I-75 and I-575.

Table 5-8 and Table 5-9 present data on vehicle and person throughput for the AM and PM peak periods. Included is average daily statistics for southbound and northbound traffic on both I-75 and I-575, respectively. The basis of the analysis is the No-Build Alternative. Here, it is important to note that in each case, the total number of persons always exceeds the number of vehicles for all concepts including the No-Build Alternative. This is because some motorists will carpool due to convenience even if there are no designated high-occupancy lanes. This measure emphasizes the benefit per person of public expenditure. Second, the vehicle and person throughput for both directions of travel for each of the build concepts exceeds the No-Build Alternative. The addition of managed lanes would encourage more motorists to carpool. And, the number for vehicle and person throughput for the bi-directional concept and three-lane reversible concept are higher than the two-lane reversible-lane concept for both directions of travel.

Table 5-8. Vehicle and Person Throughput on I-75, 2035

Location		Vehicle Throughput					Person Throughput				
		No-Build	Concept A	Concept B1	Concept B2	Concept C	No-Build	Concept A	Concept B1	Concept B2	Concept C
Both Directions	South of Hickory Grove Road										
	AM Peak Period	37,000	41,000	40,000	40,000	41,000	40,000	47,000	45,000	46,000	46,000
	PM Peak Period	45,000	51,000	48,000	49,000	50,000	50,000	61,000	56,000	56,000	57,000
	Total: Daily	161,000	177,000	170,000	171,000	173,000	178,000	210,000	196,000	196,000	199,000
	South of Chastain Road										
	AM Peak Period	37,000	42,000	41,000	41,000	42,000	40,000	49,000	47,000	47,000	48,000
	PM Peak Period	42,000	50,000	47,000	47,000	48,000	46,000	60,000	55,000	55,000	56,000
	Total: Daily	161,000	181,000	173,000	173,000	177,000	178,000	214,000	199,000	199,000	203,000
	South of I-575										
	AM Peak Period	70,000	81,000	76,000	76,000	84,000	78,000	98,000	90,000	91,000	101,000
	PM Peak Period	84,000	100,000	93,000	94,000	102,000	99,000	127,000	117,000	117,000	127,000
	Total: Daily	294,000	332,000	314,000	314,000	336,000	346,000	417,000	386,000	386,000	414,000
	South of Delk Road										
	AM Peak Period	79,000	90,000	86,000	86,000	93,000	89,000	109,000	103,000	103,000	112,000
	PM Peak Period	95,000	111,000	104,000	104,000	111,000	113,000	142,000	129,000	129,000	139,000
	Total: Daily	340,000	382,000	362,000	361,000	381,000	402,000	483,000	446,000	446,000	471,000
Southbound Direction	South of Hickory Grove Road										
	AM Peak Period	21,000	24,000	24,000	24,000	25,000	23,000	29,000	28,000	29,000	29,000
	PM Peak Period	19,000	21,000	19,000	19,000	19,000	21,000	24,000	21,000	21,000	21,000
	Total: Daily	78,000	86,000	81,000	81,000	82,000	86,000	102,000	91,000	92,000	93,000
	South of Chastain Road										
	AM Peak Period	21,000	25,000	25,000	24,000	25,000	22,000	30,000	29,000	29,000	30,000
	PM Peak Period	19,000	21,000	19,000	19,000	20,000	21,000	25,000	21,000	21,000	22,000
	Total: Daily	80,000	90,000	84,000	84,000	86,000	88,000	107,000	95,000	95,000	98,000
	South of I-575										
	AM Peak Period	42,000	52,000	48,000	48,000	55,000	48,000	64,000	60,000	60,000	60,000
	PM Peak Period	37,000	40,000	37,000	37,000	38,000	44,000	51,000	44,000	44,000	44,000
	Total: Daily	148,000	167,000	154,000	154,000	164,000	175,000	210,000	187,000	188,000	187,000

Table 5-8. Vehicle and Person Throughput on I-75, 2035(continued)

Location		Vehicle Throughput					Person Throughput				
		No-Build	Concept A	Concept B1	Concept B2	Concept C	No-Build	Concept A	Concept B1	Concept B2	Concept C
	South of Delk Road										
	AM Peak Period	46,000	55,000	53,000	53,000	58,000	51,000	68,000	65,000	65,000	74,000
	PM Peak Period	41,000	46,000	41,000	42,000	42,000	50,000	60,000	50,000	50,000	51,000
	Total: Daily	168,000	190,000	175,000	175,000	183,000	199,000	242,000	213,000	213,000	224,000
Northbound Direction	South of Hickory Grove Road										
	AM Peak Period	16,000	17,000	16,000	16,000	16,000	17,000	18,000	17,000	17,000	17,000
	PM Peak Period	26,000	30,000	29,000	29,000	30,000	29,000	36,000	35,000	35,000	36,000
	Total: Daily	83,000	91,000	90,000	90,000	91,000	92,000	108,000	105,000	104,000	106,000
	South of Chastain Road										
	AM Peak Period	17,000	17,000	17,000	17,000	17,000	18,000	19,000	18,000	18,000	18,000
	PM Peak Period	23,000	29,000	28,000	28,000	29,000	25,000	35,000	34,000	33,000	34,000
	Total: Daily	81,000	91,000	90,000	90,000	91,000	90,000	107,000	104,000	104,000	105,000
	South of I-575										
	AM Peak Period	27,000	29,000	28,000	28,000	29,000	31,000	34,000	31,000	31,000	32,000
	PM Peak Period	48,000	59,000	57,000	57,000	64,000	55,000	76,000	73,000	72,000	82,000
	Total: Daily	146,000	166,000	160,000	160,000	171,000	171,000	207,000	199,000	199,000	214,000
	South of Delk Road										
	AM Peak Period	33,000	35,000	34,000	34,000	34,000	37,000	41,000	38,000	38,000	38,000
	PM Peak Period	54,000	65,000	62,000	62,000	69,000	63,000	82,000	79,000	79,000	89,000
	Total: Daily	172,000	192,000	187,000	186,000	197,000	203,000	241,000	233,000	233,000	247,000

Table 5-9. Vehicle and Person Throughput for I-575, 2035

Location		Vehicle Throughput					Person Throughput				
		No-Build	Concept A	Concept B1	Concept B2	Concept C	No-Build	Concept A	Concept B1	Concept B2	Concept C
Both Directions	South of Sixes Road										
	AM Peak Period	35,000	34,000	33,000	33,000	35,000	42,000	38,000	36,000	38,000	40,000
	PM Peak Period	45,000	42,000	41,000	41,000	44,000	57,000	51,000	49,000	51,000	53,000
	Total: Daily	140,000	135,000	131,000	132,000	140,000	178,000	164,000	158,000	166,000	173,000
	South of Towne Lake Parkway										
	AM Peak Period	37,000	41,000	40,000	39,000	44,000	44,000	51,000	48,000	48,000	55,000
	PM Peak Period	49,000	54,000	52,000	51,000	56,000	62,000	70,000	67,000	66,000	72,000
	Total: Daily	152,000	163,000	158,000	155,000	169,000	195,000	214,000	204,000	204,000	222,000
	South of SR-92										
	AM Peak Period	33,000	38,000	38,000	35,000	40,000	39,000	48,000	47,000	44,000	50,000
	PM Peak Period	44,000	50,000	49,000	48,000	52,000	55,000	66,000	64,000	63,000	67,000
	Total: Daily	138,000	153,000	151,000	145,000	157,000	175,000	203,000	199,000	192,000	206,000
	South of Chastain Road										
	AM Peak Period	33,000	38,000	34,000	36,000	39,000	39,000	48,000	41,000	45,000	50,000
	PM Peak Period	40,000	48,000	43,000	46,000	48,000	51,000	63,000	54,000	60,000	62,000
	Total: Daily	138,000	155,000	142,000	148,000	157,000	176,000	205,000	179,000	194,000	205,000
Southbound Direction	South of Sixes Road										
	AM Peak Period	23,000	21,000	20,000	21,000	22,000	27,000	24,000	21,000	23,000	24,000
	PM Peak Period	19,000	19,000	19,000	19,000	20,000	24,000	23,000	25,000	25,000	25,000
	Total: Daily	70,000	68,000	68,000	68,000	71,000	90,000	83,000	84,000	86,000	90,000
	South of Towne Lake Parkway										
	AM Peak Period	24,000	27,000	26,000	25,000	29,000	28,000	34,000	32,000	32,000	38,000
	PM Peak Period	20,000	21,000	20,000	20,000	21,000	27,000	28,000	27,000	27,000	28,000
	Total: Daily	76,000	81,000	79,000	77,000	84,000	98,000	107,000	102,000	101,000	110,000
	South of SR-92										
	AM Peak Period	21,000	25,000	25,000	23,000	27,000	25,000	32,000	32,000	30,000	35,000
	PM Peak Period	18,000	19,000	19,000	19,000	19,000	24,000	26,000	24,000	24,000	25,000
	Total: Daily	69,000	76,000	74,000	71,000	77,000	88,000	102,000	97,000	94,000	101,000

Table 5-9. Vehicle and Person Throughput for I-575, 2035 (continued)

Location		Vehicle Throughput					Person Throughput				
		No-Build	Concept A	Concept B1	Concept B2	Concept C	No-Build	Concept A	Concept B1	Concept B2	Concept C
	South of Chastain Road										
	AM Peak Period	21,000	25,000	22,000	23,000	26,000	24,000	32,000	26,000	30,000	34,000
	PM Peak Period	18,000	19,000	18,000	18,000	19,000	23,000	26,000	24,000	24,000	24,000
	Total: Daily	70,000	78,000	71,000	73,000	78,000	90,000	103,000	92,000	96,000	102,000
Northbound Direction	South of Sixes Road										
	AM Peak Period	12,000	12,000	12,000	12,000	13,000	15,000	15,000	15,000	15,000	16,000
	PM Peak Period	26,000	24,000	23,000	23,000	24,000	32,000	28,000	25,000	27,000	28,000
	Total: Daily	69,000	67,000	64,000	65,000	69,000	88,000	81,000	73,000	80,000	83,000
	South of Towne Lake Parkway										
	AM Peak Period	13,000	14,000	13,000	13,000	14,000	16,000	17,000	16,000	16,000	17,000
	PM Peak Period	28,000	32,000	31,000	31,000	34,000	35,000	42,000	40,000	40,000	45,000
	Total: Daily	75,000	81,000	79,000	78,000	85,000	97,000	107,000	102,000	103,000	112,000
	South of SR-92										
	AM Peak Period	12,000	13,000	12,000	12,000	13,000	14,000	15,000	15,000	15,000	15,000
	PM Peak Period	25,000	31,000	31,000	29,000	32,000	31,000	40,000	40,000	39,000	43,000
	Total: Daily	69,000	77,000	77,000	74,000	80,000	87,000	102,000	102,000	98,000	105,000
	South of Chastain Road										
	AM Peak Period	12,000	13,000	12,000	12,000	13,000	15,000	16,000	15,000	15,000	16,000
	PM Peak Period	23,000	29,000	25,000	28,000	29,000	28,000	38,000	30,000	36,000	38,000
	Total: Daily	68,000	77,000	70,000	75,000	79,000	86,000	102,000	87,000	98,000	104,000

5.6 Peak Period Travel Time

For the average motorist driving in the Northwest Corridor, forecast changes in travel time under the No-Build Alternative compared to the proposed managed-lane concepts are easy to understand. Table 5-10 and Table 5-11 present forecast peak period travel times in minutes for I-75 and I-575. The tables also show a breakdown for travel time by type of lane to allow comparison of travel in the general-purpose lanes to the managed lanes under each of the build concepts.

The key data to review is the total travel time for each highway corridor. For I-75, this would be between Hickory Grove Road south to Akers Mill Road, and from Sixes Road on I-575 to Akers Mill Road on I-75. During the AM peak period, travel time in the I-75 general-purpose lanes would be about 60 minutes for the No-Build Alternative. Implementation of the build concepts would improve travel time to about 54 minutes for Concept A and about 49 minutes for the reversible-lane system concepts. Substantial time savings would occur for motorists traveling in the managed lanes. For these motorists, travel time would be about half of the time required for the general-purpose lanes for each of the managed lane concepts. For the reversible-lane system concepts, travel time would be about 22 or 23 minutes in the reversible lanes instead of over 49 minutes in the general-purpose lanes.

For motorists who travel from Sixes Road to Akers Mill Road, the AM peak period travel time would be about 74 minutes under the No-Build Alternative. Travel in the general-purpose lanes for Concept B would be about 60 minutes and about 67 minutes for Concept A and Concept C. Again, the managed lanes would provide significant time savings. Travel time using the reversible lanes under Concept B would be about 27 minutes or less and about 31 minutes and 34 minutes for Concept A and Concept C, respectively. All of the managed lane concepts reduce travel time for motorists using the managed lanes by more than half. Similar travel time savings would occur during the PM peak period.

Table 5-10. 2035 AM Peak Period Travel Time in Project Corridor: Southbound Direction

	Location	No-Build	Concept A	Concept B1	Concept B2	Concept C
Southbound Direction	**I-75 Corridor**					
	Between Northern End of I-75 HOT Lanes (N of Hickory Grove Rd) and Hickory Grove Road					
	GP Lanes	3.4	2.3	2.3	2.3	2.2
	Managed Lanes	0.0	0.9	0.9	0.8	0.9
	I-75 / I-575 Jct					
	GP Lanes	23.7	20.0	18.7	19.0	18.6
	Managed Lanes	0.0	8.7	8.5	8.0	8.8
	N Marietta Pkwy					
	GP Lanes	35.1	30.5	28.3	28.0	28.2
	Managed Lanes	0.0	14.0	12.5	12.4	13.6
	S Marietta Pkwy					
	GP Lanes	42.5	37.7	34.8	34.3	34.8
	Managed Lanes	0.0	17.1	15.0	15.0	16.4
	Delk Road					
	GP Lanes	49.1	43.8	40.3	39.5	40.2
	Managed Lanes	0.0	19.6	17.3	17.3	18.8
	Windy Ridge Road					
	GP Lanes	57.6	51.5	47.5	46.5	47.6
	Managed Lanes	0.0	24.0	21.1	21.1	22.6
	Akers Mill Road					
	GP Lanes	60.0	53.8	49.5	48.3	49.6
	Managed Lanes	0.0	25.1	21.9	21.9	23.6
	I-75 / I-575 Corridor					
	Between Northern End of I-575 HOT Lanes (Sixes Rd) and SR 92					
	GP Lanes	16.5	14.0	11.9	12.5	15.3
	Managed Lanes	0.0	4.8	5.1	4.1	6.4
	I-75 / I-575 Jct					
	GP Lanes	37.3	33.6	29.5	30.1	36.2
	Managed Lanes	0.0	14.4	13.8	11.8	19.1
	Windy Ridge Road					
	GP Lanes	71.2	65.1	58.3	57.6	65.2
	Managed Lanes	0.0	29.7	26.3	24.9	32.9
	Akers Mill Road					
	GP Lanes	73.7	67.4	60.2	59.4	67.3
	Managed Lanes	0.0	30.8	27.2	25.7	33.8

Note:
All travel times are presented in minutes.
GP = general-purpose lane.

Table 5-11. 2035 PM Peak Period Travel Time in Project Corridor: Northbound Direction

	Location	No-Build	Concept A	Concept B1	Concept B2	Concept C
Northbound Direction	**I-75 Corridor**					
	Between Akers Mill Road and Windy Ridge Road					
	GP Lanes	3.5	3.3	3.0	2.9	2.9
	Managed Lanes	0.0	1.2	1.0	1.0	0.8
	Delk Road					
	GP Lanes	11.0	9.9	9.2	9.0	8.8
	Managed Lanes	0.0	6.2	5.5	5.2	4.6
	S Marietta Pkwy					
	GP Lanes	19.2	17.0	15.6	15.4	15.7
	Managed Lanes	0.0	10.6	9.3	8.9	8.2
	N Marietta Pkwy					
	GP Lanes	27.0	24.1	21.9	21.5	22.6
	Managed Lanes	0.0	13.6	11.8	11.5	10.8
	I-75 / I-575 Jct					
	GP Lanes	46.9	41.6	37.3	36.5	39.0
	Managed Lanes	0.0	22.4	18.6	18.9	17.8
	Hickory Grove Road					
	GP Lanes	70.3	61.1	55.3	54.6	57.4
	Managed Lanes	0.0	33.1	29.0	28.7	29.1
	Northern End of I-75 HOT Lanes (N of Hickory Grove Rd)					
	GP Lanes	73.9	63.7	57.8	57.1	59.9
	Managed Lanes	0.0	33.9	29.9	29.5	30.0
	I-75 / I-575 Corridor					
	Between Akers Mill Road and Windy Ridge Road					
	GP Lanes	3.5	3.3	3.0	2.9	2.9
	Managed Lanes	0.0	1.2	1.0	1.0	0.8
	I-75 / I-575 Jct					
	GP Lanes	46.9	41.6	37.3	36.5	39.0
	Managed Lanes	0.0	22.4	18.6	18.9	17.8
	SR-92					
	GP Lanes	72.1	63.0	56.4	55.1	62.7
	Managed Lanes	0.0	35.6	30.5	30.0	36.1
	Northern End of I-575 HOT Lanes (Sixes Road)					
	GP Lanes	96.0	82.4	73.4	72.3	84.4
	Managed Lanes	0.0	42.0	39.4	35.5	45.5

Note:
All travel times are presented in minutes.
GP = general-purpose lane.

5.7 Person Miles and Hours of Travel

Another measure of increased mobility in the corridor can be presented by evaluating person miles of travel and person hours of travel. Both of these forecast values are outputs from the ARC 2008 Travel Demand Forecasting Model.

Table 5-12 presents these statistics for I-75. Looking at both directions of travel, all of the build concepts result in substantially increased person miles traveled for both directions of travel for the AM and PM peak periods as well as daily. On a daily basis, the two two-lane reversible concept is better than the No-Build Alternative, and the bi-directional and three-lane reversible-lane concepts are even better for increased person miles of travel for both directions of travel. The three-lane reversible concept provides the highest person miles traveled for the AM peak period for both directions of travel and the bi-directional concept provides the best person miles traveled for both directions of travel for the PM peak period. However, during the most congested periods, the AM and PM peak periods, the number of person miles traveled for the three-lane reversible concept substantially exceeds the benefits provided for the bi-directional concept. During the AM peak period, southbound person miles traveled for the three-lane reversible is forecast to be more than 834,000 compared to 774,000 for the bi-directional concept. During the PM peak period, the most congested period of the day, person miles traveled for the northbound three-lane reversible-lane concept would be an estimated more than 445,000 compared to about 423,000 for the bi-directional concept.

The data for the person hours of travel show a different trend. Here, the build concepts are generally the same or less than the No-Build Alternative. This is desirable as the transportation improvements are intended to reduce travel time for motorists. For highway use, the person hours of travel data is lowest for the two two-lane reversible concepts. But, person hours of travel for the bi-directional concept is increased over the No-Build Alternative. The best performing concept is the three-lane reversible concept considering travel time is generally reduced for a larger number of vehicles and highway users.

On I-575, measures of person miles of travel and person hours of travel show mixed mixed benefits over the No-Build Alternative (see Note:
PMT = person miles of travel
PHT = person hours of travel

Table 5-13). All of the build concepts show improvements over the No-Build Alternative for increased person miles of travel during both the AM and PM peak periods. The three-lane reversible concept shows the most substantial increase. However, this concept provides additional improvements to the I-575 corridor through the addition of managed lanes, but results in substantial increased person hours of travel compared to the No-Build Alternative. The bi-directional concept and the two two-lane reversible concepts would provide reduced person hours of travel.

Table 5-12. Person Miles and Hours of Travel on I-75, 2035

Location		No-Build	Concept A	Concept B1	Concept B2	Concept C
Both Directions	Person Miles of Travel					
	AM Peak Period	956,000	1,206,000	1,123,000	1,129,000	1,232,000
	PM Peak Period	1,183,000	1,551,000	1,400,000	1,400,000	1,520,000
	Total: Daily	4,276,000	5,280,000	4,839,000	4,843,000	5,144,000
	Daily PMT Per Lane Mile	27,000	25,000	23,000	23,000	22,000
	Person Hours of Travel					
	AM Peak Period	45,000	46,000	41,000	40,000	44,000
	PM Peak Period	69,000	68,000	62,000	62,000	68,000
	Total: Daily	173,000	173,000	161,000	160,000	175,000
	Daily PHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000
Southbound Direction	Person Miles of Travel					
	AM Peak Period	568,000	774,000	732,000	737,000	834,000
	PM Peak Period	542,000	659,000	541,000	544,000	551,000
	Total: Daily	2,184,000	2,689,000	2,348,000	2,354,000	2,491,000
	Daily PMT Per Lane Mile	28,000	26,000	23,000	23,000	22,000
	Person Hours of Travel					
	AM Peak Period	34,000	34,000	29,000	29,000	32,000
	PM Peak Period	20,000	19,000	20,000	20,000	22,000
	Total: Daily	84,000	84,000	79,000	79,000	87,000
	Daily PHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000
Northbound Direction	Person Miles of Travel					
	AM Peak Period	388,000	433,000	391,000	392,000	398,000
	PM Peak Period	641,000	892,000	859,000	857,000	969,000
	Total: Daily	2,092,000	2,591,000	2,491,000	2,489,000	2,654,000
	Daily PMT Per Lane Mile	27,000	25,000	24,000	24,000	23,000
	Person Hours of Travel					
	AM Peak Period	11,000	12,000	11,000	11,000	12,000
	PM Peak Period	49,000	49,000	42,000	41,000	46,000
	Total: Daily	89,000	90,000	82,000	81,000	88,000
	Daily PHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000

Note:
PMT = person miles of travel
PHT = person hours of travel

Table 5-13. Person Miles and Hours of Travel on I-575, 2035

Location		No-Build	Concept A	Concept B1	Concept B2	Concept C
Both Directions	Person Miles of Travel					
	AM Peak Period	442,000	524,000	501,000	492,000	559,000
	PM Peak Period	601,000	711,000	687,000	676,000	728,000
	Total: Daily	1,954,000	2,201,000	2,123,000	2,098,000	2,266,000
	Daily PMT Per Lane Mile	27,000	24,000	23,000	22,000	24,000
	Person Hours of Travel					
	AM Peak Period	19,000	18,000	16,000	16,000	21,000
	PM Peak Period	32,000	30,000	27,000	26,000	36,000
	Total: Daily	70,000	67,000	61,000	61,000	77,000
	Daily PHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000
Southbound Direction	Person Miles of Travel					
	AM Peak Period	287,000	360,000	342,000	333,000	392,000
	PM Peak Period	270,000	289,000	274,000	273,000	283,000
	Total: Daily	1,010,000	1,124,000	1,070,000	1,060,000	1,146,000
	Daily PMT Per Lane Mile	28,000	24,000	23,000	22,000	24,000
	Person Hours of Travel					
	AM Peak Period	15,000	15,000	12,000	12,000	17,000
	PM Peak Period	8,000	8,000	8,000	8,000	9,000
	Total: Daily	33,000	32,000	30,000	30,000	37,000
	Daily PHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000
Northbound Direction	Person Miles of Travel					
	AM Peak Period	154,000	164,000	159,000	159,000	167,000
	PM Peak Period	331,000	423,000	413,000	403,000	445,000
	Total: Daily	944,000	1,078,000	1,053,000	1,038,000	1,120,000
	Daily PMT Per Lane Mile	27,000	23,000	23,000	23,000	24,000
	Person Hours of Travel					
	AM Peak Period	3,000	3,000	3,000	3,000	4,000
	PM Peak Period	25,000	22,000	19,000	18,000	27,000
	Total: Daily	37,000	35,000	31,000	31,000	41,000
	Daily PHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000

Note:
PMT = person miles of travel
PHT = person hours of travel

5.8 Vehicle Miles and Hours Traveled

A true measure of overall transportation effectiveness is vehicle miles of travel and vehicle hours of travel (see Table 5-14 and Table 5-15). The overall effectiveness of a project can be indentified through analysis of changes in the number of vehicular trips and the corresponding changes in total vehicle miles of travel (VMT) using the different types of lanes – general-purpose, bi-directional, or reversible lanes. For each highway segment, VMT is calculated as the number of vehicles multiplied by length of the segment. VHT is computed as the number of vehicles multiplied by the time it takes to traverse the segment. For each of the concepts, the VMT and VHT are presented for projected 2035 AM and PM peak period and daily and for both directions and separately for the southbound and northbound directions. Generally, a higher value of VMT per lane mile indicates an overall higher density, thus a higher usage and overall effectiveness of the highway facility. A lower value of VHT per lane mile indicates a lower usage of the facility. Density is also an indicator of the level of congestion.

The data in the tables indicates Concept A and Concept C have higher total daily VMT (i.e. higher usage) than Concept B or the No-Build Alternative on I-75. This is logical as these two concepts simply have more lanes. What is interesting is that Concept C usage is nearly as high as Concept A despite one fewer lane on I-75 between I-285 and I-575. The daily VMT per lane mile, however, indicates congestion under Concept A would be more than under Concept B. Concept C, however, would be the least congested.

Analysis of the peak period shows more differences between the build concepts. During the AM peak period, southbound VMT for Concept C is 668,000, which is substantially higher than Concept A at 628,000. The southbound VMT for Concept B is even less at about 596,000. This shows that though Concept A has overall higher VMT on a daily basis, this concept is less able to meet travel demand during the congested southbound AM peak period compared to Concept C. This also shows the relative small portion of traffic in the off-peak direction flow during peak periods and the ability of the three-lane reversible concept to serve more vehicles due to the strength of the latent demand currently using the parallel arterials in the region due to high congestion on I-75. Similar results are shown for the PM peak period for northbound travel.

Because the proposal at this time is to add managed lanes to the Northwest Corridor, it is particularly helpful to analyze VMT for only the proposed new managed lanes. Review of the VMT for the managed lanes alone by time period (i.e., AM and PM peak period) for the bi-directional and reversible-lane concepts determined that the reversible-lane concepts have more VMT than the bi-directional concept for both time periods. Though not in the tables below, the VMT for the managed lanes alone during the AM peak period was reported to be about 114,000 for Concept B, 153,000 for Concept A, and 181,000 for Concept C. The differences between Concept A and Concept C for total VMT for the PM peak period is less pronounced with VMTs for the managed lanes reported as about 158,000 for Concept B, about 228,000 for Concept A, and 233,000 for Concept C.

Table 5-14. Vehicle Miles and Hours of Travel on I-75, 2035

Location		No-Build	Concept A	Concept B1	Concept B2	Concept C
Both Directions	Vehicle Miles of Travel					
	AM Peak Period	866,000	1,002,000	954,000	953,000	1,032,000
	PM Peak Period	1,025,000	1,216,000	1,135,000	1,136,000	1,229,000
	Total: Daily	3,718,000	4,240,000	3,993,000	3,994,000	4,223,000
	Daily VMT Per Lane Mile	24,000	20,000	19,000	19,000	18,000
	Vehicle Hours of Travel					
	AM Peak Period	41,000	41,000	37,000	36,000	39,000
	PM Peak Period	60,000	58,000	53,000	53,000	58,000
	Total: Daily	151,000	149,000	139,000	138,000	151,000
	Daily VHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000
Southbound Direction	Vehicle Miles of Travel					
	AM Peak Period	511,000	628,000	597,000	595,000	668,000
	PM Peak Period	465,000	519,000	462,000	465,000	473,000
	Total: Daily	1,896,000	2,161,000	1,977,000	1,979,000	2,083,000
	Daily VMT Per Lane Mile	24,000	21,000	19,000	19,000	18,000
	Vehicle Hours of Travel					
	AM Peak Period	30,000	30,000	26,000	25,000	28,000
	PM Peak Period	17,000	17,000	17,000	17,000	19,000
	Total: Daily	73,000	73,000	69,000	68,000	75,000
	Daily VHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000
Northbound Direction	Vehicle Miles of Travel					
	AM Peak Period	355,000	375,000	357,000	357,000	364,000
	PM Peak Period	561,000	697,000	673,000	672,000	756,000
	Total: Daily	1,822,000	2,079,000	2,017,000	2,015,000	2,139,000
	Daily VMT Per Lane Mile	23,000	20,000	19,000	19,000	18,000
	Vehicle Hours of Travel					
	AM Peak Period	10,000	11,000	10,000	10,000	11,000
	PM Peak Period	43,000	41,000	36,000	35,000	40,000
	Total: Daily	78,000	77,000	70,000	69,000	76,000
	Daily VHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000

Note:
VMT = vehicle miles of travel
VHT = vehicle hours of travel

Table 5-15. Vehicle Miles and Hours of Travel on I-575, 2035

Location		No-Build	Concept A	Concept B1	Concept B2	Concept C
Both Directions	Vehicle Miles of Travel					
	AM Peak Period	373,000	422,000	403,000	395,000	446,000
	PM Peak Period	477,000	544,000	524,000	518,000	561,000
	Total: Daily	1,533,000	1,680,000	1,623,000	1,601,000	1,736,000
	Daily VMT Per Lane Mile	22,000	18,000	17,000	17,000	19,000
	Vehicle Hours of Travel					
	AM Peak Period	16,000	15,000	13,000	13,000	18,000
	PM Peak Period	26,000	24,000	22,000	21,000	29,000
	Total: Daily	56,000	54,000	49,000	48,000	61,000
	Daily VHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000
Southbound Direction	Vehicle Miles of Travel					
	AM Peak Period	245,000	287,000	271,000	264,000	307,000
	PM Peak Period	206,000	218,000	209,000	208,000	218,000
	Total: Daily	791,000	857,000	821,000	811,000	879,000
	Daily VMT Per Lane Mile	22,000	18,000	17,000	17,000	19,000
	Vehicle Hours of Travel					
	AM Peak Period	13,000	12,000	10,000	10,000	15,000
	PM Peak Period	6,000	6,000	6,000	6,000	7,000
	Total: Daily	26,000	26,000	24,000	24,000	29,000
	Daily VHT Per Lane Mile	1,000	1,000	1,000		1,000
Northbound Direction	Vehicle Miles of Travel					
	AM Peak Period	128,000	136,000	132,000	131,000	139,000
	PM Peak Period	271,000	326,000	315,000	309,000	343,000
	Total: Daily	742,000	823,000	803,000	791,000	857,000
	Daily VMT Per Lane Mile	21,000	18,000	17,000	17,000	19,000
	Vehicle Hours of Travel					
	AM Peak Period	3,000	3,000	3,000	3,000	3,000
	PM Peak Period	20,000	18,000	16,000	15,000	21,000
	Total: Daily	30,000	28,000	25,000	25,000	32,000
	Daily VHT Per Lane Mile	1,000	1,000	1,000	1,000	1,000

Note:
VMT = vehicle miles of travel
VHT = vehicle hours of travel

But again, the bi-directional system, Concept A, includes some off-peak traffic, so an examination of the same data for peak directional traffic is insightful. For AM peak period southbound traffic, the managed lanes VMT is reported to be about 114,000 for Concept B, 130,000 for Concept A, and over 180,000 for Concept C. And for northbound managed lane traffic in the PM peak period, the VMT is reported to be about 157,000 for Concept B, a total of 164,000 for Concept A, and over 233,000 for Concept C. Thus, Concept C shows an increased utilization of about 38 percent for the AM peak period and about 42 percent for the PM peak period over Concept A and even higher utilization over Concept B.

And lastly, specific analysis of the managed lanes for the tolled groups (SOV, HOV2, and commercial trucks) provides an indicator of potential toll revenues for the build concepts in 2035. Examination of tolled groups during the peak periods shows that the VMT of Concept C is over 86 percent higher than Concept B during the AM peak period and 66 percent higher than Concept B for the PM peak period. Moreover, the sum of the AM and PM peak period VMT for the tolled groups for Concept C comprise about 50 percent of total daily managed-lane VMT. In comparison, the tolled groups comprise about 41 percent of total daily managed-lane VMT for concept B, and only about 31 percent for Concept A. But the absolute number for peak period tolled groups VMT for Concept C (289,000) is over 70 percent greater than the peak period tolled groups VMT for Concept B (167,000). As such, Concept C has significantly greater toll revenue capacity than Concept B in 2035.

Thus, from an overall effectiveness standpoint, the three-lane reversible system, Concept C, would appear to be the most effective of the new build concepts for the Northwest Corridor Project. This analysis, however, is based only on 2035 traffic forecast data and analysis of year of opening traffic data could provide a different view of which of the concepts would be most effective. As such, from a financial feasibility standpoint, it is the toll revenue collection over the life of the project, from opening year to horizon year, in light of construction and operation costs that provide the best information on the financial feasibility of either Concept B or Concept C. For this reason, GDOT's selection of a preferred alternative must consider the results of upcoming financial analysis.

5.9 Preliminary Benefit-Cost Analysis

Using forecast traffic data as well as very conceptual cost estimates, the project team also conducted a preliminary benefit-cost analysis. The Georgia Department of Transportation's Benefit/Cost Analysis Worksheet (dated November 13, 2007) was used to calculate congestion benefit-cost (B/C) ratios for each of the alternatives. The detailed calculation results of the analysis are contained in Attachment D.

A congestion B/C ratio greater than 1.0 indicates that the calculated dollar value of congestion benefits exceeds the estimated dollar cost of the project. Higher B/C ratios are better than lower B/C ratios. The B/C ratio can be used to help determine whether a project should or should not proceed. It can also be used to compare alternatives.

Assumptions used in the calculations for the build concepts included the following:

- The congestion benefit equals to the total of the time benefit (Tb), the commercial benefit (CMb), and the fuel benefit (Fb).
- The total project cost equals the total of the preliminary engineering costs, the right-of-way costs, and the construction costs.
- The congestion B/C ratio is the congestion benefit divided by the project cost.

For the Northwest Corridor Project, one modification to the GDOT spreadsheet was made. Since the proposed managed lanes would have different daily traffic volumes, different truck percentages, and different travel time savings than the general purpose lanes, congestion benefits for the managed lanes were calculated separately from the general purpose lanes congestion benefits. These values were then added together before dividing by the project cost.

The results for the four build concepts under consideration at this time are listed below. A more detailed discussion of these results is found in the paragraphs that follow.

- Concept A = 2.67
- Concept B1 = 5.64
- Concept B2 = 6.70
- Concept C = 4.65

For Concept A, the average daily traffic (ADT) in the general-purpose lanes in 2035 is projected to be 322,000. Trucks are projected to make up about 9.6 percent of the total vehicles. With the construction of this concept the travel time through the corridor in the general purpose lanes would be reduced by about 10 minutes in the PM peak period compared to the No-Build Alternative. In 2035, the managed lanes would have an ADT of 60,000. Trucks would be prohibited from the managed lanes. Travel time would be reduced by about 40 minutes in the PM peak period. Concept A was estimated to cost about $2billion. These values yield a congestion B/C ratio of 2.67.

For Concept B1, the ADT in the general-purpose lanes in 2035 is projected to be 326,000. Trucks are projected to comprise about 9.40 percent of total traffic. With the construction of this concept, the travel time through the corridor in the general-purpose lanes would be reduced by about 16 minutes in the PM peak period compared to the No-Build Alternative. In 2035, the managed lanes would have an ADT of 36,000. Trucks would be prohibited from the managed lanes. Travel time will be reduced by about 44 minutes in the PM peak period. Concept B1 was estimated to cost about $1.2 billion. These values yielded a congestion B/C ratio of 5.64.

For Concept B2, the ADT in the general-purpose lanes in 2035 is projected to be 325,000, slightly less than for Concept B1. Trucks would comprise about 9.4 percent of total vehicles. After construction, travel time through the corridor in the general-purpose lanes would be reduced by about 17 minutes in the PM peak period compared to the No-Build Alternative. In 2035, the managed lanes would have an ADT of 36,000. Trucks would again be prohibited from the managed lanes. Travel time would be reduced by about 44 minutes in the PM peak period. Concept B2 is estimated to cost about $1.1 billion. These values yield a congestion B/C ratio of 6.70.

And lastly for Concept C, the 2035 ADT in the general-purpose lanes is projected to be 331,000 and trucks would comprise about 9 percent of total traffic.

Following construction, travel time through the corridor in the general-purpose lanes would be reduced by about 14 minutes in the PM peak period compared to the No-Build Alternative. In 2035, the managed lanes would have an ADT of 50,000 and again trucks would be prohibited from using the managed lanes. Travel time would be reduced by about 44 minutes in the PM peak period. Concept C is estimated to cost about $1.4 billion. These values yield a congestion B/C ratio of 4.65.

5.10 Conclusions

The purpose of the traffic modeling analysis was to assess transportation measures of effectiveness for the bi-directional concept compared to the No-Build Alternative and to assess whether or not a reversible lane concept could provide substantial improvements over the bi-directional concept. Based on this analysis, the results demonstrate all of the build concepts meet the project purpose and need for the project. The basis for this conclusion is as follows:

<u>Need to Reduce Congestion</u>

1) All of the concepts provide similar level of service compared to the No-Build Alternative for the general purpose lanes.
2) The level of service for the managed lanes for each of the build concepts (managed and reversible-lane concepts) is substantially improved over the highly congested conditions of the general purpose lanes of the No-Build Alternative.
3) The off-peak direction lanes during peak periods of the bi-directional concept are generally LOS A/B and indicate unused capacity.

<u>Need to Improve Mobility (by reducing travel time and increasing reliability)</u>

1) Measures of vehicle hours of travel and person hours of travel for the bi-directional and two-lane reversible concepts is generally less than the No-Build Alternative.
2) The vehicle and person hours of travel for the three-lane reversible concept are generally increased over the No-Build Alternative.

<u>Need to Improve Access (by improving connectivity between regional activity centers)</u>

1) Measures of vehicle and person miles of travel for each of the build concepts is substantially increased over the No-Build Alternative.
2) The two two-lane reversible lane concepts provide the least improvement, whereas the three-lane reversible lane concept show improvements over the bi-directional concept.

<u>Need to Improve Safety (by reducing existing roadway design deficiencies and congestion-related crashes)</u>

1) To reduce overall project costs, none of the build concepts would reduce roadway design deficiencies as none would include re-construction of existing interchanges.

2) A higher proportion of all vehicles using highway and potentially parallel arterial roadways under all of the build concepts, particularly the three-lane reversible concept, would experience reduced congestion and reduced-congestion-related crashes compared to the No-Build Alternative.

Need to Reduce Vehicle Emissions (by improving vehicular travel efficiency and increasing the proportion of high-capacity vehicles)

1) Measures of vehicle miles and hours of travel indicate the bi-directional and two two-lane reversible lane concepts all are reduced values compared to the No-Build Alternative.
2) The three-lane reversible concept values for vehicle miles and hours of travel are generally higher than the No-Build Alternative.
3) All of the build concepts show substantial increased proportion of high-occupancy vehicles compared to the No-Build Alternative with the highest proportion attributed to the three-lane reversible concept.

Moreover, the two two-lane reversible lane concepts often provide improvements over the bi-directional concept. And, in a number of cases, the benefits provided by the three-lane reversible concept often provide the greatest benefits as shown in these transportation measures of effectiveness compared to the other build concepts. At this stage of the project study, a reversible lane concept appears to be superior to the bi-directional concept based on the transportation measures of effectiveness.

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6. Comparison of Environmental Impacts

This chapter summarizes the anticipated environmental impacts – adverse and beneficial – that would be expected from implementation of the HOV/TOL Alternative evaluated in the AA/DEIS and the new build concepts. As a benchmark, effects from the No-Build Alternative are also presented. Table 6-1 summarizes the anticipated environmental impacts. Note, the table presents separate information for Concept B1 and its design option, Concept B2. But unless the effects are markedly different, the text simply describes the effects of Concept B.

Table 6-1. Changes in the Environmental Impacts

Environmental Issue	No-Build	AA/DEIS HOV/TOL	Concept A Bi-Directional	Concept B1 2-Lane Reversible	Concept B2 2-Lane Reversible (Optional Slip Ramps)	Concept C 3-Lane Reversible
Transportation (traffic)	●	○	◐	◐	◐	○
Transportation (transit)	●	◐	◐	◐	◐	◐
Transportation (freight)	◐	NA	◐	◐	◐	◐
Transportation (safety)	●	○	◐	◐	◐	◐
Property Acquisition	○	●	○	○	○	○
Land Use	◐	○	○	○	○	○
Population and Employment	○	●	○	○	○	○
Economic Impacts	○	●	○	○	○	○
Neighborhoods and Community Facilities	○	●	○	○	○	○
Environmental Justice	○	●	○	◐	◐	◐
Visual Quality and Aesthetics	○	●	○	◐	◐	○
Parklands and Other Section 4(f) Properties	○	○	○	○	○	○
Historic/Archaeological Resources	○	○	○	○	○	○
Air Quality	◐	○	○	○	○	○
Noise and Vibration	○	●	◐	◐	◐	◐
Ecosystems	○	●	◐	◐	◐	◐
Water Resources	○	●	◐	◐	◐	◐

Table 6-1. Changes in the Environmental Impacts (continued)

Environmental Issue	No-Build	AA/DEIS HOV/TOL	Concept A Bi-Directional	Concept B1 2-Lane Reversible	Concept B2 2-Lane Reversible (Optional Slip Ramps)	Concept C 3-Lane Reversible
Geology and Soils	○	◐	○	○	○	○
Hazardous Materials	○	◐	○	○	○	○
Safety and Security	○	◐	○	◐	◐	○
Construction Impacts	○	●	◐	○	○	◐
Indirect Impacts	○	●	◐	◐	◐	◐
Cumulative Impacts	○	●	◐	◐	◐	◐

Notes:
● = indicates substantial adverse environmental impact.
◐ = indicates moderate adverse environmental impact.
○ = indicates little or no adverse environmental impact, and potential beneficial effects.
NA = Not applicable. Freight traffic would use separate facilities under the HOV/TOL Alternative and therefore is not comparable to the No-Build Alternative or any of the new concepts. Moreover, GDOT policies changed following the publication of the AA/DEIS and no longer support the construction of such facilities.

Transportation (traffic)

- For the HOV/TOL Alternative as well as the new build concepts, there would be a marginal reduction in traffic congestion in the general-purpose lanes due to vehicles switching into the managed lanes.
- For the HOV/TOL Alternative and the new build concepts, traffic using the managed lanes on both I-75 and I-575 would have improved level-of–service, LOS C or better operations.
- Increases in total daily traffic throughput on I-75 and I-575 for the reversible-lane concepts would exceed the traffic volumes forecast for either the HOV/TOL Alternative or Concept A, the bi-directional concept.

Transportation (transit)

- Transit travel times would be better in the managed lanes for the HOV/TOL Alternative as well as the new build concepts and would be better than travel in the general-purpose lanes.
- Trade-offs would exist between the increased transit services under the HOV/TOL Alternative and the increased capacity and level-of-service for the reversible-lane concepts. All alternatives would provide improved service compared to the No-Build Alternative.

Transportation (freight)

- GDOT newly adopted policies would not permit freight trucks in new highway managed lane systems. As a result, travel times and reliability for freight trucks reported for the HOV/TOL Alternative in the AA/DEIS are no longer valid. Future conditions for freight truck travel under the new build concepts would be similar to existing conditions.
- Under the HOV/TOL Alternative and the new build concepts, however, the majority of freight truck traffic would be expected to continue to avoid traveling during peak periods.

Transportation (safety and security)

- The new travel lanes constructed as part of the HOV/TOL Alternative as well as the new build concepts would be built to current engineering design standards. They would have full shoulders, which would be an improvement for emergency access and safety compared to the existing general-purpose lanes.
- As a result, a greater proportion of traffic using the highway corridor would generally have improved safety and security under the HOV/TOL Alternative or any of the new build concepts.

Property Acquisitions

- The HOV/TOL Alternative would result in the acquisition of over 130 acres of right-of-way with 93 full acquisitions and 197 partial acquisitions, for a total of 290 affected parcels and 341 displacements.
- As is the case in the HOV/TOL Alternative, the new build concepts would include new lanes only in the medians of I-75 and I-575 north of the I-75/I-575 interchange, thus eliminating right-of-way acquisition. And south of the I-75/I-575 interchange, the new build concepts would be constructed almost entirely within the existing highway right-of-way.
- Due to the substantial reduction in project footprint (four TOL and the BRT facilities eliminated), the overall adverse effects from right-of-way acquisition for the new build concepts would be about 25 percent or less than the amount required for the HOV/TOL Alternative.
- Concept A would require more right-of-way acquisition, more parcels, and more displacements that Concept B because the concept would have two managed lanes on both the west side (same as Concept B), but two additional managed lanes on the east side.
- Concept B would require a total of about 13 acres of right-of-way and would affect an estimated 59 parcels with 15 displacements. The required right-of-way acquisition for Concept B1 and the optional design option Concept B2 would be the same.
- While Concept C provides three reversible lanes compared to the two reversible lanes of Concept B, it would require only about 5 acres of right-of-way and would affect an estimated 27 parcels with no displacements.

Land Use

- The HOV/TOL Alternative as well as the new build concepts are all consistent with ARC planning policies as well as local plans and policies.

Population and Employment

- The effects on population are directly related to the number of partial and full acquisitions, so adverse effects of the HOV/TOL Alternative and the new build concepts would be very reflect the qualitative effects described above for property acquisitions.
- The improved transportation effectiveness (enhanced access and reduced travel time) of the reversible-lane concepts compared to the bi-directional concept and HOV/TOL Alternative could attract residents and businesses to locate in the project corridor.

Economic Impacts

- The economic effects are directly related to the number of partial and full acquisitions, so adverse effects of the HOV/TOL Alternative and the new build concepts would be reflect the qualitative effects described above for property acquisitions.
- Due to the reduction in project footprint, overall displacement impacts and reduction in property tax revenues associated with the new build concepts would be substantially less than those of the HOV/TOL Alternative.
- Due to the scaled back scope of the new build concepts, construction spending would similarly generate substantially fewer construction jobs compared to the HOV/TOL Alternative.

Neighborhoods and Community Facilities

- Due to the reduction in displacement of both residential and commercial properties, adverse effects on overall neighborhood cohesion for the new build concepts would be substantially less than the HOV/TOL Alternative.
- The new build concepts, however, would have fewer – about half as many – direct access ramps to the proposed new managed-lane system compared to the HOV/TOL Alternative.

Environmental Justice

- Due to the substantial reduction in property acquisitions, substantially fewer numbers of minority and low-income residents (environmental justice populations) under the new build concepts would be adversely affected by displacement and relocation compared to the HOV/TOL Alternative.
- None of the new build concepts would have direct access ramps to the managed-lane systems located near Franklin Road, a minority and low-income neighborhood. This is a loss of access to the proposed highway managed-lane system compared to the HOV/TOL Alternative.

- For low-income and transit-dependent travelers, travel time and reliability of using the new build concepts would be generally better than under the HOV/TOL Alternative.
- Except for the Concept A, which requires widening on both sides of the highway, the reversible-lane concepts would require widening primarily on the west side of the highway between I-285 and I-575. These effects, however, are substantially less than the potential adverse effects on environmental justice populations under the HOV/TOL Alternative.

Visual Quality and Aesthetics

- The visual effects of the HOVTOL Alternative were primarily linked to the increased width of at-grade highway pavement. The combination of the two lanes in each direction for both the HOV-lane system as well as the TOL-lane system would increase the highway by eight travel lanes compared to existing conditions south of the I-75/I-575 interchange.
- The widening of the highway for Concept A and Concept C would similarly require highway widening for at-grade facilities, but the increased width would be between only two and four additional lanes south of the I-75/I-575 interchange.
- In contrast to other alternatives, Concept B is proposed to be built largely elevated, but generally within the existing right-of-way between I-285 and I-575. These visual effects would be greater than the other new build concepts, but less than those for the HOV/TOL Alternative.

Parklands and Other Section 4(f) Properties

- The HOV/TOL Alternative as well as the reversible-lane concepts would not cause adverse effects on parklands or other Section 4(f) resources.

Historic and Archaeological Resources

- The HOV/TOL Alternative as well as the reversible-lane concepts would not cause adverse effects on historic or archaeological resources.

Air Quality

- In contrast to the No-Build Alternative, the HOV/TOL Alternative and new build concepts are part of an approved and conforming TIP.
- The HOV/TOL Alternative and the new build concepts would not cause or exacerbate violation of National Ambient Air Quality Standards (NAAQS).
- In addition, the HOV/TOL Alternative and new build concepts would be expected to slightly reduce carbon monoxide (CO) and volatile organic compounds (VOC), and slight increase particulate matter (PM) 2.5.

Noise and Vibration

- Due to the reduced project footprint, the transportation facilities under the new build concepts would be farther distant from noise-sensitive land uses compared to those exposed to noise levels under the HOV/TOL Alternative.

- The new build concepts would have reduced noise levels compared to the HOV/TOL Alternative. This is because the original noise modeling assumed the truck-only lanes would be located on the outside of the highway and would cause higher noise impacts.
- Conditions for the new build concepts would be somewhat worse compared to existing noise levels considering the highway facilities would be widened with additional travel lanes with very little additional right-of-way acquired south of the I-75/I-575 interchange.

Ecosystems

- Due to the substantial reduction in the project footprint and required highway widening for the new build concepts south of the I-75/I-575 interchange, overall adverse effects on habitat would be substantially reduced compared to the HOV/TOL Alternative, especially considering the fewer number of direct access ramp interchanges proposed. These impacts, however, would be greater than the No-Build Alternative.

Water Resources

- Due to the substantial reduction in the project footprint, overall adverse effect on water resources from the new build concepts would be substantially reduced compared to the HOV/TOL Alternative.
- These effects of the new build concepts, however, would be greater than existing conditions. The at-grade Concept A and Concept C would have increased adverse effects to Rottenwood Creek, which parallels the east side of the highway near Delk Road. Concept B would be elevated and would minimize potential adverse effects on water resources.

Geology and Soils

- Geology and soils effects of the new build concepts would be similar in nature as the adverse effects of the HOV/TOL Alternative. However, substantially less ground would be disturbed due to the substantially reduced footprint of the new build concepts.

Hazardous Materials

- Due to the greatly reduced project footprint for the new build concepts, the overall adverse effects would be similar, but reduced in magnitude compared to the HOV/TOL Alternative. Due to the suburban and rural character of the corridor, however, the overall risk of contaminated soils should be considered low to moderate.

Safety and Security

- Improved mobility and travel time for the managed-lane systems for the new build concepts as well as the HOV/TOL Alternative would similarly improve emergency response times.

- Emergency response times for incidents in the general-purpose lanes for the HOV/TOL Alternative and the new build concepts would be similar to the No-Build Alternative due to strong "latent" demand, especially during peak periods when level of service is very low.
- The elevated portion of Concept B would provide additional emergency access, safety and security concerns compared to Concept A and Concept C.

Construction Impacts

- Construction duration for the HOV/TOL Alternative would be about six years. The duration for the new build concepts would all be about half as long due to the substantially reduced scope of the construction activities.
- There would be trade-offs in at-grade construction for Concepts A and C compared to the construction associated with the elevated travel lanes for Concept B. The construction of the elevated structures, however, would have minimal effects on highway traffic during construction.
- The types of temporary short-term construction effects of the new build concepts would be similar to the HOV/TOL Alternative and would include adverse effects from construction noise and dust, changes in vehicular access and visual quality, and potential temporary degradation of surface water quality.

Indirect Impacts

- The indirect effects of the HOV/TOL Alternative would generally be expected to be greater than the new build concepts due to the influence of the truck-only lanes, greater number of re-constructed interchanges, and substantial displacement due to property acquisition.

Cumulative Impacts

- Cumulative effects of the new build concepts would be similar to those described for the HOV/TOL Alternative, but the magnitude of these effects would be reduced.

6.1 Conclusions

Based on the above qualitative assessment, the anticipated adverse effects on the environment from the new build concepts are fully anticipated to result in environmental impacts that are similar to, but generally substantially reduced from those disclosed in the AA/DEIS for the HOV/TOL Alternative. In particular, required property acquisition associated with the new build concepts would be between about 3 percent and 25 percent of the acreage required for the HOV/TOL Alternative. In turn, this dramatic reduction in property acquisition impacts would also result in substantial decreased effects on land use, population and employment, economic impacts, as well as neighborhood and community impacts. The substantial reduction in the at-grade or elevated footprint of the new build alternatives also would greatly reduce adverse effects on ecosystems, water resource, soils, and hazardous materials.

The AA/DEIS, however, also stated additional and more detailed environmental studies would be conducted prior to the completion of the environmental review process. These studies would be consistent with NEPA practices and the standards established by the recently updated GDOT *Environmental Procedures Manual* (GDOT 2008a). The studies would include the following:

- Updated land use consistency analysis
- Updated acquisition impacts and associated effects on population, employment, businesses, and local government revenues
- Expanded environmental justice analysis and community impact assessment
- Updated noise and air quality analysis based on the new ARC 2008 Travel Demand Forecasting Model
- More detailed ecology, water, and hazardous materials analysis.

The completion of these new environmental studies would provide updated and more detailed information and analysis for the new build concept selected as the preferred alternative. However, it is not expected that this environmental impact assessment would include environmental impacts that would be new or substantially different in magnitude than those discussed above for the several new build concepts.

7. Community Outreach and Agency Coordination

To continue to move forward with project development, GDOT fully anticipates the need for additional community outreach and agency coordination. Federal, State, regional, and local government agencies and the community at-large need to be informed about the proposed changes to the project, the selected preferred alternative, and the next steps to project development. In addition, agencies, stakeholders, and members of the community need to become involved in the public decision-making process as required by NEPA.

7.1 Community Outreach

For community outreach, GDOT proposes to conduct a comprehensive, but focused community involvement program. The purpose of this outreach will be to inform all recipients of the AA/DEIS, all who commented on the AA/DEIS, and any new interested and/or potentially affected parties of the selected preferred alternative and its potential environmental impacts. Outreach will need to be extended to major stakeholders as well as members of the general public. The type of outreach will need to be customized for these different audiences.

The objective of this outreach will be to ensure the community fully comprehends the design and operation of the selected preferred alternative. Secondarily, GDOT hopes this outreach will stimulate dialogue between the project proponents and the community regarding the selection of this alternative, the potential environmental impacts and how they compare to earlier alternatives evaluated in the AA/DEIS, and the recommended mitigation measures. This dialogue will help to ensure the recommended mitigation measures are acceptable to the community, particularly minority and/or low-income populations.

As part of this outreach, GDOT will conduct a formal, advertised, public hearing to solicit comments on the preferred alternative and anticipated environmental impacts of the alternative. The comments received on the AA/DEIS as well as comments received in this planned public hearing would be included and responded to in the Final EIS.

7.2 Agency Coordination

As stated above, agency coordination is similarly needed to educate agencies of the project modifications and to engage them in the public decision-making process. In particular, GDOT received many agency comments on the AA/DEIS that were either critical of past agency coordination and/or requested additional coordination. Moreover, 23 CFR Part 771, Section 771.125(a)(2) states, “Every reasonable effort shall be made to resolve interagency disagreements on actions before processing the Final EIS.” As such, substantial agency coordination is needed for the remainder of the environmental review process.

To initiate this new coordination effort, GDOT will review the agency comments and identify the major concerns about past agency coordination efforts. The Department will develop a new agency coordination plan to guide future coordination activities. To ensure a successful agency coordination program, GDOT plans to develop this plan with input from interested agencies. Once a general consensus has been reached on how agency coordination will be conducted, GDOT will move forward to implement the plan in the spirit of partnership with Federal, State, and local governments with project interest.

A key message in the new agency coordination plan will be clear communication of the project team activities since the publication of the AA/DEIS in May 2007. This message will review changes in various state and regional transportation plans and policies, the need to modify the build alternatives, the screening of potential managed-lane concepts, and the selection of the preferred alternative. In addition, GDOT will explain the agency clearly “heard” comments opposed to the project and has selected the preferred alternative with substantial public support.

And, if the approach to agency coordination is unsatisfactory for either GDOT or interested agencies, GDOT proposed to make a concerted effort to re-establish working relations, move forward and address project issues, and arrive at mutually agreeable solutions. GDOT hopes this approach to agency coordination will greatly improve agency support of the Northwest Corridor Project and the overall success of future project development activities during preliminary and final design, construction, and finally operation.

8. Recommendation for Environmental Documentation

As stated in Chapter 1, the purpose of this of this report is to review changed conditions since the May 2007 publication of the *Northwest I-75/I-575 Corridor AA/DEIS* that require reconsideration and refinement of the build alternatives evaluated in the AA/DEIS, to identify potential environmental impacts associated with the refined build alternatives, and to describe GDOT's justification for addressing the refinements in a Final Environmental Impact Statement (FEIS). This chapter presents GDOT's justification for completing the environmental review of the proposed project through preparation of a FEIS.

8.1 Reconsideration of Project Alternatives

Chapter 2 of this report described the several build alternatives, design, and operation options evaluated in the AA/DEIS, but Chapter 3 presented a number of changed conditions that has lead to GDOT's reconsideration of reasonable alternatives for the Northwest Corridor Project. Comments on the AA/DEIS spoke out against elements of the project alternatives evaluated in the AA/DEIS. Comments expressed concern about undocumented project impacts and financial feasibility of the proposed alternatives. Since publication of the AA/DEIS in May 2007, a number of transportation planning agencies have completed studies on transit facilities, highway managed-lanes, and the use of truck-only lanes – all elements of alternatives evaluated in the AA/DEIS. More importantly, changed economic conditions were pressuring GDOT to seek out lower-cost project alternatives. Key to understanding the true transportation effectiveness of the alternatives also needed to be determined using the new ARC 2008 Travel Demand Forecasting Model.

Preliminary analysis through 2035 showed trends that differed from the results using the older ARC 2004 Travel Demand Forecasting Model. Some analysis conducted just prior to the publication of the AA/DEIS also showed substantial "latent" demand due to large portion of motorists using parallel arterial roadways due to heavy peak period traffic congestion and unreliable travel time. Together, the project team re-examined the potential implementation of a reversible-lane concept for the project corridor, despite the fact that this concept had previously been eliminated from detailed evaluation.

Two reversible-lane concepts were developed and tested using the new 2008 Travel Demand Forecasting Model. These concepts included a two-lane reversible-lane system with two design options for access and a three-lane reversible-lane system. Whereas the earlier reversible-lane concept showed strong peak period directional flows in the base year, the long-term forecast indicated traffic-flow splits would generally be 57/43 or less. This did not meet accepted guidelines for optimal conditions with a 65/35 directional split during peak periods. The 2008 Travel Demand Forecasting Model, however, showed each of the two reversible-lane concepts were potentially feasible long-term due to higher directional flow splits during peak periods. At certain locations on I-75 and I-575, the long-term forecast traffic directional split during peak periods substantially exceeded the guidelines.

The review of the traffic forecasting results furthermore showed that the two reversible-lane concepts outperformed both the HOV/TOL Alternative and the bi-directional concept, Concept A. Meeting or exceeding the transportation effectiveness measures confirmed these new build concepts met the project's purpose and need. With fewer travel lanes, the reversible-lane concepts also would cost less to construct, while providing similar or improved transportation service.

In fact, the less expensive three-lane managed-lane system Concept C was forecast to have a daily VMT of about 4,223,000. This measure of overall transportation effectiveness is only slightly less than the more expensive four-lane managed system Concept A, which was forecast to have a VMT of 4,240,000. Moreover, the 2035 daily managed-lane VMT for Concept C was forecast to be over 38 percent higher than Concept B and 95 percent of the daily managed-lane VMT per lane mile compared to Concept B. This analysis indicates the potential ability of Concept C to capture greater toll revenue than Concept B.

These findings have led GDOT to re-consider the project alternatives and pursue a reversible-lane concept for the Northwest Corridor Project. And, GDOT plans to select the preferred alternative based on detailed revenue-cost analysis examining the entire life of the proposed project from opening year to horizon year. This will ensure GDOT selects a financially feasible preferred alternative for evaluation in the upcoming environmental documentation.

8.2 The NEPA Regulatory Framework Moving Forward

At this stage in the project study, it has been determined that the reversible-lane concepts meet the project purpose and need, provide superior transportation improvements, and provide these benefits for substantially less cost. Review of the NEPA regulations will help determine the appropriate next step in the environmental review process.

The Federal Highway Administration (FHWA), the lead federal agency for preparation of the AA/DEIS, has regulations that address this question. Title 23 *Code of Federal Regulations* (CFR) Part 771, Section 771.130(a) states,

> An EIS shall be supplemented whenever the Administration determined that:
>
> (1) Changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or
>
> (2) New information or circumstances relevant to environmental concerns and bearings on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS.

However, per 23 CFR Part 771, Section 771.130(b), the regulations also state,

a Supplemental EIS will not be necessary where:

(1) The changes to the proposed action, new information, or new circumstances result in a lessening of adverse environmental impacts evaluated in the EIS without causing other environmental impacts that are significant and were not evaluated in the EIS.

The regulations go on to state that if FHWA is uncertain of the significance of the new impacts, the applicant will develop additional environmental studies or an Environmental Assessment (EA) to assess the impacts of the changes, new information, or new circumstances.

In this case, however, the project team has performed some preliminary engineering for the reversible-lane concepts. This information was used in Chapter 6 to assess potential environmental effects of these concepts. This effort identifies the likely environmental impacts and magnitude of these impacts. As such, the preparation of an EA would not be the appropriate next step in the project environmental review process. The likely environmental effects of the reversible lanes are summarized in the section below and are used in the subsequent section to determine whether or not the next phase of the environmental review should be a SDEIS or an FEIS.

8.3 Environmental Impacts of the Reversible-Lane Concepts

Chapter 6 compares and contrasts the potential environmental impacts of the no build condition, the HOV/TOL Alternative, the bi-directional concept, and the three reversible-lane concepts. But, as discussed in Section 8.1, the transportation measure performance of the reversible-lane concepts is superior to both the HOV/TOL Alternative and the bi-directional concept, Concept A. So, the important comparison of environmental impacts must now look at how the reversible-lane concepts compare against the HOV/TOL Alternative to assess if the reversible-lane concepts would have less environmental impact than the AA/DEIS alternative. If so, the project team should proceed with the preparation of a FEIS consistent with FHWA regulations.

The environmental analysis of the reversible-lane concepts examined all elements of the environment, including construction, indirect, and cumulative impacts (see Table 6-1). These were all the same elements of the environment used to evaluate the HOV/TOL Alternative in the AA/DEIS. Compared to this alternative, the impacts of the reversible-lane concepts can be briefly summarized as follows:

- The reversible-lane concepts would have less adverse effects on transportation traffic issues compared to the HOV/TOL Alternative, but are similar for transportation transit, freight, and safety issues.

- The reversible-lane concepts would have similar land use effects compared to the HOV/TOL Alternative for land use impacts.
- The reversible-lane concepts rate substantially better than the HOV/TOL Alternative due to fewer adverse effects from property acquisition and the associated effects on population, employment, the economy, and neighborhoods and community facilities. The HOV/TOL Alternative would require 130 acres affecting 290 parcels compared to less than 13 acres affecting less than 60 parcels for either Concept B or Concept C.
- Neither the reversible-lane concepts nor the HOV/TOL Alternative would have impacts to parklands or other Section 4(f) properties, including historic and archaeological resources.
- All build alternatives will have similar air quality improvements over the No-Build Alternative.
- The reversible-lane concepts would have less noise and vibration, ecosystem, and water resource impacts than the HOV/TOL Alternative.
- The reversible-lane concepts would have fewer impacts to geology, soils, and hazardous materials compared to the HOV/TOL Alternative.
- The two-lane reversible concepts would have similar safety and security impacts compared to the HOV/TOL Alternative, but the three-lane reversible-lane system, Concept C, would have less impact.
- The elevated two-lane concepts would have substantially less construction impacts than the HOV/TOL Alternative, and the three-lane reversible concept would have somewhat less construction impacts than the HOV/TOL Alternative.
- The reversible-lane concepts would have fewer adverse effects from indirect and cumulative impacts compared to the HOV/TOL Alternative.

Clearly, all of the reversible-lane concepts would overall result in less environmental impacts than the HOV/TOL Alternative evaluated in the AA/DEIS.

8.4 Recommendation to Prepare a FEIS

In conclusion, it is recommended that the appropriate next step in the environmental review process for the Northwest Corridor Project is the preparation of a FEIS. The three reversible-lane concepts meet the project purpose and need similar to the other alternatives evaluated in the AA/DEIS. They generally perform better than the AA/DEIS alternatives in the transportation effectiveness measures. And, overall they would result in less environmental impacts. Additional review of the three reversible-lane concepts, however, is necessary to identify the most desirable concept to pursue.

This final selection of a single reversible-lane concept as the preferred alternative will be based on a financial analysis. This is consistent with GDOT's new commitment to have the most cost-effective alternative considering reduced revenues for State transportation projects and limited funding opportunities. Following this financial analysis, GDOT's decision-making board will be able to adopt the preferred alternative and efforts to prepare the FEIS can begin.

8.5 The Next Steps

The next steps for GDOT in development of the Northwest Corridor Project include the following:

- Obtain concurrence from FHWA for the preparation of an FEIS
- Initiate agency coordination meetings
- Prepare the revenue-cost analysis required to select a financially feasible preferred alternative
- Address comments from GDOT and FHWA
- Prepare the Administrative Draft FEIS for review by GDOT and FHWA
- Hold public information open house meetings to present changes in the proposed project and selection of the preferred alternative
- Prepare the IJR/IMR Report for the project corridor
- Respond to comments from GDOT and FHWA
- Publish the FEIS, issue the notice of availability, and distribute copies to the public and agencies
- Address any public and agency comments on the FEIS in the Record of Decision (ROD)
- Prepare the ROD for review and issuance by FHWA
- Take formal project action on the preferred alternative (e.g. purchase right-of-way, start final engineering, etc.)

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ATTACHMENT A
SUMMARY OF STRATEGY FOR COMPLETING THE ENVIRONMENTAL IMPACT STATEMENT MEMORANDUM

Memorandum

PB Americas, Inc. *3340 Peachtree Road, NE*
Suite 2400, Tower Place 100
Atlanta, Georgia 30326-1001
(404) 237-2115
Fax: (404) 237-3015

To: John Hancock

From: Roger Palmer

Date: July 24, 2009

Subject: Northwest Corridor Project (I-75/I-575)
Summary of Strategy for Completing the Environmental Impact Statement

As you know, we are preparing a Transition Document to aid in the decision-making process to determine the best approach to completing the environmental documentation for the Northwest Corridor Project. While the details are incomplete at this time, since the modeling is still ongoing, we would like to share with you a suggested approach to this issue that could possibly address the controversy over the use of a reversible system on I-75 and still proceed directly into the FEIS.

As the Draft Environmental Impact Statement was being completed, it was decided that no preferred alternative would be identified leaving the decision to be made as part of the Final EIS. However, the decision was between several transit alternatives rather than vastly different roadway configurations so the roadway was basically consistent between the transit alternates. The reason for this was the extensive roadway alternatives analysis that took place as part of the original Contract to determine the Interim and Ultimate HOV extension strategies.

The Interim strategy to extend the HOV system to the north was rejected by GDOT in a letter from Joe Palladi on October 30, 2002 based on the cost associated with replacing several bridges that would likely need to be replaced again as part of the Ultimate HOV extension strategy and the short time frame expected between implementation of the Interim and Ultimate solutions. This decision was made by GDOT fairly early in the analysis before BRT or truck only lanes were added. Subsequently, the Ultimate HOV extension strategy resulted in the roadway configuration used in the DEIS.

Comments on the DEIS received from the public and the various agencies involved were mainly focused on two issues. The largest number of comments was from the City of Atlanta concerning their opposition to additional busses on downtown streets and the minor rework of the Marta Arts Center Station to accommodate the additional bus traffic associated with the BRT system proposed. Second in number were comments from the trucking industry concerning truck only lanes that could possibly be tolled and the use of the lanes declared mandatory. As you will recall, mandatory use of the tolled system by trucks was ultimately abandoned by GDOT but the trucking industry remained unconvinced of the value of the truck only lanes. The remaining comments were either in support of the Project or were concerning issues that can be addressed with simple explanations or minor changes to the proposed concept. The major comments along with a realization that funding that can be applied to this Project will be severely limited require some significant changes to the proposed roadway concept. The logical approach after the DEIS is to explore the changes that should be made to the roadway concept.

The first change is to completely eliminate the transit element from the Project. This addresses the comments from the City of Atlanta and certainly helps with the cost issue. The comments concerning truck only lanes and the decision by GDOT to abandon truck only lanes statewide based on a recent study justifies the elimination of the truck only lanes. This eliminates two of the four lanes in each direction proposed in the DEIS which is consistent with addressing the cost saving measures required. The GDOT Board vision to promote the use of managed lanes systems in the Metropolitan Atlanta Area is also in line with promoting innovative methods for financing projects statewide. This leaves a logical list of concepts to explore in order to identify a concept that will make a difference by providing improved travel times on the corridors and one that is financially sound.

Starting with the modification of the roadway alternative presented in the DEIS as described above there would be some logical roadway configurations to consider. The revised concept on I-75 would be two lanes in each direction between I-285 and I-575 and identical to the DEIS roadway concepts north of the I-75/I-575 Interchange on both I-75 and I-575. The travel time savings in the managed lanes associated with this concept should be similar to those discussed in the DEIS. However, the cost for the concept is not likely to be financially viable since the expected cost will be such that the expected revenue generation may not be sufficient to retire the required supplemental bond debt for construction. If this is the case, it would be appropriate to consider a phased implementation.

The phased implementation would be represented by a second alternative which would be the construction of the western side of the modified DEIS concept operated temporarily as a reversible managed lane system located in the median on the west side of the existing median barrier. The tie-ins at I-285 and Hickory Grove Rd would be modified to accommodate the reversible traffic, of course. It is expected that the traffic on opening day would indicate a peak to off-peak split that is compatible with a reversible system. However, as the planned land use is implemented over time, the split is expected to become closer to even as jobs move outside the Perimeter which would be more compatible with a bidirectional system. When that point is reached, expected to be at some point in time approximately mid-way between opening day and the design horizon, the final phase can be added on the east side of I-75 and the tie-ins modified to operate as a bidirectional system. Of course, all of these assumptions upon which this scenario is based will need to be verified as part of the modeling.

It should be noted that it may be appropriate to evaluate another variation of the temporary reversible system. This alternative would place the additional lanes on the west side of I-75 outside of the existing roadway system similar to half of the U2 Concept described in the DEIS. This system, which is basically the same as the GTP concept, would be placed largely on structure to avoid conflicts with existing interchanges where possible. Additional changes north of the I-75/I-575 Interchange will be explored to further reduce the construction cost. These changes would reduce the managed lane system to one reversible lane on both corridors. This approach would be basically operationally equivalent to the second alternate but could result in a construction significant cost savings over the managed lane system in the median of I-75. Again, as the need arises, the second and final phase of the concept could be implemented with tie-in modifications and an additional managed lane added on both corridors north of the I-75/I-575 split.

We believe that this approach is consistent with the NEPA process and should be acceptable to FHWA. It addresses the concern that the process is arbitrarily selecting a previously rejected alternative and should permit the completion of the EIS process as quickly as possible.

If you have any questions or require additional information, please feel free to call me at (404) 364-2658.

Distribution:

Darryl VanMeter, GDOT
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ATTACHMENT B
REPORT OF FINDINGS OF CONCEPT DEVELOPMENT FOR THE HOV INTERIM PROJECT ON I-75

Report of Findings of the Concept Development

for the

HOV Interim Project on I-75

NHS-0002-00(39)

Cobb County

PI No. 0002039

Prepared by

Parsons Brinckerhoff Quade & Douglas

Atlanta, GA

September 2002

Contents

Appendixes

1. Executive Summary of Interim Concept Development Process

The concept development of the Interim Project on I-75 sought to establish the feasibility of extending the HOV system on I-75 north from Akers Mill Road to Wade Green Road. The goal was to have the project under construction and in operation as quickly as possible. The effort was undertaken with an eye toward addressing the full range of needs for the Atlanta regional HOV system in the corridor. A table of the minimum criteria used for the concept development is included in Appendix A.

The Interim Project Concepts

Three interim concepts were considered. Concept A would use a combination concurrent, reversible and contraflow configuration. Concurrent throughout, Concept B would require an extended ramp system through the bridge end spans from Windy Hill to South Marietta Pkwy since constrictions at the bridges do not allow widening of the I-75 mainline for the new HOV lanes. Also concurrent throughout, Concept C would replace the bridges at Delk and South Marietta Pkwy with structures compatible with the proposed Ultimate HOV project on the corridor. A detailed description of each concept is included in the main body of this document.

The cost estimates for the concepts are as follows:

Concept	Construction Cost	Right-of-Way Cost	Total	Early Implementation Cost
A	$83,732,535	$2,400,000	$86,132,535	$76,064,317
B	$71,409,728	$9,696,000	$81,105,728	$63,737,143
C	$85,296,583	$9,840,000	$95,136,583	$62,297,264

The detailed costs estimates are included in Appendix B.2.1. As shown in the table, an early implementation cost is included in the total cost for each concept. This cost is associated with placing the project in operation quickly. The cost is for items that are not required or that will need to be modified or discarded as part of the Ultimate HOV project. Details of the items included in the estimate are included in Appendix B.2.2.

Concept C was selected as the most desirable interim project since it implements concurrent flow throughout the corridor limits and is operationally sound. A table of pros and cons associated with each concept used in the decision process is presented in Appendix B.3.

The Ultimate Project

The concept development process for the Ultimate Project initially included two basic approaches to implementation of HOV. The traffic analysis indicated that two lanes in each direction are required to accommodate potential HOV traffic volumes on I-75 between I-285 and I-575 at the design year. The first concept proposed a widening of the I-75 corridor to place the new HOV lanes adjacent to the median. The second approach would place the HOV system on the outside of the corridor in each direction. On the I-575 and I-75 corridors north of the I-75/I-575 Interchange, the most cost effective approach is to place the new HOV lanes in the median since space is available with minimal structure modifications and right-of-way acquisitions. A detailed description of the initial Ultimate Concepts is included in this report. At the request of GRTA a third alternate will also be examined. This alternate places the HOV lanes adjacent to each other in the same corridor on one side of the Interstate. This alternate will be further studied and included in the concept development for the Ultimate Project design.

The cost estimates for the Ultimate HOV concepts are as follows:

Concept	Construction Cost	Right-of-Way Cost	Total
HOV in Median	$328,676,704	$114,080,000	$442,753,704
HOV Outside	$416,626,460	$159,551,600	$576,188,060

The detailed cost analysis for each of the Ultimate Concepts is attached.

Benefit/Cost Analysis

To establish the parameters associated with the benefit/cost analysis, several assumptions for implementation of the Interim and Ultimate Projects were made. These are detailed in the body of this report. Summarizing, the Interim Project would be opened to traffic in 2007 while the Ultimate Project could be in operation in 2010 if the Outside Concept is selected. There will be a period of approximately two years beginning in 2010 after the new HOV system is in place during which the Interim HOV and SOV lane markings will be removed by milling, the project overlaid and the SOV lanes restriped to increase shoulder and lane widths. Selecting the Median Concept for the Ultimate Project would extend the construction period to 2011 with a similar restriping time frame required.

Based on the assumed schedule, soon after the Interim Project is placed into operation, construction for the Ultimate Project could begin. The Interim Project would be in operation for three years until the Ultimate Project becomes operational in 2010. The impact on the capacity of the Interim HOV Project and the existing SOV system associated with the construction of the Ultimate Project during this period and the restriping required has been developed based on the information presented in the body of this Report. The annual cost streams associated with the schedule based on the no-build, the Interim only, the Interim with the Ultimate and the Ultimate with and without the Interim were developed. Comparing the cost data differences over the time frame being analyzed indicates negative benefits in all but two scenarios; the Interim Only and the Outside Concept with the Interim.

The present worth values of the cost streams between 2005 and 2030 for the Interim and Ultimate Projects together based on year 2005 dollars using a 7% interest rate are presented in the following table. The benefit of the Interim Project alone is the difference between the No-Build and the Interim Only scenarios. Comparing this to the total construction cost for the Interim Project yields the benefit-cost ratios as shown. All costs are expressed in millions of dollars.

Concept	Cost with Interim	Cost w/o Interim	Benefit	Const Cost	Benefit/Cost Ratios
Inside Concept	$7,512	$7,356	-$156	$95.1	N/A
Outside Concept	$6,735	$6,817	$82	$95.1	0.86

Conclusions

For this analysis a benefit/cost ratio of greater than one would indicate a cost effective solution. Due to the extended period of disruption during construction, the Inside Concept analysis yields negative benefits and does not appear cost-effective. While the Outside Concept with the Interim Project is marginally cost-effective, this only occurs if a conservative approach is used to develop the cost stream data modified to consider weekends, holidays and other factors. In summary, implementation of the Interim Project is only marginally beneficial and only if implemented with the outside Ultimate Project concept. In addition, if the Concept C Interim Project, which is the recommended Interim Concept, is used, the early implementation goal may not be met.

2. General

The limits of the Interim Project on I-75 are Kennedy Interchange on the south and Wade Green Road on the north. The current HOV system on I-75 actually terminates at Akers Mill Road. While improvements south to the Kennedy Interchange were considered during the concept development process, it was determined that simply connecting to the end of the current HOV lanes and extending them to the north would be appropriate.

The concept development process for the Interim Project on I-75 sought to establish the feasibility of extending the HOV system on I-75 north from Akers Mill Road to Wade Green Road and have it under construction and in operation as quickly as possible. A table of minimum criteria used for the concept development is included in Appendix A. The existing conditions on the corridor are such that developing full desirable lane and shoulder widths for the Interim Project is not feasible. The criteria list was developed with these restrictions in mind.

The primary objectives for the Interim HOV project on I-75 that were established during discussions with GDOT staff members to guide the development of an acceptable solution were as follows:

- Start construction in FY 2003 and complete by 2005
- Develop acceptable design deviation criteria to meet existing constraints
- Environmental documentation level expected will be Categorical Exclusion
- No additional right of way will be required
- The Project should provide realistic travel time savings
- No significant impacts to existing bridge structures
- No negative operational impact on existing general use lanes
- The facility should function properly from an operational standpoint
- Minimize "early implementation costs" as much as possible
- The Project must be compatible with the existing market for HOV
- The Project must address public acceptability

The most significant physical constraints on the corridor were identified from actual filed measurements. They are:

- I-285 Mainline Bridge
- I-285 Westbound CD Bridge
- Windy Hill Road Bridge (Southbound Lanes)
- Delk Road Bridge
- South Marietta Parkway Bridge

While the other locations noted present problems with shoulder widths, the most serious constraints exist at Windy Hill Road (on the southbound side), Delk Road (in both directions) and South Marietta Parkway (on the northbound side). The distance between piers is not adequate for the existing configuration at these bridges. Some of the existing lanes are 11 feet wide in these areas and existing shoulder widths are substandard. Therefore, adding an additional lane for HOV is not a viable option in these areas leaving contraflow as the only option without considering bridge modifications.

Actual physical measurements between piers at each bridge on the corridor from Akers Mill Road to South Marietta Parkway are provided in Appendix A. The included sections depict the existing lane configuration and shoulder widths along with the proposed section information for each alternate.

Four concepts were actually considered for the Interim Project. Ramp metering and HOV bypass was discussed in general. Given the physical constraints at several of the ramp gores with existing walls and limited right-of-way, this technique presents several problems with implementation. Additionally, ramp metering, while limiting the volume of traffic on the mainline of I-75, creates congestion on the cross streets. For these reasons this technique was not pursued.

3. The Interim Project Concepts

The concepts under consideration are described as follows:

Concept A

- Akers Mill to Windy Hill Road – concurrent flow
- Windy Hill Road to Delk Road – new reversible lane
- Delk Road to South Marietta Parkway – contraflow – take a general use lane from the off-peak direction
- South Marietta Parkway to Wade Green Road – concurrent flow

The additional width required to implement a reversible lane under the existing Windy Hill bridge would be obtained by shifting the northbound lanes to the east under the bridge and constructing a tie-back wall at the eastern end bent, if required. The median barrier would be removed for a sufficient distance to allow use of a movable barrier. The exposed center pier in the southbound direction would be protected with an appropriate attenuator.

The machinery required to move the barriers would be stored in the existing median that widens to approximately 45 feet north of the Windy Hill Road bridge. A storage area would need to be created north of the South Marietta Parkway bridge by shifting the mainline out both northbound and southbound in the vicinity of the Banberry Road bridge. This could possibly require additional right-of-way and create environmental issues that could eliminate the possibility of a CE.

The cost for this concept has been estimated at $83.7 mil. The majority (90.8%) of this would be early implementation cost. Early implementation costs are costs for facility improvements that will be modified or removed when the ultimate HOV design for the corridor is implemented.

Concept B

- Akers Mill to Windy Hill Road – concurrent flow
- Vicinity of Windy Hill Road– shift the center barrier to the east to add concurrent flow lanes
- Windy Hill Road to South Marietta Parkway – concurrent flow - Add an extended ramp system northbound and southbound from Windy Hill Road to South Marietta Parkway under the end spans of Delk and South Marietta Parkway bridges.
- South Marietta Parkway to Wade Green Road – concurrent flow

There is enough room under the southbound South Marietta Parkway bridge to add the additional HOV lane and buffer without having to utilize the end span of this bridge. This will require reduced lane and shoulder widths, however.

This concept would provide for continuous concurrent flow for the entire length of the I-75 study corridor. In order to avoid replacing or extensively modifying the bridges at Delk Road and South Marietta Parkway while compensating for the conversion of a general purpose lane in the center to a HOV lane it is proposed to add a lane on the outside in each direction through this area and direct it through the end spans of the bridges. Some of the end spans are already open while others will require the addition of a tieback wall at the end bents and passing at least two lanes through the end span. The additional lane in each direction will function as an extended ramp so that traffic approaching the area from either direction would use it to access any of the three interchange ramps from Windy Hill Road to South Marietta Parkway.

The cost for this approach has been estimated to be \$71.4 mil. Approximately 89.3% of this total is expected to be early implementation cost when the ultimate design is implemented.

Concept C

- Akers Mill to Windy Hill Road – concurrent flow
- Windy Hill Road to Delk Road – shift the center barrier to the east to add concurrent flow lanes
- Delk Road to Wade Green Road – concurrent flow

The most costly of all the concepts considered, this approach would require the replacement of the Delk Road and South Marietta Parkway bridges and the addition of a lane in each direction to compensate for the conversion of the center lanes in each direction to HOV use. Ideally, the new bridges would be the structures required to accommodate the Ultimate HOV project on the I-75 corridor. This would, of course, require additional right-of-way and could result in environmental impacts that would lengthen the preconstruction process well beyond the desired time frame.

The concept cost estimate for this approach has been placed at $85.3 mil. Since this concept would use a design for the new bridges compatible with the ultimate HOV design, early implementation costs would be minimized at 73.0%.

4. Ultimate Project Concepts

Concepts for the Ultimate Projects on I-75 and I-575

The concepts under consideration are described as follows:

The Ultimate HOV concepts propose a barrier separated approach. Two HOV lanes in each direction on I-75 are proposed from the vicinity of I-285 to the I-75/I-575 Interchange.

North of the I-75/I-575 Interchange to Wade Green Road one HOV lane in each direction is proposed for I-75. One HOV lane in each direction is also proposed on I-575 from I-75 to Sixes Road. The median in these corridors will be modified to be wide enough to accommodate two HOV lanes in each direction but only one lane will be constructed.

Regardless of the Ultimate Concept selected, it is proposed to separate HOV and SOV traffic access points on the corridors. This presents a workable solution to the operational concerns of installing a new signal (or signals) within the SOV interchanges where overlapping of left turn queues and other operational problems could be introduced.

The traffic modeling to date for barrier separated HOV has indicated that the separation of SOV and HOV access points has little impact on the magnitude of HOV traffic on the barrier separated lanes.

To be operationally acceptable the HOV access points would be spaced no more than 3 to 4 miles apart. They would also be located to adequately serve the HOV access requirements on the corridors. A graphic depicting HOV trip ends prepared based on the ARC traffic model has been developed to aid in determining where the HOV interchanges should be located. The graphic indicates the density of HOV trips along the corridors. A copy of this map is attached. The densities suggest desirable locations for HOV only interchanges. They are:

I-75

- Terrell Mill Road

- A new access point to Franklin Rd between Delk Road and South Marietta Parkway. This is suggested not to meet the spacing criterion but to service the relatively heavy HOV traffic expected west of I-75 in this area.
- Roswell Road (SR 120)
- Allgood Road
- Bells Ferry Road
- A new access south of Chastain Road to serve the new CCT Park and Ride facility under construction behind Town Center Mall on the southwest corner of George Busbee Parkway and South Busbee Drive

I-575

- Big Shanty Road for access to the Park and Ride facility behind the Mall
- Shallowford Road
- Dupree Road
- Rope Mill Road

The study limit on I-75 is Wade Green Road. If signals are added at the ramp termini in this interchange in the future, there will be four signals within 2,000 feet on Wade Green located at Shiloh Road, the two ramp termini and George Busbee Parkway. The introduction of a fifth signal for a center HOV access on the bridge does not appear to be a workable solution. In addition, the westbound left turning queue for traffic on Wade Green to the southbound I-75 HOV system could extend across the eastern ramp terminus intersection and result in operational difficulties. For these reasons it may be appropriate to eliminate HOV access at Wade Green altogether and extend the HOV system approximately 6000 feet north on I-75 to a proposed access point at Hickory Grove Road as recently suggested by Cobb County DOT. Hickory Grove does not currently have SOV access to I-75. The northern study limit on I-575 at Sixes Road could present similar operation problems. The traffic analysis to be completed on both corridors will establish the viability of the center access at each location.

It was noted that some of the HOV access points could require extensive construction to tie the access to major roadways in the area. The Dupree Road access on I-575 is notable in this regard. The express bus study prepared by GRTA suggests this location for a park and ride facility but Dupree Road does not tie directly to SR 92 to the south or Towne Lake Parkway to the north on the west side of I-575. It does tie to Main Street in Woodstock east of I-575 through a residential area. In order for the access at Dupree to be viable, one or the other of the north and south ties, if not both, may need to be established or improved.

As part of the concept development process, other access points were investigated and rejected. Hawkins Store Road does not have the desirable access east and west of I-575 and the spacing from Big Shanty is too close (1400 ft). Shallowford Road had only light HOV trip density in the vicinity and would not serve the development densities in the area as well as the other proposed access points.

However, the viability of establishing these access points has been demonstrated graphically if one or the other of the preferred access sites proves unworkable.

As noted above, the traffic data gathered to this point and the ARC traffic model indicate that two HOV lanes in each direction on I-75 between I-285 and the I-575 split would be adequate to accommodate the project HOV traffic at the design year and provide sufficient additional capacity to consider a High Occupancy Toll facility in the future.

The existing median width and the bridge configurations along the I-575 corridor are such that the additional paving required for one HOV lane in each direction could be accommodated with limited structure modifications, if any, relatively minor additional paving and minor additional right-way in selected locations. The additional right-of-way would only be required at the HOV access points. It appears that any other approach would be prohibitively expensive by comparison. Therefore, it is the opinion of the PB Team that the most practical location of the Ultimate HOV system on I-575 is in the center.

There are two basic approaches to implementation of the Ultimate HOV system on I-75. The first is the conventional location of the HOV lanes in the median and at-grade. The second is the location of the HOV lanes on the outside of the SOV system with flyover bridge systems at the interchanges to isolate the HOV system from the SOV system.

In general, for the median concept, the approach would be to accommodate the required footprint by maximizing the use of retaining walls to minimize ROW impacts. The Team looked at the current traffic analysis and the 2027 design year forecasts to determine an ultimate SOV and HOV lane configuration. The required additional general purpose lanes based on the design year traffic were depicted to the extent that their influence on the overall HOV design could be determined. Additional SOV lanes are not intended as part of the design for the implementation of the Ultimate HOV system on either corridor.

For the at-grade center concept, the basic SOV interchange configurations would be retained with a new bridge structure to allow for the expansion of the mainline for the HOV lanes and new ramp alignments to accommodate the new ramp tie points off the ends of the proposed new bridges. It was noted that eliminating loops and going to a tight diamond configuration could reduce ROW costs. However, the loops help with accommodating high left turn volumes in some locations and should be selectively retained. Again, the traffic analysis will determine how best to handle these issues.

. A new possible location of an access point for exclusive HOV access was identified approximately midway between Delk Road and South Marietta Parkway. The new roadway would tie to Franklin Road west of the I-75 mainline. If required, access from the east could also be accommodated as well with a tie to

Powers Ferry Road. The viability of this access point will be established as part of the traffic analysis for the corridor. The planimetrics of this and other possible HOV only access points are available for both the I-75 and I-575 corridors.

It will likely be necessary to provide both on and off access at all HOV interchanges to accommodate Bus Rapid Transit type operations.

The I-75 mainline may need to be shifted to the west to avoid two grave sites located on the southeast corner of I-75 and Gresham Road and in the northeast quadrant of the interchange on I-75 at North Marietta Parkway. Photos of the grave sites at Gresham Road are available, if required. The graves are immediately adjacent to the right-of-way fence at Gresham. The grave sites at the North Marietta Parkway interchange are to be defined by field review. The mainline shift to avoid both grave sites is depicted on the available plans prepared as part of the concept development process. The archeological investigation needed to determine the details of this cemetery will be part of the environmental process to be conducted.

The approach used for the concept development process was to conduct a fatal flaw analysis of the environmental issues to support preliminary concept development. A screening of the corridors was conducted to determine if environmental elements exist that could result in making a concept impossible or impractical. If found, the concepts were developed to avoid the element or elements.

The Canton Connector Interchange on I-75 would require extensive replacement of the existing bridges to accommodate the HOV system. The bridges to be replaced would include Canton Road, the railroad bridge and the ramp bridges. The rail line is critical and cannot simply be shut down. It is a siding, but there is significant traffic. The construction would need to be staged with a new bridge constructed while the old one remains in operation. This same approach to staging the bridge construction is feasible throughout the interchange with slight realignments allowing new bridges to be constructed while the existing one remains in operation.

A new HOV access at Roswell Road (SR 120) was considered, and a feasible design is possible as indicated on the plans. However, there are grade and traffic issues to be addressed. The clearance under the bridges will be a significant issue when the mainline of I-75 is widened at its current grade and cross slope in the future. Either I-75 must be raised or Rowell Road lowered to obtain the proper clearance. Concept development will identify and develop a feasible layout considering these issues.

A new HOV access at Allgood Road appears feasible as depicted on the concept plans. With the current five-lane section and proximity of major collector roadways, there is excellent access to the east and west at this location to serve the HOV traffic expected.

Bells Ferry is a potential HOV site, but roadway widening has been historically opposed by local residents, and residential access opportunities are limited. While access is feasible, there are also historical resource constraints.

At the I-75/ I-575 Interchange, the HOV ramps to I-575 northbound would be placed on an adequate grade to cross the I-75 northbound lanes on a bridge structure and continue north as a single lane in each direction on I-575 in the existing median. The I-75 HOV lanes would continue through the Interchange in the median as a single lane in each direction north of the Interchange.

SOV ramps were investigated at the I-75/I-575 Interchange to add the missing southbound to northbound movements on each corridor to make sure they could be accommodated with the proposed HOV system. The issue for adding the SOV ramps will be the extensive rock excavation that would be required since rock outcroppings in the vicinity are extensive and directly in the path of the logical location for the ramps.

The new access on I-75 south of Chastain Road is proposed for access to the new Park and Ride facility under construction in the vicinity. There is a very wide (approximately 300 feet) median at the proposed location of the new HOV interchange. It is proposed to configure the interchange with I-75 over the new roadway so that the access can connect with Barrett Lakes Blvd on the west side of I-75 as well as George Busbee Parkway on the east. This would serve the HOV traffic both east and west of I-75. Staging would be simplified with the wide median by realigning I-75 north and southbound inside the median while the existing north and southbound lanes remain in operation. It has been suggested that the realignment could remain in place to further simplify the process.

The Wade Green interchange can accommodate the new HOV lanes and access in the existing median. However, the previously noted operation problems need to be addressed. One method of doing this consists of eliminating the HOV access at Wade Green and extending the HOV lanes to a new HOV interchange in the median at Hickory Grove Road.

As previously noted, Cobb DOT and the cities of Acworth and Kennesaw commissioned a study by Carter-Burgess to locate a park and ride facility at Hickory Grove with HOV access in the center and SOV ramps in various configurations. The PB Team may eliminate the SOV access at this location to simplify operation and minimize impacts.

. The proposed interchange at Hickory Grove is complicated by the existing northbound on- ramp from Wade Green which extends to and under Hickory Grove. This extended ramp system was constructed in the past to accommodate a movable truck weigh station. If SOV ramps were added at Hickory Grove it would mean signing the northbound exit to Hickory grove south of Wade Green. It may also be appropriate to stripe concurrent HOV between Wade Green and Hickory Grove and begin the barrier separation at Wade Green in the southbound direction. This could simplify operations.

Basically, the addition of a single HOV lane in each direction does not present major problems on I-575. The existing median is 64 feet wide for almost the entire length of the corridor. Existing Bridges typically have two-span arrangements with a center pier in the median and end bents located well outside the existing pavement. This configuration allows widening in the median to add the HOV lane as well as any shifting of the mainline that may be required to accommodate the new HOV lanes by the inclusion of tie-back walls at the end bents. The proposed HOV access points would be as discussed above.

. The elevated HOV concept on I-75 may more appropriately be termed the outside HOV alternate since the HOV system is proposed outside of the general-purpose lanes. In general, the HOV system would consist of two lanes in each direction and barrier separated from the general purpose lanes. At the interchanges the HOV system will be on structure to avoid impacts to the operation of the SOV systems. All SOV ramps could remain in their basic existing configurations with the HOV lanes and structures located in such a way as to avoid precluding any SOV improvements that may be required in the future to accommodate the design year traffic. GDOT has suggested that for this approach it would be appropriate to locate the barrier at the clear zone requirement for all existing and proposed SOV lanes.

The HOV system in general would be appropriately designed for expressway speeds, i.e., 60 mph with maximum grades of 4%.

The configuration of the transition to concurrent flow south of I-285 is important so that HOV users can access Cumberland or Akers Mill. The westbound CD and the mainline bridges on I-285 over I-75 present real problems with horizontal clearances. Until these bridges are replaced in a future interchange modification, it will be difficult to add the north-facing HOV ramps at Akers Mill Road to mirror the existing south-facing access and maintain the AASHTO design criteria on grades and shoulder widths.

The approach for the I-75 HOV system from I-285 through the Windy Hill area was to develop a layout that avoids existing major structures insofar as possible. If the HOV system were proposed at-grade, every structure would need to be either modified extensively or rebuilt from scratch. At this point while a number of scenarios have been developed by others to accommodate the future traffic in the I-285/I-75 Interchange through the Windy Hill Interchange, none has been approved. It may be some time before all of the SOV issues are addressed adequately. The Team feels that since implementation of HOV on the corridor is the primary goal, it is prudent to develop HOV systems that avoid having to solve the SOV issues before HOV can even be considered. At the same time it is appropriate to allow maximum flexibility for the future SOV improvements in the area.

The HOV system-to-system connection at I-285 was studied to the point that, when appropriate, the proposed HOV system developed as part of this study could accommodate the I-285 HOV system.

The ARC Traffic Demand Model indicates the following for the design year 2025 for the HOV system to system connection:

HOV Ramp Description	AM Peak	PM Peak	VPD
I-75 SB to I-285 WB	250	645	4530
I-75 SB to I-285 EB	716	660	7080
I-75 NB to I-285 WB	59	309	1850
I-75 NB to I-285 EB	237	543	3880
I-285 EB to I-75 NB	491	546	5130
I-285 EB to I-75 SB	201	186	1910
I-285 WB to I-75 NB	422	771	5460
I-285 WB to I-75 SB	382	393	3870

In order to implement the HOV interconnection, it was assumed that the HOV system on I-285 would be in the median. To make room for it the I-285 westbound mainline would need to be shifted to the north through the I-285/I-75 Interchange. The longitudinal extent of the shift is difficult to establish without a detailed development of the HOV system that would be appropriate for several miles in each direction on I-285 which is beyond the scope of this study. Note that it is not necessary to provide the HOV system-to-system connections to implement the Ultimate HOV system on I-75; all that is required is to assure that the HOV system on I-75 will accommodate the HOV system and connections on I-285 when required.

The shift of the eastbound I-285 mainline would need to be adequate to accommodate the new flyover HOV ramps depicted on the layouts provided that it would tie into I-285 eastbound and westbound as well as I-75 northbound and southbound.

It should be noted that the HOV movements northbound on I-75 to I-285 eastbound and westbound and I-285 eastbound and westbound to I-75 southbound and the movements on I-285 eastbound and westbound to southbound I-75 were eliminated from consideration based on the analysis of the HOV traffic data. The volume of these movements is considered insignificant while the cost of providing ramps to accommodate them is extensive. If the ramps are determined to be required in the future, they are not precluded but could be added. However, the cost is not included in the Ultimate Project on I-75.

The southernmost HOV access for the outside concept proposed would be located at Terrell Mill Road. The location of the HOV system on the outside simplifies the access ramp configurations and minimizes impacts. However the issue associated with widening Terrell Mill to accommodate the required left turns is the same as with the other alternate. Again, the traffic analysis may indicate that it is not an issue. If it is determined that a left turn lane needs to be added in either direction or both, then the Terrell Mill bridges will need to be replaced unless another scheme proves appropriate to minimize cost

The next interchange is Delk Road. At this point the HOV system will be elevated in both directions to avoid disturbing the existing bridge and SOV interchange. This allows maximum flexibility in the future SOV changes that may be required while the HOV system is constructed and placed into operation. Since the existing bridge at this location is currently inadequate to accommodate the current number of SOV lanes in either direction, it would be appropriate to replace the bridge with a span arrangement to accommodate full width shoulders and lanes that would be 12 feet wide.

As expected, the outside HOV concept does have ROW requirements at several locations when compared to the center concept. However, the extent of the required right-of-way is similar to the median concept.

The next HOV interchange would be located at between Delk Road and South Marietta Parkway. It would be a new access as discussed in the previous concept to serve the Franklin Road area. The issues are similar to the center concept but the required right-of-way would be different since the mainline of I-75 does not need to be shifted for the center access ramps. Right-of-way would still be required for the ramps but the total requirement would be less. An additional bridge over the northbound lane on I-75 would be required, however.

The HOV interchange at Roswell would require the removal of several local commercial buildings, but the concept is very simple. One advantage over the center concept is that the clearance issues associated with widening the existing bridges over Roswell Road would be avoided since the current I-75 bridges would not need to be modified until SOV traffic warrants. The HOV bridges over Roswell would be independent structures slightly higher than the mainline. The HOV system would be placed to allow future SOV expansion.

GDOT has suggested that a split diamond be considered between Roswell Road and Gresham Road or access at Gresham Rd instead of Roswell. The split diamond would require mixed flow one-way roads between the two crossroads along existing roadways on each side of I-75.

The HOV access at Allgood Road would require a new bridge for additional turn lanes and to allow future SOV lanes on I-75. However, the concept is simple and appears to provide excellent access to local arterials to deliver the HOV traffic to the I-75 corridor.

Through the SR 5 Connector Interchange, the two elevated HOV lanes would need to be on a long structure. The existing bridges could remain in place, however.

Again no interchange is proposed at Bells Ferry as discussed above.

At the I-75/I-575 Interchange the HOV system will transition to the center on I-75 as depicted in the plans using straddle bent bridges. North of I-575 on I-75 the concept becomes identical to the pervious concept. Similarly on I-575 north of the Interchange, the concept is again identical to the previous discussion.

The outside HOV concept has tremendous maintenance of traffic advantages during construction over the at-grade concept. The Interim HOV concept could be implemented in the center of I-75 in the short term while the outside HOV system could be constructed in the future leaving the Interim HOV system in place. After the outside HOV system is in place and in operation, the Interim HOV system could be removed by restriping the mainline.

5. Benefit/Cost Analysis

Introduction

As traffic volumes grow on I-75, congestion levels will increase and this will increase the cost incurred by users of the facility. By investing in limited capacity improvements – such as HOV lanes or auxiliary lanes - at least some of the traffic congestion will be mitigated, and roadway users will experience a net savings in transportation costs. The general theory that justifies the cost of roadway improvements considers whether the present worth of these user cost savings are greater than the cost to implement the improvement and maintain it over the service life of the facility. This technical memorandum discusses the factors considered in quantifying user benefits, the process of converting these benefits to monetary units, and computation of the present value of these benefits for use in estimating benefit-cost ratios for the project. Project limits are along I-75 from Cumberland Road to Wade Green Road in Cobb County, Georgia.

The purpose of this analysis is to assess the incremental benefits of constructing interim HOV lanes on I-75 before the more elaborate ultimate facilities can be funded, designed and constructed. Therefore, this analysis compares the additional benefits of providing interim HOV lanes on a near-term basis, versus having roadway users wait until the ultimate improvements are completed before drawing benefits. A major issue in this analysis is the cost to users due to disruption during construction of these facilities, and – for the case of the interim lanes - the removal of these facilities. These construction impact costs play a key role in determining whether the benefits of the interim HOV lanes are worth the cost.

The analysis was conducted using four different ultimate HOV implementation scenarios:

1. Base (or "No Build") condition in which no improvements are made to I-75.
2. Interim condition only, in which case the interim HOV lanes are constructed, but no ultimate HOV facilities are built.
3. Ultimate (or "Build") condition where the ultimate facility consists of inside median barrier separated HOV lanes.
4. Ultimate (or "Build") condition where the ultimate facility generally consists of an elevated (and therefore barrier separated) facility outside the existing traveled way.

Roadway User Impacts of Traffic Congestion
Traffic congestion results in the following impacts to travelers:

- Personal time is wasted during congestion delays
- Traffic accident rates increase with congestion
- Delays associated with traffic accidents and other incidents (such as disabled vehicles) further increase congestion for other travelers
- Fuel consumption rates increase
- More pollutants are emitted into the atmosphere
- Vehicular operating costs associated with wear and tear (other than fuel) are increased

The impacts consist of reduced personal productivity, additional wear and tear on vehicles, more pollution, wasted fuel, higher accident costs (insurance rates and other out-of-pocket accident costs), and secondary health impacts due to additional pollution. By applying unit costs per hour of delay, per gallon of fuel, per kilogram of emissions, or per accident event, these impacts are converted into costs that can be accumulated over time and compared to the construction cost in the base year. An annual discount rate of 7%, as typically recommended by FHWA, was used to convert user costs in future years to present day costs.

Methodology for Estimating Congestion Impacts to Roadway Users
A traffic analytical framework was used to estimate levels of traffic congestion, accidents, incidents, fuel consumption, pollutant emissions and other user costs on I-75 under various scenarios. Traffic forecasts were based on daily volumes from the Atlanta Regional Commission (ARC) travel demand forecasting model. An annual analysis of user costs was conducted for the years 2005, 2010 and 2025. Growth rates were computed between 2005 and 2010, and between 2010 and 2025 to interpolate the growth in annual user costs each year, and to extrapolate benefits to the year 2030. The different scenarios are described below:

A. Base (Existing) Conditions – I-75 has 3 to 5 general use lanes in each direction with 1 to 3 auxiliary lanes on various sections. Full shoulders are available to handle incidents and minor accidents. The roadway operating speed is 70 miles per hour with no geometric restrictions.

B. Base with Construction of Interim HOV – All lanes in Base Condition remain open, but construction activity eliminates shoulders. The net result is a 3% reduction in lane capacity and more severe delay and accident impacts due to the lack of shoulders. High quality transitions enable normal operation speeds at 70 miles per hour. Two years are required to construct the interim facility.

C. Interim Concurrent Flow HOV Lanes – All lanes in the Base Condition are open with shoulders, but a concurrent flow HOV lane increases the capacity of each freeway section by 10 percent. Full capacity of other lanes, and 70 mile per hour operating speeds are in place.

D. Interim HOV with Construction of Inside Concept Median HOV– All general use lanes and the Interim HOV lane remain open, but all shoulders are closed. Roadway operating speeds are reduced to 60 miles per hour due to construction zone transitions. The inside median HOV lanes are presumed to require 5 years of construction activity.

E. Construction of Inside Median HOV without the Interim HOV Lanes – Same as with interim, except that no interim HOV lane is in operation.

F. Interim HOV with Construction of Outside Elevated HOV – All general use lanes and the Interim HOV lane remain open, but all shoulders are closed. Roadway operating speeds remain at 70 miles per hour since construction activity is to the outside. The outside elevated HOV lanes are presumed to require 4 years of construction activity.

G. Construction of Outside Elevated HOV without the Interim HOV Lanes – Same as with interim, except that no interim HOV lane is in operation.

H. Ultimate HOV with Removal of Interim HOV Lanes – All general use lanes are open, but are being milled and paved to accommodate restriping to eliminate the concurrent flow HOV lanes. Shoulders are closed, but a new barrier-separated HOV freeway (either inside median or outside elevated) with 2 lanes in each direction is open to carry HOV traffic.

I. Ultimate HOV – All general use lanes and shoulders are open, but carry mostly SOV traffic. A new barrier-separated HOV freeway (either inside median or outside elevated) with 2 lanes in each direction carries HOV traffic.

The above conditions are assumed to occur during different years depending on whether an interim facility is included, and which type of barrier separated HOV facility is built. The table below summarizes the year in which each activity is assumed to occur in the time series benefit analysis.

Table 1
Range of Years associated with Construction and Operations
I-75 Interim and Ultimate HOV Lanes

	No Build	Interim HOV Only	Inside Median with Interim	Inside Median without Interim	Outside Elevated with Interim	Outside Elevated without Interim
Construct Interim	N/A (A)	2005-2006 (B)	2005-2006 (B)	N/A	2005-2006 (B)	N/A
Operate Interim	N/A (A)	2007-2030 (C)	2007-2011 (D)	N/A	2007-2010 (F)	N/A
Construct Ultimate	N/A (A)	N/A	2007-2011 (D)	2007-2011 (E)	2007-2010 (F)	2007-2010 (G)
Remove Interim	N/A (A)	N/A	2012-2013 (H)	N/A	2011-2012 (H)	N/A
Operate Ultimate	N/A (A)	N/A	2014-2030 (I)	2012-2030 (I)	2013-2030 (I)	2011-2030 (I)

The tables and graphs in Appendix D.3 of this document summarize the time-series total user costs for the base condition versus the other scenarios. Present value costs are computed using a discount rate of 7%. Construction activity increases costs for users. Therefore, the longer the construction activity occurs, the longer these costs are incurred and the higher the present worth. Construction benefits are generally negative. When new capacity is completed, there is a reduction in congestion impact costs. The benefits of a completed facility are generally positive. The big issue with the interim facility is whether the added cost of constructing the interim HOV lanes is worth the change in user benefits while the interim lanes are open. Since the interim lanes can be completed in two years, they have the potential to provide benefits during the construction of the ultimate facility. However, as soon as the ultimate facility is opened, the interim lanes must be removed, and this imposes an additional cost on users.

Analysis Results

The table below summarizes the results of the analysis of user benefits for the four different HOV implementation scenarios. For scenarios 1 and 2, benefits are compared against the "no build" scenario. Therefore, the benefits of the base scenario are zero, and those of the interim facility only are $498,000,000 when compared against "no build". However, this is academic since the Interim Project alone will not meet the system-wide HOV needs. The benefits of the interim facility alone are highest since benefits occur for all years between 2007 and 2030, while construction impacts only occur from 2005 to 2006.

Table 2
Year 2005 Present Cost User Benefits
I-75 Interim and Ultimate HOV Lanes

No.	I-75 HOV Lane Scenario	Present Cost Benefit (2005) Millions of Dollars
1.	Base with No Interim or Ultimate	$0
2.	Interim HOV Only without Ultimate	$498
3.	Inside Median Ultimate with Interim	-$531
	Inside Median Ultimate without Interim	-$375
	Net Benefit of Interim HOV Lanes	-$156
4.	Outside Elevated Ultimate with Interim	$246
	Outside Elevated Ultimate without Interim	$164
	Net Benefit of Interim HOV Lanes	$82

As can be seen by the latter two scenarios, the impacts of construction activity are very severe. For scenario 3 (Inside Median HOV), the impact of inside median construction activity is so severe that even the ultimate project alone does not produce a positive user benefit by 2030. In other words, roadway users experience $375,000,000 in additional costs due to construction-related impacts that are not recovered by 2030. By adding the construction and removal impacts of the interim HOV lanes, users experience $531,000,000 in additional costs that are not recovered by 2030. This means that the impacts of constructing the interim facility in 2005 and 2006, and removing the interim facility in 2012 and 2013 are worse than the benefits of having the interim HOV lanes in operation during construction of the ultimate facility between 2007 and 2011. Therefore, the benefits of the interim facility with the inside-median construction activity are negative $156,000,000.

On the other hand, the less-severe construction impacts of the elevated outside HOV lanes result in a net savings of $82,000,000 in user benefits if the interim HOV lanes are built. Without the interim HOV lanes, the outside-elevated HOV lanes will produce $164,000,000 in user benefits through 2030. Total benefits increase to $246,000,000 when the interim lanes are added.

6. Conclusions and Recommendations

The benefits to roadway users under the four scenarios considered in this user costs analysis result in different conclusions and recommendations for each.

- No Build – This is the base condition, which produces no benefits or burdens.

- Interim Only (No Ultimate Facility) – This scenario produces $498 million in user benefits through the year 2030. An interim facility could be recommended under this scenario, and could be very cost effective when compared to construction costs. However, this scenario does not meet system needs and does not consider other long term factors such as substandard design features and loss of enforcement capabilities.

- Inside-Median HOV Lanes with Interim HOV Lanes – This scenario results in an increase in user costs (i.e., a burden) of $156 million through 2030. Construction of interim HOV lanes is not recommended under this scenario, since no benefits are expected.

- Outside-Elevated HOV Lanes with Interim HOV Lanes – This scenario results in a user savings of $82 million. If the interim HOV lanes can be constructed for this amount or less, this scenario can be considered viable. Therefore, under this scenario, interim HOV lanes should be considered if the benefits match or exceed the cost of constructing these lanes.

It should be noted that the above conclusions are based on rather conservative assumptions regarding user impacts of congestion. For example, the user costs and benefits only consider commuter weekday traffic conditions (250 days of the year) and exclude weekend and holiday operations (115 days of the year). Full consideration of weekend and holiday benefits could increase the cost effectiveness of the "Interim Only" or "Outside-Elevated HOV Lanes with Interim HOV Lanes" scenarios. However, positive benefits would not be expected for the "Inside-Median HOV Lanes with Interim HOV Lanes" scenario.

Appendix A

The Interim Project

Appendix A.1

Interim Project Design Criteria

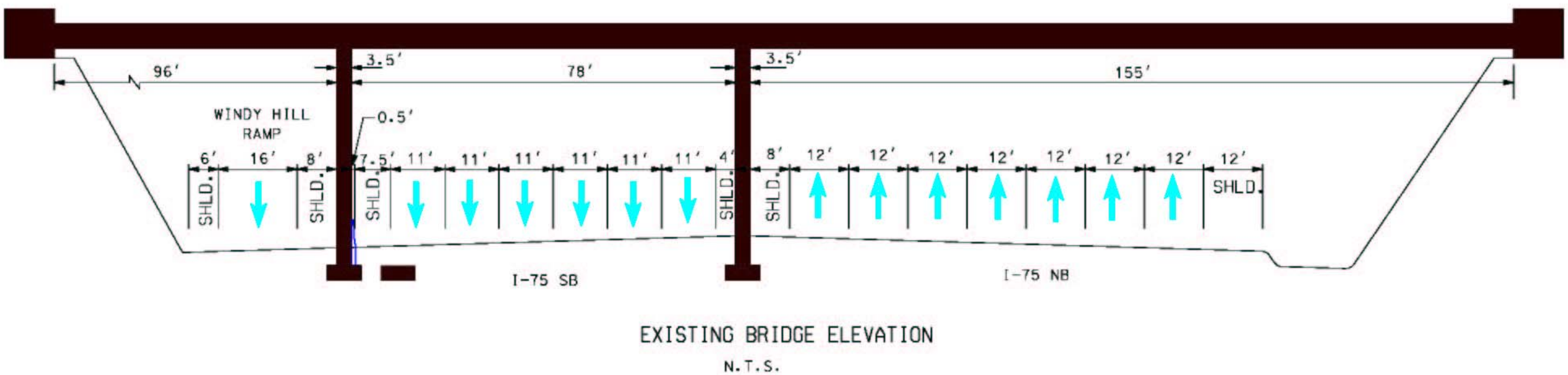
Interim Project Minimum Design Criteria

Number of HOV lanes required in each direction:	1
Minimum HOV lane width:	11 ft
Minimum SOV lane with for cars:	11 ft
Minimum SOV lane width for trucks: (Two outside lanes to be designated for truck traffic)	12 ft
Minimum inside shoulder width:	2 ft
Minimum outside shoulder width:	2 ft
Painted buffer between HOV and SOV lanes	2 ft

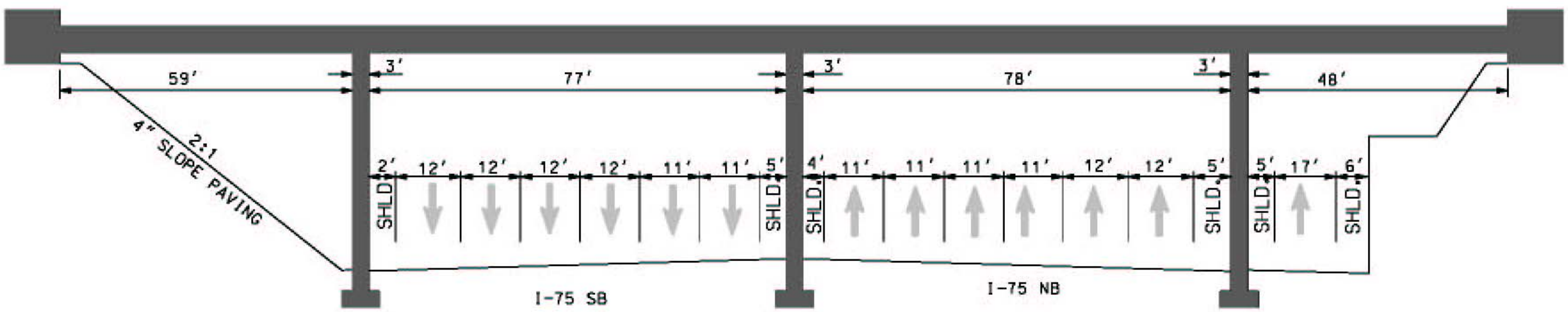
Appendix A.2

Sections Depicting Existing Conditions at Key Locations

Section at Windy Hill Road



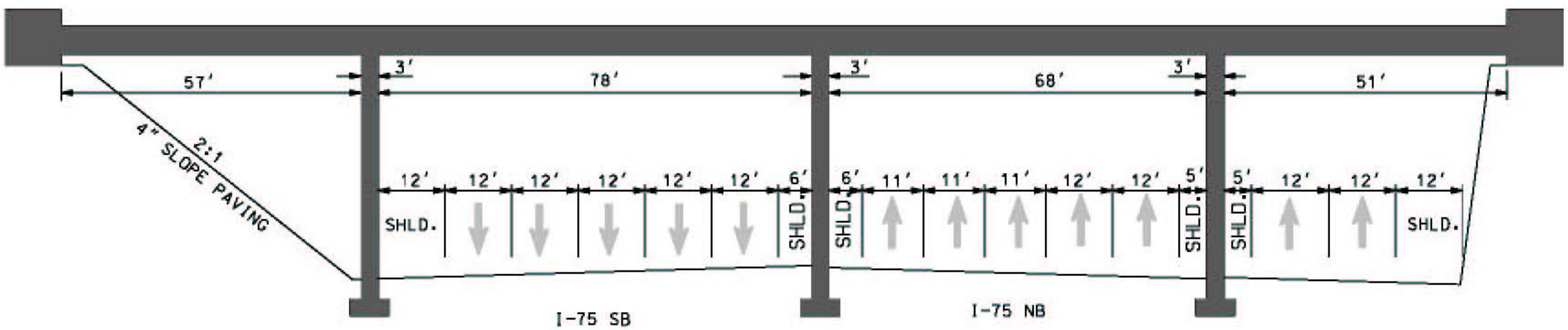
Section at Delk Road



EXISTING BRIDGE ELEVATION

N.T.S.

Section at South Marietta Pkwy



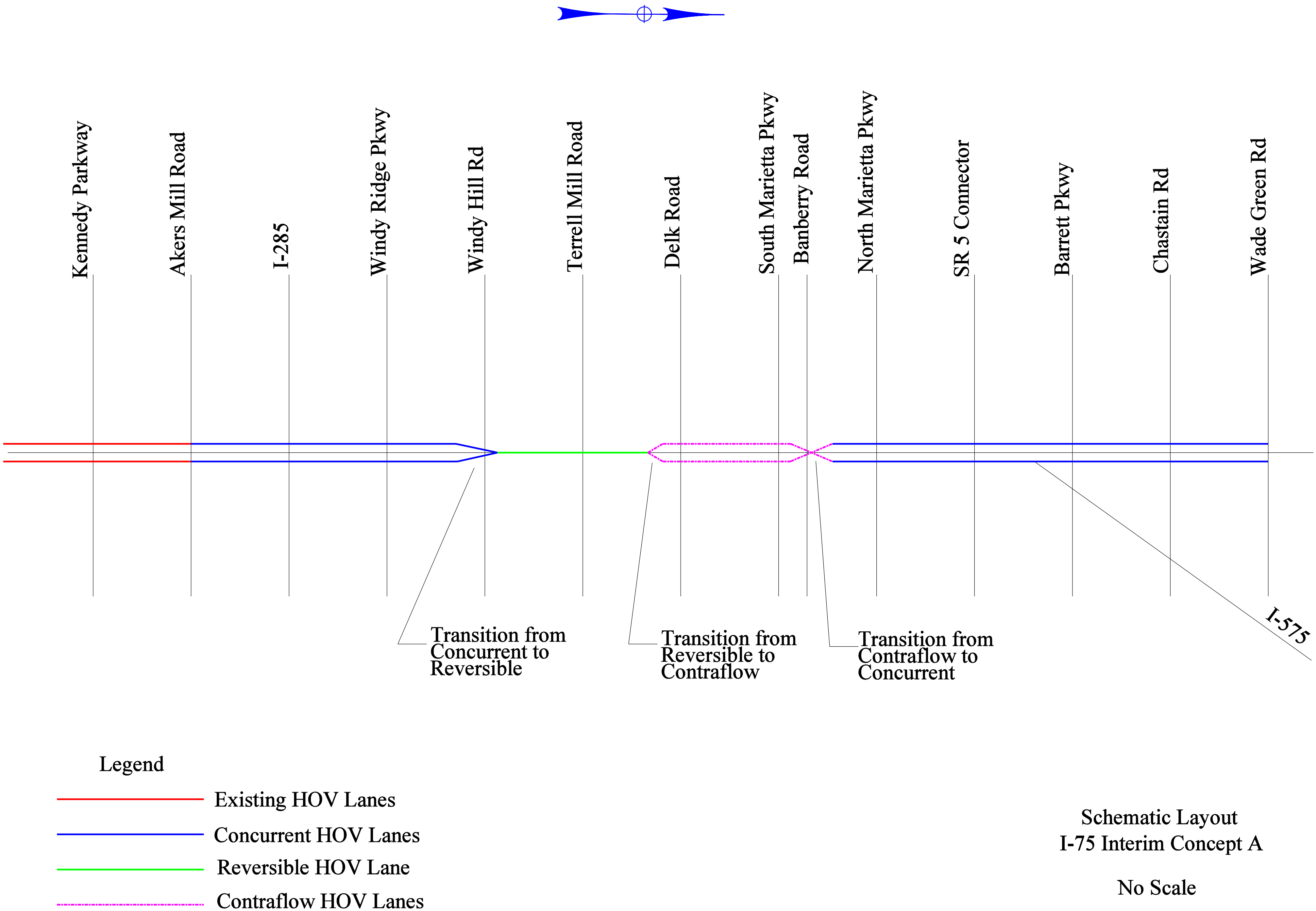
EXISTING BRIDGE ELEVATION
N.T.S.

Appendix B

Interim Concepts

Appendix B.1

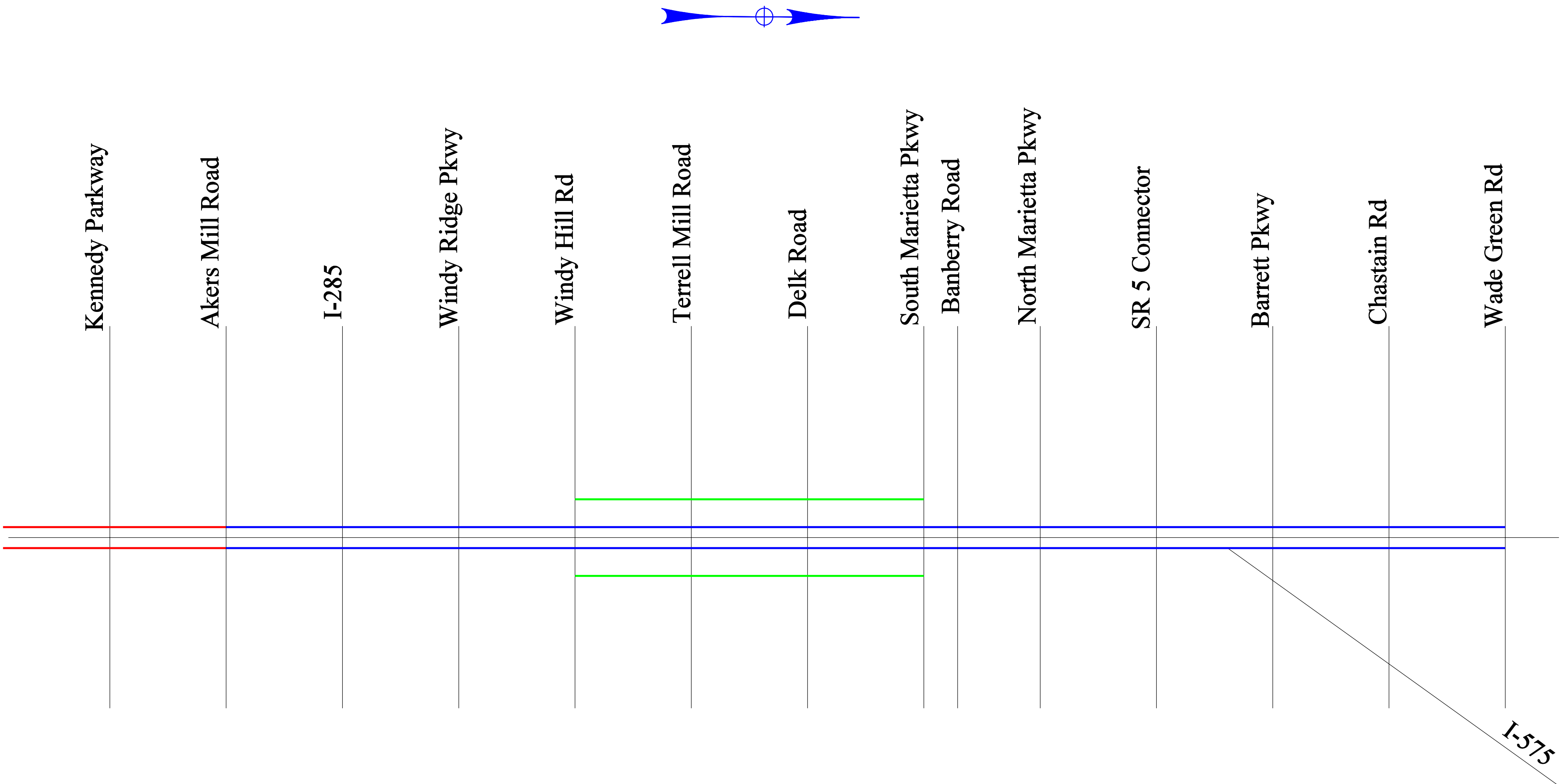
Concept Schematics



Schematic Layout
I-75 Interim Concept A

No Scale

June 24, 2002



Legend

Existing HOV Lanes

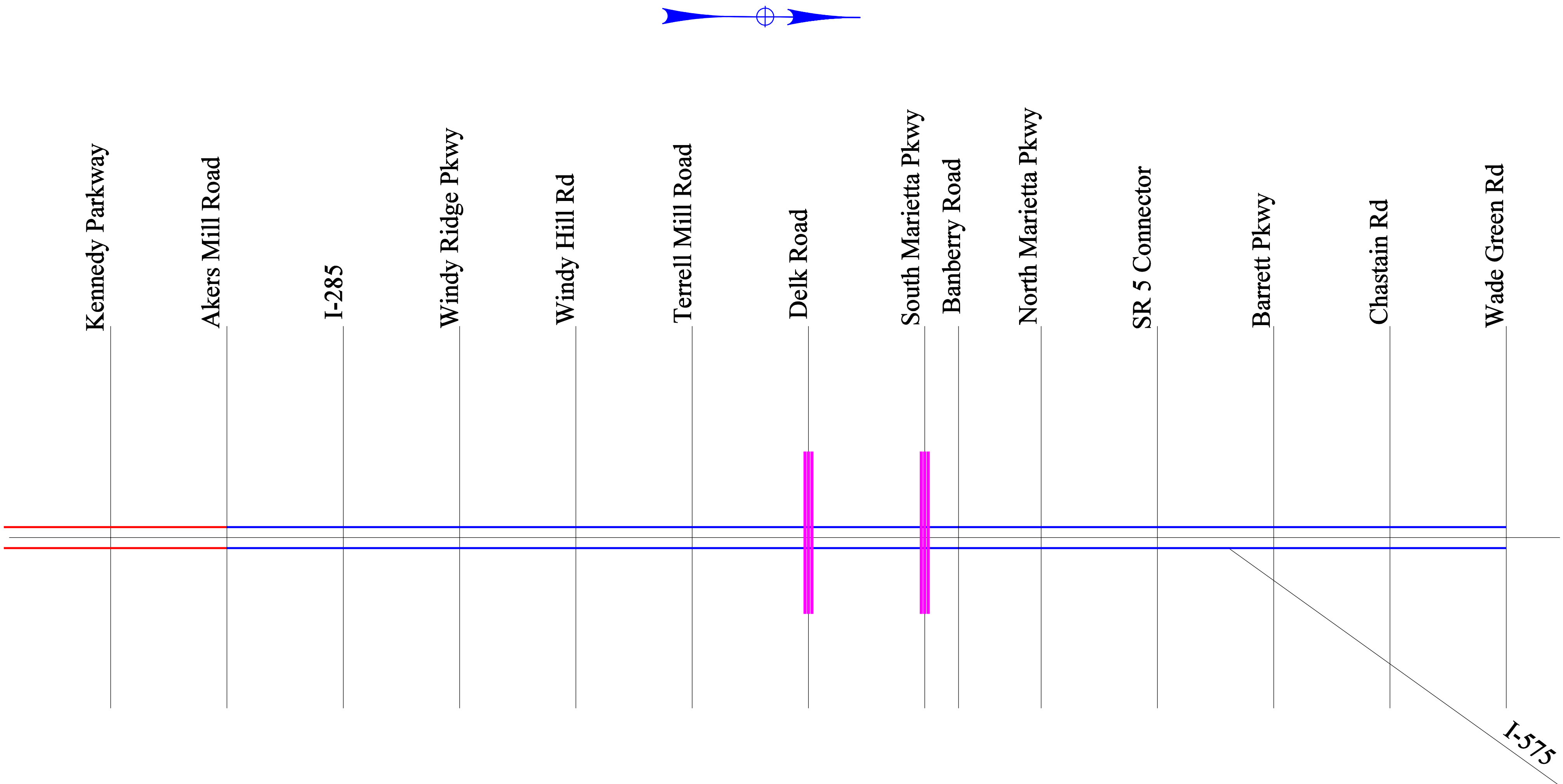
Concurrent HOV Lanes

Extended Ramp System

Schematic Layout
I-75 Interim Concept B

No Scale

June 24, 2002



Legend

Existing HOV Lanes

Concurrent HOV Lanes

Bridges to be Replaced

Schematic Layout
I-75 Interim Concept C

No Scale

June 24, 2002

Appendix B.2.1

Construction and Right-of-Way Cost Estimates

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NHS-0002-00(39) (HOV Interim Alternate A) COUNTY: Cobb

DATE: 6-24-02 ESTIMATED LETTING DATE:

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 14.53 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT)	$ 1,500,000
2. DISPLACEMENTS; RES:0 BUS;0, M.H.:0	$ 0
3. OTHER COST (ADM./COST, INFLATION)	$ 900,000
SUBTOTAL:A	$ 2,400,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges- Widening existing bridges at Terrell Mill Rd & Banberry Rd	$ 985,400
b. Retaining walls Windy Hill Rd to Delk Rd 75,000 SF @ $30/SF = $ 2,250,000 Concrete barrier Windy Hill Rd to Dell Rd 8400 LF @ $140/LF = $ 1,176,000	$ 3,426,000
SUBTOTAL:C-1	$ 4,411,400
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 400,000CY @ $2.25/CY = $ 900,000 Borrow 820,000CY @ $2.25/CY = $ 1,845,000	$ 2,745,000
b. DRAINAGE:	
1) Metal drain inlets 75ea @ $960; 4000 LF 15" Slope Drain Pipe @ $25/LF	$ 172,000

PROJECT NUMBER: NHS-0002-00(39) (HOV Interim Alternate A) COUNTY: Cobb

PROJECT COST		
2) Med. Drainage- Adjust 180 D.I.s @ $845 ea		$ 152,100
.		
SUBTOTAL:C-2		$ 3,069,100
3. BASE AND PAVING:		
a. AGGREGATE BASE- 261,400 TN@ $15/TN		$ 3,921,000
b. ASPHALT PAVING: Surface- 141,000 TN. @$55/TN Bit. Tack Coat 87,400 gal $1/gal	$ 7,755,000 $ 87.400	$ 7,842,400
Binder—114,500 TN-@$36/TN		$ 4,122,000
Base— 191,800TN @$36/TN		$ 6,904,800
SUBTOTAL:C-3.b		$18,869,200
c. CONCRETE PAVING-		$ 0
d. OTHER- Rumble Strip 14.53 Mi @$3500/Mi; Grinding Conc. Pvmt 125,400 SY@$2.15/SY		$ 320,465
SUBTOTAL:C-3		$23,110,665
4. LUMP ITEMS:		
a. GRASSING- 100 Acs @ $1000/Acs		$ 100,000
b. CLEARING AND GRUBBING- 100 Acs @ $3000/Acs		$ 300,000
c. LANDSCAPING		$ 0
EROSION CONTROL- Silt Fence Ty A 20,000 LF @$1.50, Sediment Basins 8 ea@$8500, 40,000 SY Erosion Mats @$1.30/SY, 15,000 SY PSRM @$4.60, 15,000 SY BTGF @$2.40, 5000 SY Conc. Dit. Pav. @$27/SY; Rip rap ditch checks 150 ea @ $300		$ 435,000
e. TRAFFIC CONTROL- I-75 14.53 Mi @ $260,000/Mi.; Windy Hill Rd $200,000		$ 3,977,800
SUBTOTAL:C-4		$ 4,812,800
5. MISCELLANEOUS:		
a. LIGHTING		$ 0
b. SIGNING - MARKING : Striping $272,000; 15 Overhead signs @ $400,000; 15 ea Cantilever signs @ $200,000; Misc. info signs $145,000		$ 9,417,000

PROJECT COST	
c. GUARDRAIL – 15,000LF @$11/LF, 12 ea Type 12 Anch @$1335 ea, 12 ea Type 1 Anch. @$485 ea	$ 186,840
SUBTOTAL:C-5	$ 9,603,400
6. SPECIAL FEATURES-	
a. Field Engineers Office Type 3 @ $60,000	$ 60,000
b. Bridge Jacking (Windy Hill Rd) $500,000	$ 500,000
c. Moveable barrier 19644 LF@$230/LF (S. of Delk to N. of S. Loop)	$ 4,518,120
d. 3 Barrier moving vehicles @$900,000 ea	$ 2,700,000
e. Operational cost for 5 years- $600,000/yr @ 5% (Present worth)	$ 5,800,000
f. Sound wall (Windy Hill Rd to So. Marietta Pkwy-Lt.& Rt.) 550,400 SF @$19/SF	$10,457,600
SUBTOTAL:C-6	$24,035,720

PROJECT NUMBER: NHS-0002-00(39) (HOV Interim Alternate A) COUNTY: Cobb

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$ 2,400,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 4,411,400	
2. GRADING AND DRAINAGE	$ 3,069,100	
3. BASE AND PAVING	$ 23,110,665	
4. LUMP ITEMS	$ 4,812,800	
5. MISCELLANEOUS	$ 9,603,400	
6. SPECIAL FEATURES	$ 24,035,720	
SUBTOTAL CONSTRUCTION COST		$ 69,043,525
E. & C. (10%)		$ 6,904,353
INFLATION (5% PER YEAR for 2 YEARS)		$ 7,784,657
TOTAL CONSTRUCTION COST		**$ 83,732,535**
GRAND TOTAL PROJECT COST		**$ 86,132,535**

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NHS-0002-00(39) (HOV Interim Alternate B) COUNTY: Cobb

DATE: 6-24-02 ESTIMATED LETTING DATE:

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 14.53 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT)	$ 6,060,000
2. DISPLACEMENTS; RES:0 BUS;0, M.H.:0	$ 0
3. OTHER COST (ADM./COST, INFLATION)	$ 3,636,000
SUBTOTAL:A	$ 9,696,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges Widening existing bridges at Terrell Mill Rd & Banberry Rd	$ 985,400
b. Retaining walls- Windy Hill Rd to Delk Rd 100,300 SF @ 30/SF; Walls Under End spans at Delk Rd 6400 SF @ $50/SF; Wall under End Spans at SMP 6400 SF @ $50/SF; Concrete barrier- 3000 LF @ $140/LF	$ 5,054,000
SUBTOTAL:C-1	$ 6,039,400
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 450,000 CY @ $2.25/CY Borrow 850,000 CY @ $2.25/CY	$ 2,745,000
b. DRAINAGE:	
1) Metal drain inlets- 75 ea @ $960 ea; 4000 LF 15” Slope drain pipe @ $25/LF	$ 172,000
2) Med. Drainage- Adjust 180 D.I.s @ $845 ea	$ 152,100

PROJECT NUMBER: NHS-0002-00(39) (HOV Interim Alternate B) COUNTY: Cobb

PROJECT COST		
SUBTOTAL:C-2		$ 3,249,100
3. BASE AND PAVING:		
a. AGGREGATE BASE- 297,200 TN@ $15/TN		$ 4,458,000
b. ASPHALT PAVING: Surface- 144,900 TN. @$55/TN Bit. Tack Coat 96,900 gal $1/gal	$ 7,969,500 $ 96,900	$ 8,066,400
Binder—130,140 TN-@$36/TN		$ 4,685,040
Base— 217,900 TN @$36/TN		$ 7,844,400
SUBTOTAL:C-3.b		$20,595,840
c. CONCRETE PAVING-		$ 0
d. OTHER- Rumble Strip 14.53 Mi @$3500/Mi; Grinding Conc. Pvmt 126,000 SY@$2.15/SY		$ 321,755
SUBTOTAL:C-3		$25,375,595
4. LUMP ITEMS:		
a. GRASSING- 100 Acs @ $1000/Acs		$ 100,000
b. CLEARING AND GRUBBING- 100Acs @ $3000/Acs		$ 300,000
c. LANDSCAPING		$ 0
EROSION CONTROL- Silt Fence Ty A 20,000 LF @$1.50, Sediment Basins 8 ea @$8500, 40,000 SY Erosion Mats @$1.30/SY, 15,000 SY PSRM @$4.60, 15,000 SY BTGF @$2.40, 5000 SY Conc. Dit. Pav. @$27/SY; Rip rap ditch checks 150 ea @ $300		$ 435,000
e. TRAFFIC CONTROL- I-75 14.53 Mi @ $260,000/Mi.; Windy Hill Rd $200,000		$ 3,977,800
SUBTOTAL:C-4		$ 4,812,800
5. MISCELLANEOUS:		
a. LIGHTING		$ 0
b. SIGNING - MARKING : Striping $272,000; 15 Overhead signs @ $400,000; 15 ea Cantilever signs @ $200,000; Misc. information signs $145,000		$ 9,417,000
c. GUARDRAIL – 15,000 LF @$11/LF, 12 ea Type 12 Anch @$1335ea, 12 Type 1 Anch. @$485 ea		$ 186,840

PROJECT NUMBER: NHS-0002-00(39) (HOV Interim Alternate B) COUNTY: Cobb

PROJECT COST	
SUBTOTAL:C-5	$ 9,603,840
6. SPECIAL FEATURES- Field Engineers Office Type 3 @ $60,000 Bridge Jacking (Windy Hill Rd) $500,000. Sound wall (Windy Hill Rd to So. Marietta Pkwy-Lt. & Rt.) 550,400 SF @ $19/SF	$11,017,600

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$ 9,696,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 6,039,400	
2. GRADING AND DRAINAGE	$ 3,069,100	
3. BASE AND PAVING	$ 25,324,740	
4. LUMP ITEMS	$ 4,812,800	
5. MISCELLANEOUS	$ 9,603,840	
6. SPECIAL FEATURES	$ 11,017,600	
SUBTOTAL CONSTRUCTION COST		$ 58,882,480
E. & C. (10%)		$ 5,888,248
INFLATION (5% PER YEAR for 2 YEARS)		$ 6,639,000
TOTAL CONSTRUCTION COST		**$ 71,409,728**
GRAND TOTAL PROJECT COST		**$ 81,105,728**

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NHS-0002-00(39) (HOV Interim Alternate C) COUNTY: Cobb

DATE: 6-24-02

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 14.53 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT)	$ 6,150,000
2. DISPLACEMENTS; RES:0 BUS;0, M.H.:0	$ 0
3. OTHER COST (ADM./COST, INFLATION)	$ 3,690,000
SUBTOTAL:A	$ 9,840,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges Delk Rd (390'x140')@$100/SF = $ 5,460,000 So. Marietta Pkwy (365'x150')@$100/SF = $ 5,475,000 Temp. bridge at Delk Rd 17,000 SF @ $65/SF = $ 1,105,000 Temp. bridge at So. Marietta Pkwy 13,600 SF @ $65/SF = $ 804,000	$ 12,924,000
b. Retaining walls Windy Hill Rd to Delk Rd 100,300 SF @ 30/SF = $ 3,009,000 Wall at Delk Rd 6400 SF @ $50/SF = $320,000 Concrete barrier- 3000 LF @ $140/LF = $ 420,000	$ 3,749,000
SUBTOTAL:C-1	$ 16,673,000
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 450,000 CY @ $2.25/CY = $ 1,012,500 Borrow 850,000 CY @ $2.25/CY = $ 1,912,500	$ 2,925,000
b. DRAINAGE:	

PROJECT NUMBER NHS-0002-00(39) (HOV Interim Alternate C) COUNTY: Cobb

PROJECT COST	
1.) Metal drain inlets 75 ea @ $960 ea = $ 72,000 4000 LF 15" Slope Drain Pipe @ $25 = $ 100,000	$ 172,000
2) Med. Drainage- Adjust 180 D.I.s @ $845 ea	$ 152,100
SUBTOTAL:C-2	$ 3,249,100
3. BASE AND PAVING:	
a. AGGREGATE BASE- 278,250 TN @ $15/TN = $ 4,173,750 ASPHALT PAVING: Surface- 142,840 TN. @ $55/TN = $ 7,856,200 Bit. Tack Coat 91,880 gal $1/gal = $ 91,880 Binder—121,860 TN-@$36/TN = $ 4,386,960 Base— 204,100 TN @$36/TN = $ 7,347,600	$ 23,856,390
b. CONCRETE PAVING-	$ 0
c. OTHER Rumble Strip 14.53 Mi @$3500/Mi = $ 50,855 Grinding Conc. Pvmt 125,400 SY@$2.15/SY $ 269,610	$ 320,465
SUBTOTAL:C-3	$ 24,176,855
4. LUMP ITEMS:	
a. GRASSING- 100 Acs @ $1000/Acs	$ 100,000
b. CLEARING AND GRUBBING- 100 Acs @ $3000/Acs	$ 300,000
c. LANDSCAPING	$ 0
d. EROSION CONTROL Silt Fence Ty A 20,000LF @$1.50 = $ 30,000 Sediment Basins 8 ea @ $8500 = $ 68,000 40,000 SY Erosion Mats @$1.30/SY = $ 52,000 15,000 SY PSRM @ $4.60 = $ 69,000 15,000 SY BTGF @ $2.40 = $ 36,000 5000 SY Conc. Ditch. Paving @$27/SY = $ 135,000 Rip rap ditch checks 150 ea @$300 ea = $ 45,000	$ 435,000
e. TRAFFIC CONTROL I-75 14.53 Mi @ $260,000/Mi.= $ 3,777,800 Windy Hill Rd $200,000	$ 3,977,800

PROJECT COST		
	SUBTOTAL:C-4	$ 4,812,800
5. MISCELLANEOUS:		
a. LIGHTING		$
b. SIGNING – MARKING		$ 9,417,000
Striping	$272,000	
15 ea Overhead signs @ $400,000 =	$ 6,000,000	
15 ea Cantilever signs @ $200,000 =	$ 3,000,000	
Misc. information signs	$145,000	
c. GUARDRAIL		$ 186,840
15,000 LF @$11/LF =	$ 165,000	
12 ea Type 12 Anch @ $1335 ea =	$ 16,020	
12 Type 1 Anch. @ $485 ea =	$ 5,820	
	SUBTOTAL:C-5	$ 9,603,840
6. SPECIAL FEATURES-		
a. Field Engineers Office Type 3 @ $60,000 =	$ 60,000	
b. Bridge Jacking (Windy Hill Rd)	$500,000	
c. Signals at Delk Rd & So. Marietta Pkwy (temp & perm)	$ 600,000	
d. Remove exist. Bridges at Delk Rd & So. Marietta Pkwy	$200,000	
e. Sound wall (Windy Hill Rd to So. Marietta Pkwy-Lt.& Rt.)		
550,400 SF @ $19/SF =	$ 10,457,600	
	SUBTOTAL:C-6	$ 11,817,600

PROJECT NUMBER NHS-0002-00(39) (HOV Interim Alternate C) COUNTY: Cobb

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$ 9,840,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 16,673,000	
2. GRADING AND DRAINAGE	$ 3,249,100	
3. BASE AND PAVING	$ 24,176,855	
4. LUMP ITEMS	$ 4,812,800	
5. MISCELLANEOUS	$ 9,603,840	
6. SPECIAL FEATURES	$ 11,817,600	
SUBTOTAL CONSTRUCTION COST		$ 70,333,195
E. & C. (10%)		$ 7,033,320
INFLATION (5% PER YEAR for 2 YEARS)		$ 7,930,068
TOTAL CONSTRUCTION COST		**$ 85,296,583**
GRAND TOTAL PROJECT COST		**$ 95,136,583**

Appendix B.2.2

Early Implementation Cost Estimates

Preliminary Cost Estimate Summary and Early Implementation Cost Estimate

I-75 Interim Project

Date: 9/13/2002

Project Number: NHS-0002-00(39)
PI No. 0002039

Prepared by Parsons Brinckerhoff

Summary Item		Concept A			Concept B			Concept C		
		Estimated Cost	**% Early Implementation Cost**	**Early Implementation Cost**	**Estimated Cost**	**% Early Implementation Cost**	**Early Implementation Cost**	**Estimated Cost**	**% Early Implementation Cost**	**Early Implementation Cost**
A	Right-of-Way	N/A	0.00%	$0	N/A	0.00%	$0	N/A	0.00%	$0
B	Reimbursable Utilities	$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
C	Construction Cost									
1	Major Structures	$4,411,400	22.34%	$985,400	$5,054,400	32.16%	$1,625,400	$16,673,000	5.91%	$985,400
2	Grading and Drainage	$3,069,100	5.61%	$172,100	$3,069,100	5.61%	$172,100	$3,249,100	5.30%	$172,100
3	Base and Paving	$23,110,665	100.00%	$23,110,665	$25,324,740	100.00%	$25,324,740	$24,176,855	100.00%	$24,176,855
4	Lump Sum Items	$4,812,800	100.00%	$4,812,800	$4,812,800	100.00%	$4,812,800	$4,812,800	100.00%	$4,812,800
5	Miscellaneous	$9,603,840	100.00%	$9,603,840	$9,603,840	100.00%	$9,603,840	$9,603,840	100.00%	$9,603,840
6	Special Features	$24,035,720	100.00%	$24,035,720	$11,017,600	99.99%	$11,017,000	$11,817,600	98.31%	$11,617,600
	E & C Cost	$6,904,353	90.84%	$6,272,053	$5,888,248	89.26%	$5,255,588	$7,033,320	73.04%	$5,136,860
	Inflation	$7,784,657	90.84%	$7,071,739	$6,639,000	89.26%	$5,925,675	$7,930,068	73.04%	$5,791,809
	Totals	$83,732,535	90.84%	$76,064,317	$71,409,728	89.26%	$63,737,143	$85,296,583	73.04%	$62,297,264

Appendix B.3

Pros and Cons for the Interim Concepts

Pros and Cons

I-75 Interim HOV Project
Kennedy Parkway to Wade Green Road

Issue	Concept A		Concept B		Concept C	
	Pro	Con	Pro	Con	Pro	Con
HOV Type		Reversible and Contra-Flow	Continuous Concurrent Flow		Continuous Concurrent Flow	
Operation	Acceptable in Peak Direction	Undesirable in the Offpeak Direction		Questionable Effectiveness of Extended Ramp System	Best	
Travel Time Savings AM Peak *	42%	Off-Peak --3%	17%		39%	
Travel Time Savings PM Peak *	17%	Off-Peak --2%	57%		61%	
Incident Management		Worst	Acceptable		Best	
Environmental Documentation	CE. (Estimate 12 Months to Complete)		CE. (Estimate 12 Months to Complete)			EA. (Estimate 24 Months to Complete)
Right of Way Impacts	Least		Acceptable		Acceptable	
Design	12 Months		18 Months			24 Months
Complete Preconstruction Process **	2004		Mid 2005		2005	
Right-of-Way Cost	$2.4 mil		$3.6 mil			$9.8 mil
Construction Cost		$70.7 mil ***	$71.4 mil			$85.1 mil
Construction Time	Quickest. Estimate 12 Months		Acceptable. Estimate 18 months			Longest. Estimate 24 months
Early Implementation Cost		$48.0 mil	$33.0 mil		$33.0 mil	
Operation Year	2005		2006			2007
Equipment Cost		$2.7 mil	No Additional Cost		No Additional Cost	
Annual Operation and Equipment Maintenance Cost		$4.2 mil	No Additional Cost		No Additional Cost	

* Southern Section from I-285 to South Marietta Parkway
** Assumes Approval of Concept and Design Start by July 2002
*** Excludes Equipment and Operation Costs

Appendix C

Cost Estimates for the Ultimate Concepts

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NH-73-3(242) (HOV Median Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

DATE: August 8, 2002

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 14.53 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT) 60.7 Acres	$ 48,100,000
2. DISPLACEMENTS; RES:11 BUS;8, APARTMENTS: 6	$ 20,300,000
3. OTHER COST (ADM./COST, INFLATION)	$ 41,040,000
SUBTOTAL:A	$109,440,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges: 264,100 SF@$90/SF= $23,769,000 498,700 SF @$65/SF= $32,415,500 15,000 SF @$150/SF= $ 2,250,000 Detour bridges 48,800SF@$65/SF= $ 3,953,500	$ 61,606,500
b. Concrete barrier- 153,000 LF @$140/LF= $21,420,000 c. Retaining walls- 298,450 SF @$30/SF= $ 8,953,500	$ 30,373,500
SUBTOTAL:C-1	$ 91,980,000
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 500,000 CY @ $2.25/CY = $ 1,125,000 Borrow 900,000 CY @ $2.25/CY = $ 2,025,000	$ 3,150,000
b. DRAINAGE:	
1) Metal drain inlets 75 ea @ $960 ea = $ 72,000 4000 LF 15" Slope Drain Pipe @ $25 = $ 100,000	$ 172,000

PROJECT NUMBER: NH-73-3(242) (HOV Median Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

PROJECT COST	
2) Drainage- 200 Drop inlets @ $1200 each= $240,000 5000 LF 18 " pipe @$30/LF= $150,000	$ 390,000
SUBTOTAL:C-2	$ 3,712,000
3. BASE AND PAVING:	
a. AGGREGATE BASE- 280,000 TN @ $18/TN = $ 5,040,000 ASPHALT PAVING: Surface- 297,500 TN. @ $67/TN = $19,932,500 Bit. Tack Coat 124,000 gal $1/gal = $ 124,000 Binder—122,000 TN-@$37/TN = $ 4,514,000 Base— 205,000 TN @$35/TN = $ 7,175,000	$ 36,785,500
b. CONCRETE PAVING-	$ 0
c. OTHER- Asph. Leveling 94,500 TN @$37/TN= $3,213,000 Rumble Strip 14.53 Mi(2) @$3500/Mi = $ 101,710 Milling Asph. Pvmt 1,642,000 SY@$3.00/SY= $ 4,926,000	$ 8,240,710
SUBTOTAL:C-3	$ 45,026,210
4. LUMP ITEMS:	
a. GRASSING- 100 Acs @ $1000/Acs	$ 100,000
b. CLEARING AND GRUBBING- 100 Acs @ $3000/Acs	$ 300,000
c. LANDSCAPING	$ 0
d. EROSION CONTROL Silt Fence Ty A 20,000LF @$1.50 = $ 30,000 Sediment Basins 10 ea @ $9000 = $ 90,000 40,000 SY Erosion Mats @$1.30/SY = $ 52,000 15,000 SY PSRM @ $4.60 = $ 69,000 15,000 SY BTGF @ $2.40 = $ 36,000 5000 SY Conc. Ditch. Paving @$27/SY = $ 135,000 Rip rap ditch checks 150 ea @$300 ea = $ 45,000	$ 457,000
e. TRAFFIC CONTROL I-75 14.53 Mi @ $260,000/Mi.= $ 3,777,800	$ 3,777,800
SUBTOTAL:C-4	$ 4,634,800
5. MISCELLANEOUS:	

PROJECT NUMBER: NH-73-3(242) (HOV Median Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

PROJECT COST		
a. LIGHTING		$
b. SIGNING – MARKING Striping 15 ea Overhead signs @ $400,000 = 15 ea Cantilever signs @ $200,000 = Misc. information signs	 $272,000 $ 6,000,000 $ 3,000,000 $145,000	$ 9,417,000
c. GUARDRAIL 15,000 LF @$11/LF = 12 ea Type 12 Anch @ $1335 ea = 12 Type 1 Anch. @ $485 ea =	 $ 165,000 $ 16,020 $ 5,820	$ 186,840
	SUBTOTAL:C-5	$ 9,603,840
6. SPECIAL FEATURES- a. Field Engineers Office Type 3 @ $60,000 = b. Sound wall (Windy Hill Rd to So. Marietta Pkwy-Lt.& Rt.) 550,400 SF @ $19/SF = c. Railroad relocation- 2000 ft.@$200/ft= d. Remove existing RR bridge- 15,000 SF@$10/SF e. Rem. Exist. Roadway bridges-157,000SF@$15/SF=	 $ 60,000 $ 10,457,600 $ 400,000 $ 150,000 $ 2,355,000	
	SUBTOTAL:C-6	$ 13,422,600

PROJECT NUMBER: NH-73-3(242) (HOV Median Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$109,440,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 91,980,000	
2. GRADING AND DRAINAGE	$ 3,712,000	
3. BASE AND PAVING	$ 45,026,210	
4. LUMP ITEMS	$ 4,634,800	
5. MISCELLANEOUS	$ 9,603,840	
6. SPECIAL FEATURES	$ 13,422,600	
SUBTOTAL CONSTRUCTION COST		$168,379,450
E. & C. (10%)		$ 16,837,945
INFLATION (5% PER YEAR for 4 YEARS)		$ 37,043,479
TOTAL CONSTRUCTION COST		**$222,260,874**
GRAND TOTAL PROJECT COST		**$331,700,874**

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NH-73-3(242) (HOV Outside Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

DATE: August 8, 2002

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 14.53 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT) 82.6 Acres	$ 66,266,000
2. DISPLACEMENTS; RES:11 BUS;12, M.H.:0	$ 29,700,000
3. OTHER COST (ADM./COST, INFLATION)	$ 57,579,600
SUBTOTAL:A	$153,545,600
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges 1,442,200 SF @$65/SF= $93,743,000 277,600 SF @$90/SF= $24,984,000	$ 118,727,000
b. Concrete barrier- 153,000 LF @$140/LF= $21,420,000 c. Retaining walls- 362,200 SF @$30/SF= $10,866,000	$ 32,286,000
SUBTOTAL:C-1	$151,013,000
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 500,000 CY @ $2.25/CY = $ 1,125,000 Borrow 900,000 CY @ $2.25/CY = $ 2,025,000	$ 3,150,000
b. DRAINAGE:	
1) Metal drain inlets 75 ea @ $960 ea = $ 72,000 4000 LF 15" Slope Drain Pipe @ $25 = $ 100,000	$ 172,000

PROJECT NUMBER: NH-73-3(242) (HOV Outside Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

PROJECT COST		
2) Drainage- 200 Drop inlets @ $1200 each= 5000 LF 18 » pipe @$30/LF=	$240,000 $150,000	$ 390,000
SUBTOTAL:C-2		$ 3,712,000
3. BASE AND PAVING:		
a. AGGREGATE BASE- 280,000 TN @ $18/TN = ASPHALT PAVING: Surface- 297,500 TN. @ $67/TN = Bit. Tack Coat 124,000 gal $1/gal = Binder—122,000 TN-@$37/TN = Base— 205,000 TN @$35/TN =	$ 5,040,000 $19,932,500 $ 124,000 $ 4,514,000 $ 7,175,000	$ 36,785,500
b. CONCRETE PAVING-		$ 0
c. OTHER- Asph. Leveling 94,500 TN @$37/TN= Rumble Strip 14.53 Mi(2) @$3500/Mi = Milling Asph. Pvmt 1,642,000 SY@$3.00/SY=	$3,213,000 $ 101,710 $ 4,926,000	$ 8,240,710
SUBTOTAL:C-3		$ 45,026,210
4. LUMP ITEMS:		
a. GRASSING- 100 Acs @ $1000/Acs		$ 100,000
b. CLEARING AND GRUBBING- 100 Acs @ $3000/Acs		$ 300,000
c. LANDSCAPING		$ 0
d. EROSION CONTROL Silt Fence Ty A 20,000LF @$1.50 = Sediment Basins 10 ea @ $9000 = 40,000 SY Erosion Mats @$1.30/SY = 15,000 SY PSRM @ $4.60 = 15,000 SY BTGF @ $2.40 = 5000 SY Conc. Ditch. Paving @$27/SY = Rip rap ditch checks 150 ea @$300 ea =	 $ 30,000 $ 90,000 $ 52,000 $ 69,000 $ 36,000 $ 135,000 $ 45,000	$ 457,000
e. TRAFFIC CONTROL I-75 14.53 Mi @ $200,000/Mi.=	 $ 2,906,000	$ 2,906,000
SUBTOTAL:C-4		$ 3,763,000
5. MISCELLANEOUS:		

PROJECT NUMBER: NH-73-3(242) (HOV Outside Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

PROJECT COST		
a. LIGHTING		$
b. SIGNING – MARKING		$ 9,417,000
Striping	$272,000	
15 ea Overhead signs @ $400,000 =	$ 6,000,000	
15 ea Cantilever signs @ $200,000 =	$ 3,000,000	
Misc. information signs	$145,000	
c. GUARDRAIL		$ 186,840
15,000 LF @$11/LF =	$ 165,000	
12 ea Type 12 Anch @ $1335 ea =	$ 16,020	
12 Type 1 Anch. @ $485 ea =	$ 5,820	
	SUBTOTAL:C-5	$ 9,603,840
6. SPECIAL FEATURES-		
a. Field Engineers Office Type 3 @ $60,000 =	$ 60,000	
b. Sound wall (Windy Hill Rd to So. Marietta Pkwy-Lt.& Rt.)		
550,400 SF @ $19/SF =	$ 10,457,600	
	SUBTOTAL:C-6	$ 10,517,600

PROJECT NUMBER: NH-73-3(242) (HOV Outside Ultimate I-285 to Wade Green Rd) COUNTY: Cobb

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$153,545,600
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$151,013,000	
2. GRADING AND DRAINAGE	$ 3,712,000	
3. BASE AND PAVING	$ 45,026,210	
4. LUMP ITEMS	$ 3,763,000	
5. MISCELLANEOUS	$ 9,603,840	
6. SPECIAL FEATURES	$ 10,517,600	
SUBTOTAL CONSTRUCTION COST		$223,635,650
E. & C. (10%)		$ 22,363,565
INFLATION (5% PER YEAR for 4 YEARS)		$ 49,254,443
TOTAL CONSTRUCTION COST		**$295,253,658**
GRAND TOTAL PROJECT COST		**$448,799,258**

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NHS-000-001(919) (HOV Median Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

DATE: August 8, 2002

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 0.72 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT) 40,000 SF (0.92 Acs) @$10/SF	$ 400,000
2. DISPLACEMENTS; RES:0 BUS;0, M.H.:0	$
3. OTHER COST (ADM./COST, INFLATION)	$ 240,000
SUBTOTAL:A	$ 640,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges 65,000 SF @$100/SF	$ 6,500,000
b. Concrete barrier- 4000 LF @$140/LF= $560,000 c. Retaining walls- 48,000 SF @ $30/SF= $1,440,000	$ 2,000,000
SUBTOTAL:C-1	$ 8,500,000
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 75,000 CY @ $2.25/CY	$ 168,750
b. DRAINAGE:	
1) Metal drain inlets 10 ea @ $960 ea = $ 9,600 500 LF 15" Slope Drain Pipe @ $25 = $ 12,500	$ 22,100
2) Drainage- 10 Drop inlets @ $1200 ea	$ 12,000

PROJECT NUMBER: NHS-000-001(919) (HOV Median Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

PROJECT COST	
SUBTOTAL:C-2	$ 202,850
3. BASE AND PAVING:	
a. AGGREGATE BASE- 44,940 TN @ $18/TN = $ 808,920 ASPHALT PAVING: Surface- 6,910 TN. @ $67/TN = $ 462,970 Bit. Tack Coat 12,000 gal $1/gal = $ 12,000 Binder—19,640 TN-@$37/TN = $ 726,680 Base— 32,720 TN @$35/TN = $ 1,145,200	$ 3,155,770
b. CONCRETE PAVING-	$ 0
c. OTHER- Asph. Leveling 1350 TN @$37/TN= $ 49,950 Rumble Strip 0.72 Mi(4) @$3500/Mi = $ 10,080 Milling Asph. Pvmt 23,000 SY@$3.00/SY= $ 69,000	$ 129,030
SUBTOTAL:C-3	$ 3,284,800
4. LUMP ITEMS:	
a. GRASSING- 15 Acs @ $1000/Acs	$ 15,000
b. CLEARING AND GRUBBING-15 Acs @ $3000/Acs	$ 45,000
c. LANDSCAPING	$ 0
d. EROSION CONTROL Silt Fence Ty A 5,000 LF @$1.50 = $ 7,500 Sediment Basins 2 ea @ $9000 = $ 18,000 5,000 SY Erosion Mats @$1.30/SY = $ 6,500 1,000 SY PSRM @ $4.60 = $ 4,600 1,000 SY BTGF @ $2.40 = $ 2,400 500 SY Conc. Ditch. Paving @$27/SY = $ 13,500 Rip rap ditch checks 20 ea @$300 ea = $ 6,000	$ 58,500
e. TRAFFIC CONTROL I-75 0.72 Mi @ $260,000/Mi.	$ 187,200
SUBTOTAL:C-4	$ 325,200
5. MISCELLANEOUS:	
a. LIGHTING	$
b. SIGNING – MARKING	$ 833,000

PROJECT NUMBER: NHS-000-001(919) (HOV Median Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

PROJECT COST		
Striping 2 ea Overhead signs @ $400,000 = Misc. information signs	$ 25,000 $ 800,000 $ 8,000	
c. GUARDRAIL 1,000 LF @$11/LF = 4 ea Type 12 Anch @ $1335 ea = 4 Type 1 Anch. @ $485 ea =	 $ 11,000 $ 5,340 $ 1,940	$ 18,280
	SUBTOTAL:C-5	$ 851,280
6. SPECIAL FEATURES- Remove existing bridge 20,000 SF @$20/SF		
	SUBTOTAL:C-6	$ 400,000

PROJECT NUMBER: NHS-000-001(919) (HOV Median Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$ 640,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 8,500,000	
2. GRADING AND DRAINAGE	$ 202,850	
3. BASE AND PAVING	$ 3,284,800	
4. LUMP ITEMS	$ 325,700	
5. MISCELLANEOUS	$ 851,280	
6. SPECIAL FEATURES	$ 400,000	
SUBTOTAL CONSTRUCTION COST		$ 13,564,630
E. & C. (10%)		$ 1,356,463
INFLATION (5% PER YEAR for 4 YEARS)		$ 2,984,219
TOTAL CONSTRUCTION COST		**$ 17,905,312**
GRAND TOTAL PROJECT COST		**$ 18,545,312**

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NHS-000-001(919) (HOV Outside Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

DATE: August 8, 2002

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 0.72 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT) 126,000 SF (2.89 Acs) @$10/SF	$ 1,260,000
2. DISPLACEMENTS; RES:0 BUS;0, M.H.:0	$
3. OTHER COST (ADM./COST, INFLATION)	$ 756,000
SUBTOTAL:A	$ 2,016,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges 158,150 @$100/SF	$ 15,815,000
b. Concrete barrier- 4000 LF @$140/LF= $560,000 c. Retaining walls- 36,750 SF @ $30/SF= $1,102,500	$ 1,662,500
SUBTOTAL:C-1	$ 17,477,500
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 100,00 CY @ $2.25/CY	$ 225,000
b. DRAINAGE:	
1) Metal drain inlets 10 ea @ $960 ea = $ 9,600 500 LF 15" Slope Drain Pipe @ $25 = $ 12,500	$ 22,100
2) Drainage- 10 Drop inlets @ $1200 ea	$ 12,000

PROJECT NUMBER: NHS-000-001(919) (HOV Outside Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

PROJECT COST	
SUBTOTAL:C-2	$ 259,100
3. BASE AND PAVING:	
a. AGGREGATE BASE- 62,400 TN @ $18/TN = $ 1,123,200 ASPHALT PAVING: Surface- 8,800 TN. @ $67/TN = $ 589,600 Bit. Tack Coat 16,590 gal $1/gal = $ 16,590 Binder—27,260 TN-@$37/TN = $ 1,008,620 Base— 45,430 TN @$35/TN = $ 1,590,050	$ 4,328,060
b. CONCRETE PAVING-	$ 0
c. OTHER- Asph. Leveling 1350 TN @$37/TN= $49,950 Rumble Strip 0.72 Mi(4) @$3500/Mi = $ 10,080 Milling Asph. Pvmt 23,000 SY@$3.00/SY= $ 69,000	$ 129,030
SUBTOTAL:C-3	$ 4,457,090
4. LUMP ITEMS:	
a. GRASSING- 20 Acs @ $1000/Acs	$ 20,000
b. CLEARING AND GRUBBING- 20 Acs @ $3000/Acs	$ 60,000
c. LANDSCAPING	$ 0
d. EROSION CONTROL Silt Fence Ty A 5,000 LF @$1.50 = $ 7,500 Sediment Basins 2 ea @ $9000 = $ 18,000 5,000 SY Erosion Mats @$1.30/SY = $ 6,500 1,000 SY PSRM @ $4.60 = $ 4,600 1,000 SY BTGF @ $2.40 = $ 2,400 500 SY Conc. Ditch. Paving @$27/SY = $ 13,500 Rip rap ditch checks 20 ea @$300 ea = $ 6,000	$ 58,500
e. TRAFFIC CONTROL I-75 0.72 Mi @ $260,000/Mi.	$ 187,200
SUBTOTAL:C-4	$ 325,200
5. MISCELLANEOUS:	
a. LIGHTING	$
b. SIGNING – MARKING	$ 833,000

PROJECT NUMBER: NHS-000-001(919) (HOV Outside Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

PROJECT COST		
Striping 2 ea Overhead signs @ $400,000 = Misc. information signs	$ 25,000 $ 800,000 $ 8,000	
c. GUARDRAIL 1,000 LF @$11/LF = 4 ea Type 12 Anch @ $1335 ea = 4 Type 1 Anch. @ $485 ea =	 $ 11,000 $ 5,340 $ 1,940	$ 18,280
	SUBTOTAL:C-5	$ 851,280
6. SPECIAL FEATURES-		
	SUBTOTAL:C-6	$ 0

PROJECT NUMBER: NHS-000-001(919) (HOV Outside Ultimate I-75/I-575 Inter. COUNTY:Cobb/Cherokee

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$ 2,016,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 17,477,500	
2. GRADING AND DRAINAGE	$ 259,100	
3. BASE AND PAVING	$ 4,457,090	
4. LUMP ITEMS	$ 325,700	
5. MISCELLANEOUS	$ 851,280	
6. SPECIAL FEATURES	$ 0	
SUBTOTAL CONSTRUCTION COST		$ 23,370,670
E. & C. (10%)		$ 2,337,067
INFLATION (5% PER YEAR for 4 YEARS)		$ 5,141,547
TOTAL CONSTRUCTION COST		**$ 30,849,284**
GRAND TOTAL PROJECT COST		**$ 32,865,284**

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NH-575-1(28) (HOV Median Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

DATE: August 8, 2002

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 11.2 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT) 250,000 SF (5.74 Acs) @$10/SF	$ 2,500,000
2. DISPLACEMENTS; RES:0 BUS;0, M.H.:0	$
3. OTHER COST (ADM./COST, INFLATION)	$ 1,500,000
SUBTOTAL:A	$ 4,000,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges 185,000 SF @$65/SF= $12,025,000	$ 12,025,000
b. Concrete barrier- 118,000 LF @$140/LF= $16,520,000 c. Retaining walls- 147,200 SF @$30/SF= $ 4,416,000	$ 20,936,000
SUBTOTAL:C-1	$ 32,961,000
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 1,705,000 CY @ $2.25/CY = $ 3,836,250 Borrow 220,000 CY @ $2.25/CY = $ 495,000	$ 4,331,250
b. DRAINAGE:	
1) Metal drain inlets 70 ea @ $960 ea = $ 67,200 4000 LF 15" Slope Drain Pipe @ $25 = $ 100,000	$ 167,200

PROJECT NUMBER: NH-575-1(28) (HOV Median Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

PROJECT COST	
2) Drainage- 150 Drop inlets @ $1200 each= $ 180,000 4000 LF 18' pipe @$30/LF= $ 120,000	$ 300,000
SUBTOTAL:C-2	$ 4,798,450
3. BASE AND PAVING:	
a. AGGREGATE BASE- 238,700 TN @ $18/TN = $ 4,296,600 ASPHALT PAVING: Surface- 53,300 TN. @ $67/TN = $ 3,571,100 Bit. Tack Coat 74,500 gal $1/gal = $ 74,500 Binder—104,200 TN-@$37/TN = $ 3,855,400 Base— 173,500 TN @$35/TN = $ 6,072,500	$ 17,870,100
b. CONCRETE PAVING-	$ 0
c. OTHER- Asph. Leveling 18,200 TN @$37/TN= $ 673,400 Rumble Strip 11.2 Mi(2) @$3500/Mi = $ 78,400 Milling Asph. Pvmt 315,200 SY@$3.00/SY= $ 945,600	$ 1,697,400
SUBTOTAL:C-3	$ 19,567,500
4. LUMP ITEMS:	
a. GRASSING- 75 Acs @ $1000/Acs	$ 75,000
b. CLEARING AND GRUBBING- 75 Acs @ $3000/Acs	$ 225,000
c. LANDSCAPING	$ 0
d. EROSION CONTROL Silt Fence Ty A 20,000LF @$1.50 = $ 30,000 Sediment Basins 10 ea @ $9000 = $ 90,000 40,000 SY Erosion Mats @$1.30/SY = $ 52,000 15,000 SY PSRM @ $4.60 = $ 69,000 15,000 SY BTGF @ $2.40 = $ 36,000 5000 SY Conc. Ditch. Paving @$27/SY = $135,000 Rip rap ditch checks 150 ea @$300 ea = $ 45,000	$ 457,000
e. TRAFFIC CONTROL I-75 11.2 Mi @ $260,000/Mi.= $ 2,912,000	$ 2,912,000
SUBTOTAL:C-4	$ 3,669,000
5. MISCELLANEOUS:	
a. LIGHTING	$

PROJECT NUMBER: NH-575-1(28) (HOV Median Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

PROJECT COST		
b. SIGNING – MARKING		$ 5,812,000
Striping	$ 100,000	
14 ea Overhead signs @ $400,000 =	$ 5,600,000	
Misc. information signs	$ 112,000	
c. GUARDRAIL		$ 183,200
15,000 LF @$11/LF =	$ 165,000	
10 ea Type 12 Anch @ $1335 ea =	$ 13,350	
10 Type 1 Anch. @ $485 ea =	$ 4,850	
	SUBTOTAL:C-5	$ 5,995,200
6. SPECIAL FEATURES-		
Field Engineers Office Type 3 @ $60,000 =	$ 60,000	
	SUBTOTAL:C-6	$ 60,000

PROJECT NUMBER: NH-575-1(28) (HOV Median Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$ 4,000,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 32,961,000	
2. GRADING AND DRAINAGE	$ 4,798,450	
3. BASE AND PAVING	$ 19,567,500	
4. LUMP ITEMS	$ 3,669,000	
5. MISCELLANEOUS	$ 5,995,200	
6. SPECIAL FEATURES	$ 60,000	
SUBTOTAL CONSTRUCTION COST		$ 67,051,150
E. & C. (10%)		$ 6,705,115
INFLATION (5% PER YEAR for 4 YEARS)		$ 14,751,253
TOTAL CONSTRUCTION COST		**$ 88,507,518**
GRAND TOTAL PROJECT COST		**$ 92,507,518**

PRELIMINARY COST ESTIMATE

PROJECT NUMBER: NH-575-1(28) (HOV Outside Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

DATE: August 8, 2002

PREPARED BY: Parsons Brinckerhoff PROJECT LENGTH: 11.2 Miles

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT) 250,000 SF (5.74 Acs) @$10/SF	$ 2,500,000
2. DISPLACEMENTS; RES:0 BUS;0, M.H.:0	$
3. OTHER COST (ADM./COST, INFLATION)	$ 1,500,000
SUBTOTAL:A	$ 4,000,000
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	$ 0
2. TRANSMISSION LINES-	$ 0
3. SERVICES-	$ 0
SUBTOTAL:B	$ 0
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. Bridges 185,000 SF @$65/SF= $12,025,000	$ 12,025,000
b. Concrete barrier- 118,000 LF @$140/LF= $16,520,000 c. Retaining walls- 147,200 SF @$30/SF= $ 4,416,000	$ 20,936,000
SUBTOTAL:C-1	$ 32,961,000
2. GRADING AND DRAINAGE:	
a. EARTHWORK- Uncl. Exc. 1,705,000 CY @ $2.25/CY = $ 3,836,250 Borrow 220,000 CY @ $2.25/CY = $ 495,000	$ 4,331,250
b. DRAINAGE:	
1) Metal drain inlets 70 ea @ $960 ea = $ 67,200 4000 LF 15" Slope Drain Pipe @ $25 = $ 100,000	$ 167,200

PROJECT NUMBER: NH-575-1(28) (HOV Outside Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

PROJECT COST	
2) Drainage- 150 Drop inlets @ $1200 each= $ 180,000 4000 LF 18' pipe @$30/LF= $ 120,000	$ 300,000
SUBTOTAL:C-2	$ 4,798,450
3. BASE AND PAVING:	
a. AGGREGATE BASE- 238,700 TN @ $18/TN = $ 4,296,600 ASPHALT PAVING: Surface- 53,300 TN. @ $67/TN = $ 3,571,100 Bit. Tack Coat 74,500 gal $1/gal = $ 74,500 Binder—104,200 TN-@$37/TN = $ 3,855,400 Base— 173,500 TN @$35/TN = $ 6,072,500	$ 17,870,100
b. CONCRETE PAVING-	$ 0
c. OTHER- Asph. Leveling 18,200 TN @$37/TN= $ 673,400 Rumble Strip 11.2 Mi(2) @$3500/Mi = $ 78,400 Milling Asph. Pvmt 315,200 SY@$3.00/SY= $ 945,600	$ 1,697,400
SUBTOTAL:C-3	$ 19,567,500
4. LUMP ITEMS:	
a. GRASSING- 75 Acs @ $1000/Acs	$ 75,000
b. CLEARING AND GRUBBING- 75 Acs @ $3000/Acs	$ 225,000
c. LANDSCAPING	$ 0
d. EROSION CONTROL Silt Fence Ty A 20,000LF @$1.50 = $ 30,000 Sediment Basins 10 ea @ $9000 = $ 90,000 40,000 SY Erosion Mats @$1.30/SY = $ 52,000 15,000 SY PSRM @ $4.60 = $ 69,000 15,000 SY BTGF @ $2.40 = $ 36,000 5000 SY Conc. Ditch. Paving @$27/SY = $135,000 Rip rap ditch checks 150 ea @$300 ea = $ 45,000	$ 457,000
e. TRAFFIC CONTROL I-75 11.2 Mi @ $260,000/Mi.= $ 2,912,000	$ 2,912,000
SUBTOTAL:C-4	$ 3,669,000
5. MISCELLANEOUS:	
a. LIGHTING	$

PROJECT NUMBER: NH-575-1(28) (HOV Outside Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

PROJECT COST		
b. SIGNING – MARKING		$ 5,812,000
Striping	$ 100,000	
14 ea Overhead signs @ $400,000 =	$ 5,600,000	
Misc. information signs	$ 112,000	
c. GUARDRAIL		$ 183,200
15,000 LF @$11/LF =	$ 165,000	
10 ea Type 12 Anch @ $1335 ea =	$ 13,350	
10 Type 1 Anch. @ $485 ea =	$ 4,850	
	SUBTOTAL:C-5	$ 5,995,200
6. SPECIAL FEATURES-		
Field Engineers Office Type 3 @ $60,000 =	$ 60,000	
	SUBTOTAL:C-6	$ 60,000

PROJECT NUMBER: NH-575-1(28) (HOV Outside Ultimate I-75 to Sixes Rd) COUNTY: Cobb/Cherokee

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		$ 4,000,000
B. REIMBURSABLE UTILITIES		$ 0
C. CONSTRUCTION		
1. MAJOR STRUCTURES	$ 32,961,000	
2. GRADING AND DRAINAGE	$ 4,798,450	
3. BASE AND PAVING	$ 19,567,500	
4. LUMP ITEMS	$ 3,669,000	
5. MISCELLANEOUS	$ 5,995,200	
6. SPECIAL FEATURES	$ 60,000	
SUBTOTAL CONSTRUCTION COST		$ 67,051,150
E. & C. (10%)		$ 6,705,115
INFLATION (5% PER YEAR for 4 YEARS)		$ 14,751,253
TOTAL CONSTRUCTION COST		**$ 88,507,518**
GRAND TOTAL PROJECT COST		**$ 92,507,518**

Appendix D

Benefit/Cost Analysis

Appendix D.1

Assumptions for the Benefit/Cost Analysis

Assumptions for the Benefit/Cost Analysis

To establish the parameters associated with the benefit/cost analysis, the following schedule items were assumed:

Interim Project		Ultimate Project	
Activity	**Fiscal Year**	**Activity**	**Fiscal Year**
Start Design	2003	Start Design	2003
Start Construction	2005	Start Construction	2007
Facility in Operation	2007	Facility in Operation	2010

There is difference of opinion at the Office of Environment/Location that the environmental documentation for the Interim and Ultimate Projects can be prepared in the time frame these schedules indicate. Their opinion is that both documents will be Environmental Assessments while the original assumption was that the Interim Project would be a Categorical Exclusion while the Ultimate would be an EA.

Phasing of the construction of the Ultimate Project is assumed to be similar to the following:

Phase	Description
1	The I-285/I-75 Interchange through Windy Hill Road
2	Windy Hill Road through the SR 5 Connector Interchange
3	SR 5 Connector to Wade Green Road
4	I-575 from the I-75/I-575 Interchange to Sixes Road

It was assumed that the construction of the Ultimate Project would require that Phases 1 through 3 be let to construction simultaneously since neither section could stand alone without additional temporary construction to tie the HOV system to the Interim facility in the median. Simultaneous construction also provides the shortest time to operation on the I-75 corridor which is beneficial when considering the cost associated with reduced capacity during construction. The Team believes that the time to construct the Ultimate Project should possibly be longer but to meet the ARC Model the operation year was retained at 2010.

After the Ultimate HOV Project is placed into operation, the Interim HOV lanes in the median will be restriped to exclude their use as general purpose lanes.

Interest Rate
The interest rate for establishing the present worth of the various benefit cost streams as discussed in the benefit cost analysis was estimated at 7% based on typical FHWA requirements.

Appendix D.2

Analytical Techniques used to Quantify Performance Measures

Analytical Techniques used to Quantify Freeway Performance Measures for an Annualized Assessment of User Benefits

The analytical models used to estimate performance measures for the study are classified as macroscopic traffic operations models. Several specific traffic operations models were assembled into a modeling framework. This framework is significantly different from other traffic operations models such as CORSIM or TRANSYT-7F in that it can directly produce annualized estimates of the primary and secondary performance measures based on macroscopic algorithms with only minimal data requirements and processing time. The analytical elements of the model were developed using Monte-Carlo simulation techniques, which account for variability in traffic flow patterns due to seasonal, day of week and peak spreading effects. The benefit of using these procedures is that they estimate operational impacts for a 24 hour day, not just a peak hour. Therefore, operational benefits can be assessed and extrapolated to represent an annual condition for purposes of developing benefit cost ratios.

For purposes of estimating annualized user costs for operating a freeway corridor, the traffic analytical framework estimates costs based on the following factors.

- Person Delay Costs (based on both recurring congestion and incident-related congestion)
- Societal Cost of Traffic Accidents
- Fuel Consumption
- Impact Cost of Pollutant Emissions
- Vehicle Operating Costs (other than fuel)

The individual models in the framework operate at the roadway link level. Therefore, the effects of "nodal" operational problem occurring at intersections, ramp junctions and weaving sections are not directly modeled. This simplification is appropriate for this level of analysis because major investment studies are intended to assess the need for expensive corridor-level improvements (hence the term "major investment"), as opposed to localized, less-expensive spot improvements. The following sections describe the sources for individual models used to estimate primary performance measures in the framework.

Average Weekday Traffic Volume Forecasts

Forecast of average weekday freeway mainline volumes between intersections were based on results of the Atlanta Regional Commission travel demand forecasting model. ARC provides forecasts in five year increments between 1995 (for validation) and 2025. Forecasts for the years 2005, 2010 and 2025 were used to conduct the benefits analysis for these specific years. Interpolation or extrapolation were used to determine benefits for each other year between 2003 and 2030.

Freeway Section Capacity

The hourly capacity of each segment of I-75 between interchanges is a key element of the modeling framework. Section capacities are determined using Highway Capacity

Manual procedures that include the impact of terrain, lane width, lateral clearance and the percentage of trucks. Initial lane capacities were based on a free flow speed of 70 miles per hour. Ideal lane width and lateral clearance were used (12 feet each). However, lateral clearances were reduced to zero for construction scenarios. To be conservative, level terrain was used, even though sections of I-75 quality for rolling terrain characteristics. A daily truck percentage of 8 percent was used.

The determination of freeway mainline section capacity incorporated conservative assumptions regarding the capacity benefits of concurrent flow HOV lanes and auxiliary lanes. Both are assumed to increase the section capacity by 10 percent per lane (which is significantly less than the full capacity of a lane). Where barrier separated HOV lanes are included in an alternative, the HOV traffic is assigned to a separate freeway facility with either two or four lanes in each direction. Full shoulders are assumed for barrier separated HOV lanes. SOV lanes are analyzed separately, except that HOV traffic is removed from these lanes. Therefore, a net reduction in SOV lane congestion is also accounted for in the analysis results.

Estimation of 24-hour Weekday Level of Service Profiles

Estimates of 24-hour level of service profiles were based on equations that estimate the portion of daily traffic using a roadway while the volume to capacity ratio is less than a particular level. These equations were obtained from the study "Roadway Usage Patterns: Urban Case Studies" prepared for FHWA et.al. in June, 1994. The equations were evaluated for each v/c ratio separating different levels of service based on v/c break-points reported in the Highway Capacity Manual. The equations are a function of the daily traffic volume, the hourly section capacity, and the v/c ratio of interest.

The equations estimate the portion of daily traffic using the roadway while the volume to capacity ratio is below a user-defined level. By setting the volume to capacity ratios to the maximum allowable value for each level of service, the equations estimate the percentage of traffic using the facility while the level of service is better than or equal to the desired level. The difference between the percentages for each level of service is the percentage of traffic using the facility while it operates at each level of service. The ranges used are summarized in the table on the following page.

The equations are based on an index ratio X that is defined as:

$$X = v/c_{(LOS\ N)} / (AADT/C)$$

Where $v/c_{(LOS\ N)}$ is the maximum v/c ratio for a given level of service (N)
AADT is the annual average daily traffic volume
C is the hourly capacity of the roadway.

Ranges of Volume to Capacity Ratios for Each Level of Service

Level of Service	Range of Volume to Capacity Ratios
A	0.00 - 0.25
B	0.26 - 0.40
C	0.41 - 0.60
D	0.61 - 0.80
E	0.81 - 1.00
F	> 1.00

If X is less than 0.117, then the portion of daily traffic using the facility while the v/c ratio is equal to or better than "N" is:

$$P(N) = 225.8 * X^2 - 1259 * X^3 -2809 * X^4 + 20610 * X^5$$

Otherwise:

$$P(N) = 1.00$$

By multiplying the portion of traffic at each level of service times the AADT and the length of the roadway segment, a 24-hour distribution of traffic at each level of service (as opposed to only a a peak hour assessment) is produced. This distribution accounts for the impacts of peak spreading resulting from congestion during peak periods.

<u>Recurring Congestion</u>
Recurring delay is the normal day-to-day delays associated with traffic congestion resulting from roadway operational problems and capacity-constrained bottlenecks. These bottlenecks generate queues of traffic that effectively reduce the section capacity of upstream segments of roadway, thus propagating the congestion impacts of the bottleneck.

Estimates of 24-hour, peak period and peak hour recurring delay were based on equations developed for the HPMS modeling process from the study “Speed Determination Models for the Highway Performance Monitoring System” prepared for FHWA in October, 1993, and the subsequent study “Development of Diurnal Traffic Distribution and Daily, Peak and Off-Peak Vehicle Speed Estimation Procedures for Air Quality Planning” prepared for FHWA in April, 1996. These models predict daily, peak period and peak hour recurring delay for typical weekend and weekday traffic patterns as a function of daily traffic volume, hourly section capacity and effective traffic signal spacing. The results from these delay models can also be used to estimate average travel speeds for daily, peak period and peak hour conditions.

The equations used to estimate recurring delay estimate the rate of delay in vehicle hours per 1,000 vehicle miles of travel. The equations are a function of the AADT/C ratio (X).

For AADT/C <= 8.00	$D = 0.0797 * X + 0.00385 * X^2$
For 8.00 < AADT/C <= 12.0	$D = 12.1 - 2.95 * X + 0.193 * X^2$
For AADT/C > 12.0	$D = 19.6 - 5.36 * X + 0.342 * X^2$

Total delay for a weekday is estimated by multiplying the delay rate from the equations by the vehicle miles of weekday travel on the subject freeway segment. Annual delays account for weekday traffic delays only assuming 250 days per year of "normal weekday traffic". Weekend recurring delays are excluded to be conservative.

Accidents and Accident Rates

Accident rates for the study were based on a non-linear regression equation that is sensitive to the traffic loading level on each roadway link. Since the assessment of project benefits is dependent on the change in accident behavior, rather than the absolute number of accidents for a given alternative, it was important to make use of an accident estimation process sensitive to the effect of congestion, rather than be concerned over matching existing accident rates. Accidents are estimated using an equation as a function of the annual average daily traffic to peak hour section capacity (AADT/C) ratio based freeway accident data. The equations used were developed based on research conducted on 75 miles of Interstate Highway at different congestion levels. The relationship below predicts the annual accident rate as a function of the AADT/C ratio (X). Higher levels of congestion were found to increase accident rates, and the equation accounts for this behavior.

Annual Accidents per Hundred Million Vehicle Miles =

$$135.1192 - (1.05566 * X) + (0.22641 * X2) - 0.00000046 * X5$$

The absolute number of accidents for one alternative is obtained by multiplying the above rate by the vehicle miles of travel in units of 100 million miles. The number of incidents is dependent on vehicle miles of travel. The average rate for all incidents is 9.336 incidents per million vehicle miles of travel. However, 10 percent of these incidents are typically accidents, which are already accounted for. Disablement incidents are 80 percent of the predicted incidents, and other incidents (such as debris spills and roadway failures) are 10 percent of incidents. Both accidents and other incidents are distributed by level of severity based on their impact on traffic capacity based on the distributions in the table below.

Distribution of Incident Severity by Incident Type

Incident Type	Multilane Blocking	Single Lane Blocking	Shoulder Only
Accident	8%	32%	60%
Disablement	0.5%	19.5%	80.0%
Other	2%	28%	70%

Once the incidents are distributed by severity, a screening analysis is conducted to determine what portion of daily incidents will actually cause a reduction in roadway capacity that will produce non-recurring delays. The severity of non-recurring delay is highly dependent on the level of congestion throughout the day. A heavily-traveled roadway could be vulnerable to a large portion of relatively minor incidents throughout the day, while a lightly-traveled roadway is only affected by the most serious incidents. The distribution of vehicle miles of travel by v/c ratio is used to screen out a portion of each type and severity of incident. These screened incidents are not assumed to produce measurable delays. For shoulder incidents, only traffic operating at LOS E is vulnerable to delays. For single lane blocking incidents, traffic operating at an LOS worse than C is vulnerable. For multilane incidents, traffic operating at an LOS worse than B is vulnerable.

Incidents and Non Recurring Congestion

Non recurring congestion was estimated based on a one-year period worth of accidents and incidents (note that accidents are one type of incident). Incident activity was estimated corridor-wide as a function of total corridor accidents using incident-accident relationships from the "Incident Management Study" prepared for the Trucking Research Institute and the ATA Foundation, Inc. in June, 1990. Incidents were classified as *accidents*, *disablements* or *other*. The resulting distribution of accidents and other incidents were then segregated into different levels of severity including on-shoulder, single lane blocking and multi lane blocking.

As previously mentioned, these incidents were then screened to eliminate those that would not produce non recurring delays. This screening process produced a final group of incidents, stratified by type and severity that would produce non recurring delay. The delay per incident was then estimated based on ranges reported in the "Incident Management Study". The delay per incident was a function of the type of incident, the severity, and the degree of loading on each roadway segment modeled. The index used to determine the vehicle hours of delay per incident is the AADT/C ratio divided by a maximum practical value of 16. Therefore, X = (AADT/C) / 16. The equations used to predict average vehicle hours of delay per incident are listed below.

Multilane Blocking Accidents

$X < 0.5$ $D = 4800 * X$

$X >= 0.5$ $D = 15200 * X - 5200$

Single Lane Blocking Accidents

$X < 0.5$ $D = 2400 * X$

$X >= 0.5$ $D = 7600 * X - 2600$

Shoulder Accident

All X $D = 1000 * X$

Multilane Blocking Disablement Incident

X < 0.5	D = 2000 * X
X >= 0.5	D = 6000 * X - 2000

Single Lane Blocking Disablement Incidents

X < 0.5	D = 1000 * X
X >= 0.5	D = 3000 * X - 1000

Shoulder Disablement Incidents

All X	D = 200 * X

Multilane Blocking Other Incidents

X < 0.5	D = 4000 * X
X >= 0.5	D = 2000 * X + 1000

Single Lane Blocking Other Incidents

X < 0.5	D = 2000 * X
X <= 0.5	D = 1000 * X + 500

Shoulder Other Incidents

All X	D = 200 * X

The total non-recurring delay produced by all incidents is obtained by multiplying the delay per incident by the annual number of weekday incidents for each of the nine incident type and severity categories, and adding together the resulting delays.

Segregation of Vehicle Miles Traveled by Speed

Accurate emissions and fuel consumption analysis requires that the vehicle miles of travel on each roadway segment be segregated by the speed encountered by the traffic during the time that it used the facility. This means that the speed of traffic for each level of service, and the speed of traffic under incident congestion must be estimated. For recurring congestion delays, freeway speed flow curves are used to segregate uncongested travel delays from congested travel delays. Congested travel delays apply to that portion of traffic operating at level of service F, and the average travel speed of this traffic is the vehicle miles of travel divided by the vehicle hours of travel and delay. Non-recurring travel speeds are dependent on the portion of lane capacity blocked. This required an assessment of the typical operating speed of a queue under congestion induced by partial blockage of the freeway lanes. These speeds range from 4 to 42 miles per hour, depending on the normal number of freeway lanes and the number blocked.

Impact of ITS User Services

The I-75 corridor currently benefits from an incident management program supported by a surveillance and detection system to assist in verifying incidents and calling appropriate response vehicles for incidents requiring special treatment. Though the analytical framework is capable of accounting for accident and delay reduction benefits of ITS user services, these were excluded from consideration since the results would be systematic to both alternatives (that is, similar benefits would apply with and without the HOV facilities).

Secondary Performance Measures

Secondary performance measures included excess fuel consumption, emissions and vehicle operating costs due to freeway congestion, and accident and person delay impacts. These measures were considered secondary because they are all a function of the primary measures.

Fuel consumption rates are based on the rates used in FHWA's TRANSYT-7F traffic simulation model. The relationship between freeway speeds and fuel consumption rates was derived based on a parametric analysis of traffic flow profiles at different speeds. These profiles consist of patterns of stopped delay, speed change cycles and maximum speeds that result in composite fuel consumption rates that mimick freeway travel behavior at different speeds.

Emissions rates are based on a modified version of the MOBILE 5b model used by the Atlanta Regional Commission to develop emissions rates for air quality conformity analysis. The speed correction factors are modified to represent freeway travel conditions for purposes of assessing emissions. The process for developing speed correction factors was similar to that used to develop fuel consumption rates.

Excess vehicle operating costs were based on the 1992 FTA publication "Characteristics of Urban Transportation Systems". Accident costs were stratified by severity. Accident costs by severity type were based on an October, 1991 FHWA study entitled "The Cost of Highway Crashes". Person delays were estimated by multiplying vehicle hours of delay by an average corridor vehicle occupancy based on the ARC Region. The delay unit costs were obtained from the 1992 FTA publication "Characteristics of Urban Transportation Systems".

The table below summarizes the cost components and unit costs used to develop differential monetary benefits to roadway users between alternative roadway network scenarios. By comparing analysis results between a build scenario and the no build scenario, the differential benefits of each project are determined.

Cost Components and Unit Costs

Cost Component	Unit Cost
Cost per Passenger Hour Traveled	$13.85
Average Daily Vehicle Occupancy	1.20
Cost per Gallon of Fuel	$1.25
Excess Vehicle Operating Cost per Mile	$0.027
Impact Cost per Ton of CO Emissions	$31.81
Impact Cost per Ton of HC Emissions	$359.09
Impact Cost per Ton of NOX Emissions	$1187.27
Average Accident Impact Cost (per event)	$87,900

Present Value of Benefits

The analytical framework was used to assess a variety of improvement scenarios for I-75. The assessment was performed for the years 2005, 2010 and 2025. The annual benefits (or burdens) were interpolated or extrapolated to represent all years between 2003 and 2030. The net present value of benefits was computed by amortizing the benefits (or burdens) of each year to the present day using a discount rate of 7 percent.

<u>Computational Steps in the Traffic Operations Modeling Framework</u>
The following list identifies the computational steps used to estimate performance measures for the study:

1. Apply a percentage reduction in average daily travel demand due to ITS demand reduction strategies to forecast traffic volumes to produce post-ITS daily demand forecasts. (examples include measures that improve effectiveness of TDM (travel demand management) or transit ridership) (Note, the ARC travel demand model accounts for transit and carpool strategies internally when developing traffic forecasts)
2. Given freeway lane configurations, lane widths, lateral clearance, percentage of trucks, type of terrain and number of lanes in each direction; estimate freeway mainline free flow speed based on HCM methods.
3. Estimate vehicle hours of normal travel time as vehicle miles of travel divided by free flow speed. Compute total vehicle hours normal travel time for full corridor. Annualize normal travel time assuming 250 weekdays and 115 holiday-weekend days per year.
4. Estimate initial average lane capacity from adjusted free flow speed based on HCM speed-capacity relationships. Compute total section capacity of general use lanes. Add HOV lane demand levels to section capacities to account for HOV lane capacity benefits.
5. Increase section capacities due to impact of ITS strategies, or operational improvements such as auxiliary lanes or collector-distributor roads. (ITS strategies to increase freeway capacity are not in use on I-75)
6. Use hourly volume to capacity ratio stratification model to estimate percent of volume below v/c ratio cut-off of each level of service based on LOS cut-offs tabulated in the HCM. Subtract cumulative percentages to obtain volume of traffic at each level of service.
7. Multiply percentage of traffic at each level of service by freeway section volume and length to obtain VMT at each level of service. Compute VMT-weighted average level of service distribution for full corridor.
8. Use post-ITS daily demand forecast and post-ITS freeway section capacity to estimate vehicle hours of weekday and weekend recurring delay using HPMS equations.
9. Apply recurring delay reduction percentages due to ITS strategies to reduce total daily recurring delay. (these reductions are not used for the I-75 assessment since there are no recurring congestion control strategies in use in the corridor)
10. Compute total vehicle hours recurring delay for full corridor. Annualize total recurring delay assuming 250 weekdays and 115 holiday-weekend days per year.

11. Use post-ITS daily demand forecast and post-ITS freeway section capacity to estimate average weekday recurring delay during peak period and peak hour using HPMS equations.
12. Apply recurring delay reduction percentages due to ITS strategies to reduce peak period and peak hour recurring delay. (these reductions are not used for the I-75 assessment since there are no recurring congestion control strategies in use in the corridor)
13. Combine normal travel time and delay to estimate travel time per trip for peak period and peak hour, converted to minutes per trip.
14. Separately sum peak period and peak hour travel times for full corridor. Divide corridor length by travel time to estimate peak period and peak hour average travel speed.
15. Estimate number of accidents using average daily traffic to peak hour capacity ratio using equation developed for I-64 (or optionally, the HPMS models) to predict accident rates.
16. Multiply accident rates by vehicle miles traveled, and add together accidents on all segments.
17. Estimate annual corridor-wide non-accident incidents. Disablement incidents are approximately 8 times the number of accidents. Other incidents are approximately equal to the number of accidents.
18. Apply ITS accident reduction strategies to reduce the quantity of accidents expected to occur (these reductions were not used for the I-75 assessment).
19. Assign disablement and other incidents to individual freeway sections in proportion to the VMT carried.
20. Segregate accidents and incidents according to severity: shoulder-blocking, single-lane-blocking, or multi-lane blocking, using severity probability trees.
21. Use daily level of service stratification to determine what portion of incidents will occur when demand levels are high enough to produce non recurring congestion delays. Eliminate incidents that do not produce delay.
22. Estimate average non-recurring delay per incident based on freeway section loading level, incident type and severity using delay ranges from "Incident Management Study".
23. Multiply number of incidents of each type and severity by the estimated non-recurring delay per incident.
24. Apply non recurring delay reduction percentages due to ITS strategies to reduce non recurring delay. (these corrections are not used for the I-75 assessment)
25. Add non recurring delays from each incident type and severity class to obtain total annual non recurring delay. Total annual non recurring delay for full corridor.
26. Apply rates and equations to predict secondary performance measures based on the sum of annual recurring and non recurring delay. These include excess fuel consumption; excess emissions of CO, HC and NOx; excess vehicle operating costs; annual costs due to accidents, excess fuel and emissions; and person delay costs.

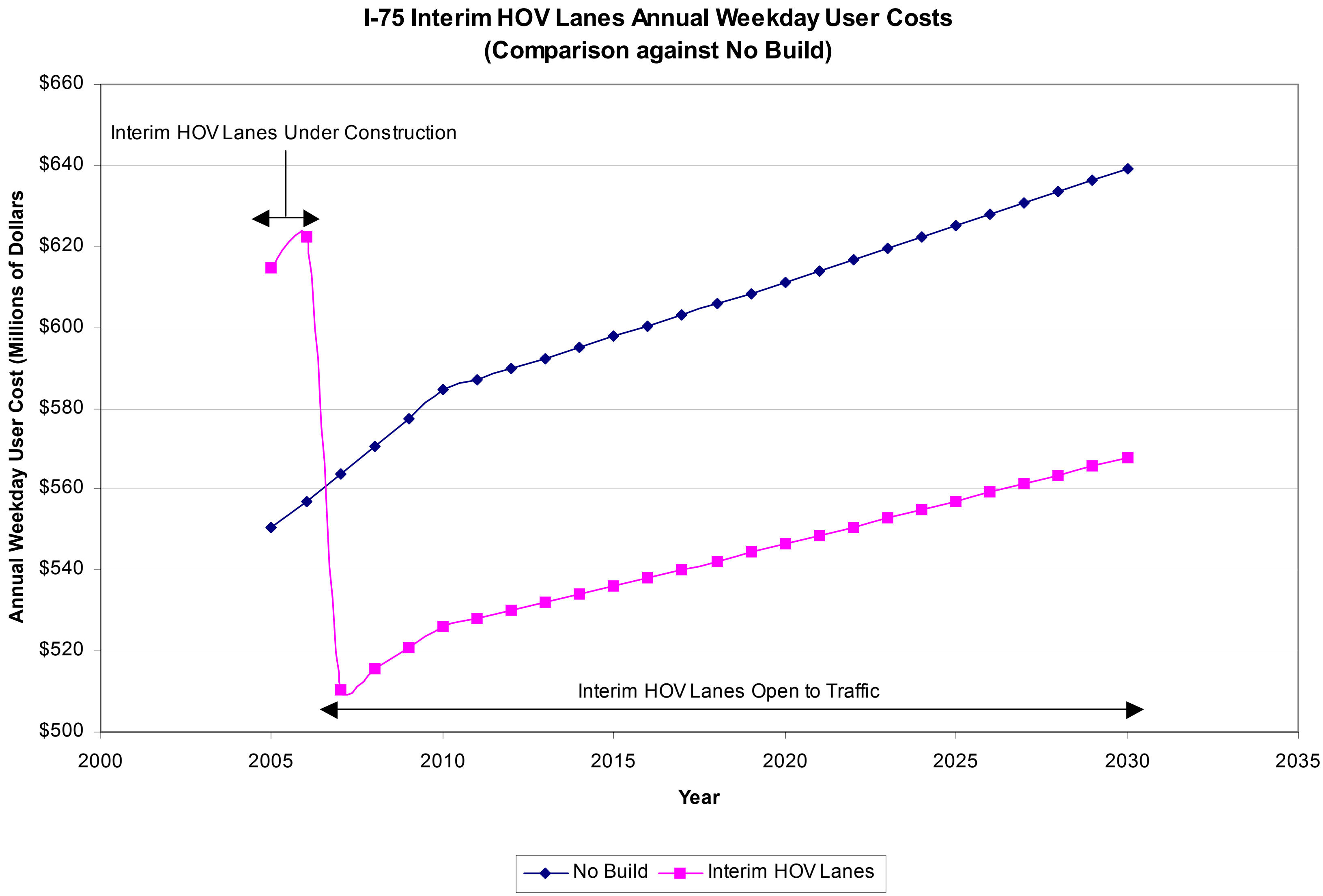
Appendix D.3

Tables and Graphs of Annual Weekday Costs

Annual Weekday User Costs
(Millions of Dollars)
I-75 North HOV Lanes - Cumberland Blvd to Wade Green Rd
Interim Facility Only
Interim Facility Construction in 2005-2006

Annual Discount Rate = 7%

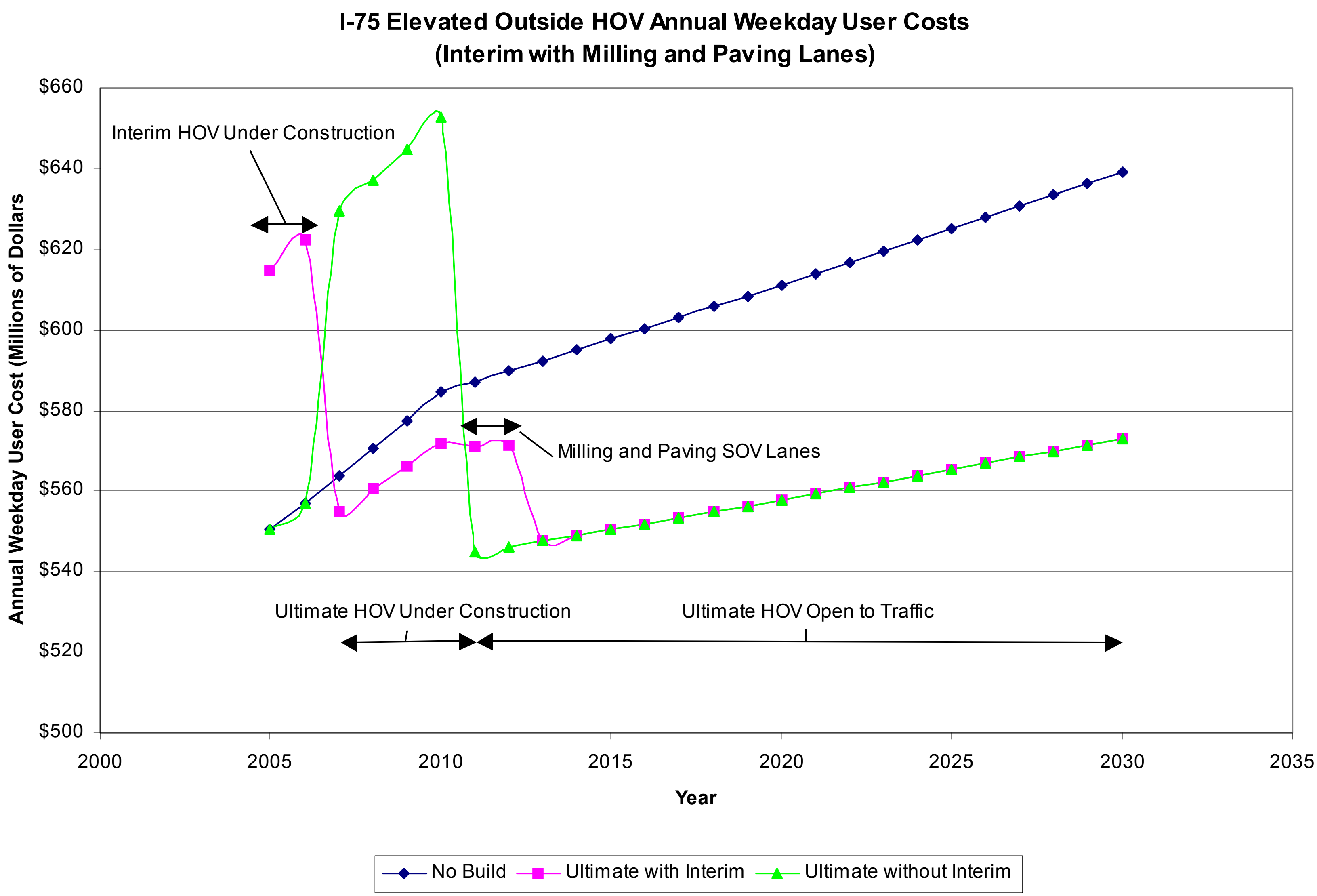
Year	No Build	Interim HOV Facility Only
2005	$551	$615
2006	$557	$622
2007	$564	$511
2008	$571	$516
2009	$578	$521
2010	$584	$526
2011	$587	$528
2012	$590	$530
2013	$592	$532
2014	$595	$534
2015	$598	$536
2016	$600	$538
2017	$603	$540
2018	$606	$542
2019	$608	$544
2020	$611	$546
2021	$614	$549
2022	$617	$551
2023	$619	$553
2024	$622	$555
2025	$625	$557
2026	$628	$559
2027	$631	$561
2028	$633	$563
2029	$636	$566
2030	$639	$568
Net Present Value of Annual Weekday User Costs	**$6,981**	**$6,483**
Design Life Benefits >		**$498**



I-75 Interim HOV Lanes Annual Weekday User Costs
(Comparison against No Build)
Interim HOV Lanes Under Construction
Interim HOV Lanes Open to Traffic
Annual Weekday User Cost (Millions of Dollars
$660
$640
$620
$600
$580
$560
$540
$520
$500
2000
2005
2010
2015
2020
2025
2030
2035
Year
No Build
Interim HOV Lanes

Annual Weekday User Costs
(Millions of Dollars)
I-75 North HOV Lanes - Cumberland Blvd to Wade Green Rd
Inside Median Alternative
Interim Facility with Milling and Paving in 2012-2013
Annual Discount Rate = 7%

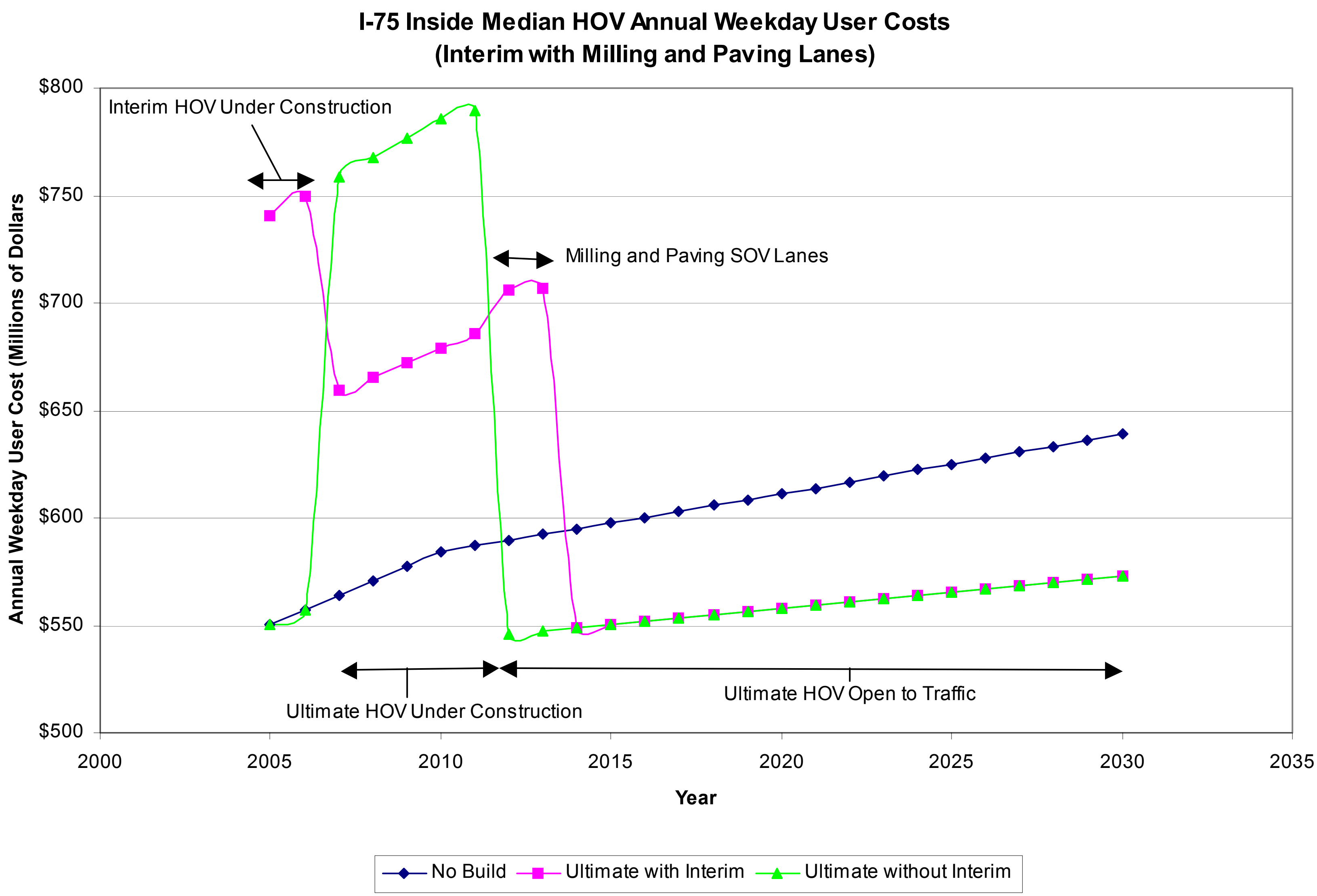
Year	No Build	Ultimate HOV with Interim	Ultimate HOV without Interim
2005	$551	$740	$551
2006	$557	$749	$557
2007	$564	$659	$758
2008	$571	$666	$767
2009	$578	$672	$777
2010	$584	$679	$786
2011	$587	$686	$790
2012	$590	$706	$546
2013	$592	$707	$548
2014	$595	$549	$549
2015	$598	$550	$550
2016	$600	$552	$552
2017	$603	$553	$553
2018	$606	$555	$555
2019	$608	$556	$556
2020	$611	$558	$558
2021	$614	$559	$559
2022	$617	$561	$561
2023	$619	$562	$562
2024	$622	$564	$564
2025	$625	$565	$565
2026	$628	$567	$567
2027	$631	$568	$568
2028	$633	$570	$570
2029	$636	$571	$571
2030	$639	$573	$573
	Net Present Value of Annual Weekday User Costs		
	$6,981	**$7,512**	**$7,356**
Design Life Benefits >		**-$531**	**-$375**


I-75 Elevated Outside HOV Annual Weekday User Costs
(Interim with Milling and Paving Lanes)
Annual Weekday User Cost (Millions of Dollars
$660
$640
$620
$600
$580
$560
$540
$520
$500
Interim HOV Under Construction
Milling and Paving SOV Lanes
Ultimate HOV Under Construction
Ultimate HOV Open to Traffic
2000
2005
2010
2015
2020
2025
2030
2035
Year
No Build
Ultimate with Interim
Ultimate without Interim

Annual Weekday User Costs
(Millions of Dollars)
I-75 North HOV Lanes - Cumberland Blvd to Wade Green Rd
Elevated Outside Alternative
Interim Facility with Milling and Paving in 2011-2012

Annual Discount Rate = 7%

Year	No Build	Ultimate HOV with Interim	Ultimate HOV without Interim
2005	$551	$615	$551
2006	$557	$622	$557
2007	$564	$555	$630
2008	$571	$561	$637
2009	$578	$566	$645
2010	$584	$572	$653
2011	$587	$571	$545
2012	$590	$571	$546
2013	$592	$548	$548
2014	$595	$549	$549
2015	$598	$550	$550
2016	$600	$552	$552
2017	$603	$553	$553
2018	$606	$555	$555
2019	$608	$556	$556
2020	$611	$558	$558
2021	$614	$559	$559
2022	$617	$561	$561
2023	$619	$562	$562
2024	$622	$564	$564
2025	$625	$565	$565
2026	$628	$567	$567
2027	$631	$568	$568
2028	$633	$570	$570
2029	$636	$571	$571
2030	$639	$573	$573
Net Present Value of Annual Weekday User Costs	**$6,981**	**$6,735**	**$6,817**
Design Life Benefits >		**$246**	**$164**


I-75 Inside Median HOV Annual Weekday User Costs
(Interim with Milling and Paving Lanes)
Annual Weekday User Cost (Millions of Dollars
$800
$750
$700
$650
$600
$550
$500
Interim HOV Under Construction
Milling and Paving SOV Lanes
Ultimate HOV Under Construction
Ultimate HOV Open to Traffic
2000
2005
2010
2015
2020
2025
2030
2035
Year
No Build
Ultimate with Interim
Ultimate without Interim

NWCP

ATTACHMENT C
PERFORMANCE MEASURES REPORT

Northwest Corridor Project (I-75/I-575)
Performance Measures Report
September 16, 2009

Description of Concepts

Number	Concept	Description	Remarks
1	No-Build	No-Build	2035 No Build
3	Concept A	Bi-Directional	2035 Bi-directional Managed Lanes (2 in ea direction) with slip ramps on I-575
4	Concept B1	2-lane Reversible	2035 2-ln Reversible Managed Lanes with direct ramps on I-575
2	Concept B2	2-lane Reversible	2035 2-ln Reversible Managed Lanes (as per GTP Concept Report)
5	Concept C	3-lane Reversible	2035 3-Lane Reversible Managed Lanes

2035 Daily Regional Person Trips By Mode

Mode	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Highway					
SOV	15,935,000	15,927,000	15,932,000	15,930,000	15,923,000
HOV 2	2,753,000	2,753,000	2,752,000	2,753,000	2,753,000
HOV 3+	5,447,000	5,454,000	5,450,000	5,451,000	5,457,000
Commercial Vehicle	2,060,000	2,060,000	2,060,000	2,060,000	2,060,000
Trucks (Medium & Heavy)	918,000	918,000	918,000	918,000	918,000
Total: Highway	27,114,000	27,113,000	27,112,000	27,112,000	27,112,000
Transit					
Walk to Transit	313,000	312,000	313,000	313,000	312,000
Drive to Transit	94,000	96,000	96,000	95,000	96,000
Total: Transit	407,000	408,000	409,000	408,000	408,000
Total: All Modes	**27,521,000**	**27,520,000**	**27,520,000**	**27,520,000**	**27,520,000**
Percent Transit Mode Share	1.7%	1.7%	1.7%	1.7%	1.7%
Change Compared to the No-Build Alternative					
Highway	+0	-1,000	-2,000	-2,000	-2,000
Transit	+0	+1,000	+2,000	+1,000	+1,000

NOTE: Internal-External, External-External, Commercial Vehicle and Truck trips are not included in calculation of Percent Transit Mode Split.

2035 Daily Regional Person Trips By Trip Purpose

Trip Purpose	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Highway					
Work	5,465,000	5,464,000	5,463,000	5,464,000	5,463,000
Non-Work	18,671,000	18,671,000	18,670,000	18,670,000	18,670,000
Commercial Vehicle	2,060,000	2,060,000	2,060,000	2,060,000	2,060,000
Truck (Medium & Heavy)	918,000	918,000	918,000	918,000	918,000
Total: Highway	27,114,000	27,113,000	27,112,000	27,112,000	27,112,000
Transit					
Work	173,000	174,000	175,000	174,000	174,000
Non-Work	234,000	234,000	234,000	234,000	234,000
Total: Transit	407,000	408,000	409,000	408,000	408,000
Total: All Modes	27,521,000	27,520,000	27,520,000	27,520,000	27,520,000
Transit Mode Share					
Percent Transit, Work	0.74%	0.74%	0.74%	0.74%	0.74%
Percent Transit, Non-Work	0.99%	1.00%	1.00%	1.00%	1.00%
Change Compared to the No-Build Alternative					
Highway		-1,000	-2,000	-2,000	-2,000
Transit		+1,000	+2,000	+1,000	+1,000

NOTES:

1. Highway work trips include Internal-External (I-E) work trips.
2. Highway non-work trips include Internal-External (I-E) non-work, Enternal-External (E-E) and Air Passenger auto trips.
3. Transit Non-Work trips include Air Passenger transit trips.
4. I-E, E-E, Commercial Vehicle, and Truck trips are not included in calculation of Percent Transit.

2035 Daily Regional Person Hours of Travel

Mode	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Highway					
AM Peak Period					
SOV	2,029,000	2,032,000	2,022,000	2,015,000	2,011,000
HOV 2	224,000	223,000	222,000	222,000	221,000
HOV 3+	492,000	492,000	487,000	488,000	490,000
Commercial Vehicle	266,000	266,000	265,000	264,000	263,000
Trucks (Medium & Heavy)	120,000	122,000	121,000	120,000	118,000
Total: AM Period	3,132,000	3,135,000	3,118,000	3,109,000	3,104,000
PM Peak Period					
SOV	3,179,000	3,167,000	3,158,000	3,159,000	3,172,000
HOV 2	480,000	476,000	476,000	477,000	478,000
HOV 3+	1,082,000	1,075,000	1,072,000	1,075,000	1,082,000
Commercial Vehicle	372,000	371,000	370,000	371,000	371,000
Trucks (Medium & Heavy)	170,000	171,000	170,000	171,000	170,000
Total: PM Period	5,283,000	5,259,000	5,246,000	5,253,000	5,274,000
Total: Daily (All Highway Modes)	13,025,000	13,002,000	12,974,000	12,958,000	13,000,000
Transit					
Total: Daily	291,000	293,000	293,000	293,000	293,000
Total All Modes	13,316,000	13,295,000	13,268,000	13,251,000	13,293,000
Change Compared to the No-Build Alternative					
Highway		-23,000	-51,000	-67,000	-25,000
Transit		+2,000	+2,000	+2,000	+2,000
All Modes		-21,000	-48,000	-65,000	-23,000

2035 Daily Regional Highway System Impacts

Measure	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Vehicle Trips					
Total: Daily	21,863,700	21,857,200	21,860,100	21,859,600	21,854,200
Vehicle Miles of Travel					
Total: Daily	231,515,500	232,175,700	231,902,100	231,655,200	232,149,200
Vehicle Hours of Travel					
Total: Daily	10,477,700	10,463,400	10,441,800	10,424,800	10,453,800
Average Speed					
Daily (miles per hour)	22	22	22	22	22
Change Compared to the No-Build Alternative					
Vehicle Trips		-6,500	-3,600	-4,100	-9,500
Vehicle Miles of Travel		+660,200	+386,600	+139,700	+633,700
Vehicle Hours of Travel		-14,300	-35,900	-52,900	-23,900
Average Speed (mph)		+0	+0	+0	+0

2035 Average Daily Traffic Volume by Lane Group

Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
I-75					
North of Terrell Mill Road					
HOT Lanes	0	60,000	36,000	36,000	50,000
General Purpose Lanes	340,000	322,000	326,000	325,000	331,000
Total: All Lanes	340,000	382,000	362,000	361,000	381,000
South of Allgood Road					
HOT Lanes	0	49,000	30,000	31,000	45,000
General Purpose Lanes	266,000	258,000	257,000	256,000	264,000
Total: All Lanes	266,000	307,000	287,000	288,000	309,000
North of I-575					
HOT Lanes	0	26,000	18,000	17,000	26,000
General Purpose Lanes	179,000	174,000	173,000	173,000	174,000
Total: All Lanes	179,000	200,000	191,000	189,000	200,000
I-575					
North of I-75					
HOT Lanes	0	23,000	12,000	15,000	19,000
General Purpose Lanes	115,000	109,000	110,000	110,000	117,000
Total: All Lanes	115,000	133,000	123,000	124,000	135,000

2035 Vehicle and Person Throughput on I-75: All Lanes Summary

	Location	Vehicle Throughput No-Build	Vehicle Throughput Concept A Bi-Directional	Vehicle Throughput Concept B1 2-lane Reversible	Vehicle Throughput Concept B2 2-lane Reversible	Vehicle Throughput Concept C 3-lane Reversible	Person Throughput No-Build	Person Throughput Concept A Bi-Directional	Person Throughput Concept B1 2-lane Reversible	Person Throughput Concept B2 2-lane Reversible	Person Throughput Concept C 3-lane Reversible
Both Directions	**South of Hickory Grove Road**										
	AM Peak Period	37,214	40,713	40,085	40,077	40,776	39,919	46,913	45,270	45,601	46,221
	PM Peak Period	45,302	50,634	48,422	48,578	49,512	50,376	60,801	56,277	56,376	57,135
	Total: Daily	161,119	177,186	170,347	170,553	172,958	178,090	210,175	196,188	196,131	199,011
	South of Chastain Road										
	AM Peak Period	37,374	42,420	41,417	41,310	42,382	39,902	48,613	46,593	46,920	47,851
	PM Peak Period	42,283	49,772	47,317	47,349	48,334	46,460	59,923	54,824	54,901	55,559
	Total: Daily	161,402	181,498	173,397	173,462	176,894	177,976	214,268	199,120	199,112	202,886
	South of I-575										
	AM Peak Period	69,716	80,682	75,950	75,999	83,557	78,156	97,562	90,438	91,077	100,830
	PM Peak Period	84,266	99,640	93,291	93,596	102,052	99,171	127,001	116,557	116,603	127,341
	Total: Daily	294,099	332,285	313,688	313,858	335,591	346,079	416,746	385,899	386,222	414,422
	South of Delk Road										
	AM Peak Period	78,756	89,769	86,449	86,175	92,527	88,758	108,818	103,123	103,156	111,886
	PM Peak Period	95,253	110,588	103,588	103,685	111,494	112,780	142,155	129,243	129,286	139,322
	Total: Daily	339,581	381,784	361,817	360,729	380,690	401,590	483,051	446,477	445,738	471,430
Southbound Direction	**South of Hickory Grove Road**										
	AM Peak Period	20,951	24,031	23,773	23,735	24,513	22,963	28,859	28,184	28,553	29,292
	PM Peak Period	19,272	20,560	19,044	19,217	19,291	21,262	24,486	21,170	21,258	21,285
	Total: Daily	78,130	85,887	80,604	80,924	82,175	86,178	102,422	91,415	91,729	93,346
	South of Chastain Road										
	AM Peak Period	20,636	25,146	24,595	24,433	25,391	22,389	29,959	28,950	29,228	30,062
	PM Peak Period	19,464	21,254	19,275	19,496	19,724	21,324	25,263	21,212	21,426	21,640
	Total: Daily	79,958	90,190	83,616	83,941	85,994	88,106	106,907	94,673	95,132	97,645
	South of I-575										
	AM Peak Period	42,263	51,657	48,258	48,143	54,914	47,595	63,904	59,571	60,014	59,571
	PM Peak Period	36,582	40,146	36,624	36,879	37,913	43,828	51,494	44,025	44,327	44,025
	Total: Daily	148,052	166,701	153,969	154,098	164,397	174,748	209,886	187,056	187,529	187,056
	South of Delk Road										
	AM Peak Period	45,575	55,171	52,842	52,572	58,494	51,299	68,305	65,184	65,215	73,545
	PM Peak Period	41,441	46,061	41,440	41,737	42,166	50,089	59,953	50,099	50,469	50,775
	Total: Daily	167,562	189,854	175,167	174,818	183,277	198,650	241,711	213,170	213,186	224,216
Northbound Direction	**South of Hickory Grove Road**										
	AM Peak Period	16,263	16,682	16,312	16,342	16,263	16,956	18,054	17,086	17,048	16,929
	PM Peak Period	26,030	30,074	29,378	29,361	30,221	29,114	36,315	35,107	35,118	35,851
	Total: Daily	82,989	91,299	89,743	89,629	90,783	91,912	107,753	104,773	104,402	105,665
	South of Chastain Road										
	AM Peak Period	16,738	17,274	16,822	16,877	16,991	17,514	18,653	17,643	17,692	17,788
	PM Peak Period	22,819	28,518	28,042	27,853	28,610	25,136	34,660	33,612	33,474	33,919
	Total: Daily	81,444	91,308	89,781	89,521	90,900	89,870	107,361	104,447	103,980	105,242
	South of I-575										
	AM Peak Period	27,453	29,025	27,692	27,856	28,643	30,561	33,658	30,866	31,063	31,908
	PM Peak Period	47,684	59,494	56,667	56,717	64,139	55,343	75,507	72,532	72,276	81,964
	Total: Daily	146,047	165,584	159,719	159,760	171,194	171,332	206,860	198,843	198,693	213,629
	South of Delk Road										
	AM Peak Period	33,181	34,598	33,607	33,603	34,033	37,459	40,513	37,939	37,940	38,341
	PM Peak Period	53,812	64,527	62,148	61,948	69,328	62,691	82,203	79,144	78,817	88,548
	Total: Daily	172,019	191,930	186,650	185,911	197,413	202,940	241,341	233,307	232,552	247,214

2035 Vehicle and Person Throughput on I-575: All Lanes Summary

		Vehicle Throughput					Person Throughput				
	Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Both Directions	**South of Sixes Road**										
	AM Peak Period	35,099	33,730	32,651	32,929	35,106	41,634	38,183	36,194	37,834	39,902
	PM Peak Period	44,951	42,255	41,399	41,422	43,911	56,720	50,522	49,152	51,378	53,488
	Total: Daily	139,598	134,847	131,415	132,415	140,256	178,318	163,665	157,983	165,641	172,963
	South of Towne Lake Parkway										
	AM Peak Period	37,241	41,313	39,791	38,707	43,813	44,357	51,280	48,459	47,950	54,881
	PM Peak Period	48,576	53,520	51,853	50,868	55,750	61,645	69,975	66,540	66,261	72,472
	Total: Daily	151,643	162,841	157,959	155,405	169,146	194,780	214,160	204,440	203,961	221,671
	South of SR-92										
	AM Peak Period	32,918	37,803	37,772	35,179	39,723	38,916	47,556	47,332	44,441	50,315
	PM Peak Period	43,604	50,012	49,416	47,580	51,606	54,763	66,376	64,434	62,679	67,372
	Total: Daily	137,843	152,675	151,194	145,021	156,981	175,309	203,073	198,667	191,740	206,432
	South of Chastain Road										
	AM Peak Period	32,965	38,137	33,931	35,649	39,457	39,082	47,570	40,711	44,646	49,629
	PM Peak Period	40,355	48,081	42,652	45,630	48,055	50,806	63,429	53,819	60,007	62,477
	Total: Daily	138,124	155,063	141,548	147,560	156,741	176,140	204,886	178,995	194,150	205,279
Southbound Direction	**South of Sixes Road**										
	AM Peak Period	22,948	21,276	20,350	20,624	21,897	27,020	23,638	21,373	22,951	24,045
	PM Peak Period	18,640	18,620	18,755	18,685	19,590	24,419	23,009	24,546	24,604	25,466
	Total: Daily	70,317	68,278	67,859	67,690	71,431	89,937	82,781	84,492	85,820	89,657
	South of Towne Lake Parkway										
	AM Peak Period	24,117	27,489	26,329	25,244	29,493	28,477	34,461	32,199	31,651	37,658
	PM Peak Period	20,261	21,115	20,432	20,238	21,300	26,659	28,110	26,842	26,653	27,795
	Total: Daily	76,278	81,462	78,703	77,128	83,952	98,097	107,393	102,092	101,154	110,070
	South of SR-92										
	AM Peak Period	21,182	25,268	25,433	23,069	27,009	24,832	32,223	32,486	29,789	35,089
	PM Peak Period	18,221	19,494	18,706	18,503	19,227	23,712	26,278	24,366	24,159	24,826
	Total: Daily	69,208	76,110	74,058	71,331	77,250	88,211	101,553	96,743	93,771	101,120
	South of Chastain Road										
	AM Peak Period	20,781	25,171	21,513	23,227	26,379	24,401	31,827	25,779	29,694	33,955
	PM Peak Period	17,667	19,124	17,960	17,980	18,611	23,192	25,689	23,548	23,600	24,221
	Total: Daily	70,188	77,614	71,240	72,967	77,691	89,820	103,004	91,613	95,721	101,549
Northbound Direction	**South of Sixes Road**										
	AM Peak Period	12,151	12,454	12,301	12,305	13,209	14,614	14,545	14,821	14,883	15,857
	PM Peak Period	26,311	23,635	22,644	22,737	24,321	32,301	27,513	24,605	26,773	28,022
	Total: Daily	69,281	66,569	63,556	64,725	68,825	88,381	80,884	73,491	79,820	83,306
	South of Towne Lake Parkway										
	AM Peak Period	13,124	13,824	13,462	13,463	14,320	15,880	16,819	16,260	16,299	17,224
	PM Peak Period	28,315	32,405	31,421	30,630	34,450	34,986	41,864	39,699	39,608	44,677
	Total: Daily	75,365	81,379	79,256	78,277	85,194	96,683	106,767	102,348	102,807	111,602
	South of SR-92										
	AM Peak Period	11,736	12,535	12,339	12,110	12,714	14,084	15,333	14,845	14,652	15,226
	PM Peak Period	25,383	30,518	30,710	29,077	32,379	31,051	40,097	40,067	38,520	42,547
	Total: Daily	68,635	76,565	77,136	73,690	79,731	87,098	101,520	101,924	97,969	105,313
	South of Chastain Road										
	AM Peak Period	12,184	12,966	12,418	12,422	13,078	14,681	15,743	14,932	14,952	15,674
	PM Peak Period	22,688	28,957	24,692	27,650	29,444	27,615	37,740	30,271	36,406	38,256
	Total: Daily	67,936	77,449	70,308	74,593	79,050	86,320	101,881	87,384	98,430	103,730

2035 VMT and VHT on I-75: All Lanes Summary

Location		No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Both Directions	**Vehicle Miles of Travel**					
	AM Peak Period	866,308	1,002,461	954,010	952,532	1,031,700
	PM Peak Period	1,025,307	1,215,864	1,135,070	1,136,224	1,228,965
	Total: Daily	3,718,402	4,239,818	3,993,472	3,994,381	4,222,762
	Daily VMT Per Lane Mile	23,855	20,468	19,279	19,283	18,268
	Vehicle Hours of Travel					
	AM Peak Period	40,793	40,683	36,861	35,987	39,295
	PM Peak Period	60,153	58,151	52,650	52,505	58,309
	Total: Daily	151,169	149,482	138,778	137,660	150,586
	Daily VHT Per Lane Mile	970	722	670	665	651
Southbound Direction	**Vehicle Miles of Travel**					
	AM Peak Period	511,268	627,676	596,857	595,052	667,781
	PM Peak Period	464,730	518,502	461,930	464,615	472,927
	Total: Daily	1,896,230	2,161,063	1,976,506	1,978,891	2,083,427
	Daily VMT Per Lane Mile	24,452	20,942	19,153	19,176	18,087
	Vehicle Hours of Travel					
	AM Peak Period	30,469	30,157	26,372	25,490	28,408
	PM Peak Period	17,285	16,846	16,924	17,377	18,574
	Total: Daily	73,207	72,855	68,562	68,198	75,006
	Daily VHT Per Lane Mile	944	706	664	661	651
Northbound Direction	**Vehicle Miles of Travel**					
	AM Peak Period	355,040	374,785	357,152	357,480	363,919
	PM Peak Period	560,577	697,362	673,140	671,609	756,038
	Total: Daily	1,822,173	2,078,755	2,016,966	2,015,491	2,139,335
	Daily VMT Per Lane Mile	23,264	19,998	19,403	19,389	18,448
	Vehicle Hours of Travel					
	AM Peak Period	10,323	10,526	10,488	10,498	10,887
	PM Peak Period	42,868	41,305	35,726	35,128	39,735
	Total: Daily	77,962	76,627	70,216	69,462	75,580
	Daily VHT Per Lane Mile	995	737	675	668	652

2035 VMT and VHT on I-575: All Lanes Summary

	Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Both Directions	**Vehicle Miles of Travel**					
	AM Peak Period	373,092	422,236	402,987	395,065	445,982
	PM Peak Period	477,416	544,088	524,163	517,602	560,852
	Total: Daily	1,533,073	1,680,084	1,623,192	1,601,475	1,735,873
	Daily VMT Per Lane Mile	21,511	17,999	17,389	17,157	18,596
	Vehicle Hours of Travel					
	AM Peak Period	15,841	15,337	13,291	13,209	17,577
	PM Peak Period	26,013	23,956	21,822	20,920	28,567
	Total: Daily	55,929	53,622	48,995	48,048	61,250
	Daily VHT Per Lane Mile	785	574	525	515	656
Southbound Direction	**Vehicle Miles of Travel**					
	AM Peak Period	244,927	286,591	270,867	263,705	306,666
	PM Peak Period	206,213	217,942	209,464	208,276	217,700
	Total: Daily	790,711	856,727	820,616	810,792	878,505
	Daily VMT Per Lane Mile	21,721	18,056	17,295	17,087	18,515
	Vehicle Hours of Travel					
	AM Peak Period	13,178	12,488	10,492	10,438	14,511
	PM Peak Period	5,899	6,090	6,197	6,046	7,087
	Total: Daily	26,161	25,722	23,798	23,530	29,145
	Daily VHT Per Lane Mile	719	542	502	496	614
Northbound Direction	**Vehicle Miles of Travel**					
	AM Peak Period	128,165	135,644	132,120	131,360	139,317
	PM Peak Period	271,203	326,146	314,699	309,326	343,152
	Total: Daily	742,362	823,357	802,576	790,683	857,368
	Daily VMT Per Lane Mile	21,292	17,940	17,487	17,228	18,681
	Vehicle Hours of Travel					
	AM Peak Period	2,663	2,849	2,799	2,771	3,066
	PM Peak Period	20,114	17,867	15,626	14,873	21,480
	Total: Daily	29,768	27,900	25,197	24,519	32,105
	Daily VHT Per Lane Mile	854	608	549	534	700

2035 PMT and PHT on I-75: All Lanes Summary

Location		No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Both Directions	**Person Miles of Travel**					
	AM Peak Period	956,376	1,206,224	1,123,226	1,128,531	1,232,262
	PM Peak Period	1,182,909	1,551,030	1,400,044	1,400,213	1,520,332
	Total: Daily	4,276,121	5,280,390	4,839,080	4,842,630	5,144,455
	Daily PMT Per Lane Mile	27,433	25,491	23,361	23,378	22,255
	Person Hours of Travel					
	AM Peak Period	45,145	45,721	40,966	40,283	44,364
	PM Peak Period	69,140	68,144	61,596	61,546	68,098
	Total: Daily	172,981	173,130	160,514	159,550	174,763
	Daily PHT Per Lane Mile	1,110	836	775	770	756
Southbound Direction	**Person Miles of Travel**					
	AM Peak Period	568,404	773,633	731,833	736,842	834,256
	PM Peak Period	542,174	658,989	540,772	543,513	550,967
	Total: Daily	2,183,793	2,689,004	2,347,603	2,353,964	2,490,869
	Daily PMT Per Lane Mile	28,161	26,058	22,749	22,811	21,625
	Person Hours of Travel					
	AM Peak Period	33,892	34,192	29,494	28,804	32,479
	PM Peak Period	20,153	19,349	19,803	20,309	21,632
	Total: Daily	83,748	83,566	78,919	78,704	87,001
	Daily PHT Per Lane Mile	1,080	810	765	763	755
Northbound Direction	**Person Miles of Travel**					
	AM Peak Period	387,972	432,591	391,392	391,689	398,005
	PM Peak Period	640,735	892,040	859,272	856,700	969,365
	Total: Daily	2,092,327	2,591,386	2,491,477	2,488,666	2,653,585
	Daily PMT Per Lane Mile	26,714	24,929	23,968	23,941	22,882
	Person Hours of Travel					
	AM Peak Period	11,254	11,529	11,472	11,478	11,885
	PM Peak Period	48,987	48,796	41,793	41,237	46,466
	Total: Daily	89,233	89,564	81,595	80,846	87,762
	Daily PHT Per Lane Mile	1,139	862	785	778	757

2035 PMT and PHT on I-575: All Lanes Summary

	Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Both Directions	**Person Miles of Travel**					
	AM Peak Period	441,610	524,178	501,126	491,580	558,995
	PM Peak Period	601,311	711,170	686,953	676,334	727,571
	Total: Daily	1,953,564	2,201,319	2,123,425	2,097,988	2,265,833
	Daily PMT Per Lane Mile	27,411	23,583	22,748	22,476	24,274
	Person Hours of Travel					
	AM Peak Period	18,686	18,100	15,508	15,594	21,162
	PM Peak Period	32,351	29,807	27,273	26,358	36,066
	Total: Daily	69,797	66,916	61,171	60,555	77,275
	Daily PHT Per Lane Mile	979	717	655	649	828
Southbound Direction	**Person Miles of Travel**					
	AM Peak Period	287,384	359,820	342,046	332,917	392,005
	PM Peak Period	269,838	288,669	274,107	273,191	282,554
	Total: Daily	1,009,841	1,123,619	1,070,347	1,060,106	1,145,828
	Daily PMT Per Lane Mile	27,740	23,680	22,558	22,342	24,148
	Person Hours of Travel					
	AM Peak Period	15,480	14,698	12,138	12,248	17,488
	PM Peak Period	7,722	7,784	8,110	7,932	9,202
	Total: Daily	32,638	31,939	29,730	29,612	36,725
	Daily PHT Per Lane Mile	897	673	627	624	774
Northbound Direction	**Person Miles of Travel**					
	AM Peak Period	154,226	164,358	159,081	158,663	166,991
	PM Peak Period	331,473	422,500	412,846	403,143	445,017
	Total: Daily	943,724	1,077,700	1,053,077	1,037,883	1,120,005
	Daily PMT Per Lane Mile	27,067	23,482	22,946	22,614	24,404
	Person Hours of Travel					
	AM Peak Period	3,205	3,402	3,370	3,347	3,675
	PM Peak Period	24,629	22,022	19,163	18,426	26,864
	Total: Daily	37,159	34,977	31,441	30,943	40,549
	Daily PHT Per Lane Mile	1,066	762	685	674	884

2035 AM Peak Period Travel Time in Project Corridor: Northbound Direction

	Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Northbound Direction	**I-75 Corridor**					
	Between Akers Mill Road and					
	Windy Ridge Road					
	GP Lanes	1.3	1.2	1.4	1.3	1.4
	HOT Lanes	0.0	0.6	0.0	0.0	0.0
	Delk Road					
	GP Lanes	4.9	4.7	5.0	4.9	5.0
	HOT Lanes	0.0	2.8	0.0	0.0	0.0
	S Marietta Pkwy					
	GP Lanes	8.0	7.8	8.1	8.1	8.3
	HOT Lanes	0.0	4.6	0.0	0.0	0.0
	N Marietta Pkwy					
	GP Lanes	11.1	10.9	11.3	11.3	11.5
	HOT Lanes	0.0	6.0	0.0	0.0	0.0
	I-75 / I-575 Jct					
	GP Lanes	17.2	17.0	17.4	17.4	17.8
	HOT Lanes	0.0	9.6	0.0	0.0	0.0
	Hickory Grove Road					
	GP Lanes	27.9	27.7	28.1	28.1	28.6
	HOT Lanes	0.0	14.6	0.0	0.0	0.0
	Northern End of I-75 HOT Lanes (N of Hickory Grove Rd)					
	GP Lanes	29.0	28.8	29.3	29.3	29.8
	HOT Lanes	0.0	15.3	0.0	0.0	0.0
	I-75 / I-575 Corridor					
	Between Akers Mill Road and					
	Windy Ridge Road					
	GP Lanes	1.3	1.2	1.4	1.3	1.4
	HOT Lanes	0.0	0.6	0.0	0.0	0.0
	I-75 / I-575 Jct					
	GP Lanes	17.2	17.0	17.4	17.4	17.8
	HOT Lanes	0.0	9.6	0.0	0.0	0.0
	SR-92					
	GP Lanes	25.5	25.4	25.9	25.8	26.5
	HOT Lanes	0.0	15.7	0.0	0.0	0.0
	Northern End of I-575 HOT Lanes (Sixes Road)					
	GP Lanes	31.3	31.4	31.8	31.7	32.8
	HOT Lanes	0.0	19.8	0.0	0.0	0.0

2035 AM Peak Period Travel Time in Project Corridor: Southbound Direction

	Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Southbound Direction	**I-75 Corridor**					
	Between Northern End of I-75 HOT Lanes (N of Hickory Grove Rd) and					
	Hickory Grove Road					
	GP Lanes	3.4	2.3	2.3	2.3	2.2
	HOT Lanes	0.0	0.9	0.9	0.8	0.9
	I-75 / I-575 Jct					
	GP Lanes	23.7	20.0	18.7	19.0	18.6
	HOT Lanes	0.0	8.7	8.5	8.0	8.8
	N Marietta Pkwy					
	GP Lanes	35.1	30.5	28.3	28.0	28.2
	HOT Lanes	0.0	14.0	12.5	12.4	13.6
	S Marietta Pkwy					
	GP Lanes	42.5	37.7	34.8	34.3	34.8
	HOT Lanes	0.0	17.1	15.0	15.0	16.4
	Delk Road					
	GP Lanes	49.1	43.8	40.3	39.5	40.2
	HOT Lanes	0.0	19.6	17.3	17.3	18.8
	Windy Ridge Road					
	GP Lanes	57.6	51.5	47.5	46.5	47.6
	HOT Lanes	0.0	24.0	21.1	21.1	22.6
	Akers Mill Road					
	GP Lanes	60.0	53.8	49.5	48.3	49.6
	HOT Lanes	0.0	25.1	21.9	21.9	23.6
	I-75 / I-575 Corridor					
	Between Northern End of I-575 HOT Lanes (Sixes Rd) and					
	SR-92					
	GP Lanes	16.5	14.0	11.9	12.5	15.3
	HOT Lanes	0.0	4.8	5.1	4.1	6.4
	I-75 / I-575 Jct					
	GP Lanes	37.3	33.6	29.5	30.1	36.2
	HOT Lanes	0.0	14.4	13.8	11.8	19.1
	Windy Ridge Road					
	GP Lanes	71.2	65.1	58.3	57.6	65.2
	HOT Lanes	0.0	29.7	26.3	24.9	32.9
	Akers Mill Road and					
	GP Lanes	73.7	67.4	60.2	59.4	67.3
	HOT Lanes	0.0	30.8	27.2	25.7	33.8

2035 PM Peak Period Travel Time in Project Corridor: Northbound Direction

	Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Northbound Direction	**I-75 Corridor**					
	Between Akers Mill Road and					
	Windy Ridge Road					
	GP Lanes	3.5	3.3	3.0	2.9	2.9
	HOT Lanes	0.0	1.2	1.0	1.0	0.8
	Delk Road					
	GP Lanes	11.0	9.9	9.2	9.0	8.8
	HOT Lanes	0.0	6.2	5.5	5.2	4.6
	S Marietta Pkwy					
	GP Lanes	19.2	17.0	15.6	15.4	15.7
	HOT Lanes	0.0	10.6	9.3	8.9	8.2
	N Marietta Pkwy					
	GP Lanes	27.0	24.1	21.9	21.5	22.6
	HOT Lanes	0.0	13.6	11.8	11.5	10.8
	I-75 / I-575 Jct					
	GP Lanes	46.9	41.6	37.3	36.5	39.0
	HOT Lanes	0.0	22.4	18.6	18.9	17.8
	Hickory Grove Road					
	GP Lanes	70.3	61.1	55.3	54.6	57.4
	HOT Lanes	0.0	33.1	29.0	28.7	29.1
	Northern End of I-75 HOT Lanes (N of Hickory Grove Rd)					
	GP Lanes	73.9	63.7	57.8	57.1	59.9
	HOT Lanes	0.0	33.9	29.9	29.5	30.0
	I-75 / I-575 Corridor					
	Between Akers Mill Road and					
	Windy Ridge Road					
	GP Lanes	3.5	3.3	3.0	2.9	2.9
	HOT Lanes	0.0	1.2	1.0	1.0	0.8
	I-75 / I-575 Jct					
	GP Lanes	46.9	41.6	37.3	36.5	39.0
	HOT Lanes	0.0	22.4	18.6	18.9	17.8
	SR-92					
	GP Lanes	72.1	63.0	56.4	55.1	62.7
	HOT Lanes	0.0	35.6	30.5	30.0	36.1
	Northern End of I-575 HOT Lanes (Sixes Road)					
	GP Lanes	96.0	82.4	73.4	72.3	84.4
	HOT Lanes	0.0	42.0	39.4	35.5	45.5

2035 PM Peak Period Travel Time in Project Corridor: Southbound Direction

	Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
Southbound Direction	**I-75 Corridor**					
	Between Northern End of I-75 HOT Lanes (N of Hickory Grove Rd) and					
	Hickory Grove Road					
	GP Lanes	2.1	1.9	2.0	2.1	2.1
	HOT Lanes	0.0	0.8	0.0	0.0	0.0
	I-75 / I-575 Jct					
	GP Lanes	15.6	14.6	15.1	15.6	16.0
	HOT Lanes	0.0	5.9	0.0	0.0	0.0
	N Marietta Pkwy					
	GP Lanes	21.7	20.4	21.1	21.8	22.7
	HOT Lanes	0.0	9.2	0.0	0.0	0.0
	S Marietta Pkwy					
	GP Lanes	26.2	24.8	25.6	26.3	27.5
	HOT Lanes	0.0	11.1	0.0	0.0	0.0
	Delk Road					
	GP Lanes	30.2	28.7	29.6	30.4	31.8
	HOT Lanes	0.0	12.7	0.0	0.0	0.0
	Windy Ridge Road					
	GP Lanes	36.2	34.0	35.5	36.4	38.0
	HOT Lanes	0.0	15.4	0.0	0.0	0.0
	Akers Mill Road					
	GP Lanes	38.1	35.6	37.3	38.2	40.0
	HOT Lanes	0.0	16.1	0.0	0.0	0.0
	I-75 / I-575 Corridor					
	Between Northern End of I-575 HOT Lanes (Sixes Rd) and					
	SR-92					
	GP Lanes	8.1	8.1	8.3	8.1	9.4
	HOT Lanes	0.0	3.7	0.0	0.0	0.0
	I-75 / I-575 Jct					
	GP Lanes	20.0	20.0	20.7	20.3	22.7
	HOT Lanes	0.0	10.3	0.0	0.0	0.0
	Windy Ridge Road					
	GP Lanes	40.6	39.4	41.1	41.1	44.8
	HOT Lanes	0.0	19.8	0.0	0.0	0.0
	Akers Mill Road and					
	GP Lanes	42.4	41.0	42.9	42.9	46.7
	HOT Lanes	0.0	20.5	0.0	0.0	0.0

2035 Vehicle and Person Throughput on I-75: South of Hickory Grove Rd - Both Directions

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Hickory Grove Road										
HOT Lanes										
AM Peak Period										
SOV	0	2,727	2,672	2,336	3,373	0	2,727	2,672	2,336	3,373
HOV 2	0	606	489	543	532	0	1,212	978	1,086	1,064
HOV 3+	0	1,996	1,429	1,587	1,577	0	7,125	5,117	5,673	5,631
Commercial Vehicle	0	228	239	228	205	0	228	239	228	205
Total: AM Period	0	5,556	4,829	4,693	5,688	0	11,292	9,006	9,323	10,273
PM Peak Period										
SOV	0	3,711	3,568	3,510	4,441	0	3,711	3,568	3,510	4,441
HOV 2	0	1,164	659	661	613	0	2,328	1,318	1,322	1,226
HOV 3+	0	3,176	1,772	1,780	1,690	0	11,390	6,360	6,387	6,061
Commercial Vehicle	0	382	419	409	404	0	382	419	409	404
Total: PM Period	0	8,433	6,419	6,360	7,149	0	17,811	11,665	11,628	12,132
Total: Daily (HOT Lanes)	0	24,157	16,407	16,147	18,422	0	52,991	32,738	32,734	34,832
General Purpose Lanes										
AM Peak Period										
SOV	29,459	28,466	28,304	28,512	28,499	29,459	28,466	28,304	28,512	28,499
HOV 2	456	193	222	197	185	912	386	444	394	370
HOV 3+	866	105	304	270	260	3,113	373	1,089	968	933
Commercial Vehicle	2,391	2,259	2,297	2,311	2,221	2,391	2,259	2,297	2,311	2,221
Trucks (Medium & Heavy)	4,044	4,137	4,130	4,093	3,925	4,044	4,137	4,130	4,093	3,925
Total: AM Period	37,214	35,157	35,256	35,384	35,088	39,919	35,621	36,264	36,278	35,948
PM Peak Period										
SOV	35,903	35,004	33,909	34,102	34,236	35,903	35,004	33,909	34,102	34,236
HOV 2	847	264	513	498	545	1,694	528	1,026	996	1,090
HOV 3+	1,620	204	801	776	801	5,848	727	2,897	2,807	2,894
Commercial Vehicle	2,873	2,648	2,670	2,683	2,671	2,873	2,648	2,670	2,683	2,671
Trucks (Medium & Heavy)	4,058	4,083	4,110	4,160	4,112	4,058	4,083	4,110	4,160	4,112
Total: PM Period	45,302	42,201	42,003	42,218	42,363	50,376	42,990	44,612	44,748	45,003
Total: Daily (General Purpose Lanes)	161,119	153,029	153,940	154,406	154,536	178,090	157,184	163,450	163,397	164,179
Total: Daily (All Lanes)	161,119	177,186	170,347	170,553	172,958	178,090	210,174	196,188	196,130	199,011

2035 Vehicle and Person Throughput on I-75: South of Hickory Grove Rd - Northbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Hickory Grove Road										
HOT Lanes										
AM Peak Period										
SOV	0	15	0	0	0	0	15	0	0	0
HOV 2	0	98	0	0	0	0	196	0	0	0
HOV 3+	0	417	0	0	0	0	1,495	0	0	0
Commercial Vehicle	0	10	0	0	0	0	10	0	0	0
Total: AM Period	0	539	0	0	0	0	1,716	0	0	0
PM Peak Period										
SOV	0	3,520	3,568	3,510	4,441	0	3,520	3,568	3,510	4,441
HOV 2	0	691	659	661	613	0	1,382	1,318	1,322	1,226
HOV 3+	0	1,943	1,772	1,780	1,690	0	6,947	6,360	6,387	6,061
Commercial Vehicle	0	342	419	409	404	0	342	419	409	404
Total: PM Period	0	6,496	6,419	6,360	7,149	0	12,191	11,665	11,628	12,132
Total: Daily (HOT Lanes)	0	12,570	11,578	11,454	12,734	0	26,546	23,732	23,411	24,560
General Purpose Lanes										
AM Peak Period										
SOV	12,708	12,730	12,663	12,743	12,819	12,708	12,730	12,663	12,743	12,819
HOV 2	118	84	130	121	113	236	168	260	242	226
HOV 3+	222	43	249	226	213	797	152	893	812	765
Commercial Vehicle	1,072	1,079	1,086	1,087	1,036	1,072	1,079	1,086	1,087	1,036
Trucks (Medium & Heavy)	2,143	2,209	2,184	2,164	2,083	2,143	2,209	2,184	2,164	2,083
Total: AM Period	16,263	16,143	16,312	16,342	16,263	16,956	16,338	17,086	17,048	16,929
PM Peak Period										
SOV	20,724	19,661	19,069	19,076	19,057	20,724	19,661	19,069	19,076	19,057
HOV 2	533	181	183	176	232	1,066	362	366	352	464
HOV 3+	982	142	117	122	162	3,534	506	417	434	576
Commercial Vehicle	1,766	1,566	1,546	1,557	1,567	1,766	1,566	1,546	1,557	1,567
Trucks (Medium & Heavy)	2,024	2,029	2,044	2,071	2,055	2,024	2,029	2,044	2,071	2,055
Total: PM Period	26,030	23,578	22,959	23,001	23,072	29,114	24,124	23,442	23,490	23,719
Total: Daily (General Purpose Lanes)	82,989	78,729	78,165	78,175	78,049	91,912	81,207	81,041	80,991	81,105
Total: Daily (All Lanes)	82,989	91,299	89,743	89,629	90,783	91,912	107,753	104,772	104,402	105,665

2035 Vehicle and Person Throughput on I-75: South of Hickory Grove Rd - Southbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Hickory Grove Road										
HOT Lanes										
AM Peak Period										
SOV	0	2,712	2,672	2,336	3,373	0	2,712	2,672	2,336	3,373
HOV 2	0	508	489	543	532	0	1,016	978	1,086	1,064
HOV 3+	0	1,579	1,429	1,587	1,577	0	5,630	5,117	5,673	5,631
Commercial Vehicle	0	218	239	228	205	0	218	239	228	205
Total: AM Period	0	5,017	4,829	4,693	5,688	0	9,576	9,006	9,323	10,273
PM Peak Period										
SOV	0	191	0	0	0	0	191	0	0	0
HOV 2	0	473	0	0	0	0	946	0	0	0
HOV 3+	0	1,233	0	0	0	0	4,443	0	0	0
Commercial Vehicle	0	40	0	0	0	0	40	0	0	0
Total: PM Period	0	1,937	0	0	0	0	5,620	0	0	0
Total: Daily (HOT Lanes)	0	11,587	4,829	4,693	5,688	0	26,445	9,006	9,323	10,273
General Purpose Lanes										
AM Peak Period										
SOV	16,751	15,736	15,641	15,769	15,680	16,751	15,736	15,641	15,769	15,680
HOV 2	338	109	92	76	72	676	218	184	152	144
HOV 3+	644	62	55	44	47	2,316	221	196	156	168
Commercial Vehicle	1,319	1,180	1,211	1,224	1,185	1,319	1,180	1,211	1,224	1,185
Trucks (Medium & Heavy)	1,901	1,928	1,946	1,929	1,842	1,901	1,928	1,946	1,929	1,842
Total: AM Period	20,951	19,014	18,944	19,042	18,825	22,963	19,283	19,178	19,230	19,019
PM Peak Period										
SOV	15,179	15,343	14,840	15,026	15,179	15,179	15,343	14,840	15,026	15,179
HOV 2	314	83	330	322	313	628	166	660	644	626
HOV 3+	638	62	684	654	639	2,314	221	2,480	2,373	2,319
Commercial Vehicle	1,107	1,082	1,124	1,126	1,104	1,107	1,082	1,124	1,126	1,104
Trucks (Medium & Heavy)	2,034	2,054	2,066	2,089	2,057	2,034	2,054	2,066	2,089	2,057
Total: PM Period	19,272	18,623	19,044	19,217	19,291	21,262	18,866	21,170	21,258	21,285
Total: Daily (General Purpose Lanes)	78,130	74,300	75,775	76,231	76,487	86,178	75,977	82,409	82,406	83,073
Total: Daily (All Lanes)	78,130	85,887	80,604	80,924	82,175	86,178	102,421	91,415	91,729	93,346

2035 Vehicle and Person Throughput on I-75: South of Chastain Road - Both Directions

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Chastain Road										
HOT Lanes										
AM Peak Period										
SOV	0	2,727	2,672	2,336	3,373	0	2,727	2,672	2,336	3,373
HOV 2	0	606	489	543	532	0	1,212	978	1,086	1,064
HOV 3+	0	1,996	1,429	1,587	1,577	0	7,125	5,117	5,673	5,631
Commercial Vehicle	0	228	239	228	205	0	228	239	228	205
Total: AM Period	0	5,556	4,829	4,693	5,688	0	11,292	9,006	9,323	10,273
PM Peak Period										
SOV	0	3,711	3,568	3,510	4,441	0	3,711	3,568	3,510	4,441
HOV 2	0	1,164	659	661	613	0	2,328	1,318	1,322	1,226
HOV 3+	0	3,176	1,772	1,780	1,690	0	11,390	6,360	6,387	6,061
Commercial Vehicle	0	382	419	409	404	0	382	419	409	404
Total: PM Period	0	8,433	6,419	6,360	7,149	0	17,811	11,665	11,628	12,132
Total: Daily (HOT Lanes)	0	24,157	16,407	16,147	18,422	0	52,991	32,738	32,734	34,832
General Purpose Lanes										
AM Peak Period										
SOV	29,775	30,058	29,535	29,592	29,996	29,775	30,058	29,535	29,592	29,996
HOV 2	473	220	237	229	192	946	440	474	458	384
HOV 3+	800	95	298	294	271	2,855	332	1,059	1,044	962
Commercial Vehicle	2,263	2,291	2,313	2,332	2,202	2,263	2,291	2,313	2,332	2,202
Trucks (Medium & Heavy)	4,063	4,200	4,206	4,171	4,034	4,063	4,200	4,206	4,171	4,034
Total: AM Period	37,374	36,864	36,588	36,617	36,694	39,902	37,321	37,587	37,597	37,578
PM Peak Period										
SOV	33,856	34,515	33,286	33,311	33,610	33,856	34,515	33,286	33,311	33,610
HOV 2	778	281	466	498	478	1,556	562	932	996	956
HOV 3+	1,315	196	692	691	682	4,715	688	2,486	2,479	2,446
Commercial Vehicle	2,397	2,337	2,381	2,383	2,351	2,397	2,337	2,381	2,383	2,351
Trucks (Medium & Heavy)	3,936	4,010	4,074	4,104	4,064	3,936	4,010	4,074	4,104	4,064
Total: PM Period	42,283	41,339	40,898	40,989	41,185	46,460	42,112	43,159	43,273	43,427
Total: Daily (General Purpose Lanes)	161,402	157,341	156,990	157,315	158,472	177,976	161,277	166,382	166,378	168,054
Total: Daily (All Lanes)	161,402	181,498	173,397	173,462	176,894	177,976	214,268	199,120	199,112	202,886

2035 Vehicle and Person Throughput on I-75: South of Chastain Rd - Northbound

Location	Vehicle Throughput No-Build	Vehicle Throughput Concept A Bi-Directional	Vehicle Throughput Concept B1 2-lane Reversible	Vehicle Throughput Concept B2 2-lane Reversible	Vehicle Throughput Concept C 3-lane Reversible	Person Throughput No-Build	Person Throughput Concept A Bi-Directional	Person Throughput Concept B1 2-lane Reversible	Person Throughput Concept B2 2-lane Reversible	Person Throughput Concept C 3-lane Reversible
South of Chastain Road										
HOT Lanes										
AM Peak Period										
SOV	0	15	0	0	0	0	15	0	0	0
HOV 2	0	98	0	0	0	0	196	0	0	0
HOV 3+	0	417	0	0	0	0	1,495	0	0	0
Commercial Vehicle	0	10	0	0	0	0	10	0	0	0
Total: AM Period	0	539	0	0	0	0	1,716	0	0	0
PM Peak Period										
SOV	0	3,520	3,568	3,510	4,441	0	3,520	3,568	3,510	4,441
HOV 2	0	691	659	661	613	0	1,382	1,318	1,322	1,226
HOV 3+	0	1,943	1,772	1,780	1,690	0	6,947	6,360	6,387	6,061
Commercial Vehicle	0	342	419	409	404	0	342	419	409	404
Total: PM Period	0	6,496	6,419	6,360	7,149	0	12,191	11,665	11,628	12,132
Total: Daily (HOT Lanes)	0	12,570	11,578	11,454	12,734	0	26,546	23,732	23,411	24,560
General Purpose Lanes										
AM Peak Period										
SOV	13,094	13,243	13,082	13,174	13,397	13,094	13,243	13,082	13,174	13,397
HOV 2	151	93	160	160	156	302	186	320	320	312
HOV 3+	244	44	258	256	251	869	153	919	911	892
Commercial Vehicle	1,097	1,128	1,124	1,114	1,085	1,097	1,128	1,124	1,114	1,085
Trucks (Medium & Heavy)	2,152	2,227	2,198	2,173	2,102	2,152	2,227	2,198	2,173	2,102
Total: AM Period	16,738	16,735	16,822	16,877	16,991	17,514	16,937	17,643	17,692	17,788
PM Peak Period										
SOV	18,341	18,463	18,057	17,871	17,910	18,341	18,463	18,057	17,871	17,910
HOV 2	444	157	118	148	132	888	314	236	296	264
HOV 3+	728	115	81	82	77	2,602	405	286	287	270
Commercial Vehicle	1,363	1,300	1,325	1,332	1,304	1,363	1,300	1,325	1,332	1,304
Trucks (Medium & Heavy)	1,942	1,987	2,043	2,060	2,039	1,942	1,987	2,043	2,060	2,039
Total: PM Period	22,819	22,022	21,623	21,493	21,461	25,136	22,469	21,947	21,846	21,787
Total: Daily (General Purpose Lanes)	81,444	78,738	78,203	78,067	78,166	89,870	80,815	80,715	80,569	80,682
Total: Daily (All Lanes)	81,444	91,308	89,781	89,521	90,900	89,870	107,361	104,446	103,980	105,241

2035 Vehicle and Person Throughput on I-75: South of Chastain Rd - Southbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Chastain Road										
HOT Lanes										
AM Peak Period										
SOV	0	2,712	2,672	2,336	3,373	0	2,712	2,672	2,336	3,373
HOV 2	0	508	489	543	532	0	1,016	978	1,086	1,064
HOV 3+	0	1,579	1,429	1,587	1,577	0	5,630	5,117	5,673	5,631
Commercial Vehicle	0	218	239	228	205	0	218	239	228	205
Total: AM Period	0	5,017	4,829	4,693	5,688	0	9,576	9,006	9,323	10,273
PM Peak Period										
SOV	0	191	0	0	0	0	191	0	0	0
HOV 2	0	473	0	0	0	0	946	0	0	0
HOV 3+	0	1,233	0	0	0	0	4,443	0	0	0
Commercial Vehicle	0	40	0	0	0	0	40	0	0	0
Total: PM Period	0	1,937	0	0	0	0	5,620	0	0	0
Total: Daily (HOT Lanes)	0	11,587	4,829	4,693	5,688	0	26,445	9,006	9,323	10,273
General Purpose Lanes										
AM Peak Period										
SOV	16,681	16,815	16,453	16,418	16,599	16,681	16,815	16,453	16,418	16,599
HOV 2	322	127	77	69	36	644	254	154	138	72
HOV 3+	556	51	40	38	20	1,987	178	140	133	69
Commercial Vehicle	1,166	1,163	1,189	1,218	1,117	1,166	1,163	1,189	1,218	1,117
Trucks (Medium & Heavy)	1,911	1,973	2,008	1,998	1,932	1,911	1,973	2,008	1,998	1,932
Total: AM Period	20,636	20,129	19,766	19,740	19,703	22,389	20,383	19,944	19,905	19,789
PM Peak Period										
SOV	15,515	16,052	15,229	15,440	15,700	15,515	16,052	15,229	15,440	15,700
HOV 2	334	124	348	350	346	668	248	696	700	692
HOV 3+	587	81	611	609	605	2,113	283	2,200	2,191	2,176
Commercial Vehicle	1,034	1,037	1,056	1,051	1,047	1,034	1,037	1,056	1,051	1,047
Trucks (Medium & Heavy)	1,994	2,023	2,031	2,044	2,025	1,994	2,023	2,031	2,044	2,025
Total: PM Period	19,464	19,317	19,275	19,496	19,724	21,324	19,643	21,212	21,426	21,640
Total: Daily (General Purpose Lanes)	79,958	78,603	78,787	79,248	80,306	88,106	80,462	85,667	85,809	87,372
Total: Daily (All Lanes)	79,958	90,190	83,616	83,941	85,994	88,106	106,907	94,673	95,132	97,645

2035 Vehicle and Person Throughput on I-75: South of I-575 - Both Directions

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of I-575										
HOT Lanes										
AM Peak Period										
SOV	0	5,060	3,059	3,500	7,837	0	5,060	3,059	3,500	7,837
HOV 2	0	1,429	1,435	1,431	1,808	0	2,858	2,870	2,862	3,616
HOV 3+	0	5,409	3,706	3,956	4,726	0	19,123	13,133	14,009	16,633
Commercial Vehicle	0	316	284	305	463	0	316	284	305	463
Total: AM Period	0	12,212	8,485	9,191	14,834	0	27,357	19,346	20,676	28,549
PM Peak Period										
SOV	0	6,715	5,351	6,098	10,840	0	6,715	5,351	6,098	10,840
HOV 2	0	2,687	1,966	1,692	2,131	0	5,374	3,932	3,384	4,262
HOV 3+	0	8,458	5,002	4,918	5,775	0	30,080	17,781	17,485	20,413
Commercial Vehicle	0	497	590	559	822	0	497	590	559	822
Total: PM Period	0	18,357	12,908	13,267	19,567	0	42,666	27,654	27,526	36,337
Total: Daily (HOT Lanes)	0	48,707	30,034	31,486	44,922	0	120,541	71,717	73,806	93,384
General Purpose Lanes										
AM Peak Period										
SOV	53,545	55,372	53,347	52,781	55,581	53,545	55,372	53,347	52,781	55,581
HOV 2	1,763	998	914	900	841	3,526	1,996	1,828	1,800	1,682
HOV 3+	2,628	296	1,066	1,059	1,070	9,307	1,034	3,778	3,753	3,786
Commercial Vehicle	5,856	5,711	5,963	5,932	5,453	5,856	5,711	5,963	5,932	5,453
Trucks (Medium & Heavy)	5,922	6,092	6,176	6,135	5,779	5,922	6,092	6,176	6,135	5,779
Total: AM Period	69,716	68,470	67,465	66,808	68,723	78,156	70,205	71,092	70,401	72,281
PM Peak Period										
SOV	63,920	66,564	62,872	62,521	65,731	63,920	66,564	62,872	62,521	65,731
HOV 2	3,066	1,413	2,012	2,143	2,004	6,132	2,826	4,024	4,286	4,008
HOV 3+	4,627	653	2,537	2,577	2,545	16,467	2,290	9,045	9,181	9,059
Commercial Vehicle	6,561	6,407	6,555	6,620	6,045	6,561	6,407	6,555	6,620	6,045
Trucks (Medium & Heavy)	6,091	6,248	6,407	6,469	6,161	6,091	6,248	6,407	6,469	6,161
Total: PM Period	84,266	81,283	80,383	80,329	82,485	99,171	84,335	88,903	89,077	91,004
Total: Daily (General Purpose Lanes)	294,099	283,578	283,654	282,372	290,669	346,079	296,205	314,182	312,416	321,038
Total: Daily (All Lanes)	294,099	332,285	313,688	313,858	335,591	346,079	416,746	385,899	386,222	414,421

2035 Vehicle and Person Throughput on I-75: South of I-575 - Northbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of I-575										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	106	0	0	0	0	212	0	0	0
HOV 3+	0	1,354	0	0	0	0	4,813	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	1,459	0	0	0	0	5,025	0	0	0
PM Peak Period										
SOV	0	6,629	5,351	6,098	10,840	0	6,629	5,351	6,098	10,840
HOV 2	0	1,751	1,966	1,692	2,131	0	3,502	3,932	3,384	4,262
HOV 3+	0	5,026	5,002	4,918	5,775	0	17,809	17,781	17,485	20,413
Commercial Vehicle	0	484	590	559	822	0	484	590	559	822
Total: PM Period	0	13,891	12,908	13,267	19,567	0	28,424	27,654	27,526	36,337
Total: Daily (HOT Lanes)	0	24,987	21,549	22,295	30,088	0	60,056	52,371	53,131	64,834
General Purpose Lanes										
AM Peak Period										
SOV	19,820	20,589	19,948	20,114	20,967	19,820	20,589	19,948	20,114	20,967
HOV 2	652	596	664	670	681	1,304	1,192	1,328	1,340	1,362
HOV 3+	965	189	985	996	1,017	3,422	661	3,494	3,533	3,601
Commercial Vehicle	2,898	2,964	2,922	2,928	2,910	2,898	2,964	2,922	2,928	2,910
Trucks (Medium & Heavy)	3,117	3,227	3,174	3,148	3,068	3,117	3,227	3,174	3,148	3,068
Total: AM Period	27,453	27,566	27,692	27,856	28,643	30,561	28,633	30,866	31,063	31,908
PM Peak Period										
SOV	37,240	38,359	36,335	35,774	37,862	37,240	38,359	36,335	35,774	37,862
HOV 2	1,598	639	522	644	513	3,196	1,278	1,044	1,288	1,026
HOV 3+	2,377	334	237	261	216	8,440	1,175	834	917	758
Commercial Vehicle	3,408	3,143	3,345	3,408	2,887	3,408	3,143	3,345	3,408	2,887
Trucks (Medium & Heavy)	3,059	3,128	3,320	3,363	3,094	3,059	3,128	3,320	3,363	3,094
Total: PM Period	47,684	45,603	43,759	43,450	44,572	55,343	47,083	44,878	44,750	45,627
Total: Daily (General Purpose Lanes)	146,047	140,597	138,170	137,465	141,106	171,332	146,804	146,472	145,562	148,795
Total: Daily (All Lanes)	146,047	165,584	159,719	159,760	171,194	171,332	206,860	198,843	198,693	213,629

2035 Vehicle and Person Throughput on I-75: South of I-575 - Southbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of I-575										
HOT Lanes										
AM Peak Period										
SOV	0	5,060	3,059	3,500	7,837	0	5,060	3,059	3,500	3,059
HOV 2	0	1,323	1,435	1,431	1,808	0	2,646	2,870	2,862	2,870
HOV 3+	0	4,055	3,706	3,956	4,726	0	14,310	13,133	14,009	13,133
Commercial Vehicle	0	316	284	305	463	0	316	284	305	284
Total: AM Period	0	10,753	8,485	9,191	14,834	0	22,332	19,346	20,676	19,346
PM Peak Period										
SOV	0	86	0	0	0	0	86	0	0	0
HOV 2	0	936	0	0	0	0	1,872	0	0	0
HOV 3+	0	3,432	0	0	0	0	12,271	0	0	0
Commercial Vehicle	0	13	0	0	0	0	13	0	0	0
Total: PM Period	0	4,466	0	0	0	0	14,242	0	0	0
Total: Daily (HOT Lanes)	0	23,720	8,485	9,191	14,834	0	60,485	19,346	20,676	19,346
General Purpose Lanes										
AM Peak Period										
SOV	33,725	34,783	33,399	32,667	34,614	33,725	34,783	33,399	32,667	33,399
HOV 2	1,111	402	250	230	160	2,222	804	500	460	500
HOV 3+	1,663	107	81	63	53	5,885	373	283	220	283
Commercial Vehicle	2,958	2,747	3,041	3,004	2,543	2,958	2,747	3,041	3,004	3,041
Trucks (Medium & Heavy)	2,805	2,865	3,002	2,987	2,711	2,805	2,865	3,002	2,987	3,002
Total: AM Period	42,263	40,904	39,773	38,952	40,080	47,595	41,572	40,225	39,338	40,225
PM Peak Period										
SOV	26,680	28,205	26,537	26,747	27,869	26,680	28,205	26,537	26,747	26,537
HOV 2	1,468	774	1,490	1,499	1,491	2,936	1,548	2,980	2,998	2,980
HOV 3+	2,250	319	2,300	2,316	2,329	8,027	1,115	8,211	8,264	8,211
Commercial Vehicle	3,153	3,264	3,210	3,212	3,158	3,153	3,264	3,210	3,212	3,210
Trucks (Medium & Heavy)	3,032	3,120	3,087	3,106	3,067	3,032	3,120	3,087	3,106	3,087
Total: PM Period	36,582	35,680	36,624	36,879	37,913	43,828	37,252	44,025	44,327	44,025
Total: Daily (General Purpose Lanes)	148,052	142,981	145,484	144,907	149,563	174,748	149,401	167,710	166,853	167,710
Total: Daily (All Lanes)	148,052	166,701	153,969	154,098	164,397	174,748	209,887	187,056	187,529	187,056

2035 Vehicle and Person Throughput on I-75: South of Delk Road - Both Directions

	Vehicle Throughput					Person Throughput				
Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Delk Road										
HOT Lanes										
AM Peak Period										
SOV	0	4,750	3,808	3,858	7,896	0	4,750	3,808	3,858	7,896
HOV 2	0	1,861	1,737	1,755	2,217	0	3,722	3,474	3,510	4,434
HOV 3+	0	5,891	3,863	3,986	4,854	0	20,767	13,644	14,066	17,039
Commercial Vehicle	0	320	349	357	500	0	320	349	357	500
Total: AM Period	0	12,821	9,757	9,955	15,466	0	29,559	21,275	21,791	29,869
PM Peak Period										
SOV	0	5,382	4,706	4,898	9,494	0	5,382	4,706	4,898	9,494
HOV 2	0	3,842	2,355	2,141	2,658	0	7,684	4,710	4,282	5,316
HOV 3+	0	9,514	5,180	5,153	6,057	0	33,735	18,375	18,270	21,372
Commercial Vehicle	0	407	498	470	723	0	407	498	470	723
Total: PM Period	0	19,144	12,739	12,662	18,932	0	47,208	28,289	27,920	36,905
Total: Daily (HOT Lanes)	0	59,820	35,861	35,950	49,899	0	147,594	84,454	84,797	105,164
General Purpose Lanes										
AM Peak Period										
SOV	60,397	62,023	60,412	59,943	61,844	60,397	62,023	60,412	59,943	61,844
HOV 2	2,155	1,201	1,254	1,241	1,139	4,310	2,402	2,508	2,482	2,278
HOV 3+	3,108	445	1,543	1,543	1,511	10,955	1,556	5,446	5,446	5,328
Commercial Vehicle	6,472	6,400	6,584	6,629	6,075	6,472	6,400	6,584	6,629	6,075
Trucks (Medium & Heavy)	6,624	6,878	6,898	6,865	6,492	6,624	6,878	6,898	6,865	6,492
Total: AM Period	78,756	76,948	76,692	76,220	77,061	88,758	79,259	81,848	81,365	82,017
PM Peak Period										
SOV	72,499	75,282	71,520	71,336	74,024	72,499	75,282	71,520	71,336	74,024
HOV 2	3,667	1,542	2,413	2,527	2,323	7,334	3,084	4,826	5,054	4,646
HOV 3+	5,445	778	3,012	3,060	2,951	19,304	2,738	10,705	10,876	10,482
Commercial Vehicle	7,014	7,020	7,008	7,102	6,564	7,014	7,020	7,008	7,102	6,564
Trucks (Medium & Heavy)	6,629	6,823	6,895	6,998	6,701	6,629	6,823	6,895	6,998	6,701
Total: PM Period	95,253	91,444	90,849	91,023	92,562	112,780	94,947	100,954	101,366	102,417
Total: Daily (General Purpose Lanes)	339,581	321,964	325,956	324,779	330,791	401,590	335,457	362,023	360,941	366,266
Total: Daily (All Lanes)	339,581	381,784	361,817	360,729	380,690	401,590	483,052	446,478	445,738	471,430

2035 Vehicle and Person Throughput on I-75: South of Delk Rd - Northbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Delk Road										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	277	0	0	0	0	554	0	0	0
HOV 3+	0	1,767	0	0	0	0	6,257	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	2,044	0	0	0	0	6,811	0	0	0
PM Peak Period										
SOV	0	5,244	4,706	4,898	9,494	0	5,244	4,706	4,898	9,494
HOV 2	0	2,246	2,355	2,141	2,658	0	4,492	4,710	4,282	5,316
HOV 3+	0	5,376	5,180	5,153	6,057	0	19,004	18,375	18,270	21,372
Commercial Vehicle	0	386	498	470	723	0	386	498	470	723
Total: PM Period	0	13,252	12,739	12,662	18,932	0	29,126	28,289	27,920	36,905
Total: Daily (HOT Lanes)	0	29,708	26,104	25,995	34,433	0	72,391	63,179	63,006	75,295
General Purpose Lanes										
AM Peak Period										
SOV	23,628	24,140	23,930	23,928	24,458	23,628	24,140	23,930	23,928	24,458
HOV 2	912	661	919	918	908	1,824	1,322	1,838	1,836	1,816
HOV 3+	1,330	195	1,347	1,349	1,344	4,697	683	4,760	4,767	4,744
Commercial Vehicle	3,485	3,564	3,517	3,535	3,535	3,485	3,564	3,517	3,535	3,535
Trucks (Medium & Heavy)	3,825	3,993	3,894	3,874	3,788	3,825	3,993	3,894	3,874	3,788
Total: AM Period	33,181	32,554	33,607	33,603	34,033	37,459	33,702	37,939	37,940	38,341
PM Peak Period										
SOV	42,192	43,279	41,285	40,874	42,946	42,192	43,279	41,285	40,874	42,946
HOV 2	1,905	772	656	754	594	3,810	1,544	1,312	1,508	1,188
HOV 3+	2,752	408	314	340	260	9,726	1,436	1,104	1,197	913
Commercial Vehicle	3,492	3,297	3,461	3,550	3,084	3,492	3,297	3,461	3,550	3,084
Trucks (Medium & Heavy)	3,471	3,521	3,693	3,768	3,512	3,471	3,521	3,693	3,768	3,512
Total: PM Period	53,812	51,275	49,409	49,286	50,396	62,691	53,077	50,855	50,897	51,643
Total: Daily (General Purpose Lanes)	172,019	162,222	160,546	159,916	162,980	202,940	168,950	170,128	169,546	171,919
Total: Daily (All Lanes)	172,019	191,930	186,650	185,911	197,413	202,940	241,341	233,308	232,551	247,214

2035 Vehicle and Person Throughput on I-75: South of Delk Rd - Southbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Delk Road										
HOT Lanes										
AM Peak Period										
SOV	0	4,750	3,808	3,858	7,896	0	4,750	3,808	3,858	7,896
HOV 2	0	1,584	1,737	1,755	2,217	0	3,168	3,474	3,510	4,434
HOV 3+	0	4,124	3,863	3,986	4,854	0	14,510	13,644	14,066	17,039
Commercial Vehicle	0	320	349	357	500	0	320	349	357	500
Total: AM Period	0	10,777	9,757	9,955	15,466	0	22,748	21,275	21,791	29,869
PM Peak Period										
SOV	0	138	0	0	0	0	138	0	0	0
HOV 2	0	1,596	0	0	0	0	3,192	0	0	0
HOV 3+	0	4,138	0	0	0	0	14,731	0	0	0
Commercial Vehicle	0	21	0	0	0	0	21	0	0	0
Total: PM Period	0	5,892	0	0	0	0	18,082	0	0	0
Total: Daily (HOT Lanes)	0	30,112	9,757	9,955	15,466	0	75,203	21,275	21,791	29,869
General Purpose Lanes										
AM Peak Period										
SOV	36,769	37,883	36,482	36,015	37,386	36,769	37,883	36,482	36,015	37,386
HOV 2	1,243	540	335	323	231	2,486	1,080	670	646	462
HOV 3+	1,778	250	196	194	167	6,258	873	686	678	584
Commercial Vehicle	2,987	2,836	3,067	3,094	2,540	2,987	2,836	3,067	3,094	2,540
Trucks (Medium & Heavy)	2,799	2,885	3,004	2,991	2,704	2,799	2,885	3,004	2,991	2,704
Total: AM Period	45,575	44,394	43,085	42,617	43,028	51,299	45,557	43,909	43,424	43,676
PM Peak Period										
SOV	30,307	32,003	30,235	30,462	31,078	30,307	32,003	30,235	30,462	31,078
HOV 2	1,762	770	1,757	1,773	1,729	3,524	1,540	3,514	3,546	3,458
HOV 3+	2,693	370	2,698	2,720	2,691	9,578	1,303	9,601	9,679	9,570
Commercial Vehicle	3,522	3,723	3,547	3,552	3,480	3,522	3,723	3,547	3,552	3,480
Trucks (Medium & Heavy)	3,158	3,302	3,202	3,230	3,189	3,158	3,302	3,202	3,230	3,189
Total: PM Period	41,441	40,169	41,440	41,737	42,166	50,089	41,871	50,099	50,469	50,775
Total: Daily (General Purpose Lanes)	167,562	159,742	165,410	164,863	167,811	198,650	166,508	191,895	191,395	194,347
Total: Daily (All Lanes)	167,562	189,854	175,167	174,818	183,277	198,650	241,711	213,170	213,186	224,216

2035 Vehicle and Person Throughput on I-575: South of Sixes Road - Both Directions

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Sixes Road										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	0	0	0	0	0	0	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	0	0	0	0	0	0	0	0	0
PM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	0	0	0	0	0	0	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: PM Period	0	0	0	0	0	0	0	0	0	0
Total: Daily (HOT Lanes)	0	0	0	0	0	0	0	0	0	0
General Purpose Lanes										
AM Peak Period										
SOV	26,441	26,089	25,456	24,904	27,612	26,441	26,089	25,456	24,904	27,612
HOV 2	1,405	1,162	867	1,161	1,091	2,810	2,324	1,734	2,322	2,182
HOV 3+	2,026	1,306	1,058	1,480	1,466	7,157	4,597	3,734	5,223	5,173
Commercial Vehicle	3,407	3,337	3,373	3,477	3,200	3,407	3,337	3,373	3,477	3,200
Trucks (Medium & Heavy)	1,819	1,836	1,897	1,908	1,735	1,819	1,836	1,897	1,908	1,735
Total: AM Period	35,099	33,730	32,651	32,929	35,106	41,634	38,183	36,194	37,834	39,902
PM Peak Period										
SOV	32,733	31,763	31,182	29,945	33,122	32,733	31,763	31,182	29,945	33,122
HOV 2	2,448	1,980	1,753	2,178	2,089	4,896	3,960	3,506	4,356	4,178
HOV 3+	3,652	2,479	2,351	3,052	2,939	12,971	8,765	8,352	10,831	10,427
Commercial Vehicle	3,975	3,858	3,876	3,985	3,681	3,975	3,858	3,876	3,985	3,681
Trucks (Medium & Heavy)	2,145	2,176	2,236	2,261	2,080	2,145	2,176	2,236	2,261	2,080
Total: PM Period	44,951	42,255	41,399	41,422	43,911	56,720	50,522	49,152	51,378	53,488
Total: Daily (General Purpose Lanes)	139,598	134,847	131,415	132,415	140,256	178,318	163,665	157,983	165,641	172,963
Total: Daily (All Lanes)	139,598	134,847	131,415	132,415	140,256	178,318	163,665	157,983	165,641	172,963

2035 Vehicle and Person Throughput on I-575: South of Sixes Rd - Northbound

	Vehicle Throughput					Person Throughput				
Location	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Sixes Road										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	0	0	0	0	0	0	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	0	0	0	0	0	0	0	0	0
PM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	0	0	0	0	0	0	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: PM Period	0	0	0	0	0	0	0	0	0	0
Total: Daily (HOT Lanes)	0	0	0	0	0	0	0	0	0	0
General Purpose Lanes										
AM Peak Period										
SOV	8,087	8,496	8,215	8,210	9,049	8,087	8,496	8,215	8,210	9,049
HOV 2	534	547	536	541	558	1,068	1,094	1,072	1,082	1,116
HOV 3+	761	614	783	803	827	2,690	2,158	2,768	2,839	2,919
Commercial Vehicle	1,784	1,798	1,782	1,778	1,793	1,784	1,798	1,782	1,778	1,793
Trucks (Medium & Heavy)	985	999	984	974	980	985	999	984	974	980
Total: AM Period	12,151	12,454	12,301	12,305	13,209	14,614	14,545	14,821	14,883	15,857
PM Peak Period										
SOV	20,350	18,833	18,687	17,564	19,800	20,350	18,833	18,687	17,564	19,800
HOV 2	1,273	945	576	999	905	2,546	1,890	1,152	1,998	1,810
HOV 3+	1,855	1,158	550	1,200	1,104	6,572	4,090	1,936	4,237	3,901
Commercial Vehicle	1,876	1,729	1,778	1,891	1,609	1,876	1,729	1,778	1,891	1,609
Trucks (Medium & Heavy)	957	971	1,052	1,083	902	957	971	1,052	1,083	902
Total: PM Period	26,311	23,635	22,644	22,737	24,321	32,301	27,513	24,605	26,773	28,022
Total: Daily (General Purpose Lanes)	69,281	66,569	63,556	64,725	68,825	88,381	80,884	73,491	79,820	83,306
Total: Daily (All Lanes)	69,281	66,569	63,556	64,725	68,825	88,381	80,884	73,491	79,820	83,306

2035 Vehicle and Person Throughput on I-575: South of Sixes Rd - Southbound

Location	Vehicle Throughput No-Build	Vehicle Throughput Concept A Bi-Directional	Vehicle Throughput Concept B1 2-lane Reversible	Vehicle Throughput Concept B2 2-lane Reversible	Vehicle Throughput Concept C 3-lane Reversible	Person Throughput No-Build	Person Throughput Concept A Bi-Directional	Person Throughput Concept B1 2-lane Reversible	Person Throughput Concept B2 2-lane Reversible	Person Throughput Concept C 3-lane Reversible
South of Sixes Road										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	0	0	0	0	0	0	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	0	0	0	0	0	0	0	0	0
PM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	0	0	0	0	0	0	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: PM Period	0	0	0	0	0	0	0	0	0	0
Total: Daily (HOT Lanes)	0	0	0	0	0	0	0	0	0	0
General Purpose Lanes										
AM Peak Period										
SOV	18,354	17,593	17,241	16,694	18,563	18,354	17,593	17,241	16,694	18,563
HOV 2	871	615	331	620	533	1,742	1,230	662	1,240	1,066
HOV 3+	1,265	692	275	677	639	4,467	2,439	966	2,384	2,254
Commercial Vehicle	1,623	1,539	1,591	1,699	1,407	1,623	1,539	1,591	1,699	1,407
Trucks (Medium & Heavy)	834	837	913	934	755	834	837	913	934	755
Total: AM Period	22,948	21,276	20,350	20,624	21,897	27,020	23,638	21,373	22,951	24,045
PM Peak Period										
SOV	12,383	12,930	12,495	12,381	13,322	12,383	12,930	12,495	12,381	13,322
HOV 2	1,175	1,035	1,177	1,179	1,184	2,350	2,070	2,354	2,358	2,368
HOV 3+	1,797	1,321	1,801	1,852	1,835	6,399	4,675	6,415	6,593	6,526
Commercial Vehicle	2,099	2,129	2,098	2,094	2,072	2,099	2,129	2,098	2,094	2,072
Trucks (Medium & Heavy)	1,188	1,205	1,184	1,178	1,178	1,188	1,205	1,184	1,178	1,178
Total: PM Period	18,640	18,620	18,755	18,685	19,590	24,419	23,009	24,546	24,604	25,466
Total: Daily (General Purpose Lanes)	70,317	68,278	67,859	67,690	71,431	89,937	82,781	84,492	85,820	89,657
Total: Daily (All Lanes)	70,317	68,278	67,859	67,690	71,431	89,937	82,781	84,492	85,820	89,657

2035 Vehicle and Person Throughput on I-575: South of Towne Lake Pkwy - Both Directions

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Towne Lake Pkwy										
HOT Lanes										
AM Peak Period										
SOV	0	2,249	1,905	1,193	2,702	0	2,249	1,905	1,193	2,702
HOV 2	0	472	711	398	652	0	944	1,422	796	1,304
HOV 3+	0	1,747	1,644	1,343	2,000	0	6,159	5,834	4,757	6,995
Commercial Vehicle	0	88	162	72	74	0	88	162	72	74
Total: AM Period	0	4,556	4,421	3,006	5,428	0	9,440	9,323	6,818	11,075
PM Peak Period										
SOV	0	3,434	2,903	3,031	3,932	0	3,434	2,903	3,031	3,932
HOV 2	0	724	938	488	598	0	1,448	1,876	976	1,196
HOV 3+	0	2,365	1,997	1,498	1,977	0	8,407	7,111	5,331	6,940
Commercial Vehicle	0	172	286	212	157	0	172	286	212	157
Total: PM Period	0	6,695	6,125	5,228	6,665	0	13,461	12,176	9,550	12,225
Total: Daily (HOT Lanes)	0	13,613	13,358	9,304	13,657	0	31,204	30,286	20,225	28,590
General Purpose Lanes										
AM Peak Period										
SOV	27,721	28,138	27,386	26,726	29,921	27,721	28,138	27,386	26,726	29,921
HOV 2	1,543	1,332	978	1,330	1,273	3,086	2,664	1,956	2,660	2,546
HOV 3+	2,203	1,489	1,103	1,624	1,642	7,776	5,238	3,891	5,726	5,788
Commercial Vehicle	3,802	3,789	3,821	3,933	3,648	3,802	3,789	3,821	3,933	3,648
Trucks (Medium & Heavy)	1,972	2,011	2,082	2,087	1,903	1,972	2,011	2,082	2,087	1,903
Total: AM Period	37,241	36,757	35,370	35,701	38,385	44,357	41,840	39,136	41,132	43,806
PM Peak Period										
SOV	34,965	34,792	34,227	32,751	36,680	34,965	34,792	34,227	32,751	36,680
HOV 2	2,750	2,338	2,013	2,504	2,456	5,500	4,676	4,026	5,008	4,912
HOV 3+	4,049	2,902	2,597	3,366	3,421	14,367	10,254	9,219	11,936	12,125
Commercial Vehicle	4,481	4,409	4,435	4,540	4,239	4,481	4,409	4,435	4,540	4,239
Trucks (Medium & Heavy)	2,332	2,383	2,457	2,476	2,291	2,332	2,383	2,457	2,476	2,291
Total: PM Period	48,576	46,825	45,728	45,640	49,085	61,645	56,514	54,364	56,711	60,247
Total: Daily (General Purpose Lanes)	151,643	149,228	144,601	146,101	155,489	194,780	182,956	174,154	183,736	193,081
Total: Daily (All Lanes)	151,643	162,841	157,959	155,405	169,146	194,780	214,160	204,440	203,962	221,671

2035 Vehicle and Person Throughput on I-575: South of Towne Lake Pkwy - Northbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Towne Lake Pkwy										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	222	0	0	0	0	797	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	222	0	0	0	0	797	0	0	0
PM Peak Period										
SOV	0	3,433	2,903	3,031	3,932	0	3,433	2,903	3,031	3,932
HOV 2	0	556	938	488	598	0	1,112	1,876	976	1,196
HOV 3+	0	1,665	1,997	1,498	1,977	0	5,883	7,111	5,331	6,940
Commercial Vehicle	0	172	286	212	157	0	172	286	212	157
Total: PM Period	0	5,826	6,125	5,228	6,665	0	10,600	12,176	9,550	12,225
Total: Daily (HOT Lanes)	0	7,335	8,937	6,298	8,229	0	15,884	20,963	13,407	17,516
General Purpose Lanes										
AM Peak Period										
SOV	8,594	9,137	8,895	8,873	9,684	8,594	9,137	8,895	8,873	9,684
HOV 2	598	619	607	614	629	1,196	1,238	1,214	1,228	1,258
HOV 3+	851	715	864	876	898	3,009	2,516	3,055	3,098	3,171
Commercial Vehicle	2,023	2,053	2,031	2,042	2,051	2,023	2,053	2,031	2,042	2,051
Trucks (Medium & Heavy)	1,058	1,078	1,065	1,058	1,060	1,058	1,078	1,065	1,058	1,060
Total: AM Period	13,124	13,602	13,462	13,463	14,320	15,880	16,022	16,260	16,299	17,224
PM Peak Period										
SOV	21,662	20,927	20,736	19,450	22,338	21,662	20,927	20,736	19,450	22,338
HOV 2	1,437	1,158	700	1,192	1,133	2,874	2,316	1,400	2,384	2,266
HOV 3+	2,062	1,396	606	1,371	1,397	7,296	4,924	2,133	4,836	4,930
Commercial Vehicle	2,105	2,014	2,074	2,184	1,900	2,105	2,014	2,074	2,184	1,900
Trucks (Medium & Heavy)	1,049	1,083	1,180	1,204	1,018	1,049	1,083	1,180	1,204	1,018
Total: PM Period	28,315	26,579	25,296	25,402	27,785	34,986	31,264	27,523	30,058	32,452
Total: Daily (General Purpose Lanes)	75,365	74,044	70,319	71,979	76,965	96,683	90,883	81,385	89,400	94,086
Total: Daily (All Lanes)	75,365	81,379	79,256	78,277	85,194	96,683	106,768	102,348	102,807	111,602

2035 Vehicle and Person Throughput on I-575: South of Towne Lake Pkwy - Southbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Towne Lake Pkwy										
HOT Lanes										
AM Peak Period										
SOV	0	2,249	1,905	1,193	2,702	0	2,249	1,905	1,193	2,702
HOV 2	0	472	711	398	652	0	944	1,422	796	1,304
HOV 3+	0	1,525	1,644	1,343	2,000	0	5,362	5,834	4,757	6,995
Commercial Vehicle	0	88	162	72	74	0	88	162	72	74
Total: AM Period	0	4,334	4,421	3,006	5,428	0	8,643	9,323	6,818	11,075
PM Peak Period										
SOV	0	1	0	0	0	0	1	0	0	0
HOV 2	0	168	0	0	0	0	336	0	0	0
HOV 3+	0	700	0	0	0	0	2,524	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: PM Period	0	869	0	0	0	0	2,861	0	0	0
Total: Daily (HOT Lanes)	0	6,278	4,421	3,006	5,428	0	15,320	9,323	6,818	11,075
General Purpose Lanes										
AM Peak Period										
SOV	19,127	19,001	18,491	17,853	20,237	19,127	19,001	18,491	17,853	20,237
HOV 2	945	713	371	716	644	1,890	1,426	742	1,432	1,288
HOV 3+	1,352	774	239	748	744	4,767	2,722	836	2,628	2,618
Commercial Vehicle	1,779	1,736	1,790	1,891	1,597	1,779	1,736	1,790	1,891	1,597
Trucks (Medium & Heavy)	914	933	1,017	1,029	843	914	933	1,017	1,029	843
Total: AM Period	24,117	23,155	21,908	22,238	24,065	28,477	25,818	22,876	24,833	26,583
PM Peak Period										
SOV	13,303	13,865	13,491	13,301	14,342	13,303	13,865	13,491	13,301	14,342
HOV 2	1,313	1,180	1,313	1,312	1,323	2,626	2,360	2,626	2,624	2,646
HOV 3+	1,987	1,506	1,991	1,995	2,024	7,071	5,329	7,087	7,100	7,195
Commercial Vehicle	2,376	2,395	2,361	2,356	2,339	2,376	2,395	2,361	2,356	2,339
Trucks (Medium & Heavy)	1,283	1,300	1,277	1,272	1,273	1,283	1,300	1,277	1,272	1,273
Total: PM Period	20,261	20,246	20,432	20,238	21,300	26,659	25,249	26,842	26,653	27,795
Total: Daily (General Purpose Lanes)	76,278	75,184	74,282	74,122	78,524	98,097	92,073	92,769	94,336	98,995
Total: Daily (All Lanes)	76,278	81,462	78,703	77,128	83,952	98,097	107,392	102,092	101,155	110,069

2035 Vehicle and Person Throughput on I-575: South of SR-92 - Both Directions

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of SR-92										
HOT Lanes										
AM Peak Period										
SOV	0	2,249	2,402	1,193	2,702	0	2,249	2,402	1,193	2,702
HOV 2	0	472	953	398	652	0	944	1,906	796	1,304
HOV 3+	0	1,747	2,180	1,343	2,000	0	6,159	7,711	4,757	6,995
Commercial Vehicle	0	88	231	72	74	0	88	231	72	74
Total: AM Period	0	4,556	5,767	3,006	5,428	0	9,440	12,250	6,818	11,075
PM Peak Period										
SOV	0	3,434	3,346	3,031	3,932	0	3,434	3,346	3,031	3,932
HOV 2	0	724	1,217	488	598	0	1,448	2,434	976	1,196
HOV 3+	0	2,365	2,661	1,498	1,977	0	8,407	9,448	5,331	6,940
Commercial Vehicle	0	172	348	212	157	0	172	348	212	157
Total: PM Period	0	6,695	7,573	5,228	6,665	0	13,461	15,576	9,550	12,225
Total: Daily (HOT Lanes)	0	13,613	17,799	9,304	13,657	0	31,204	40,598	20,225	28,590
General Purpose Lanes										
AM Peak Period										
SOV	24,474	25,352	24,844	23,799	26,718	24,474	25,352	24,844	23,799	26,718
HOV 2	1,310	1,135	737	1,172	1,068	2,620	2,270	1,474	2,344	2,136
HOV 3+	1,853	1,485	923	1,699	1,537	6,540	5,217	3,262	5,978	5,413
Commercial Vehicle	3,491	3,451	3,589	3,604	3,279	3,491	3,451	3,589	3,604	3,279
Trucks (Medium & Heavy)	1,791	1,826	1,913	1,898	1,694	1,791	1,826	1,913	1,898	1,694
Total: AM Period	32,918	33,247	32,005	32,173	34,295	38,916	38,116	35,082	37,623	39,240
PM Peak Period										
SOV	31,499	31,982	31,564	30,159	33,631	31,499	31,982	31,564	30,159	33,631
HOV 2	2,377	2,070	1,658	2,246	2,166	4,754	4,140	3,316	4,492	4,332
HOV 3+	3,448	2,976	2,098	3,357	3,165	12,230	10,504	7,455	11,888	11,207
Commercial Vehicle	4,152	4,103	4,231	4,282	3,912	4,152	4,103	4,231	4,282	3,912
Trucks (Medium & Heavy)	2,128	2,186	2,292	2,308	2,065	2,128	2,186	2,292	2,308	2,065
Total: PM Period	43,604	43,317	41,843	42,352	44,941	54,763	52,915	48,858	53,129	55,147
Total: Daily (General Purpose Lanes)	137,843	139,062	133,395	135,717	143,324	175,309	171,869	158,069	171,515	177,842
Total: Daily (All Lanes)	137,843	152,675	151,194	145,021	156,981	175,309	203,073	198,667	191,740	206,432

2035 Vehicle and Person Throughput on I-575: South of SR-92 - Northbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of SR-92										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	222	0	0	0	0	797	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	222	0	0	0	0	797	0	0	0
PM Peak Period										
SOV	0	3,433	3,346	3,031	3,932	0	3,433	3,346	3,031	3,932
HOV 2	0	556	1,217	488	598	0	1,112	2,434	976	1,196
HOV 3+	0	1,665	2,661	1,498	1,977	0	5,883	9,448	5,331	6,940
Commercial Vehicle	0	172	348	212	157	0	172	348	212	157
Total: PM Period	0	5,826	7,573	5,228	6,665	0	10,600	15,576	9,550	12,225
Total: Daily (HOT Lanes)	0	7,335	12,032	6,298	8,229	0	15,884	28,348	13,407	17,516
General Purpose Lanes										
AM Peak Period										
SOV	7,669	8,226	8,145	7,940	8,574	7,669	8,226	8,145	7,940	8,574
HOV 2	510	528	528	521	529	1,020	1,056	1,056	1,042	1,058
HOV 3+	723	672	779	796	782	2,560	2,367	2,757	2,818	2,764
Commercial Vehicle	1,878	1,907	1,915	1,893	1,882	1,878	1,907	1,915	1,893	1,882
Trucks (Medium & Heavy)	957	980	972	959	948	957	980	972	959	948
Total: AM Period	11,736	12,313	12,339	12,110	12,714	14,084	14,536	14,845	14,652	15,226
PM Peak Period										
SOV	19,494	19,308	19,179	17,964	20,635	19,494	19,308	19,179	17,964	20,635
HOV 2	1,238	1,037	503	1,093	1,016	2,476	2,074	1,006	2,186	2,032
HOV 3+	1,747	1,494	338	1,597	1,423	6,177	5,262	1,189	5,624	5,015
Commercial Vehicle	1,945	1,861	2,005	2,063	1,734	1,945	1,861	2,005	2,063	1,734
Trucks (Medium & Heavy)	959	992	1,112	1,133	906	959	992	1,112	1,133	906
Total: PM Period	25,383	24,692	23,137	23,849	25,714	31,051	29,497	24,491	28,970	30,322
Total: Daily (General Purpose Lanes)	68,635	69,230	65,104	67,392	71,502	87,098	85,636	73,576	84,562	87,797
Total: Daily (All Lanes)	68,635	76,565	77,136	73,690	79,731	87,098	101,521	101,924	97,969	105,313

2035 Vehicle and Person Throughput on I-575: South of SR-92 - Southbound

Location	Vehicle Throughput No-Build	Vehicle Throughput Concept A Bi-Directional	Vehicle Throughput Concept B1 2-lane Reversible	Vehicle Throughput Concept B2 2-lane Reversible	Vehicle Throughput Concept C 3-lane Reversible	Person Throughput No-Build	Person Throughput Concept A Bi-Directional	Person Throughput Concept B1 2-lane Reversible	Person Throughput Concept B2 2-lane Reversible	Person Throughput Concept C 3-lane Reversible
South of SR-92										
HOT Lanes										
AM Peak Period										
SOV	0	2,249	2,402	1,193	2,702	0	2,249	2,402	1,193	2,702
HOV 2	0	472	953	398	652	0	944	1,906	796	1,304
HOV 3+	0	1,525	2,180	1,343	2,000	0	5,362	7,711	4,757	6,995
Commercial Vehicle	0	88	231	72	74	0	88	231	72	74
Total: AM Period	0	4,334	5,767	3,006	5,428	0	8,643	12,250	6,818	11,075
PM Peak Period										
SOV	0	1	0	0	0	0	1	0	0	0
HOV 2	0	168	0	0	0	0	336	0	0	0
HOV 3+	0	700	0	0	0	0	2,524	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: PM Period	0	869	0	0	0	0	2,861	0	0	0
Total: Daily (HOT Lanes)	0	6,278	5,767	3,006	5,428	0	15,320	12,250	6,818	11,075
General Purpose Lanes										
AM Peak Period										
SOV	16,805	17,126	16,699	15,859	18,144	16,805	17,126	16,699	15,859	18,144
HOV 2	800	607	209	651	539	1,600	1,214	418	1,302	1,078
HOV 3+	1,130	813	144	903	755	3,980	2,850	504	3,160	2,649
Commercial Vehicle	1,613	1,544	1,674	1,711	1,397	1,613	1,544	1,674	1,711	1,397
Trucks (Medium & Heavy)	834	846	941	939	746	834	846	941	939	746
Total: AM Period	21,182	20,934	19,666	20,063	21,581	24,832	23,580	20,236	22,971	24,014
PM Peak Period										
SOV	12,005	12,674	12,385	12,195	12,996	12,005	12,674	12,385	12,195	12,996
HOV 2	1,139	1,033	1,155	1,153	1,150	2,278	2,066	2,310	2,306	2,300
HOV 3+	1,701	1,482	1,760	1,760	1,742	6,053	5,241	6,265	6,264	6,193
Commercial Vehicle	2,207	2,242	2,226	2,219	2,178	2,207	2,242	2,226	2,219	2,178
Trucks (Medium & Heavy)	1,169	1,194	1,180	1,175	1,159	1,169	1,194	1,180	1,175	1,159
Total: PM Period	18,221	18,625	18,706	18,503	19,227	23,712	23,417	24,366	24,159	24,826
Total: Daily (General Purpose Lanes)	69,208	69,832	68,291	68,325	71,822	88,211	86,233	84,493	86,953	90,045
Total: Daily (All Lanes)	69,208	76,110	74,058	71,331	77,250	88,211	101,553	96,743	93,771	101,119

2035 Vehicle and Person Throughput on I-575: South of Chastain Road - Both Directions

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Chastain Road										
HOT Lanes										
AM Peak Period										
SOV	0	2,273	113	1,197	2,703	0	2,273	113	1,197	2,703
HOV 2	0	557	467	575	753	0	1,114	934	1,150	1,506
HOV 3+	0	2,323	1,360	1,817	2,339	0	8,189	4,810	6,418	8,186
Commercial Vehicle	0	91	9	73	74	0	91	9	73	74
Total: AM Period	0	5,244	1,948	3,661	5,868	0	11,667	5,866	8,838	12,469
PM Peak Period										
SOV	0	3,487	1,071	3,095	3,975	0	3,487	1,071	3,095	3,975
HOV 2	0	885	553	691	702	0	1,770	1,106	1,382	1,404
HOV 3+	0	3,445	1,690	2,200	2,486	0	12,229	6,004	7,809	8,739
Commercial Vehicle	0	179	101	220	163	0	179	101	220	163
Total: PM Period	0	7,997	3,414	6,207	7,325	0	17,665	8,282	12,506	14,281
Total: Daily (HOT Lanes)	0	17,333	7,419	11,807	15,768	0	43,749	20,916	28,286	35,434
General Purpose Lanes										
AM Peak Period										
SOV	24,044	25,499	24,502	23,995	26,411	24,044	25,499	24,502	23,995	26,411
HOV 2	1,315	977	702	948	895	2,630	1,954	1,404	1,896	1,790
HOV 3+	1,896	811	851	1,135	1,058	6,697	2,845	3,012	4,006	3,734
Commercial Vehicle	3,782	3,653	3,881	3,865	3,442	3,782	3,653	3,881	3,865	3,442
Trucks (Medium & Heavy)	1,929	1,952	2,046	2,046	1,783	1,929	1,952	2,046	2,046	1,783
Total: AM Period	32,965	32,893	31,983	31,988	33,589	39,082	35,903	34,845	35,808	37,160
PM Peak Period										
SOV	28,743	30,552	29,372	28,568	31,079	28,743	30,552	29,372	28,568	31,079
HOV 2	2,174	1,648	1,450	1,819	1,702	4,348	3,296	2,900	3,638	3,404
HOV 3+	3,243	1,597	1,895	2,456	2,261	11,520	5,628	6,744	8,715	8,024
Commercial Vehicle	4,094	4,082	4,226	4,248	3,704	4,094	4,082	4,226	4,248	3,704
Trucks (Medium & Heavy)	2,101	2,206	2,295	2,332	1,985	2,101	2,206	2,295	2,332	1,985
Total: PM Period	40,355	40,084	39,238	39,423	40,730	50,806	45,764	45,537	47,501	48,196
Total: Daily (General Purpose Lanes)	138,124	137,730	134,129	135,753	140,973	176,140	161,137	158,079	165,864	169,845
Total: Daily (All Lanes)	138,124	155,063	141,548	147,560	156,741	176,140	204,886	178,996	194,150	205,279

2035 Vehicle and Person Throughput on I-575: South of Chastain Road - Northbound

Location	Vehicle Throughput					Person Throughput				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
South of Chastain Road										
HOT Lanes										
AM Peak Period										
SOV	0	0	0	0	0	0	0	0	0	0
HOV 2	0	0	0	0	0	0	0	0	0	0
HOV 3+	0	426	0	0	0	0	1,520	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: AM Period	0	426	0	0	0	0	1,520	0	0	0
PM Peak Period										
SOV	0	3,486	1,071	3,095	3,975	0	3,486	1,071	3,095	3,975
HOV 2	0	716	553	691	702	0	1,432	1,106	1,382	1,404
HOV 3+	0	2,246	1,690	2,200	2,486	0	7,933	6,004	7,809	8,739
Commercial Vehicle	0	179	101	220	163	0	179	101	220	163
Total: PM Period	0	6,628	3,414	6,207	7,325	0	13,030	8,282	12,506	14,281
Total: Daily (HOT Lanes)	0	9,215	5,471	8,146	9,900	0	22,111	15,051	19,449	22,965
General Purpose Lanes										
AM Peak Period										
SOV	7,691	8,327	7,912	7,914	8,554	7,691	8,327	7,912	7,914	8,554
HOV 2	533	531	537	540	550	1,066	1,062	1,074	1,080	1,100
HOV 3+	772	458	777	782	806	2,736	1,610	2,754	2,772	2,852
Commercial Vehicle	2,122	2,140	2,121	2,123	2,118	2,122	2,140	2,121	2,123	2,118
Trucks (Medium & Heavy)	1,066	1,084	1,071	1,063	1,050	1,066	1,084	1,071	1,063	1,050
Total: AM Period	12,184	12,540	12,418	12,422	13,078	14,681	14,223	14,932	14,952	15,674
PM Peak Period										
SOV	17,356	18,251	17,752	16,949	18,721	17,356	18,251	17,752	16,949	18,721
HOV 2	1,042	651	308	672	570	2,084	1,302	616	1,344	1,140
HOV 3+	1,528	687	160	710	510	5,413	2,416	563	2,495	1,795
Commercial Vehicle	1,827	1,741	1,939	1,958	1,486	1,827	1,741	1,939	1,958	1,486
Trucks (Medium & Heavy)	935	1,000	1,119	1,154	833	935	1,000	1,119	1,154	833
Total: PM Period	22,688	22,329	21,278	21,443	22,119	27,615	24,710	21,989	23,900	23,975
Total: Daily (General Purpose Lanes)	67,936	68,234	64,837	66,447	69,150	86,320	79,770	72,333	78,981	80,765
Total: Daily (All Lanes)	67,936	77,449	70,308	74,593	79,050	86,320	101,881	87,384	98,430	103,730

2035 Vehicle and Person Throughput on I-575: South of Chastain Road - Southbound

Location	Vehicle Throughput No-Build	Vehicle Throughput Concept A Bi-Directional	Vehicle Throughput Concept B1 2-lane Reversible	Vehicle Throughput Concept B2 2-lane Reversible	Vehicle Throughput Concept C 3-lane Reversible	Person Throughput No-Build	Person Throughput Concept A Bi-Directional	Person Throughput Concept B1 2-lane Reversible	Person Throughput Concept B2 2-lane Reversible	Person Throughput Concept C 3-lane Reversible
South of Chastain Road										
HOT Lanes										
AM Peak Period										
SOV	0	2,273	113	1,197	2,703	0	2,273	113	1,197	2,703
HOV 2	0	557	467	575	753	0	1,114	934	1,150	1,506
HOV 3+	0	1,897	1,360	1,817	2,339	0	6,668	4,810	6,418	8,186
Commercial Vehicle	0	91	9	73	74	0	91	9	73	74
Total: AM Period	0	4,818	1,948	3,661	5,868	0	10,146	5,866	8,838	12,469
PM Peak Period										
SOV	0	1	0	0	0	0	1	0	0	0
HOV 2	0	169	0	0	0	0	338	0	0	0
HOV 3+	0	1,199	0	0	0	0	4,296	0	0	0
Commercial Vehicle	0	0	0	0	0	0	0	0	0	0
Total: PM Period	0	1,369	0	0	0	0	4,635	0	0	0
Total: Daily (HOT Lanes)	0	8,118	1,948	3,661	5,868	0	21,638	5,866	8,838	12,469
General Purpose Lanes										
AM Peak Period										
SOV	16,353	17,172	16,590	16,081	17,857	16,353	17,172	16,590	16,081	17,857
HOV 2	782	446	165	408	345	1,564	892	330	816	690
HOV 3+	1,124	353	74	353	252	3,961	1,236	258	1,234	882
Commercial Vehicle	1,660	1,513	1,760	1,742	1,324	1,660	1,513	1,760	1,742	1,324
Trucks (Medium & Heavy)	863	868	975	983	733	863	868	975	983	733
Total: AM Period	20,781	20,353	19,565	19,566	20,511	24,401	21,681	19,913	20,856	21,486
PM Peak Period										
SOV	11,387	12,301	11,620	11,619	12,358	11,387	12,301	11,620	11,619	12,358
HOV 2	1,132	997	1,142	1,147	1,132	2,264	1,994	2,284	2,294	2,264
HOV 3+	1,715	910	1,735	1,746	1,751	6,108	3,212	6,181	6,219	6,229
Commercial Vehicle	2,267	2,341	2,287	2,290	2,218	2,267	2,341	2,287	2,290	2,218
Trucks (Medium & Heavy)	1,166	1,206	1,176	1,178	1,152	1,166	1,206	1,176	1,178	1,152
Total: PM Period	17,667	17,755	17,960	17,980	18,611	23,192	21,054	23,548	23,600	24,221
Total: Daily (General Purpose Lanes)	70,188	69,496	69,292	69,306	71,823	89,820	81,366	85,747	86,883	89,080
Total: Daily (All Lanes)	70,188	77,614	71,240	72,967	77,691	89,820	103,004	91,612	95,721	101,548

2035 VMT on I-75: Both Directions

Measure	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VMT				
HOT Lanes					
AM Peak Period					
SOV	0	62,517	47,062	46,501	95,929
HOV 2	0	19,211	17,762	18,165	22,628
HOV 3+	0	66,602	44,222	46,953	55,942
Commercial Vehicle	0	4,355	4,298	4,332	6,047
Total: AM Period VMT	0	152,671	113,348	115,945	180,544
PM Peak Period					
SOV	0	77,431	66,540	69,460	125,938
HOV 2	0	37,835	24,251	22,068	27,603
HOV 3+	0	106,698	59,218	59,061	69,338
Commercial Vehicle	0	6,342	7,426	6,974	10,126
Total: PM Period VMT	0	228,308	157,435	157,567	233,004
Total: Daily VMT (HOT Lanes)	0	659,182	406,334	410,166	570,985
Daily VMT Per Lane Mile (HOT Lanes)	?	12,856	7,925	8,000	7,585
General Purpose Lanes					
AM Peak Period					
SOV	677,490	694,591	673,873	670,331	696,162
HOV 2	18,317	9,416	9,226	9,022	8,033
HOV 3+	28,219	2,472	11,662	11,562	11,316
Commercial Vehicle	63,992	62,789	64,768	65,037	59,316
Trucks (Medium & Heavy)	78,294	80,528	81,132	80,636	76,332
Total: AM Period VMT	866,308	849,790	840,661	836,587	851,155
PM Peak Period					
SOV	795,664	821,595	779,519	777,783	805,945
HOV 2	31,305	11,504	19,861	20,983	19,394
HOV 3+	49,278	5,165	26,980	27,200	26,600
Commercial Vehicle	70,732	69,406	70,041	70,624	65,120
Trucks (Medium & Heavy)	78,324	79,890	81,231	82,064	78,907
Total: PM Period VMT	1,025,307	987,557	977,635	978,657	995,961
Total: Daily VMT (GP Lanes)	3,718,402	3,580,636	3,587,137	3,584,216	3,651,777
Daily VMT Per Lane Mile (GP Lanes)	23,855	22,972	23,013	22,995	23,428
All Lanes					
AM Period VMT	866,308	1,002,461	954,010	952,532	1,031,700
PM Period VMT	1,025,307	1,215,864	1,135,070	1,136,224	1,228,965
Daily VMT (All Lanes)	3,718,402	4,239,818	3,993,472	3,994,381	4,222,762
Daily VMT Per Lane Mile (All Lanes)	23,855	20,468	19,279	19,283	18,268

2035 VHT on I-75: Both Directions

Trip Purpose	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VHT				
HOT Lanes					
AM Peak Period					
SOV	0	1,605	1,059	1,048	2,304
HOV 2	0	479	396	414	545
HOV 3+	0	1,550	980	1,062	1,344
Commercial Vehicle	0	111	97	98	145
Total: AM Period VHT	0	3,745	2,532	2,621	4,338
PM Peak Period					
SOV	0	2,695	2,053	2,138	3,821
HOV 2	0	1,084	753	689	828
HOV 3+	0	2,984	1,831	1,842	2,082
Commercial Vehicle	0	217	229	214	308
Total: PM Period VHT	0	6,981	4,867	4,883	7,040
Total: Daily VHT (HOT Lanes)	0	15,208	9,569	9,691	13,857
Daily VHT Per Lane Mile (HOT Lanes)	?	297	187	189	184
General Purpose Lanes					
AM Peak Period					
SOV	32,316	30,652	27,956	27,130	29,079
HOV 2	883	371	312	298	258
HOV 3+	1,364	104	355	348	345
Commercial Vehicle	2,820	2,543	2,537	2,492	2,293
Trucks (Medium & Heavy)	3,409	3,268	3,169	3,098	2,982
Total: AM Period VHT	40,793	36,938	34,329	33,366	34,957
PM Peak Period					
SOV	47,066	42,852	38,609	38,288	42,034
HOV 2	1,798	585	837	907	867
HOV 3+	2,808	282	1,040	1,066	1,093
Commercial Vehicle	4,063	3,460	3,387	3,409	3,281
Trucks (Medium & Heavy)	4,418	3,991	3,910	3,953	3,995
Total: PM Period VHT	60,153	51,169	47,783	47,622	51,269
Total: Daily VHT (GP Lanes)	151,169	134,274	129,209	127,968	136,729
Daily VHT Per Lane Mile (GP Lanes)	970	861	829	821	877
All Lanes					
AM Period VHT	40,793	40,683	36,861	35,987	39,295
PM Period VHT	60,153	58,151	52,650	52,505	58,309
Daily VHT (All Lanes)	151,169	149,482	138,778	137,660	150,586
Daily VHT Per Lane Mile (All Lanes)	970	722	670	665	651

2035 VMT on I-75: Northbound

Measure	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VMT				
HOT Lanes					
AM Peak Period					
SOV	0	1,640	0	0	0
HOV 2	0	2,510	0	0	0
HOV 3+	0	18,464	0	0	0
Commercial Vehicle	0	161	0	0	0
Total: AM Period VMT	0	22,767	0	0	0
PM Peak Period					
SOV	0	73,219	66,540	69,460	125,938
HOV 2	0	23,135	24,251	22,068	27,603
HOV 3+	0	61,980	59,218	59,061	69,338
Commercial Vehicle	0	5,884	7,426	6,974	10,126
Total: PM Period VMT	0	164,224	157,435	157,567	233,004
Total: Daily VMT (HOT Lanes)	0	333,677	292,986	294,221	390,441
Daily VMT Per Lane Mile (HOT Lanes)	?	13,021	11,433	11,482	10,372
General Purpose Lanes					
AM Peak Period					
SOV	264,087	269,544	264,800	265,378	273,242
HOV 2	6,719	5,249	6,964	6,956	6,893
HOV 3+	10,302	1,180	10,713	10,705	10,703
Commercial Vehicle	32,465	33,159	32,614	32,675	32,356
Trucks (Medium & Heavy)	41,463	42,886	42,062	41,767	40,729
Total: AM Period VMT	355,040	352,018	357,152	357,480	363,919
PM Peak Period					
SOV	445,396	453,051	433,713	429,379	447,503
HOV 2	16,327	5,843	4,734	5,809	4,530
HOV 3+	25,010	3,141	2,248	2,455	2,042
Commercial Vehicle	36,148	33,174	35,036	35,812	30,994
Trucks (Medium & Heavy)	37,690	37,932	39,971	40,587	37,965
Total: PM Period VMT	560,577	533,138	515,705	514,042	523,034
Total: Daily VMT (GP Lanes)	1,822,173	1,745,078	1,723,980	1,721,270	1,748,894
Daily VMT Per Lane Mile (GP Lanes)	23,264	22,280	22,011	21,976	22,329
All Lanes					
AM Period VMT	355,040	374,785	357,152	357,480	363,919
PM Period VMT	560,577	697,362	673,140	671,609	756,038
Daily VMT (All Lanes)	1,822,173	2,078,755	2,016,966	2,015,491	2,139,335
Daily VMT Per Lane Mile (All Lanes)	23,264	19,998	19,403	19,389	18,448

2035 VHT on I-75: Northbound

Trip Purpose	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VHT				
HOT Lanes					
AM Peak Period					
SOV	0	27	0	0	0
HOV 2	0	39	0	0	0
HOV 3+	0	288	0	0	0
Commercial Vehicle	0	3	0	0	0
Total: AM Period VHT	0	356	0	0	0
PM Peak Period					
SOV	0	2,623	2,053	2,138	3,821
HOV 2	0	842	753	689	828
HOV 3+	0	2,250	1,831	1,842	2,082
Commercial Vehicle	0	209	229	214	308
Total: PM Period VHT	0	5,924	4,867	4,883	7,040
Total: Daily VHT (HOT Lanes)	0	8,644	7,037	7,070	9,519
Daily VHT Per Lane Mile (HOT Lanes)	?	337	275	276	253
General Purpose Lanes					
AM Peak Period					
SOV	7,700	7,798	7,794	7,812	8,190
HOV 2	189	146	200	199	202
HOV 3+	291	33	308	307	314
Commercial Vehicle	929	943	944	946	956
Trucks (Medium & Heavy)	1,213	1,250	1,242	1,234	1,226
Total: AM Period VHT	10,323	10,170	10,488	10,498	10,887
PM Peak Period					
SOV	34,023	30,039	25,927	25,241	27,950
HOV 2	1,243	392	285	343	284
HOV 3+	1,909	211	137	146	131
Commercial Vehicle	2,784	2,211	2,108	2,113	1,942
Trucks (Medium & Heavy)	2,908	2,528	2,400	2,401	2,388
Total: PM Period VHT	42,868	35,381	30,859	30,245	32,695
Total: Daily VHT (GP Lanes)	77,962	67,983	63,179	62,392	66,061
Daily VHT Per Lane Mile (GP Lanes)	995	868	807	797	843
All Lanes					
AM Period VHT	10,323	10,526	10,488	10,498	10,887
PM Period VHT	42,868	41,305	35,726	35,128	39,735
Daily VHT (All Lanes)	77,962	76,627	70,216	69,462	75,580
Daily VHT Per Lane Mile (All Lanes)	995	737	675	668	652

2035 VMT on I-75: Southbound

Measure	VMT No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	60,877	47,062	46,501	95,929
HOV 2	0	16,701	17,762	18,165	22,628
HOV 3+	0	48,138	44,222	46,953	55,942
Commercial Vehicle	0	4,194	4,298	4,332	6,047
Total: AM Period VMT	0	129,904	113,348	115,945	180,544
PM Peak Period					
SOV	0	4,212	0	0	0
HOV 2	0	14,700	0	0	0
HOV 3+	0	44,718	0	0	0
Commercial Vehicle	0	459	0	0	0
Total: PM Period VMT	0	64,084	0	0	0
Total: Daily VMT (HOT Lanes)	0	325,505	113,348	115,945	180,544
Daily VMT Per Lane Mile (HOT Lanes)	?	12,692	4,420	4,521	4,797
General Purpose Lanes					
AM Peak Period					
SOV	413,402	425,047	409,073	404,953	422,920
HOV 2	11,598	4,166	2,262	2,066	1,140
HOV 3+	17,917	1,291	948	858	613
Commercial Vehicle	31,527	29,630	32,153	32,362	26,960
Trucks (Medium & Heavy)	36,830	37,642	39,069	38,870	35,603
Total: AM Period VMT	511,268	497,772	483,509	479,107	487,236
PM Peak Period					
SOV	350,268	368,544	345,806	348,404	358,442
HOV 2	14,978	5,661	15,127	15,174	14,864
HOV 3+	24,267	2,024	24,731	24,745	24,559
Commercial Vehicle	34,584	36,233	35,005	34,813	34,125
Trucks (Medium & Heavy)	40,633	41,958	41,259	41,477	40,942
Total: PM Period VMT	464,730	454,419	461,930	464,615	472,927
Total: Daily VMT (GP Lanes)	1,896,230	1,835,558	1,863,158	1,862,946	1,902,883
Daily VMT Per Lane Mile (GP Lanes)	24,452	23,670	24,026	24,023	24,538
All Lanes					
AM Period VMT	511,268	627,676	596,857	595,052	667,781
PM Period VMT	464,730	518,502	461,930	464,615	472,927
Daily VMT (All Lanes)	1,896,230	2,161,063	1,976,506	1,978,891	2,083,427
Daily VMT Per Lane Mile (All Lanes)	24,452	20,942	19,153	19,176	18,087

2035 VHT on I-75: Southbound

Trip Purpose	VHT No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	1,579	1,059	1,048	2,304
HOV 2	0	440	396	414	545
HOV 3+	0	1,262	980	1,062	1,344
Commercial Vehicle	0	109	97	98	145
Total: AM Period VHT	0	3,389	2,532	2,621	4,338
PM Peak Period					
SOV	0	73	0	0	0
HOV 2	0	242	0	0	0
HOV 3+	0	734	0	0	0
Commercial Vehicle	0	8	0	0	0
Total: PM Period VHT	0	1,057	0	0	0
Total: Daily VHT (HOT Lanes)	0	6,564	2,532	2,621	4,338
Daily VHT Per Lane Mile (HOT Lanes)	?	256	99	102	115
General Purpose Lanes					
AM Peak Period					
SOV	24,616	22,854	20,163	19,318	20,889
HOV 2	694	225	112	99	57
HOV 3+	1,073	70	47	41	31
Commercial Vehicle	1,891	1,600	1,592	1,547	1,337
Trucks (Medium & Heavy)	2,196	2,018	1,926	1,864	1,756
Total: AM Period VHT	30,469	26,768	23,840	22,868	24,071
PM Peak Period					
SOV	13,043	12,813	12,682	13,046	14,084
HOV 2	554	193	552	563	582
HOV 3+	899	71	903	920	962
Commercial Vehicle	1,278	1,249	1,278	1,296	1,339
Trucks (Medium & Heavy)	1,510	1,463	1,509	1,552	1,607
Total: PM Period VHT	17,285	15,789	16,924	17,377	18,574
Total: Daily VHT (GP Lanes)	73,207	66,291	66,030	65,577	70,668
Daily VHT Per Lane Mile (GP Lanes)	944	855	851	846	911
All Lanes					
AM Period VHT	30,469	30,157	26,372	25,490	28,408
PM Period VHT	17,285	16,846	16,924	17,377	18,574
Daily VHT (All Lanes)	73,207	72,855	68,562	68,198	75,006
Daily VHT Per Lane Mile (All Lanes)	944	706	664	661	651

2035 VMT on I-575: Both Directions

Measure	VMT No-Build	VMT Concept A Bi-Directional	VMT Concept B1 2-lane Reversible	VMT Concept B2 2-lane Reversible	VMT Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	25,215	12,768	13,457	30,148
HOV 2	0	5,722	8,824	5,349	7,772
HOV 3+	0	22,706	21,918	17,296	23,838
Commercial Vehicle	0	1,011	1,145	827	835
Total: AM Period VMT	0	54,655	44,655	36,924	62,589
PM Peak Period					
SOV	0	38,338	25,825	33,898	43,717
HOV 2	0	9,297	11,734	6,751	7,349
HOV 3+	0	32,560	28,216	21,072	24,895
Commercial Vehicle	0	1,957	2,582	2,396	1,776
Total: PM Period VMT	0	82,158	68,360	64,116	77,740
Total: Daily VMT (HOT Lanes)	0	176,358	148,083	120,908	166,504
Daily VMT Per Lane Mile (HOT Lanes)	?	7,989	6,708	5,477	7,543
General Purpose Lanes					
AM Peak Period					
SOV	277,270	286,026	278,112	270,335	302,951
HOV 2	14,730	11,508	8,282	11,301	10,683
HOV 3+	21,240	10,888	10,043	14,237	13,842
Commercial Vehicle	39,323	38,360	40,093	40,443	36,560
Trucks (Medium & Heavy)	20,530	20,804	21,801	21,821	19,363
Total: AM Period VMT	373,092	367,581	358,332	358,142	383,394
PM Peak Period					
SOV	343,536	350,690	341,900	328,736	366,389
HOV 2	25,861	19,793	18,148	22,187	21,635
HOV 3+	38,424	21,707	23,867	29,817	29,505
Commercial Vehicle	45,685	45,089	46,255	46,831	42,475
Trucks (Medium & Heavy)	23,913	24,652	25,639	25,912	23,107
Total: PM Period VMT	477,416	461,930	455,803	453,487	483,112
Total: Daily VMT (GP Lanes)	1,533,073	1,503,726	1,475,108	1,480,567	1,569,369
Daily VMT Per Lane Mile (GP Lanes)	21,511	21,099	20,698	20,774	22,020
All Lanes					
AM Period VMT	373,092	422,236	402,987	395,065	445,982
PM Period VMT	477,416	544,088	524,163	517,602	560,852
Daily VMT (All Lanes)	1,533,073	1,680,084	1,623,192	1,601,475	1,735,873
Daily VMT Per Lane Mile (All Lanes)	21,511	17,999	17,389	17,157	18,596

2035 VHT on I-575: Both Directions

Trip Purpose	VHT No-Build	VHT Concept A Bi-Directional	VHT Concept B1 2-lane Reversible	VHT Concept B2 2-lane Reversible	VHT Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	549	302	241	872
HOV 2	0	125	186	96	226
HOV 3+	0	472	457	311	690
Commercial Vehicle	0	22	27	15	24
Total: AM Period VHT	0	1,169	972	663	1,812
PM Peak Period					
SOV	0	1,140	880	848	1,829
HOV 2	0	254	382	176	314
HOV 3+	0	842	904	550	1,061
Commercial Vehicle	0	58	89	60	75
Total: PM Period VHT	0	2,295	2,255	1,635	3,278
Total: Daily VHT (HOT Lanes)	0	4,078	3,776	2,606	5,497
Daily VHT Per Lane Mile (HOT Lanes)	?	185	171	118	249
General Purpose Lanes					
AM Peak Period					
SOV	12,186	11,362	9,902	9,748	12,917
HOV 2	613	415	235	376	399
HOV 3+	882	411	252	446	490
Commercial Vehicle	1,420	1,282	1,244	1,279	1,277
Trucks (Medium & Heavy)	739	700	685	697	681
Total: AM Period VHT	15,841	14,169	12,319	12,546	15,765
PM Peak Period					
SOV	19,331	16,776	15,148	14,281	19,748
HOV 2	1,339	891	678	902	1,052
HOV 3+	1,963	1,014	818	1,163	1,364
Commercial Vehicle	2,230	1,925	1,875	1,889	2,025
Trucks (Medium & Heavy)	1,149	1,055	1,048	1,050	1,100
Total: PM Period VHT	26,013	21,661	19,567	19,285	25,289
Total: Daily VHT (GP Lanes)	55,929	49,544	45,220	45,442	55,753
Daily VHT Per Lane Mile (GP Lanes)	785	695	634	638	782
All Lanes					
AM Period VHT	15,841	15,337	13,291	13,209	17,577
PM Period VHT	26,013	23,956	21,822	20,920	28,567
Daily VHT (All Lanes)	55,929	53,622	48,995	48,048	61,250
Daily VHT Per Lane Mile (All Lanes)	785	574	525	515	656

2035 VMT on I-575: Northbound

	VMT				
Measure	**No-Build**	**Concept A Bi-Directional**	**Concept B1 2-lane Reversible**	**Concept B2 2-lane Reversible**	**Concept C 3-lane Reversible**
HOT Lanes					
AM Peak Period					
SOV	0	0	0	0	0
HOV 2	0	16	0	0	0
HOV 3+	0	3,916	0	0	0
Commercial Vehicle	0	0	0	0	0
Total: AM Period VMT	0	3,932	0	0	0
PM Peak Period					
SOV	0	38,315	25,825	33,898	43,717
HOV 2	0	7,232	11,734	6,751	7,349
HOV 3+	0	22,094	28,216	21,072	24,895
Commercial Vehicle	0	1,954	2,582	2,396	1,776
Total: PM Period VMT	0	69,601	68,360	64,116	77,740
Total: Daily VMT (HOT Lanes)	0	95,835	103,429	83,984	103,915
Daily VMT Per Lane Mile (HOT Lanes)	?	8,689	9,378	7,615	9,422
General Purpose Lanes					
AM Peak Period					
SOV	82,783	88,643	86,033	85,297	93,076
HOV 2	5,569	5,688	5,678	5,684	5,810
HOV 3+	8,060	5,144	8,373	8,507	8,622
Commercial Vehicle	20,850	21,105	21,024	20,963	20,968
Trucks (Medium & Heavy)	10,906	11,131	11,010	10,906	10,842
Total: AM Period VMT	128,165	131,712	132,120	131,360	139,317
PM Peak Period					
SOV	208,680	207,784	204,420	192,493	220,125
HOV 2	12,875	8,795	5,066	9,095	8,555
HOV 3+	18,656	9,659	3,748	9,587	9,259
Commercial Vehicle	20,544	19,443	20,997	21,617	17,723
Trucks (Medium & Heavy)	10,450	10,867	12,110	12,418	9,752
Total: PM Period VMT	271,203	256,545	246,339	245,211	265,413
Total: Daily VMT (GP Lanes)	742,362	727,522	699,147	706,699	753,452
Daily VMT Per Lane Mile (GP Lanes)	21,292	20,866	20,053	20,269	21,610
All Lanes					
AM Period VMT	128,165	135,644	132,120	131,360	139,317
PM Period VMT	271,203	326,146	314,699	309,326	343,152
Daily VMT (All Lanes)	742,362	823,357	802,576	790,683	857,368
Daily VMT Per Lane Mile (All Lanes)	21,292	17,940	17,487	17,228	18,681

2035 VHT on I-575: Northbound

	VHT				
Trip Purpose	**No-Build**	**Concept A Bi-Directional**	**Concept B1 2-lane Reversible**	**Concept B2 2-lane Reversible**	**Concept C 3-lane Reversible**
HOT Lanes					
AM Peak Period					
SOV	0	0	0	0	0
HOV 2	0	0	0	0	0
HOV 3+	0	60	0	0	0
Commercial Vehicle	0	0	0	0	0
Total: AM Period VHT	0	61	0	0	0
PM Peak Period					
SOV	0	1,140	880	848	1,829
HOV 2	0	222	382	176	314
HOV 3+	0	679	904	550	1,061
Commercial Vehicle	0	58	89	60	75
Total: PM Period VHT	0	2,100	2,255	1,635	3,278
Total: Daily VHT (HOT Lanes)	0	2,507	2,803	1,943	3,685
Daily VHT Per Lane Mile (HOT Lanes)	?	227	254	176	334
General Purpose Lanes					
AM Peak Period					
SOV	1,721	1,877	1,824	1,801	2,050
HOV 2	116	121	120	120	128
HOV 3+	168	110	177	179	190
Commercial Vehicle	432	446	444	441	460
Trucks (Medium & Heavy)	226	235	233	230	238
Total: AM Period VHT	2,663	2,788	2,799	2,771	3,066
PM Peak Period					
SOV	15,469	12,687	11,075	10,321	14,982
HOV 2	966	571	290	521	624
HOV 3+	1,397	650	223	575	704
Commercial Vehicle	1,515	1,196	1,133	1,161	1,224
Trucks (Medium & Heavy)	766	662	650	660	668
Total: PM Period VHT	20,114	15,766	13,371	13,239	18,202
Total: Daily VHT (GP Lanes)	29,768	25,393	22,393	22,575	28,420
Daily VHT Per Lane Mile (GP Lanes)	854	728	642	647	815
All Lanes					
AM Period VHT	2,663	2,849	2,799	2,771	3,066
PM Period VHT	20,114	17,867	15,626	14,873	21,480
Daily VHT (All Lanes)	29,768	27,900	25,197	24,519	32,105
Daily VHT Per Lane Mile (All Lanes)	854	608	549	534	700

2035 VMT on I-575: Southbound

Measure	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VMT				
HOT Lanes					
AM Peak Period					
SOV	0	25,215	12,768	13,457	30,148
HOV 2	0	5,706	8,824	5,349	7,772
HOV 3+	0	18,790	21,918	17,296	23,838
Commercial Vehicle	0	1,011	1,145	827	835
Total: AM Period VMT	0	50,723	44,655	36,924	62,589
PM Peak Period					
SOV	0	23	0	0	0
HOV 2	0	2,065	0	0	0
HOV 3+	0	10,466	0	0	0
Commercial Vehicle	0	3	0	0	0
Total: PM Period VMT	0	12,557	0	0	0
Total: Daily VMT (HOT Lanes)	0	80,523	44,655	36,924	62,589
Daily VMT Per Lane Mile (HOT Lanes)	?	7,290	4,043	3,343	5,666
General Purpose Lanes					
AM Peak Period					
SOV	194,486	197,383	192,079	185,038	209,874
HOV 2	9,161	5,820	2,603	5,616	4,874
HOV 3+	13,180	5,744	1,670	5,730	5,220
Commercial Vehicle	18,473	17,255	19,069	19,480	15,591
Trucks (Medium & Heavy)	9,625	9,673	10,791	10,915	8,521
Total: AM Period VMT	244,927	235,869	226,212	226,781	244,077
PM Peak Period					
SOV	134,856	142,907	137,480	136,243	146,263
HOV 2	12,986	10,998	13,082	13,091	13,081
HOV 3+	19,768	12,048	20,119	20,231	20,246
Commercial Vehicle	25,142	25,646	25,258	25,213	24,751
Trucks (Medium & Heavy)	13,463	13,785	13,530	13,493	13,356
Total: PM Period VMT	206,213	205,385	209,464	208,276	217,700
Total: Daily VMT (GP Lanes)	790,711	776,204	775,961	773,868	815,916
Daily VMT Per Lane Mile (GP Lanes)	21,721	21,322	21,316	21,258	22,413
All Lanes					
AM Period VMT	244,927	286,591	270,867	263,705	306,666
PM Period VMT	206,213	217,942	209,464	208,276	217,700
Daily VMT (All Lanes)	790,711	856,727	820,616	810,792	878,505
Daily VMT Per Lane Mile (All Lanes)	21,721	18,056	17,295	17,087	18,515

2035 VHT on I-575: Southbound

Trip Purpose	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VHT				
HOT Lanes					
AM Peak Period					
SOV	0	549	302	241	872
HOV 2	0	125	186	96	226
HOV 3+	0	411	457	311	690
Commercial Vehicle	0	22	27	15	24
Total: AM Period VHT	0	1,108	972	663	1,812
PM Peak Period					
SOV	0	0	0	0	0
HOV 2	0	32	0	0	0
HOV 3+	0	163	0	0	0
Commercial Vehicle	0	0	0	0	0
Total: PM Period VHT	0	195	0	0	0
Total: Daily VHT (HOT Lanes)	0	1,571	972	663	1,812
Daily VHT Per Lane Mile (HOT Lanes)	?	142	88	60	164
General Purpose Lanes					
AM Peak Period					
SOV	10,465	9,485	8,078	7,948	10,868
HOV 2	497	294	115	256	271
HOV 3+	715	301	75	267	300
Commercial Vehicle	988	836	800	838	817
Trucks (Medium & Heavy)	513	465	453	467	443
Total: AM Period VHT	13,178	11,380	9,519	9,775	12,699
PM Peak Period					
SOV	3,862	4,089	4,073	3,960	4,766
HOV 2	372	320	388	381	427
HOV 3+	566	363	595	588	660
Commercial Vehicle	715	729	742	728	800
Trucks (Medium & Heavy)	383	393	398	390	433
Total: PM Period VHT	5,899	5,894	6,197	6,046	7,087
Total: Daily VHT (GP Lanes)	26,161	24,151	22,826	22,867	27,333
Daily VHT Per Lane Mile (GP Lanes)	719	663	627	628	751
All Lanes					
AM Period VHT	13,178	12,488	10,492	10,438	14,511
PM Period VHT	5,899	6,090	6,197	6,046	7,087
Daily VHT (All Lanes)	26,161	25,722	23,798	23,530	29,145
Daily VHT Per Lane Mile (All Lanes)	719	542	502	496	614

2035 PMT on I-75: Both Directions

Measure	VMT				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	62,517	47,062	46,501	95,929
HOV 2	0	38,422	35,523	36,330	45,256
HOV 3+	0	235,534	156,805	166,359	197,118
Commercial Vehicle	0	4,355	4,298	4,332	6,047
Total: AM Period PMT	0	340,829	243,688	253,522	344,349
PM Peak Period					
SOV	0	77,431	66,540	69,460	125,938
HOV 2	0	75,669	48,503	44,136	55,207
HOV 3+	0	379,498	210,677	210,078	245,390
Commercial Vehicle	0	6,342	7,426	6,974	10,126
Total: PM Period PMT	0	538,941	333,146	330,649	436,660
Total: Daily PMT (HOT Lanes)	0	1,598,645	934,790	945,071	1,177,099
Daily PMT Per Lane Mile (HOT Lanes)	?	31,179	18,232	18,432	15,636
General Purpose Lanes					
AM Peak Period					
SOV	677,490	694,591	673,873	670,331	696,162
HOV 2	36,633	18,831	18,452	18,045	16,065
HOV 3+	99,967	8,655	41,314	40,960	40,037
Commercial Vehicle	63,992	62,789	64,768	65,037	59,316
Trucks (Medium & Heavy)	78,294	80,528	81,132	80,636	76,332
Total: AM Period PMT	956,376	865,395	879,538	875,009	887,912
PM Peak Period					
SOV	795,664	821,595	779,519	777,783	805,945
HOV 2	62,610	23,009	39,722	41,967	38,787
HOV 3+	175,579	18,189	96,385	97,126	94,913
Commercial Vehicle	70,732	69,406	70,041	70,624	65,120
Trucks (Medium & Heavy)	78,324	79,890	81,231	82,064	78,907
Total: PM Period PMT	1,182,909	1,012,089	1,066,898	1,069,564	1,083,672
Total: Daily PMT (GP Lanes)	4,276,121	3,681,744	3,904,290	3,897,559	3,967,355
Daily PMT Per Lane Mile (GP Lanes)	27,433	23,620	25,048	25,005	25,453
All Lanes					
AM Period PMT	956,376	1,206,224	1,123,226	1,128,531	1,232,262
PM Period PMT	1,182,909	1,551,030	1,400,044	1,400,213	1,520,332
Daily PMT (All Lanes)	4,276,121	5,280,390	4,839,080	4,842,630	5,144,455
Daily PMT Per Lane Mile (All Lanes)	27,433	25,491	23,361	23,378	22,255

2035 PHT on I-75: Both Directions

Trip Purpose	VHT				
	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	1,605	1,059	1,048	2,304
HOV 2	0	958	793	828	1,090
HOV 3+	0	5,477	3,475	3,760	4,734
Commercial Vehicle	0	111	97	98	145
Total: AM Period PHT	0	8,152	5,423	5,734	8,274
PM Peak Period					
SOV	0	2,695	2,053	2,138	3,821
HOV 2	0	2,168	1,507	1,378	1,657
HOV 3+	0	10,597	6,513	6,550	7,371
Commercial Vehicle	0	217	229	214	308
Total: PM Period PHT	0	15,678	10,303	10,280	13,157
Total: Daily PHT (HOT Lanes)	0	35,408	21,454	21,788	27,664
Daily PHT Per Lane Mile (HOT Lanes)	?	691	418	425	367
General Purpose Lanes					
AM Peak Period					
SOV	32,316	30,652	27,956	27,130	29,079
HOV 2	1,766	743	623	595	517
HOV 3+	4,834	364	1,258	1,234	1,219
Commercial Vehicle	2,820	2,543	2,537	2,492	2,293
Trucks (Medium & Heavy)	3,409	3,268	3,169	3,098	2,982
Total: AM Period PHT	45,145	37,569	35,543	34,549	36,090
PM Peak Period					
SOV	47,066	42,852	38,609	38,288	42,034
HOV 2	3,596	1,169	1,675	1,813	1,733
HOV 3+	9,998	994	3,714	3,803	3,898
Commercial Vehicle	4,063	3,460	3,387	3,409	3,281
Trucks (Medium & Heavy)	4,418	3,991	3,910	3,953	3,995
Total: PM Period PHT	69,140	52,466	51,293	51,266	54,941
Total: Daily PHT (GP Lanes)	172,981	137,722	139,060	137,762	147,099
Daily PHT Per Lane Mile (GP Lanes)	1,110	884	892	884	944
All Lanes					
AM Period PHT	45,145	45,721	40,966	40,283	44,364
PM Period PHT	69,140	68,144	61,596	61,546	68,098
Daily PHT (All Lanes)	172,981	173,130	160,514	159,550	174,763
Daily PHT Per Lane Mile (All Lanes)	1,110	836	775	770	756

2035 PMT on I-75: Northbound

Measure	VMT No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	1,640	0	0	0
HOV 2	0	5,021	0	0	0
HOV 3+	0	65,550	0	0	0
Commercial Vehicle	0	161	0	0	0
Total: AM Period PMT	0	72,371	0	0	0
PM Peak Period					
SOV	0	73,219	66,540	69,460	125,938
HOV 2	0	46,270	48,503	44,136	55,207
HOV 3+	0	219,744	210,677	210,078	245,390
Commercial Vehicle	0	5,884	7,426	6,974	10,126
Total: PM Period PMT	0	345,117	333,146	330,649	436,660
Total: Daily PMT (HOT Lanes)	0	793,473	691,103	691,549	832,750
Daily PMT Per Lane Mile (HOT Lanes)	?	30,964	26,969	26,987	22,122
General Purpose Lanes					
AM Peak Period					
SOV	264,087	269,544	264,800	265,378	273,242
HOV 2	13,437	10,499	13,929	13,912	13,785
HOV 3+	36,519	4,132	37,987	37,956	37,893
Commercial Vehicle	32,465	33,159	32,614	32,675	32,356
Trucks (Medium & Heavy)	41,463	42,886	42,062	41,767	40,729
Total: AM Period PMT	387,972	360,220	391,392	391,689	398,005
PM Peak Period					
SOV	445,396	453,051	433,713	429,379	447,503
HOV 2	32,654	11,687	9,468	11,619	9,060
HOV 3+	88,847	11,079	7,938	8,654	7,182
Commercial Vehicle	36,148	33,174	35,036	35,812	30,994
Trucks (Medium & Heavy)	37,690	37,932	39,971	40,587	37,965
Total: PM Period PMT	640,735	546,923	526,126	526,051	532,705
Total: Daily PMT (GP Lanes)	2,092,327	1,797,913	1,800,374	1,797,117	1,820,835
Daily PMT Per Lane Mile (GP Lanes)	26,714	22,955	22,986	22,944	23,247
All Lanes					
AM Period PMT	387,972	432,591	391,392	391,689	398,005
PM Period PMT	640,735	892,040	859,272	856,700	969,365
Daily PMT (All Lanes)	2,092,327	2,591,386	2,491,477	2,488,666	2,653,585
Daily PMT Per Lane Mile (All Lanes)	26,714	24,929	23,968	23,941	22,882

2035 PHT on I-75: Northbound

Trip Purpose	VHT No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	27	0	0	0
HOV 2	0	79	0	0	0
HOV 3+	0	1,022	0	0	0
Commercial Vehicle	0	3	0	0	0
Total: AM Period PHT	0	1,130	0	0	0
PM Peak Period					
SOV	0	2,623	2,053	2,138	3,821
HOV 2	0	1,684	1,507	1,378	1,657
HOV 3+	0	7,975	6,513	6,550	7,371
Commercial Vehicle	0	209	229	214	308
Total: PM Period PHT	0	12,490	10,303	10,280	13,157
Total: Daily PHT (HOT Lanes)	0	19,674	16,030	16,054	19,390
Daily PHT Per Lane Mile (HOT Lanes)	?	768	626	626	515
General Purpose Lanes					
AM Peak Period					
SOV	7,700	7,798	7,794	7,812	8,190
HOV 2	379	292	400	398	403
HOV 3+	1,032	117	1,092	1,089	1,110
Commercial Vehicle	929	943	944	946	956
Trucks (Medium & Heavy)	1,213	1,250	1,242	1,234	1,226
Total: AM Period PHT	11,254	10,399	11,472	11,478	11,885
PM Peak Period					
SOV	34,023	30,039	25,927	25,241	27,950
HOV 2	2,487	783	571	686	569
HOV 3+	6,785	744	483	515	461
Commercial Vehicle	2,784	2,211	2,108	2,113	1,942
Trucks (Medium & Heavy)	2,908	2,528	2,400	2,401	2,388
Total: PM Period PHT	48,987	36,305	31,490	30,957	33,309
Total: Daily PHT (GP Lanes)	89,233	69,891	65,565	64,792	68,372
Daily PHT Per Lane Mile (GP Lanes)	1,139	892	837	827	873
All Lanes					
AM Period PHT	11,254	11,529	11,472	11,478	11,885
PM Period PHT	48,987	48,796	41,793	41,237	46,466
Daily PHT (All Lanes)	89,233	89,564	81,595	80,846	87,762
Daily PHT Per Lane Mile (All Lanes)	1,139	862	785	778	757

2035 PMT on I-75: Southbound

Measure	VMT No-Build	VMT Concept A Bi-Directional	VMT Concept B1 2-lane Reversible	VMT Concept B2 2-lane Reversible	VMT Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	60,877	47,062	46,501	95,929
HOV 2	0	33,402	35,523	36,330	45,256
HOV 3+	0	169,984	156,805	166,359	197,118
Commercial Vehicle	0	4,194	4,298	4,332	6,047
Total: AM Period PMT	0	268,458	243,688	253,522	344,349
PM Peak Period					
SOV	0	4,212	0	0	0
HOV 2	0	29,399	0	0	0
HOV 3+	0	159,754	0	0	0
Commercial Vehicle	0	459	0	0	0
Total: PM Period PMT	0	193,824	0	0	0
Total: Daily PMT (HOT Lanes)	0	805,172	243,688	253,522	344,349
Daily PMT Per Lane Mile (HOT Lanes)	?	31,394	9,502	9,885	9,149
General Purpose Lanes					
AM Peak Period					
SOV	413,402	425,047	409,073	404,953	422,920
HOV 2	23,196	8,332	4,524	4,132	2,280
HOV 3+	63,448	4,523	3,326	3,004	2,144
Commercial Vehicle	31,527	29,630	32,153	32,362	26,960
Trucks (Medium & Heavy)	36,830	37,642	39,069	38,870	35,603
Total: AM Period PMT	568,404	505,175	488,146	483,320	489,907
PM Peak Period					
SOV	350,268	368,544	345,806	348,404	358,442
HOV 2	29,956	11,322	30,254	30,348	29,727
HOV 3+	86,732	7,110	88,448	88,472	87,731
Commercial Vehicle	34,584	36,233	35,005	34,813	34,125
Trucks (Medium & Heavy)	40,633	41,958	41,259	41,477	40,942
Total: PM Period PMT	542,174	465,166	540,772	543,513	550,967
Total: Daily PMT (GP Lanes)	2,183,793	1,883,831	2,103,916	2,100,442	2,146,520
Daily PMT Per Lane Mile (GP Lanes)	28,161	24,293	27,131	27,086	27,680
All Lanes					
AM Period PMT	568,404	773,633	731,833	736,842	834,256
PM Period PMT	542,174	658,989	540,772	543,513	550,967
Daily PMT (All Lanes)	2,183,793	2,689,004	2,347,603	2,353,964	2,490,869
Daily PMT Per Lane Mile (All Lanes)	28,161	26,058	22,749	22,811	21,625

2035 PHT on I-75: Southbound

Trip Purpose	VHT No-Build	VHT Concept A Bi-Directional	VHT Concept B1 2-lane Reversible	VHT Concept B2 2-lane Reversible	VHT Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	1,579	1,059	1,048	2,304
HOV 2	0	880	793	828	1,090
HOV 3+	0	4,455	3,475	3,760	4,734
Commercial Vehicle	0	109	97	98	145
Total: AM Period PHT	0	7,022	5,423	5,734	8,274
PM Peak Period					
SOV	0	73	0	0	0
HOV 2	0	485	0	0	0
HOV 3+	0	2,622	0	0	0
Commercial Vehicle	0	8	0	0	0
Total: PM Period PHT	0	3,188	0	0	0
Total: Daily PHT (HOT Lanes)	0	15,735	5,423	5,734	8,274
Daily PHT Per Lane Mile (HOT Lanes)	?	614	211	224	220
General Purpose Lanes					
AM Peak Period					
SOV	24,616	22,854	20,163	19,318	20,889
HOV 2	1,387	451	224	197	114
HOV 3+	3,801	247	165	145	109
Commercial Vehicle	1,891	1,600	1,592	1,547	1,337
Trucks (Medium & Heavy)	2,196	2,018	1,926	1,864	1,756
Total: AM Period PHT	33,892	27,170	24,070	23,070	24,205
PM Peak Period					
SOV	13,043	12,813	12,682	13,046	14,084
HOV 2	1,109	386	1,104	1,127	1,165
HOV 3+	3,213	250	3,230	3,288	3,437
Commercial Vehicle	1,278	1,249	1,278	1,296	1,339
Trucks (Medium & Heavy)	1,510	1,463	1,509	1,552	1,607
Total: PM Period PHT	20,153	16,161	19,803	20,309	21,632
Total: Daily PHT (GP Lanes)	83,748	67,831	73,495	72,970	78,727
Daily PHT Per Lane Mile (GP Lanes)	1,080	875	948	941	1,015
All Lanes					
AM Period PHT	33,892	34,192	29,494	28,804	32,479
PM Period PHT	20,153	19,349	19,803	20,309	21,632
Daily PHT (All Lanes)	83,748	83,566	78,919	78,704	87,001
Daily PHT Per Lane Mile (All Lanes)	1,080	810	765	763	755

2035 PMT on I-575: Both Directions

Measure	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VMT				
HOT Lanes					
AM Peak Period					
SOV	0	25,215	12,768	13,457	30,148
HOV 2	0	11,443	17,648	10,699	15,543
HOV 3+	0	80,046	77,484	61,167	83,396
Commercial Vehicle	0	1,011	1,145	827	835
Total: AM Period PMT	0	117,715	109,046	86,150	129,923
PM Peak Period					
SOV	0	38,338	25,825	33,898	43,717
HOV 2	0	18,594	23,468	13,502	14,699
HOV 3+	0	115,626	100,112	74,847	87,465
Commercial Vehicle	0	1,957	2,582	2,396	1,776
Total: PM Period PMT	0	174,515	151,987	124,643	147,657
Total: Daily PMT (HOT Lanes)	0	426,739	371,324	278,583	362,934
Daily PMT Per Lane Mile (HOT Lanes)	?	19,331	16,821	12,620	16,441
General Purpose Lanes					
AM Peak Period					
SOV	277,270	286,026	278,112	270,335	302,951
HOV 2	29,460	23,016	16,563	22,601	21,367
HOV 3+	75,028	38,256	35,511	50,230	48,832
Commercial Vehicle	39,323	38,360	40,093	40,443	36,560
Trucks (Medium & Heavy)	20,530	20,804	21,801	21,821	19,363
Total: AM Period PMT	441,610	406,463	392,081	405,430	429,073
PM Peak Period					
SOV	343,536	350,690	341,900	328,736	366,389
HOV 2	51,721	39,586	36,295	44,373	43,271
HOV 3+	136,456	76,637	84,877	105,840	104,673
Commercial Vehicle	45,685	45,089	46,255	46,831	42,475
Trucks (Medium & Heavy)	23,913	24,652	25,639	25,912	23,107
Total: PM Period PMT	601,311	536,654	534,967	551,692	579,914
Total: Daily PMT (GP Lanes)	1,953,564	1,774,580	1,752,101	1,819,405	1,902,899
Daily PMT Per Lane Mile (GP Lanes)	27,411	24,900	24,584	25,529	26,700
All Lanes					
AM Period PMT	441,610	524,178	501,126	491,580	558,995
PM Period PMT	601,311	711,170	686,953	676,334	727,571
Daily PMT (All Lanes)	1,953,564	2,201,319	2,123,425	2,097,988	2,265,833
Daily PMT Per Lane Mile (All Lanes)	27,411	23,583	22,748	22,476	24,274

2035 PHT on I-575: Both Directions

Trip Purpose	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VHT				
HOT Lanes					
AM Peak Period					
SOV	0	549	302	241	872
HOV 2	0	250	372	193	451
HOV 3+	0	1,662	1,615	1,099	2,415
Commercial Vehicle	0	22	27	15	24
Total: AM Period PHT	0	2,484	2,317	1,548	3,763
PM Peak Period					
SOV	0	1,140	880	848	1,829
HOV 2	0	509	764	352	627
HOV 3+	0	2,983	3,206	1,953	3,727
Commercial Vehicle	0	58	89	60	75
Total: PM Period PHT	0	4,691	4,940	3,214	6,257
Total: Daily PHT (HOT Lanes)	0	9,262	8,981	5,814	11,346
Daily PHT Per Lane Mile (HOT Lanes)	?	420	407	263	514
General Purpose Lanes					
AM Peak Period					
SOV	12,186	11,362	9,902	9,748	12,917
HOV 2	1,225	829	471	751	798
HOV 3+	3,114	1,444	890	1,571	1,726
Commercial Vehicle	1,420	1,282	1,244	1,279	1,277
Trucks (Medium & Heavy)	739	700	685	697	681
Total: AM Period PHT	18,686	15,617	13,192	14,046	17,400
PM Peak Period					
SOV	19,331	16,776	15,148	14,281	19,748
HOV 2	2,677	1,783	1,357	1,805	2,104
HOV 3+	6,963	3,577	2,905	4,119	4,832
Commercial Vehicle	2,230	1,925	1,875	1,889	2,025
Trucks (Medium & Heavy)	1,149	1,055	1,048	1,050	1,100
Total: PM Period PHT	32,351	25,115	22,333	23,144	29,809
Total: Daily PHT (GP Lanes)	69,797	57,654	52,191	54,741	65,929
Daily PHT Per Lane Mile (GP Lanes)	979	809	732	768	925
All Lanes					
AM Period PHT	18,686	18,100	15,508	15,594	21,162
PM Period PHT	32,351	29,807	27,273	26,358	36,066
Daily PHT (All Lanes)	69,797	66,916	61,171	60,555	77,275
Daily PHT Per Lane Mile (All Lanes)	979	717	655	649	828

2035 PMT on I-575: Northbound

Measure	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VMT				
HOT Lanes					
AM Peak Period					
SOV	0	0	0	0	0
HOV 2	0	32	0	0	0
HOV 3+	0	13,989	0	0	0
Commercial Vehicle	0	0	0	0	0
Total: AM Period PMT	0	14,020	0	0	0
PM Peak Period					
SOV	0	38,315	25,825	33,898	43,717
HOV 2	0	14,464	23,468	13,502	14,699
HOV 3+	0	78,039	100,112	74,847	87,465
Commercial Vehicle	0	1,954	2,582	2,396	1,776
Total: PM Period PMT	0	132,773	151,987	124,643	147,657
Total: Daily PMT (HOT Lanes)	0	221,427	262,278	192,433	233,011
Daily PMT Per Lane Mile (HOT Lanes)	?	20,077	23,781	17,448	21,127
General Purpose Lanes					
AM Peak Period					
SOV	82,783	88,643	86,033	85,297	93,076
HOV 2	11,139	11,376	11,357	11,368	11,619
HOV 3+	28,549	18,082	29,656	30,129	30,485
Commercial Vehicle	20,850	21,105	21,024	20,963	20,968
Trucks (Medium & Heavy)	10,906	11,131	11,010	10,906	10,842
Total: AM Period PMT	154,226	150,338	159,081	158,663	166,991
PM Peak Period					
SOV	208,680	207,784	204,420	192,493	220,125
HOV 2	25,750	17,591	10,132	18,191	17,109
HOV 3+	66,050	34,043	13,201	33,781	32,650
Commercial Vehicle	20,544	19,443	20,997	21,617	17,723
Trucks (Medium & Heavy)	10,450	10,867	12,110	12,418	9,752
Total: PM Period PMT	331,473	289,728	260,860	278,500	297,360
Total: Daily PMT (GP Lanes)	943,724	856,274	790,799	845,449	886,994
Daily PMT Per Lane Mile (GP Lanes)	27,067	24,559	22,681	24,249	25,440
All Lanes					
AM Period PMT	154,226	164,358	159,081	158,663	166,991
PM Period PMT	331,473	422,500	412,846	403,143	445,017
Daily PMT (All Lanes)	943,724	1,077,700	1,053,077	1,037,883	1,120,005
Daily PMT Per Lane Mile (All Lanes)	27,067	23,482	22,946	22,614	24,404

2035 PHT on I-575: Northbound

Trip Purpose	No-Build	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
	VHT				
HOT Lanes					
AM Peak Period					
SOV	0	0	0	0	0
HOV 2	0	0	0	0	0
HOV 3+	0	216	0	0	0
Commercial Vehicle	0	0	0	0	0
Total: AM Period PHT	0	216	0	0	0
PM Peak Period					
SOV	0	1,140	880	848	1,829
HOV 2	0	445	764	352	627
HOV 3+	0	2,399	3,206	1,953	3,727
Commercial Vehicle	0	58	89	60	75
Total: PM Period PHT	0	4,042	4,940	3,214	6,257
Total: Daily PHT (HOT Lanes)	0	5,417	6,664	4,266	7,584
Daily PHT Per Lane Mile (HOT Lanes)	?	491	604	387	688
General Purpose Lanes					
AM Peak Period					
SOV	1,721	1,877	1,824	1,801	2,050
HOV 2	232	241	241	240	256
HOV 3+	594	387	628	635	671
Commercial Vehicle	432	446	444	441	460
Trucks (Medium & Heavy)	226	235	233	230	238
Total: AM Period PHT	3,205	3,186	3,370	3,347	3,675
PM Peak Period					
SOV	15,469	12,687	11,075	10,321	14,982
HOV 2	1,933	1,142	581	1,043	1,249
HOV 3+	4,946	2,293	785	2,027	2,484
Commercial Vehicle	1,515	1,196	1,133	1,161	1,224
Trucks (Medium & Heavy)	766	662	650	660	668
Total: PM Period PHT	24,629	17,980	14,223	15,211	20,607
Total: Daily PHT (GP Lanes)	37,159	29,560	24,777	26,677	32,966
Daily PHT Per Lane Mile (GP Lanes)	1,066	848	711	765	946
All Lanes					
AM Period PHT	3,205	3,402	3,370	3,347	3,675
PM Period PHT	24,629	22,022	19,163	18,426	26,864
Daily PHT (All Lanes)	37,159	34,977	31,441	30,943	40,549
Daily PHT Per Lane Mile (All Lanes)	1,066	762	685	674	884

2035 PMT on I-575: Southbound

Measure	No-Build (VMT)	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	25,215	12,768	13,457	30,148
HOV 2	0	11,412	17,648	10,699	15,543
HOV 3+	0	66,058	77,484	61,167	83,396
Commercial Vehicle	0	1,011	1,145	827	835
Total: AM Period PMT	0	103,695	109,046	86,150	129,923
PM Peak Period					
SOV	0	23	0	0	0
HOV 2	0	4,130	0	0	0
HOV 3+	0	37,587	0	0	0
Commercial Vehicle	0	3	0	0	0
Total: PM Period PMT					
Total: Daily PMT (HOT Lanes)	0	205,312	109,046	86,150	129,923
Daily PMT Per Lane Mile (HOT Lanes)	?	18,587	9,872	7,799	11,762
General Purpose Lanes					
AM Peak Period					
SOV	194,486	197,383	192,079	185,038	209,874
HOV 2	18,321	11,640	5,207	11,233	9,747
HOV 3+	46,479	20,174	5,854	20,101	18,348
Commercial Vehicle	18,473	17,255	19,069	19,480	15,591
Trucks (Medium & Heavy)	9,625	9,673	10,791	10,915	8,521
Total: AM Period PMT	287,384	256,125	233,000	246,767	262,082
PM Peak Period					
SOV	134,856	142,907	137,480	136,243	146,263
HOV 2	25,971	21,995	26,163	26,183	26,162
HOV 3+	70,406	42,593	71,676	72,059	72,022
Commercial Vehicle	25,142	25,646	25,258	25,213	24,751
Trucks (Medium & Heavy)	13,463	13,785	13,530	13,493	13,356
Total: PM Period PMT	269,838	246,926	274,107	273,191	282,554
Total: Daily PMT (GP Lanes)	1,009,841	918,307	961,302	973,956	1,015,905
Daily PMT Per Lane Mile (GP Lanes)	27,740	25,226	26,407	26,754	27,907
All Lanes					
AM Period PMT	287,384	359,820	342,046	332,917	392,005
PM Period PMT	269,838	288,669	274,107	273,191	282,554
Daily PMT (All Lanes)	1,009,841	1,123,619	1,070,347	1,060,106	1,145,828
Daily PMT Per Lane Mile (All Lanes)	27,740	23,680	22,558	22,342	24,148

2035 PHT on I-575: Southbound

Trip Purpose	No-Build (VHT)	Concept A Bi-Directional	Concept B1 2-lane Reversible	Concept B2 2-lane Reversible	Concept C 3-lane Reversible
HOT Lanes					
AM Peak Period					
SOV	0	549	302	241	872
HOV 2	0	250	372	193	451
HOV 3+	0	1,446	1,615	1,099	2,415
Commercial Vehicle	0	22	27	15	24
Total: AM Period PHT	0	2,267	2,317	1,548	3,763
PM Peak Period					
SOV	0	0	0	0	0
HOV 2	0	64	0	0	0
HOV 3+	0	585	0	0	0
Commercial Vehicle	0	0	0	0	0
Total: PM Period PHT	0	649	0	0	0
Total: Daily PHT (HOT Lanes)	0	3,845	2,317	1,548	3,763
Daily PHT Per Lane Mile (HOT Lanes)	?	348	210	140	341
General Purpose Lanes					
AM Peak Period					
SOV	10,465	9,485	8,078	7,948	10,868
HOV 2	994	588	230	511	542
HOV 3+	2,521	1,057	262	936	1,055
Commercial Vehicle	988	836	800	838	817
Trucks (Medium & Heavy)	513	465	453	467	443
Total: AM Period PHT	15,480	12,431	9,821	10,700	13,725
PM Peak Period					
SOV	3,862	4,089	4,073	3,960	4,766
HOV 2	745	640	776	762	855
HOV 3+	2,017	1,284	2,120	2,093	2,348
Commercial Vehicle	715	729	742	728	800
Trucks (Medium & Heavy)	383	393	398	390	433
Total: PM Period PHT	7,722	7,135	8,110	7,932	9,202
Total: Daily PHT (GP Lanes)	32,638	28,094	27,413	28,064	32,963
Daily PHT Per Lane Mile (GP Lanes)	897	772	753	771	905
All Lanes					
AM Period PHT	15,480	14,698	12,138	12,248	17,488
PM Period PHT	7,722	7,784	8,110	7,932	9,202
Daily PHT (All Lanes)	32,638	31,939	29,730	29,612	36,725
Daily PHT Per Lane Mile (All Lanes)	897	673	627	624	774

NWCP

ATTACHMENT D
BENEFIT-COST RATIO CALCULATIONS

Attachment D

Benefit-Cost Ratio Calculations[1]

A detailed explanation of the benefit-cost ratios calculations follows:

The Benefit from saved **time** is:

Time Benefit (T_b) = D_b{hrs/veh)} * (.5*ADT {veh/day}) * 250 {days/yr}* 20 {yrs} * 13.45 {$/hr}

- ⇒ **D_b** - difference in the Peak Hour travel time through the corridor using 20 yr traffic with and without the proposed improvement
- ⇒ **0.5*ADT** – in order to compensate for the fact that various corridors have peak hours ranging from 2 to 6 hours in both the AM and PM peak periods, the TTI study[2] recommends ½ of the ADT as an appropriate amount of traffic volume to use as opposed to the peak DHV.
- ⇒ **250 days** – a measure of high volume days
- ⇒ **20 yrs** – the life of the project
- ⇒ **$13.45 /hr** – the value of time

The Benefit from saved **Commercial Cost** is:

Commercial Benefit (CM_b) = D_b {hrs/veh)} * (% truck traffic) * (.5*ADT {veh/day}) * 250 {days/yr} * 20 {yrs} * 71.05 {$/hr}

- ⇒ **% truck traffic** – an assumption is made that the majority of the commercial traffic is in trucks; therefore this benefit is limited to the trucks through the corridor
- ⇒ **$71.05/hr** – the cost of delay to Commercial vehicles

The Benefit from **fuel saved** is:

Fuel Benefit (F_b) = D_b {hrs/veh)} * (.5*ADT {veh/day}) * 250 {days/yr} * 20 {yrs} * 38.25 {miles/hour} * 2.3 {$/gallon} / 18.36 {miles/gallon}

- ⇒ **38.25 miles/hour** – the average running speed in the region
- ⇒ **$2.3 gallon** – the average cost of fuel in the region
- ⇒ **18.36 miles/gallon** – the average fuel economy in the region

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[1] Calculations based on the GDOT Benefit/Cost Analysis Worksheet dated November 13, 2007.
[2] Texas Transportation Institute (TTI). 2002. The Urban Mobility Report. Prepared by David Schrank and Tim Lomax. June 2002.

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CONCEPT A

General Purpose Lanes

Benefit Cost Analysis Work Sheet CONGESTION Projects	
PENHS-0008-00(256) *0008256* *Cobb and Cherokee Counties*	
I-75 Northwest Corridor Project - General Purpose Lanes	
Congestion Benefit = Tb + CMb + Fb	
Person Time Savings Benefit (Tb)	
*Db (hrs)	0.17
ADT	322,000.00
Tb ($s)	$1,881,687,500.00
Commercial or Truck Time Savings Benefit (CMb)	
Db (hrs)	0.17
% Truck Traffic	0.0958
ADT	322,000.00
CMb	$952,458,209.50
Fuel Savings Benefit (Fb)	
ADT	322,000.00
Fb ($s)	$655,739,583.33
Total Congestion Benefit	**$3,489,885,292.83**
Total Project Cost	**$0.00**
B/C Ratio	**N/A**

Managed Lanes

Benefit Cost Analysis Work Sheet CONGESTION Projects	
PENHS-0008-00(256) *0008256* *Cobb and Cherokee Counties*	
I-75 Northwest Corridor Project - Managed Lanes	
Congestion Benefit = Tb + CMb + Fb	
Person Time Savings Benefit (Tb)	
*Db (hrs)	0.666666667
ADT	60,000.00
Tb ($s)	$1,375,000,000.00
Commercial or Truck Time Savings Benefit (CMb)	
Db (hrs)	0.666666667
% Truck Traffic	0
ADT	60,000.00
CMb	$0.00
Fuel Savings Benefit (Fb)	
ADT	60,000.00
Fb ($s)	$479,166,666.67
Total Congestion Benefit	**$1,854,166,666.67**
Total Project Cost	**$2,000,000,000.00**
B/C Ratio	**0.93**

Total Congestion Benefit	**$5,344,051,959.50**
Total Project Cost	**$2,000,000,000.00**
B/C Ratio	**2.67**

*Reduction in delay or **Delay Benefit (D_b)** can be defined as the difference between the peak hour travel time through the corridor without the proposed improvement and the peak hour travel time through the corridor with the proposed improvement.

CONCEPT B1

General Purpose Lanes

Benefit Cost Analysis Work Sheet CONGESTION Projects	
PENHS-0008-00(256)	
0008256	
Cobb and Cherokee Counties	
I-75 Northwest Corridor Project - General Purpose Lanes	
Congestion Benefit = Tb + CMb + Fb	
Person Time Savings Benefit (Tb)	
*Db (hrs)	0.268333333
ADT	326,000.00
Tb ($s)	$3,007,010,416.67
Commercial or Truck Time Savings Benefit (CMb)	
Db (hrs)	0.268333333
% Truck Traffic	0.094
ADT	326,000.00
CMb	$1,493,467,260.83
Fuel Savings Benefit (Fb)	
ADT	326,000.00
Fb ($s)	$1,047,897,569.44
Total Congestion Benefit	**$5,548,375,246.94**
Total Project Cost	**$0.00**
B/C Ratio	**N/A**

Managed Lanes

Benefit Cost Analysis Work Sheet CONGESTION Projects	
PENHS-0008-00(256)	
0008256	
Cobb and Cherokee Counties	
I-75 Northwest Corridor Project - Managed Lanes	
Congestion Benefit = Tb + CMb + Fb	
Person Time Savings Benefit (Tb)	
*Db (hrs)	0.733333333
ADT	36,000.00
Tb ($s)	$907,500,000.00
Commercial or Truck Time Savings Benefit (CMb)	
Db (hrs)	0.733333333
% Truck Traffic	0
ADT	36,000.00
CMb	$0.00
Fuel Savings Benefit (Fb)	
ADT	36,000.00
Fb ($s)	$316,250,000.00
Total Congestion Benefit	**$1,223,750,000.00**
Total Project Cost	**$1,200,000,000.00**
B/C Ratio	**1.02**

Total Congestion Benefit	**$6,772,125,246.94**
Total Project Cost	**$1,200,000,000.00**
B/C Ratio	**5.64**

*Reduction in delay or **Delay Benefit (D_b)** can be defined as the difference between the peak hour travel time through the corridor without the proposed improvement and the peak hour travel time through the corridor with the proposed improvement.

CONCEPT B2

General Purpose Lanes

Benefit Cost Analysis Work Sheet CONGESTION Projects	
PENHS-0008-00(256)	
0008256	
Cobb and Cherokee Counties	
I-75 Northwest Corridor Project - General Purpose Lanes	
Congestion Benefit = Tb + CMb + Fb	
Person Time Savings Benefit (Tb)	
*Db (hrs)	0.28
ADT	325,000.00
Tb ($s)	$3,128,125,000.00
Commercial or Truck Time Savings Benefit (CMb)	
Db (hrs)	0.28
% Truck Traffic	0.0939
ADT	325,000.00
CMb	$1,551,967,462.50
Fuel Savings Benefit (Fb)	
ADT	325,000.00
Fb ($s)	$1,090,104,166.67
Total Congestion Benefit	**$5,770,196,629.17**
Total Project Cost	**$0.00**
B/C Ratio	**N/A**

Managed Lanes

Benefit Cost Analysis Work Sheet CONGESTION Projects	
PENHS-0008-00(256)	
0008256	
Cobb and Cherokee Counties	
I-75 Northwest Corridor Project - Managed Lanes	
Congestion Benefit = Tb + CMb + Fb	
Person Time Savings Benefit (Tb)	
*Db (hrs)	0.74
ADT	36,000.00
Tb ($s)	$915,750,000.00
Commercial or Truck Time Savings Benefit (CMb)	
Db (hrs)	0.74
% Truck Traffic	0
ADT	36,000.00
CMb	$0.00
Fuel Savings Benefit (Fb)	
ADT	36,000.00
Fb ($s)	$319,125,000.00
Total Congestion Benefit	**$1,234,875,000.00**
Total Project Cost	**$1,045,000,000.00**
B/C Ratio	**1.18**

Total Congestion Benefit	**$7,005,071,629.17**
Total Project Cost	**$1,045,000,000.00**
B/C Ratio	**6.70**

*Reduction in delay or **Delay Benefit (D_b)** can be defined as the difference between the peak hour travel time through the corridor without the proposed improvement and the peak hour travel time through the corridor with the proposed improvement.

CONCEPT C

General Purpose Lanes		Managed Lanes	
Benefit Cost Analysis Work Sheet **CONGESTION Projects** *PENHS-0008-00(256)* *0008256* *Cobb and Cherokee Counties* I-75 Northwest Corridor Project - General Purpose Lanes		**Benefit Cost Analysis Work Sheet** **CONGESTION Projects** *PENHS-0008-00(256)* *0008256* *Cobb and Cherokee Counties* I-75 Northwest Corridor Project - Managed Lanes	
Congestion Benefit = Tb + CMb + Fb		**Congestion Benefit = Tb + CMb + Fb**	
Person Time Savings Benefit (Tb)		**Person Time Savings Benefit (Tb)**	
*Db (hrs)	0.233333333	*Db (hrs)	0.731666667
ADT	331,000.00	ADT	50,000.00
Tb ($s)	$2,654,895,833.33	Tb ($s)	$1,257,552,083.33
Commercial or Truck Time Savings Benefit (CMb)		**Commercial or Truck Time Savings Benefit (CMb)**	
Db (hrs)	0.233333333	Db (hrs)	0.731666667
% Truck Traffic	0.0909	% Truck Traffic	0
ADT	331,000.00	ADT	50,000.00
CMb	$1,275,100,128.75	CMb	$0.00
Fuel Savings Benefit (Fb)		**Fuel Savings Benefit (Fb)**	
ADT	331,000.00	ADT	50,000.00
Fb ($s)	$925,190,972.22	Fb ($s)	$438,237,847.22
Total Congestion Benefit	**$4,855,186,934.31**	**Total Congestion Benefit**	**$1,695,789,930.56**
Total Project Cost	**$0.00**	**Total Project Cost**	**$1,410,000,000.00**
B/C Ratio	**N/A**	**B/C Ratio**	**1.20**
		Total Congestion Benefit	**$6,550,976,864.86**
		Total Project Cost	**$1,410,000,000.00**
		B/C Ratio	**4.65**

*Reduction in delay or **Delay Benefit (D_b)** can be defined as the difference between the peak hour travel time through the corridor without the proposed improvement and the peak hour travel time through the corridor with the proposed improvement.

September 28, 2009

NWCP
NORTHWEST CORRIDOR PROJECT

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