NORTHWEST I-75/I-575 CORRIDOR

CHAPTER 7
EVALUATION OF ALTERNATIVES

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7. EVALUATION OF ALTERNATIVES

This chapter presents the results of the evaluation and trade-offs analysis conducted for the alternatives developed for improving transportation facilities and services in the Northwest I-75/I-575 Corridor Project. The purpose of this chapter is to bring together the evaluation results, both qualitative and quantitative, for each alternative so that benefits, costs, transportation impacts, and environmental consequences can be evaluated by local decision makers against the stated project goals presented in Chapter 1, Purpose and Need. Consideration of these evaluation results will help facilitate the selection of the locally preferred alternative (LPA) for improving I-75 and I-575 in the Northwest Corridor. Also, this chapter summarizes the status of the Federal Transit Administration (FTA) New Starts evaluation of the bus rapid transit project element of the High-Occupancy Vehicle/Truck-Only Lane/Bus Rapid Transit (HOV/TOL/BRT) Alternative.[1]

7.1 Summary of Alternatives and Impacts

As defined in Chapter 2, Alternatives Considered, the Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) includes an evaluation of a No-Build Alternative and four build alternatives – HOV/TOL Alternative, HOV/TOL/Transportation Systems Management (TSM) Alternative, HOV/TOL/BRT Alternative, and HOV/TOL/Reduced BRT Alternative. The primary difference among the alternatives is the type of transit improvements included in the alternatives. The roadway improvements would be essentially the same throughout the I-75 and I-575 corridor, except that, under the HOV/TOL/BRT and HOV/TOL/Reduced BRT Alternatives, the roadway geometry for I-75 would be modified to provide for the BRT stations in the median of the roadway. The HOV/TOL/BRT Alternative provides for stations in the median of I-75 at Akers Mill Road, Terrell Mill Road, and Roswell Road (Marietta Station). The HOV/TOL/Reduced BRT Alternative provides for a station in the median of I-75 at Roswell Road. Elsewhere, the geometry of I-75 is the same under all of the build alternatives. On I-575, the roadway geometry is the same for all build alternatives.

Each of the build alternatives has options for the design and operation of the HOV/TOL system. There are three design options under consideration:

- Inside TOL Option – The truck-only lanes would be to the inside of the roadway on I-75 south of I-575 instead of split to the outside of the roadway.
- Allgood Flyover Option – The HOV interchange at Allgood Road would be replaced with a flyover between the general-purpose lanes and the inside HOV lanes south of Allgood Road.
- Roswell Road Interchange Alignment Option – I-75 would be modified to shift the roadway to the east between South Marietta Parkway and SR-120/Roswell Road to avoid the displacement of a church located on Frey's Gin Road.

In addition to the design options, there are two operational options under consideration:

- High-Occupancy-Toll (HOT) Lane Option – Single-occupancy vehicles (SOV) would have access to the HOV lanes by paying a toll. The lanes would be managed by pricing to assure

[1] The Section 5309 "New Starts" program is the Federal government's primary program for providing financial support to locally-planned, implemented, and operated fixed-guideway transit major capital investments. The New Starts evaluation process is used in conjunction with the evaluation process under the National Environmental Policy Act, for which this Alternatives Analysis/Environmental Impact Statement is being prepared.

that the single-occupancy vehicles (SOVs) using the HOV lanes would not adversely affect travel times by transit and HOV.

- Truck-Only-Toll (TOT) Lane Option – Trucks using the truck-only lanes would be required to pay a toll. Because all heavy-duty through-trucks could be accommodated within the truck-only lanes, the tolls would be applied not as a lane management tool to assure free-flow conditions, but as a revenue source to help defray the cost of construction. The toll would be set at a level that would encourage use of the lane in exchange for travel time savings provided for trucks operating in the I-75 corridor.

A summary of the physical features of the No-Build and build alternatives and comparison of the benefits, transportation impacts, environmental consequences, and costs of the build alternatives to the No-Build Alternative is presented in Table 7-1.

7.2 Results of Alternatives Evaluation

As described in Chapter 1, goals were identified for the Northwest I-75/I-575 Corridor Project and used in the development of alternatives for addressing the identified transportation needs in the study area, which include the need to: .

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

All of the build alternatives under consideration address these needs by providing HOV or HOT lanes, truck-only lanes, and transit improvements that increase the capacity of the transportation system in the Northwest Corridor to accommodate existing and future travel demand. As a result, congestion under the build alternatives is expected to be less than what is projected under the No-Build Alternative. Because travel times by auto and transit would decrease with the proposed improvements, mobility would also be improved over the No-Build Alternative. The proposed HOV or HOT lanes and truck-only lanes would also provide for more reliable travel times for users of these lanes as compared to travel in the general-purpose lanes. Because each of the build alternatives include both highway and transit improvements, access to the regional activity centers in downtown Atlanta, Midtown, Perimeter Center, Buckhead, Cumberland-Galleria, and Town Center would also be improved over the No-Build Alternative.

In addition to the capacity improvements, the build alternatives would correct a number of geometric and operational deficiencies along the I-75 roadway and at interchanges that contribute to congestion and safety concerns. There would be no difference among the alternatives in safety improvements. Safety would also be improved with the diversion of heavy-duty through trucks from the general-purpose lanes on I-75 to the proposed truck-only lanes. All alternatives would include truck lanes so the safety benefits would be the same. Finally, the alternatives contribute to improved air quality by diverting trips to transit and improving travel flow in the corridor. However, any difference in air quality effects among the build alternatives would be negligible.

Table 7-1. Summary of Alternatives and Impacts

Project Goal/Criteria/Measures	No-Build	HOV/TOL Alternative	HOV/TOL/TSM	HOV/TOL/BRT	HOV/TOL/ Reduced BRT
Alternative Description	• No improvements to I-75 and I-575. • Only minimal transit improvements would be implemented.	• The existing HOV lanes for carpools and buses would be extended north on I-75 and I-575, and new truck-only lanes would be constructed on I-75, but only minimum transit improvements would be implemented.	• This alternative combines the HOV and truck-only lane facilities and benefits of the HOV/TOL Alternative with expanded express bus services. These services would operate in the extended HOV lanes on I-75 between the study area and the regional activity centers.	• The HOV/TOL/BRT Alternative would provide new BRT services operating in the extended HOV lanes on I-75, connecting the study area to regional activity centers. The BRT stations would be located at HOV interchanges along I-75. In addition to the new BRT services and facilities, the HOV/TOL/BRT Alternative would include the planned highway system and transit improvements of the No-Build Alternative and the proposed HOV and truck-only lane improvements in the HOV/TOL Alternative.	• The HOV/TOL/Reduced BRT Alternative is a reduced-cost version of the HOV/TOL/BRT Alternative with only three BRT stations to be constructed for passenger access to the system instead of five stations. In addition to the new BRT services and facilities, this Alternative would include the planned highway system and transit improvements of the No-Build Alternative and the proposed HOV and truck-only lane improvements in the HOV/TOL Alternative.
BRT Stations	• None	• None	• None	• Town Center • Marietta • Franklin • Terrell Mill • Cumberland	• Town Center • Marietta • Franklin
Transit Centers	• Marietta (CCT transfer center) • Cumberland	• Marietta • Cumberland	• Town Center • Marietta • Franklin • Cumberland	• Marietta	• Marietta • Cumberland
Transit Fleet Total	149	141	255	237	221
Total number of parking spaces as Park & Ride Lots	1,467 spaces	1,643 spaces	2,854 spaces	3,218 spaces	3,136 spaces

Table 7-1. Summary of Alternatives and Impacts (continued)

Project Goal/Criteria/Measures	No-Build	HOV/TOL Alternative	HOV/TOL/TSM	HOV/TOL/BRT	HOV/TOL/ Reduced BRT
Transportation Impacts					
- Changes in Freeway Traffic Volume	• No impact	• Increase in total daily traffic volumes on I-75/I-575 and reduction in general-purpose lane volumes under all alternatives • Largest increase in volumes under HOT Lane Option and lowest under Allgood Flyover Option	• Same	• Same	• Same
- Changes in Freeway Throughput	• No impact	• Increase in total daily VMT throughput by 14% on I-75 and 15% on I-575 • Under HOT Lane Option, VMT throughput would increase by 18% on I-75 and 21% on I-575 • Under HOT Lane Option, decrease by 6,100 VMT on I-575 during p.m. peak period because of high demand and high toll rate on I-75 south of the split	• Same	• Same	• Same
- Freeway Levels of Service by Lane Group	• Most segments on I-75 and I-575 operating at congested levels, i.e., LOS E or F, in the peak direction during a.m. and p.m. peak periods.	• Marginal reduction in congestion in general-purpose lanes • LOS C in all I-75 segments of southbound HOV lanes during a.m. peak period except south of I-285 with LOS E • During p.m. peak period, LOS E in HOV segment south of I-285; LOS D south of I-575; and LOS	• Same	• Same	• Same

Table 7-1. Summary of Alternatives and Impacts (continued)

Project Goal/Criteria/Measures	No-Build	HOV/TOL Alternative	HOV/TOL/TSM	HOV/TOL/BRT	HOV/TOL/ Reduced BRT
		E south of Big Shanty Rd • Under Allgood Rd Option, LOS E south of I-285 and LOS D south of Franklin, south of flyover, and south of Big Shanty Rd • LOS C to D in HOV lanes on I-575 during both peak periods • Under HOT Lane Option, LOS C in HOT lanes on I-575 • LOS C in truck-only lanes			
- Average Travel Times over Freeway Segments	• No impact	• Reduction in travel time of 2 minutes in a.m. peak direction and 4 minutes in p.m. peak direction for travel in general-purpose lanes between Windy Ridge Pkwy and Hickory Grove Rd • Reduction in travel time of 12 minutes in a.m. peak direction and 6 minutes in p.m. peak direction for travel in general-purpose lanes between Windy Ridge Pkwy and Sixes Rd • HOV and TOL travel times would be 50% lower than times in the general-purpose lanes	• Same	• Same	• Same
- Travel Time Savings	• No impact	• 32,457 hours daily • Under HOT Lane Option, 36,438 hours daily	• Same	• Same	• Same

Table 7-1. Summary of Alternatives and Impacts (continued)

Project Goal/Criteria/Measures	No-Build	HOV/TOL Alternative	HOV/TOL/TSM	HOV/TOL/BRT	HOV/TOL/ Reduced BRT
- Daily Transit User Benefit Hours	• No impact	• 700	• 8,500	• 11,400	• 8,500
- Daily Transit Ridership		• 47,014	• 63,881	• 69,851.	• 64,09.1
- Transit Travel Time Improvement for Walk Access to Transit	• No impact	• 3%	• 19%	• 26%	• 23%
- Transit Travel Time Improvement for Drive Access to Transit	• No impact	• 11%	• 20%	• 22%	• 20%
- SOV Travel Time Improvement	• No impact	• 4-5%	• Same	• Same	• Same
- Travel Time Savings for Transportation Disadvantaged Populations	• No impact	• 4% in SOV and 20% in HOV	• Same	• Same	• Same
- Reduction in Daily SOV Trips	• No impact	• 500	• 6,700	• 8,800	• 5,900
Environmental Impacts					
- Air Quality	• No impact	• Part of approved, conforming TIP • Would not cause or exacerbate violation of NAAQS • Slight increase in NO_x, PM_{10} and $PM_{2.5}$. • Slight reduction in CO and VOC	• Part of approved, conforming TIP • Would not cause or exacerbate violation of NAAQS • Slight reduction in CO and VOC • Slight increase in $PM_{2.5}$.	• Part of approved, conforming TIP • Would not cause or exacerbate violation of NAAQS • Slight reduction in CO, VOC, NO_x, and PM_{10} • Slight increase in $PM_{2.5}$.	• Part of approved, conforming TIP • Would not cause or exacerbate violation of NAAQS • Slight reduction in CO and VOC • Slight increase in NO_x, PM_{10} and $PM_{2.5}$.
- Ecosystems	• No impact	• No adverse effect	• Same	• Same	• Same

Table 7-1. Summary of Alternatives and Impacts (continued)

Project Goal/Criteria/Measures	No-Build	HOV/TOL Alternative	HOV/TOL/TSM	HOV/TOL/BRT	HOV/TOL/ Reduced BRT
- Water Resources	• No impact	• 16,182 linear ft. of surface waterways impacted • 4.2 acres of wetlands impacted • 52.98 acres of 100-year floodplain impacted	• 16,182 linear ft. of surface waterways impacted • 4.35 acres of wetlands impacted • 52.98 acres of 100-year floodplain impacted	• 16,353 linear ft. of surface waterways impacted • 4.35 acres of wetlands impacted • 53.28 acres of 100-year floodplain impacted	• 16,182 linear ft. of surface waterways impacted • 4.2 acres of wetlands impacted • 53.08 acres of 100-year floodplain impacted
- Geology and Soils	• No impact	• No impact	• Same	• Same	• Same
- Hazardous Materials	• No impact	• 22 sites could be affected	• 24 sites could be affected	• 26 sites could be affected	• 24 sites could be affected
- Acquisitions and Displacements	• No impact	• 93 full and 197 partial acquisitions, totaling 290 • 294 residential, 46 business, and one other displacement, totaling 341	• 95 full and 195 partial acquisitions, totaling 290 • 302 residential, 46 business, and one other displacement, totaling 349	• 109 full and 195 partial acquisitions, totaling 304 • 328 residential, 49 business, and one other displacement, totaling 378	• 111 full and 190 partial acquisitions, totaling 301 • 328 residential, 49 business, and one other displacement, totaling 378
- Land Use	• Not fully supportive of ARC planning policies and local plans/policies	• Supportive of ARC planning policies and local plans/policies	• Supportive of ARC planning policies and local plans/policies	• Supportive of ARC planning policies and local plans/policies • Potential to encourage station area development	• Supportive of ARC planning policies and local plans/policies • Potential to encourage station area development
- Population and Employment	• No impact	• Enhanced access and reduced travel times would attract population to the corridor and increase employment	• Same	• Same	• Same
- Economic Impacts	• Lower capital expenditure would result in reduced economic benefits	• Construction spending would generate 22,300 person years of employment • 99 employee displacements • $5,687,000 reduction in property taxes due to acquisitions	• Construction spending would generate 20,600 person years of employment • 99 employee displacements • Approximately $5,687,000 reduction in property taxes due to acquisitions	• Construction spending would generate 27,700 person years of employment • 121 employee displacements • $5,808,000 reduction in property taxes due to acquisitions	• Construction spending would generate 24,400 person years of employment • 121 employee displacements • Approximately $5,645,000 reduction in property taxes due to

Table 7-1. Summary of Alternatives and Impacts (continued)

Project Goal/Criteria/Measures	No-Build	HOV/TOL Alternative	HOV/TOL/TSM	HOV/TOL/BRT	HOV/TOL/ Reduced BRT
		• Roswell Rd Interchange Alignment Option: an additional $3,500 in lost property taxes • Allgood Flyover Option: an additional $6,600 in lost property taxes			acquisitions (would be marginally lower than HOV/TOL//BRT Alternative)
- Neighborhoods and Community Facilities	• No impact	• Access and circulation would be impacted in six neighborhoods • Community cohesion would be affected in seven neighborhoods	• Same as HOV/TOL Alternative	• Access and circulation would be impacted in six neighborhoods • Community cohesion would be affected in seven neighborhoods • Displacement of the Gospel Light Community Church	• Same as HOV/TOL/BRT Alternative
- Environmental Justice	• No impact	• 274 displacements in low-income and minority block groups	• 282 displacements in low-income and minority block groups	• 306 displacement in low-income and minority block groups • Enhanced transit access	• Same as HOV/TOL/BRT Alternative
- Visual Quality and Aesthetics	• No impact	• Substantial visual changes for neighborhoods adjacent to roadway project	• Similar to HOV/TOL Alternative	• Substantial visual changes for neighborhoods adjacent to roadway project and transit stations	• Similar to HOV/TOL/BRT Alternative
- Noise	• No impact	• Road traffic would affect 686 Category B properties and 55 Category C properties • Severe impacts at four residential sites	• Same	• Same	• Same
- Historic and Archaeological Resources	• No impact	• No Impact	• Same	• Same	• Same
- Parklands and Other Section 4(f) Properties	• No impact	• No Impact	• Same	• Same	• Same

Table 7-1. Summary of Alternatives and Impacts (continued)

Project Goal/Criteria/Measures	No-Build	HOV/TOL Alternative	HOV/TOL/TSM	HOV/TOL/BRT	HOV/TOL/ Reduced BRT
- Safety and Security	• No impact	• Emergency response times would improve	• Same	• Same	• Same
- Construction Impacts	• No impact	• Short-term impacts related to noise, visual quality, dust, vehicular access, and water quality	• Same	• Same	• Same
- Indirect and Cumulative Effects	• No impact	• Accelerated rate of non-transit supportive development	• Similar to HOV/TOL Alternative	• Increased development at station areas	• Similar to HOV/TOL/ BRT Alternative
Costs					
Total Year-of-Expenditure Capital Costs	$0	$3.52 billion	$3.92 billion	$4.07 billion	$3.80 billion
2030 Incremental Transit O&M Costs	$0	+$158,000	+$27.57 million	+$27.59 million	+$19.32 million

Notes:
VOC = Volatile Organic Compounds
CO = Carbon Monoxide
NO_x = Nitrogen Oxide
PM = Particulate Matter
TIP = Transportation Improvement Program
NAAQS = National Ambient Air Quality Standards

The effectiveness of the alternatives in achieving the project purpose and satisfying the need for transportation improvements in the Northwest Corridor is measured using the study goals and a set of evaluation criteria and measures that specifically reflect each goal. The goals developed for the Northwest I-75/I-575 Corridor Project and the effectiveness of the project alternatives in achieving them are summarized in this section.

7.2.1 Goal: Improve Transportation Effectiveness

The primary goal of the Northwest I-75/I-575 Corridor Project is to improve the effectiveness of I-75 and I-575, to accommodate additional travel, and to contribute to the improved performance of the regional transportation system.

7.2.1.1 Effectiveness of Highway Alternatives to Improve Travel in the Corridor

The effectiveness of the alternatives can be measured through analysis of changes in traffic volumes and corresponding changes in total vehicle miles of travel (VMT) and vehicle hours of travel (VHT) throughput, levels of service, and average travel times. Travel time savings for vehicle trips were also measured for each alternative.

Traffic Volumes

Changes in traffic volumes were used to measure use of the proposed HOV and truck-only lanes on I-75 and the HOV lanes on I-575. Average daily traffic (ADT) volumes in 2030 were projected for the general-purpose lanes under the No-Build Alternative and the general-purpose, HOV, and truck-only lanes under the build alternatives. Projected traffic volumes on both I-75 and I-575 for the No-Build Alternative, HOV/TOL Alternative, and HOT Lane Option are discussed in Chapter 4, Transportation Impacts. As noted in Chapter 4, a comparison of traffic volumes by location between the HOV/TOL Alternative with minimal improvements to transit services versus the HOV/TOL/BRT Alternatives with the most improvements to transit service found that traffic volumes would vary by 1 percent or less between the two alternatives, which is considered to be minimal. The reason is that traffic today has diverted to alternate routes because of the congestion that exists on I-75. With improved transit services and facilities under the build alternatives, some auto users will shift to transit and this will free up some roadway capacity on I-75. However, because of the high travel demand that exists in the corridor, traffic that has diverted to alternate routes will likely divert back to the general-purpose lanes on I-75 and absorb any available capacity created by the shift from auto to transit. Thus, the traffic volumes on I-75 will remain similar as before.

Under the build alternatives, capacity along the I-75 and I-575 corridors would increase, which would allow for increases in traffic volumes on both freeways despite no increase in the number of general-purpose lanes. Compared to the No-Build Alternative, traffic volumes on I-75 under the HOV/TOL Alternative are projected to increase by 12 to 15 percent south of I-575 and by 6 percent north of I-575. Traffic volumes are projected to increase by up to 13 percent on I-575. Use of the HOV and truck-only lanes is expected to result in minor decreases in traffic using the general-purpose lanes on I-75 and I-575.

The highest increase in daily traffic volumes and throughput on I-75 and I-575 is projected under the build alternatives with the HOT Lane Option. Daily traffic volumes under the HOT Lane Option are projected to be 2 to 4 percent higher on I-75 and 7 percent higher on I-575 compared to the build alternatives with HOV lanes. The operation of the HOT Lane Option assumes HOVs would be required to have three or more passengers. If only two or more passengers were

permitted, then the level of service would decline below the desired free-flow traffic conditions (i.e., LOS C).

A comparison of traffic volumes by travel direction revealed that most of the increase in traffic under the HOT Lane Option is attributable to the southbound peak direction during the a.m. peak period and the southbound off-peak direction during the p.m. peak period. During the p.m. peak period, higher usage of the HOT lanes is expected in the southbound off-peak direction on both I-75 and I-575. This is because of the high number of short trips and non-work trips that would use the HOT lanes. In the peak direction during the p.m. peak period, the use of HOT lanes on I-75 and I-575 is projected to be lower than the use of the HOV lanes under the other build alternatives. The high demand on I-75 in the peak direction during the p.m. peak period would require implementation of a high toll to maintain LOS C in the HOT lane. The high toll rate would divert short trips and would reduce traffic volume in the HOT lanes on I-75 and I-575. The proposed single HOT lane in each direction on I-75 north of the I-575 interchange would also restrict use of the northbound HOT lanes both north and south of the interchange.

The truck-only lane traffic volumes under the HOT Lane Option were also found to be less than under the build alternatives. The high toll rate required to manage the high demand for the HOT lanes on I-75 would increase traffic on I-575 and would divert truck traffic from I-575 to Canton Road and the Canton Connector.

The Allgood Flyover Option is projected to decrease overall traffic on I-75 and I-575 compared to the build alternatives with or without the HOT Lane Option, which both have an interchange at Allgood Road. Daily traffic volumes on I-75 with the flyover are projected to be from 6 to 11 percent lower north of I-575, 12 percent lower south of I-575, and 2 percent lower south of Delk Road. Moreover, daily traffic volumes are projected to be as much as 6 percent lower on I-575.

Throughput

Throughput is defined as the number of vehicles or persons passing a given point on a roadway facility during a particular time period. Throughput can be used to measure effectiveness of a facility to accommodate travel demand.

Throughput on I-75 and I-575 was calculated on a daily basis, and by peak period and travel direction (i.e., southbound and northbound during the a.m. and p.m. peak periods). In addition, the throughput analysis measured the number of vehicles or persons passing a given point, and the total miles and hours of travel over the length of the facility.

The best measures of throughput were determined to be total VMT and daily VMT per lane mile, as they best reflect overall use of the facility. Vehicle hours of travel (VHT) reflect use of the facility, not increased vehicle delay, and the differences were determined to be similar to measurement of VMT. Person miles of travel (PMT) and hours of travel (PHT) showed no significant difference in total PMT or daily PMT per lane mile between the build alternatives compared to the HOT Lane Option.

A summary of the projected 2030 daily VMT, VMT per lane mile and peak period, and peak direction VMT on I-75 and I-575 under the No-Build Alternative, build alternatives, and the HOT Lane Option is presented in Table 7-2. The results indicate the build alternatives and the HOT Lane Option would significantly increase daily VMT throughput compared to the No-Build Alternative. The build alternatives would increase daily throughput on I-75 by 14 percent and on I-575 by 15 percent. Under the HOT Lane Option, daily throughput would increase by 18 percent on I-75 and by 21 percent on I-575. During peak periods, the highest increase in throughput would be on northbound I-75 during the p.m. peak period.

Table 7-2. Comparison of 2030 VMT Throughput on I-75 and I-575

Location		No-Build Alternative	Build Alternatives	HOT Lane Option
Both Directions	**I-75**			
	Total Daily	3,341,600	3,799,800	3,942,000
	Daily VMT Per Lane Mile	23,700	15,100	15,700
	I-575			
	Total Daily	1,179,100	1,359,600	1,424,500
	Daily VMT per Lane Mile	18,100	20,800	21,800
Peak Direction	**I-75**			
	AM Period Southbound	411,100	495,200	530,800
	PM Period Northbound	476,200	589,900	593,900
	I-575			
	AM Period Southbound	151,400	185,100	207,900
	PM Period Northbound	179,100	230,400	214,400

Source: ARC, 2004; Parsons Brinckerhoff, 2007.

On I-575, the northbound direction during the p.m. peak period would have the highest increase in throughput under the build alternatives – 28 percent. This compares to 22 percent in the southbound direction during the a.m. peak period. Under the HOT Lane Option, the southbound direction during the a.m. peak period would have the highest increase – 38 percent as compared to 20 percent in the northbound direction during the p.m. peak period. This disparity in traffic volumes is because the northbound HOT lane volume on I-575 is constrained by the high demand and high toll rate on I-75 south of the I-75/I-575 interchange.

The Allgood Flyover Option is projected to have lower total daily vehicle throughput than the HOT Lane Option with the Allgood Road interchange. Total daily vehicle throughput on I-575 would also be lower under the Allgood Flyover Option compared to both the build alternatives and the HOT Lane Option with the Allgood Road interchange.

Level of Service

One of the identified transportation needs to be addressed by the Northwest I-75/I-575 Corridor Project is to reduce congestion. The severity of roadway congestion is "measured" by a rating system referred to as Level of Service (LOS). LOS for roadways describes the quality of traffic flow, and as such, it is often a good measure to compare the effectiveness of alternatives in reducing congestion. LOS is reported using letter designations from A to F. LOS A represents the best operating conditions (free traffic flow) and LOS F designates the worst operating conditions (stop and go conditions, substantially reduced speeds, and difficulty maneuvering).

As discussed in Chapter 4 (see Section 4.3.5.1), the general-purpose lanes on I-75 and I-575 under the No-Build Alternative and build alternatives are projected to experience congested conditions during peak periods in 2030. This is because the freeways operate at congested conditions today, and the project alternatives would not increase the number of general-purpose lanes. The build alternatives would add HOV or HOT lanes to both I-75 and I-575 and truck-only lanes to I-75. The increase in number of freeway special-purpose lanes, however, would not provide sufficient additional capacity to result in LOS D for the general-purpose lanes. This is because traffic that is currently diverted to parallel arterial roadways due to congestion on the freeways would likely return to using the freeways with improved operation, which in turn would fully use any potential available capacity. As a result, the general-purpose lanes on I-75 and I-575 under the build

alternatives are projected to experience congestion during peak periods in 2030. Although traffic flow may not be at the desired LOS D, the congestion under the build alternatives is expected to be less than what is projected under the No-Build Alternative. This would likely result in a shortening of the number of hours of congestion per day, thereby improving travel times for motorists using the general-purpose lanes. A comparison of 2030 VMT and VHT by alternative showed that daily VMT in the general-purpose lanes on I-75 would decline by 191,000 to 248,000 miles daily, while VHT in the general-purpose lanes would decline by 12,000 to 15,000 hours daily. In the general-purpose lanes on I-575, daily VMT would decline by 47,000 to 57,000 miles, and VHT by 5,000 to 7,000 hours. This indicates that the hours of congestion in the general-purpose lanes would decrease under the build alternatives compared to the No-Build Alternatives. The difference in impact on the general-purpose lanes would be minimal among the build alternatives. Thus, all of the build alternatives could be considered to be equally effective in reducing congestion in the general-purpose lanes, which is an identified need for the project.

Under the build alternatives, the LOS analysis for the proposed HOV lanes on I-75 determined that the southbound HOV lanes would operate at LOS B to LOS C during the a.m. peak period north of I-285 (see Table 4-17 in Chapter 4). LOS C, however, is considered to be desirable for HOV lanes. The single HOV lane on I-75 south of I-285 would operate at a LOS E, which basically indicates at-capacity operations. This would be the case under all of the build alternatives and options.

During the p.m. peak period, the northbound HOV lane in the segment south of I-285 would also operate at LOS E under the build alternatives. LOS D is projected for the two-lane HOV segment south of I-575, and LOS E is projected for the one-lane HOV segment south of Big Shanty Road.

Under the Allgood Flyover Option, the segments from Terrell Mill Road to Franklin Road, Roswell Road to the flyover, and from I-575 to Big Shanty Road would operate at LOS D. Under the HOT Lane Option, all HOT lane segments on I-75 in both directions during both peak periods would operate at no worse than LOS C.

On I-575 during the a.m. peak period, the single lane HOV was found to operate at LOS B or LOS C (see Table 4-18 in Chapter 4). This indicates free-flow, or near free-flow operations under all of the build alternatives. During the p.m. peak period, the single HOV lane would operate at LOS C to D along all freeway segments. With the Allgood Flyover Option, only the segment from Big Shanty Road to Shallowford Road would operate at LOS D. All other segments would operate at LOS C. Under the HOT Lane Option, the HOT lanes would operate at LOS B to LOS C.

Average Travel Times

Travel time is a key measure in the evaluation of the effectiveness of the project alternatives. Travel time is also a measure that is widely understood by the general public. Improvements in travel times are considered to be an indicator of improved mobility. Improved mobility is another of the identified needs to be addressed by the project. By reducing travel times for travelers using the Northwest I-75/I-575 Corridor, mobility can be considered to be improved.

The build alternatives are expected to reduce travel times in the general-purpose lanes; and the HOV and truck-only lanes are expected to have lower travel times than the general-purpose lanes. Travel times were projected under the No-Build Alternative and build alternatives using the ARC model and are discussed below.

Under the No-Build Alternative, the average travel time along I-75 between Hickory Grove Road and Windy Ridge Parkway in 2030 would be approximately 33 minutes in the a.m. peak direction and 38 minutes in the p.m. peak direction (see Figure 4-5 in Chapter 4 and tables shown on the

figure). These travel times would be reduced under the build alternatives to 31 minutes in the a.m. peak direction and to 34 minutes in the p.m. peak direction. This results in a savings of two minutes in the a.m. peak direction and four minutes in the p.m. peak direction. Although these travel time savings may not be significant, they do represent an improvement over the No-Build Alternative. Thus, the build alternatives would improve mobility for travelers using the general-purpose lanes on I-75.

Projected HOV and truck-only lane travel times along I-75 in 2030 would be almost 50 percent lower than for the general-purpose lanes under the build alternatives. Under the HOT Lane Option, travel times in the general-purpose lanes would be less than under the build alternatives with HOV lanes, while travel times in the HOT lanes would increase because of the higher volume of traffic. However, travel time in the HOT lanes would be significantly less than in the general-purpose lanes. Moreover, the toll option would provide reliable travel times regardless of traffic conditions because demand would be managed using variable pricing. Thus, the HOT Lane Option would improve mobility over the other build alternatives. The differences in travel times would be minimal with the Allgood Flyover Option.

Reductions in travel time would also occur on I-575 under the build alternatives. These reductions in travel time are an indication of the improved mobility under the build alternatives. Projected 2030 travel times between north of Sixes Road on I-575 south to Windy Hill Parkway on I-75 would be approximately 50 minutes in the a.m. peak direction and 70 minutes in the p.m. peak direction under the No-Build Alternative. For the build alternatives, travel times in the general-purpose lanes along I-575 in the peak direction would be reduced by approximately 12 minutes during the a.m. peak period and 6 minutes during the p.m. peak direction. HOV lane travel times along I-575 would be almost 50 percent lower than for the general-purpose lanes during the a.m. peak period and more than 50 percent lower during the p.m. peak period. Under the HOT Lane Option, travel times would be lower still in the general-purpose lanes, but slightly higher in the HOT lanes compared to the build alternatives with HOV lanes. The reduction in travel times in the general-purpose lanes under the HOT Lane Option is an indication of improved mobility compared to the other build alternatives.

Travel Time Savings

Travel time savings is another measure of effectiveness as it measures the cumulative reduction in travel time for all users. Travel time savings can also be considered to be an indicator of improved mobility, which is an identified transportation need in the corridor. The ARC travel forecasting model (ARC, 2004) was used to project travel time savings for SOV and HOV 2+ (two or more passengers) vehicle trips. This analysis examined trips having one end within the portion of the study area north of I-285 and with a travel time difference greater than one minute compared to the No-Build Alternative. These are the trips that would be affected by the build alternatives. Under the build alternatives, a total of 473,500 vehicle trips daily in 2030 are projected for this group. In contrast, a total of 523,700 vehicle trips are projected for this group under the HOT Lane Option.

In 2030, the total travel time savings was projected to be 32,500 hours daily for the build alternatives. Under the HOT Lane Option, a total time travel savings of 36,400 hours daily was projected. This is 12 percent higher than under the build alternatives with HOV lanes. The savings under the build alternatives and HOT Lane Option would result from the improved operating speeds on the freeway and parallel roadways; and shorter distances to the freeway access points at HOV/HOT interchanges. Travel time savings for the Allgood Flyover Option would be less than under the build alternatives and the HOT Lane Option with an interchange at Allgood Road.

7.2.1.2 Effectiveness of Transit Alternatives in Improving Travel in Corridor

Key attributes in making transit an attractive mode compared to travel by SOV are transit service frequency, hours of service, service coverage, and reliability of service. An improvement in these attributes generally results in an increase in transit ridership and benefit hours to transit users.

Transit Level of Service

The frequency of transit service under the HOV/TOL/TSM, HOV/TOL/BRT, and HOV/TOL/Reduced BRT Alternatives would be improved compared with the No-Build and HOV/TOL Alternatives. Improvements in the frequency of service is an indicator or improved mobility, which is an identified transportation need. The HOV/TOL/TSM and HOV/TOL/BRT Alternatives would have similar service frequencies and hours of service because they would serve the same travel markets at approximately the same frequency of service. The frequency of service under the HOV/TOL/Reduced BRT Alternative would be less. Service coverage would be approximately the same under all build alternatives, although slightly improved under the HOV/TOL/TSM and HOV/TOL/BRT Alternatives. Reliability of service would be improved with buses operating in the HOV or HOT lanes on I-75 under all of the build alternatives compared to the No-Build Alternative with buses operating in mixed traffic in the general-purpose lanes. Reliability would be highest under the HOT Lane Option because variably priced tolls would be used to manage the volume of traffic in the HOT lanes on I-75.

Transit Ridership

The transit improvements under the build alternatives and increased reliability of the HOV/HOT lanes are projected to increase transit ridership in the study area by 600 to 12,400 trips daily, depending on the alternative. The smallest increase in transit ridership would be under the HOV/TOL Alternative with express buses operating in the HOV lanes, but only minor improvements in the frequency of service. Under the HOV/TOL/TSM, HOV/TOL/BRT, and HOV/TOL/Reduced BRT Alternatives, transit services in the Northwest Corridor would be expanded over services in the No-Build Alternative, which would significantly increase transit ridership. Daily ridership is projected to increase by 9,100 under the HOV/TOL/TSM Alternative. Ridership under the HOV/TOL/BRT Alternative is projected to increase by 12,400 riders daily. The HOV/TOL/Reduced BRT Alternative is projected to increase ridership by 8,000 riders daily.

Benefit Hours

While one desired outcome of transit service improvements is an increase in transit ridership, the best measure of the effectiveness is referred to as transportation system user benefits. This is measured in terms of hours of travel time saved to transit users in comparison to the No-Build Alternative. FTA specifically uses this measure to determine mobility benefits of projects competing for New Starts funding. As mentioned, improved mobility is one of the identified needs for the Northwest I-75/I-575 Corridor Project. The transportation user benefits of New Starts projects are compared to both the No-Build Alternative and the baseline transit alternative. For the evaluation of alternatives developed for the Northwest I-75/I-575 Corridor Project, user benefits are compared to the No-Build Alternative. The baseline alternative will be used for the New Starts evaluation. Subject to the approval by FTA, the HOV/TOL/TSM Alternative in this AA/DEIS will be used as the baseline alternative.

In comparison to the No-Build Alternative, user benefit hours projected for the build alternatives on a daily basis in 2030 range from a low of 700 hours with the minimum transit improvements

proposed under the HOV/TOL Alternative to a high of 11,400 hours with the proposed BRT stations and expanded transit services under the HOV/TOL/BRT Alternative. The HOV/TOL/Reduced BRT and HOV/TOL/TSM Alternatives would fall within this range with 7,500 and 8,500 hours, respectively. Thus, the HOV/TOL/BRT Alternative is projected to provide the most benefits. Of the build alternatives, it best addresses the need for improved mobility.

7.2.1.3 Effectiveness of Alternatives in Improving Access to Activity Centers

The build alternatives were also evaluated on the basis of how well they improve access to regional activity centers, which was also identified as a need to be addressed by the Northwest I-75/I-575 Corridor Project. The regional activity centers are downtown Atlanta, Midtown, Perimeter Center, Buckhead, Cumberland-Galleria, and Town Center. In general, because each of the build alternatives includes both highway and transit improvements on I-75 and I-575, access to the regional activity centers would be improved over the No-Build Alternative. One measure that reflects the level of improved access is travel time by SOV, HOV, and transit for representative trips from the study area to the regional activity centers. The ARC travel forecasting model was used to project transit travel times. Transit travel time includes the time walking to and from a transit stop, the time driving to a park and ride facility, the time waiting for a transit vehicle, the time transferring between transit modes, and the time riding on a transit vehicle.

Comparison of transit travel times under the build alternatives indicates that the greatest reduction in travel time is projected for the HOV/TOL/Reduced BRT and HOV/TOL/BRT Alternatives (Table 7-3). Both of these alternatives would reduce travel times to regional activity centers by between 20 and 30 percent over the No-Build Alternative under the HOV/TOL/Reduced BRT Alternative and between 30 and 40 percent over the No-Build Alternative under the HOV/TOL/BRT Alternative. These two build alternatives best serve the need of improving access to activity centers.

Table 7-3. 2030 Average Travel Times by Mode for Travel to Activity Centers

Representative Trips from the Study Area to Activity Centers		No-Build Alternative			Build Alternatives					
					All Transit Modes				Highway Modes	
		Transit	SOV	HOV	HOV/TOL	Reduced BRT	TSM	BRT	SOV	HOV
Downtown	Time in Minutes	77	40	36	73	59	61	56	39	32
	% Change from NB	-	-	-	-5%	-23%	-21%	-27%	-3%	-11%
Midtown	Time in Minutes	70	38	33	65	51	54	48	37	29
	% Change from NB	-	-	-	-7%	-27%	-23%	-31%	-3%	-12%
Perimeter Center	Time in Minutes	92	38	38	89	65	67	64	37	34
	% Change from NB	-	-	-	-3%	-29%	-27%	-30%	-3%	-11%
Buckhead	Time in Minutes	85	42	41	81	67	68	63	41	37
	% Change from NB	-	-	-	-5%	-21%	-20%	-26%	-2%	-10%
Cumberland-Galleria	Time in Minutes	55	23	23	53	37	41	33	22	18
	% Change from NB	-	-	-	-4%	-33%	-25%	-40%	-4%	-22%
Town Center	Time in Minutes	65	22	22	67	49	53	48	21	21
	% Change from NB	-	-	-	3%	-25%	-18%	-26%	-5%	-5%

Note: The acronym NB used in this table stands for the No-Build Alternative.
Source: ARC, 2004; PB, ARC travel model as modified, 2006.

The lowest reduction in transit travel time is projected for the HOV/TOL Alternative because it does not include the improved transit services under the three other build alternatives. The decrease in transit travel times under the HOV/TOL Alternative is attributed to improved bus operating speeds in the HOV or HOT lanes.

In addition to a reduction in transit travel times, HOV travel times would also decrease under the build alternatives. Travel times to regional activity centers outside the study area (i.e., downtown Atlanta, Midtown, Perimeter Center, and Buckhead) would decrease by 10 to 12 percent, while travel times to Cumberland-Galleria and Town Center within the study area would decrease by up to 22 percent. SOV travel times would also decrease under the build alternatives, but the difference would be smaller than for either transit or HOV travel.

7.2.2 Goal: Provide Additional Transportation Choices

This goal of the Northwest I-75/I-575 Corridor Project reflects a desire to provide additional transportation choices and that these additional choices are competitive with travel by single-occupant vehicles (SOVs). Although HOV and transit choices are currently available for travelers using the I-75/I-575 corridor, the lack of continuous HOV lanes north of Akers Mill Road reduces the effectiveness of these modes to accommodate existing and future travel demand in the corridor. By increasing the effectiveness of HOV and transit to accommodate additional travel, more trips may shift from SOVs to HOV and transit, which reduces congestion in the general-purpose lanes. Reduced congestion is an important need in the corridor.

All of the build alternatives and options provide additional transportation choices through the addition of HOV or HOT lanes on I-75 and I-575 and truck-only lanes on I-75. These improvements would reduce travel times and improve the reliability of travel. The build alternatives also provide for a range of transit improvements to the corridor. The improvements include improved express bus service operating in the HOV lanes under the HOV/TOL and HOV/TOL/TSM Alternatives and the addition of BRT stations and BRT services under the HOV/TOL/BRT and HOV/TOL/Reduced Alternatives.

The ability of each alternative to achieve this goal can be measured through changes in the number of SOV trips. The most effective alternatives would be those that reduce SOV trips. A reduction in SOV trips indicates that the alternatives are influencing the mode people choose to travel (i.e., HOV and transit).

The 2030 projection of person trips by mode would total 2.89 million daily SOV person trips under the No-Build Alternative. Under the HOV/TOL Alternative, the number of SOV person trips is projected to decrease by 500 person trips daily as a result of the new HOV lanes on I-75 and I-575. The greatest change in SOV person trips is projected under the HOV/TOL/BRT Alternative with a reduction of 8,800 SOV person trips daily. The HOV/TOL/TSM Alternative and HOV/TOL/Reduced BRT Alternatives are projected to reduce SOV person trips by 6,700 and 5,900, respectively. Although the reduction in SOV trips may appear to be small in number compared to the total number of trips, the magnitude of the impact is greater considering that most of the SOV trips that would be diverted to transit would occur during peak periods when congestion is most severe.

7.2.3 Goal: Improve the Quality of Life

This goal is intended to evaluate the extent to which the alternatives improve or maintain the quality of life in the area. Although quality of life is largely a personal preference, the condition of the surrounding environment in which a person lives and works is important. Quality of life can

be maintained by ensuring that adverse effects on the surrounding environment are minimized. Mobility also is important in defining quality of life because it affects the ease of access to employment, community services, shopping, cultural resources, and recreational facilities. Effects on mobility, however, were discussed in the previous section. All alternatives that increase mobility by reducing travel times or expanding transit service coverage can be considered to improve quality of life. As such, this assessment of how well the project alternatives improve quality of life is focused on potential adverse effects on natural resources and the built environment.

7.2.3.1 Effects on Natural Resources

In suburban areas, such as the Northwest I-75/I-575 Corridor Project, residents typically place importance upon having a high quality natural environment. They do not want lots of air and noise pollution. Lakes, streams, wetlands, and groundwater should be clean. Soils should not be contaminated. Open spaces and natural habitat areas should be able to support naturally occurring plant and animal species. The adverse effects of the project alternatives on these environmental resources are discussed in detail in Chapter 5, Environmental Consequences. This section provides an overview of these effects in terms of adverse effects on perceived quality of life.

Improved air quality was identified as a need for the project. None of the project alternatives is anticipated to adversely affect air quality in the project area. The proposed project is part of an approved, conforming Transportation Improvement Program (TIP), and the regional effects of the project are consistent with air quality goals (ARC, 2006). A number of analyses were conducted to demonstrate that the proposed project would not cause or exacerbate a violation of the National Ambient Air Quality Standards (NAAQS). A hot-spot conformity analysis predicted that the project would not cause or exacerbate a violation of the current $PM_{2.5}$ standards. A microscale CO analysis was conducted and the results did not predict that the project would cause or exacerbate a violation of the NAAQS for CO. Moreover, the analysis determined that any difference in air quality effects among the build alternatives would be negligible.

The build alternatives would require widening the I-75 freeway and would construct HOV lanes in the median of I-575, both of which would result in significant adverse noise impacts on some adjacent neighborhoods. The most reasonable available abatement measure consists of erecting noise barriers within the freeway right-of-way. Preliminary analysis indicates that a total of 12 noise walls, six along each of the freeway corridors, would be cost effective mitigation. A final decision on the installation of noise walls will be made upon completion of detailed noise abatement analysis based on final design and the public involvement process. Best management practices and compliance with local noise ordinances would minimize construction effects of noise. As such, adverse noise effects would be mitigated and would not result in significant adverse effects on the perceived quality of life. Among the project options, however, the Inside TOL Option would have reduced noise effects compared to the other build alternatives as the placement of the large, slower-moving heavy-duty trucks to the outside of the right-of-way would result in increased noise impacts on adjacent neighborhoods. The project alternatives are expected to have adverse effects on streams, wetlands, and floodplains and these effects would require mitigation. None of the build alternatives would affect threatened or endangered animal or plant species. Construction activities associated with the alternatives would disturb soil, and surface runoff would need to be controlled. Based on the project goals, however, there are no practicable alternatives that would avoid these impacts. Preliminary and final engineering design and the implementation of best management practices during construction would minimize these effects. Moreover, an estimated 13 properties along I-75 that would be affected by property acquisition under the build alternatives are anticipated to be contaminated. Excavation and

construction activities would result in the removal and proper off-site disposal of any existing underground storage tanks, building materials with asbestos or lead-based paint, and contaminated sediments. A Construction Spill Prevention, Containment, and Counter-Measure Plan and the preparation of a health and safety plan would minimize additional public exposure of contaminated materials. These measures would result in an improvement in the natural environment. And again, the differences among the proposed alternatives are negligible.

As a result, the overall effects of the proposed build alternatives would not result in significant adverse effects on natural resources that contribute to the perceived quality of life. Potential adverse effects of the Inside TOL Option, however, would be less than for the build alternatives with the truck-only lanes to the outside of the roadway.

7.2.3.2 Effects on the Built Environment

The key issue affecting the perceived quality of life with regard to the built environment is adverse effects on community cohesion. The primary impact on community cohesion arises from property acquisition needed to construct the project alternatives. The proposed freeway widening on I-75 would encroach into and disrupt adjacent residential neighborhoods, many of which have developed since the original construction of the freeway. The needed property acquisition would require the purchase of adjacent private land, the buffer space between the freeway facilities and adjacent land uses would be reduced, residents and businesses would be displaced and important community facilities and services could be eliminated. All of these would be considered adverse effects on the perceived quality of life. The effects on the built environment resulting from the project alternatives are summarized below.

Property acquisition for the construction of the improvements under the build alternatives would affect a total of 290 to 304 parcels, depending on the alternative. Almost all of these acquisitions would be located along I-75 south of Town Center. The largest number of acquisitions would be required by the HOV/TOL/BRT Alternative and the fewest by the HOV/TOL and HOV/TOL/TSM Alternatives. However, the differences between the alternatives are very small. About one-third of the parcel acquisitions would be full acquisitions, but partial acquisitions could require purchase of land as well as structures. More than 80 percent of the full acquisitions would affect residential properties, while more than half of the partial acquisitions would affect commercial properties. With no property acquisitions required along I-575, residents along I-575 would not likely perceive a deterioration in the quality of life due to adverse effects on the built environment under any of the build alternatives.

A substantial number of residential dwelling units, mostly multi-family units, would be displaced by each of the build alternatives. Depending on the alternative, approximately 294 to 328 dwelling units would be displaced, including both rental and owner-occupied units. Approximately three-quarters are multi-family units, less than one-quarter are single-family units, and the remainder would be mobile homes. These property acquisitions would weaken community cohesion of adjacent residential neighborhoods, especially in several very large apartment complexes where multi-family buildings and associated recreational amenities would be acquired. More than 700 residents could be displaced by these residential acquisitions. Residential displacements would particularly affect adjacent residential neighborhoods between Delk Road and Gresham Road in the Marietta area and near the I-75/I-575 interchange.

Approximately 43 to 46 commercial buildings would be affected by the build alternatives, and the businesses and employees in these buildings would be displaced. These commercial acquisitions and displacements are fairly evenly scattered along the I-75 corridor between Town Center and Cumberland. The build alternatives would require acquisition of a local community

church and the Roswell Road Interchange Alignment Option to avoid displacement of the church would displace a popular gourmet grocery store.

Though there are very few differences among the build alternatives in terms of acquisition and displacements, residents in adjacent neighborhoods in the Marietta area would perceive an adverse effect on their quality of life under all of the build alternatives. They would experience a cumulative effect of many property acquisitions, creation of new local streets dead-ending at the freeway right-of-way, displacement of residential buildings and associated households and families, and potential displacement of either a local community church or popular grocery store. These significant adverse effects on quality of life, however, are very localized compared to the large area encompassed by the Northwest I-75/I-575 Corridor Project. This is especially true considering there are several hundred thousand residents and businesses located in the very large, nearly two-county area that would benefit from each of the project alternatives. Moreover, these residents and businesses would not experience any deterioration in quality of life as defined above.

7.2.4 Goal: Improve Transportation Equity

This goal was developed to ensure that the Northwest I-75/I-575 Corridor Project provides an equitable distribution of benefits and impacts. The equity of the alternatives was evaluated with respect to the relative distribution of benefits and impacts to all residents and businesses within the corridor and to disadvantaged populations in the corridor. In accordance with federal regulations on Environmental Justice, the alternatives were evaluated to determine whether or not they would result in disproportionate impacts on such populations.

Estimated changes in travel time for various transportation users were used to evaluate the effectiveness of the build alternatives to improve mobility. These include all users in the two-county region with the exclusion of the South Cobb traffic analysis district (see Figure 3-2, Study Area Analysis Districts). This is the “benefit area” used for the traffic modeling analysis. Compared to current conditions, the build alternatives are overall expected to reduce travel times in the general-purpose lanes compared to the No-Build Alternative; and, the HOV and truck-only lanes are expected to have lower travel times than the general-purpose lanes. To demonstrate equity among transportation users, it is particularly important to evaluate whether or not disadvantaged populations in the “benefit area” receive the same, if not improved, benefits over those received by the general population.

For this analysis, three transportation user groups were identified to represent disadvantaged populations that could be affected, adversely and/or beneficially, by the build alternatives. The first user group is identified as “disadvantaged neighborhoods.” This user group includes neighborhoods (represented by census tract block groups) within the “benefit area” that have a higher proportion of minorities, Hispanic, and/or low-income persons compared to the average for the entire “benefit area.” These disadvantaged neighborhoods could have a higher proportion of one or more of the disadvantaged groups. The analysis showed the “benefit area” included 281 neighborhoods and 76 were low-income neighborhoods (persons living below the federal poverty level), 70 were minority neighborhoods (non-White residents), and 58 were Hispanic neighborhoods. Based on the 2000 census data, many of these neighborhoods have overlapping geographical areas. As such, there are a total of 105 disadvantaged neighborhoods and together they have a population of 232,816 (US Census Bureau, 2000), which comprises approximately 35 percent of the population of the “benefit area.” These neighborhoods are scattered throughout Cobb and Cherokee Counties.

The second user group consists of only those disadvantaged neighborhoods that would sustain displacement of households as a result of one or more of the build alternatives. Examining this subgroup of disadvantaged neighborhoods was directed at determining whether or not the neighborhoods that would experience adverse effects on neighborhood cohesion would receive increased mobility benefits over other transportation users. In total, there are nine neighborhoods in the "benefit area" that would sustain displacements and they are generally located adjacent to the I-75 freeway. This user group has a total population of 25,639 (US Census Bureau, 2000), which comprises approximately 4 percent of the population of the "benefit area."

The third user group includes transit-dependent neighborhoods. Households in these neighborhoods are dependent on transit for their mobility as they do not have access to a vehicle for personal use. Transit-dependent neighborhoods were defined as those neighborhoods with more than 4 percent of households dependent upon transit, which is above the average for the entire "benefit area." Since one of the project goals is to improve transit services for residents of the study area, it is particularly important to see if the proposed project, which is designed to improve transit services, would improve the mobility of persons who are particularly dependent upon transit. An estimated 24 percent of the "benefit area" households are transit-dependent and the population of this user group is 160,675 (US Census Bureau, 2000). Most of these neighborhoods are concentrated in an area that is located west and southwest of Smyrna in the very southwestern portion of the "benefit area."

Table 7-4 summarizes the results of the analysis of changes in SOV and HOV average travel times by transportation user groups for the build alternatives compared to the No-Build Alternative. The results represent an average of travel time from the study area to the regional activity centers (i.e., Midtown, downtown Atlanta, Perimeter Center, Buckhead, Cumberland-Galleria, and Town Center).

Table 7-4. Change in Average Highway Travel Times to Activity Centers by User Groups Compared to No-Build Alternative, 2030

User Group	SOV	HOV
Entire Benefit Area	-5%	-20%
All Disadvantaged Neighborhoods	-4%	-19%
Disadvantaged Neighborhoods with Displacements	-4%	-19%
Neighborhoods with Transit-Dependent Households	-3%	-4%

The analysis of highway travel times under the build alternatives found that all of the disadvantaged neighborhoods would receive essentially the same travel time savings for all build alternatives compared to the entire study area as a whole, with one exception. Compared to the No-Build Alternative, these users would receive a slight reduction in travel time savings for SOVs – from 3 to 4 percent compared to the 5 percent reduction received by all users. This difference is negligible, though, and should be considered essentially the same magnitude of benefit. With one exception, the same types of results are seen for the HOV users who are projected to experience a 19 percent reduction in average travel times compared to the No-Build Alternative, which would result in a 20 percent reduction in average travel time. Clearly, use of the HOV facilities would overall provide substantially greater average travel time savings compared to the SOV facilities.

The exception is that the transit-dependent users would only receive a 4 percent reduction in average travel time using the HOV facilities compared to the No-Build Alternative. This is a

substantial reduction in the benefits received by all users. As mentioned above, however, the neighborhoods with transit-dependent households are concentrated in the very southwestern portion of the "benefit area." Looking at a map, one can see this part of the study area is essentially due west of the I-75/I-285 interchange and portions of the area are actually located closer to I-285 than I-75. As such, it is questionable whether or not a substantial portion of these users would use I-75 to access the six regional activity centers. In fact, the small reduction in average travel times for HOV users from transit-dependent neighborhoods to regional activity centers under the build alternatives actually is an expected finding considering the geographic location of these neighborhoods. The north-south HOV lanes on I-75 do not meet their needs to travel northeasterly or easterly to the regional activity centers located in Cobb County (i.e., Cumberland-Galleria and Town Center) and to access downtown, Midtown, Perimeter Center, and Buckhead, is likely more direct via I-285 or via I-285 and then I-75 to the south of the I-75/I-285 interchange.

Table 7-5 summarizes the results of the analysis of average transit travel times by different disadvantaged user groups. Information is presented for the build alternatives compared to the No-Build Alternative. The average travel times are identified for those who walk to transit as well as those who drive to access transit. For transit users, the analysis of the build alternatives found that all of the disadvantaged neighborhoods would receive essentially the same travel time savings gained by all users in the "benefit area." For those who both walk and drive to transit, the average travel time savings is within 1 to 2 percentage points of the benefits received by all users.

Table 7-5. Change in Average Transit Travel Times to Activity Centers by User Groups Compared to No-Build Alternative, 2030

User Groups	Transit – Walk Access				Transit – Drive Access			
	HOV/TOL	HOV/TOL/ TSM	HOV/TOL/ BRT	HOV/TOL/ Reduced BRT	HOV/TOL	HOV/TOL/ TSM	HOV/TOL/ BRT	HOV/TOL/ Reduced BRT
Benefit Area	-4%	-23%	-30%	-26%	-12%	-23%	-25%	-23%
All Disadvantaged Neighborhoods	-2%	-21%	-28%	-24%	-10%	-22%	-24%	-21%
Disadvantaged Neighborhoods with Displacements	-3%	-18%	-33%	-31%	-28%	-37%	-40%	-38%
Neighborhoods with Transit-Dependent Households	0%	-14%	-16%	-12%	-1%	-12%	-17%	-10%

For disadvantaged neighborhoods that would sustain the effects of displacement, the benefits are substantially better than those that would be received by all users in the "benefit area" with two exceptions. The average travel time reductions are from 3 to 18 percentage points greater than those received by all users for the build alternatives. For those who walk to transit under the HOV/TOL Alternative, however, the average travel time savings would be just one percentage point less than for the entire "benefit area," or essentially the same. The disadvantaged neighborhoods sustaining displacement impacts, however, would be expected to see an 18

percent reduction in average travel time savings compared to the 23 percent reduction experienced by all users. As such, the HOV/TOL/TSM Alternative would not benefit these disadvantaged displacement neighborhoods as well as other alternatives. The HOV/TOL/BRT

Alternative would provide the greatest average travel time reductions compared to the other alternatives, irrespective of whether or not individuals walk or drive to transit.

The analysis of the average transit travel time reduction for the transit-dependent neighborhoods is a completely different story. The average travel time savings would be substantially less than those experienced by all users in the "benefit area." It is the unique distribution of the transit-dependent neighborhoods that skew the results of the travel time savings.

In fact, there are several trips by residents of these transit-dependent neighborhoods that actually receive improved benefits over those of all users. For this analysis, the reader should review the detailed travel time savings tables presented in Appendix F.12. Careful comparison of the travel time reductions for each of the regional activity centers tells a different story. For those who drive transit to access Town Center, the travel time reductions under the HOV/TOL/BRT and HOV/TOL/Reduced BRT Alternatives are substantially better than those for all users – a 22 reduction in average travel time compared to a 16 percent reduction. Access to all of the regional activity centers for SOV users from the transit-dependent neighborhoods is within 1 to 2 percentage points of the average travel time savings of all users. But again, the average travel time savings to all regional activity centers for the HOV users is substantially less than for all users. These results, however, should be expected considering the objective to improve the transit service is along the I-75 corridor, which does not appear to be a major travel route for residents of the transit-dependent neighborhoods.

7.2.5 Goal: Provide Cost-Effective and Affordable Transportation Improvements

While each of the build alternatives and options provide varying degrees of benefits in terms of improving transportation effectiveness, providing additional transportation options or choices, improving quality of life, and improving transportation equity, they also come with financial costs, and must be affordable within the resources available to the region.

7.2.5.1 Capital and Operating and Maintenance Costs

The costs of the alternatives are summarized in Chapter 2, Alternatives Considered. The estimated capital costs of the build alternatives in year-of-expenditure dollars are listed below:

- HOV/TOL Alternative: $3.52 billion
- HOV/TOL/TSM Alternative: $3.92 billion
- HOV/TOL/BRT Alternative: $4.07 billion
- HOV/TOL/Reduced BRT Alternative: $3.80 billion

The build alternatives also have options for the design and operation of the HOV/TOL system. The estimated difference in year-of-expenditure costs for each of the options compared to the build alternatives is listed below. Note, the only substantial difference in cost results in the Inside TOL Option, but the difference is less than about 8 percent of the total project cost.

- Inside TOL Option: -$245 million
- Allgood Flyover Option: +$20 million

- Roswell Road Interchange Alignment Option: +$30 million
- HOT/TOT Lane Option: +$59 million

The annual operating and maintenance (O&M) costs for the HOV/TOL (freeway) elements of the project are assumed to be completely funded by GDOT under a separate funding program. No estimates of these costs have been prepared for the AA/DEIS. Incremental 2030 annual operating and maintenance costs for the transit elements of the build alternatives over the No-Build Alternative are listed below:

- HOV/TOL Alternative: +$158,000
- HOV/TOL/TSM Alternative: +$27.57 million
- HOV/TOL/BRT Alternative: +$27.59 million
- HOV/TOL/Reduced BRT Alternative: +$19.32 million

7.2.5.2 Financial Feasibility

A further consideration in the selection of a preferred alternative is the ability of GDOT and GRTA to finance the associated capital and operating costs of the build alternatives. A financial feasibility analysis identifies the financial implications of each alternative, which enables federal and local decision-makers to judge the practicality of building and operating each of the alternatives. As such, the financial feasibility criterion relates to all decisions that have substantive differences in capital and operating costs. Thus, this criterion compares the highway and transit components of the project alternatives considered in this AA/DEIS.

The decisions related to the proposed highway improvements pertain to the design and operational options for the HOV and truck-only lanes. The design options would have only minor differences in costs. Thus, these differences in costs are not significant enough to be relevant to the decisions regarding which design options to include in the preferred alternative. Financial feasibility, however, is relevant to decisions on the proposed HOV versus HOT lanes, tolling of the truck lanes, and mandatory or voluntary use of the truck lanes.

The local share of project capital funds will be provided primarily by the State of Georgia and GDOT. Capital and operating funding for the HOV/TOL project will be provided by GDOT, with federal assistance provided through the Federal-Aid Highway Program. Capital funding for the BRT elements are anticipated to be shared between the FTA and GDOT.

A preliminary financial feasibility analysis was conducted for the HOV/TOL/BRT Alternative. This alternative has the highest construction cost of the alternatives under consideration. If this alternative is determined to be financially feasible, then the other transit build alternatives can also be considered feasible. Thus, financial feasibility is less relevant to the decision on a preferred transit alternative if the HOV/TOL/BRT Alternative is considered feasible. Preliminary analysis performed, based on the current assumption that the FTA New Starts Program will fund 50 percent of the capital cost of the proposed BRT elements, indicates that there is financial capacity to implement the BRT improvements in the Northwest Corridor as GDOT is projected to have sufficient resources to match anticipated FTA New Starts grants.

Cobb County, with financial support from FTA Section 5307 and Section 5309 monies, also is expected to fund operations and maintenance costs of the BRT service. These costs include replacement of the Cobb Community Transit (CCT) existing bus fleet and future replacements of the expanded fleet purchased as part of the project. As previously identified, however, the ARC travel forecasting model is under review and will be updated in the future, as requested by the

FTA. And, the project operating costs and revenues depend heavily on the output of this model. Therefore, the project's operating costs and revenues cannot be estimated with certainty at this time. Future analysis, once more underlying assumptions and modeling has been completed, will fully evaluate the ability of CCT to operate and maintain the proposed BRT system.

Additional analysis of the financial feasibility of the proposed project is underway. GDOT has entered into a Public Private Initiative ("PPI") with the Georgia Transportation Partners. It is anticipated that the PPI financing will be a combination of public and private funding sources which potentially may include toll-backed revenue bonds, Transportation Infrastructure Finance and Innovation Act (TIFIA), GARVEE, General Obligation Bonds, and/or FTA New Starts funding. The results of the financial feasibility analysis have determined that the truck-only lanes are only feasible with toll revenues from truck-only and HOT lanes.

In accordance with FHWA's Major Project Guidance, an Initial Financial Plan will be prepared for the project prior to the award of the design-build contract or right-of-way acquisition. The financial plan will be based on a design-build approach for the project. If the design-build approach is not followed, the financing plan and the estimates of capital costs, operating costs, and sources of funds are likely to increase because of inflation occurring over a longer construction duration for the project.

7.2.5.3 Cost Effectiveness

Cost effectiveness is another measure that is used by FTA for the New Starts evaluation process. However, cost effectiveness cannot be calculated at this stage of project development. As identified in Chapter 4, Transportation Impacts, the ARC travel forecasting model is under review and will need to be updated as requested by the FTA. As such, the estimation of project capital and O&M costs as well as ridership and user benefits hours cannot be calculated as they are dependent on the output of the model. Costs, benefits, and project cost effectiveness may change as a result of updates to the travel demand model.

In addition, the definition of the project baseline transit alternative used in FTA-required analyses has not been approved by the agency. Information derived from the baseline alternative is needed to calculate project cost effectiveness.

Therefore, considering that FTA has not approved the project baseline transit alternative, the cost effectiveness of the project alternatives cannot be estimated with certainty at this time.

7.2.6 Summary of Effectiveness

A summary of the effectiveness of the build alternatives against all project goals is presented in Table 7-6.

7.3 FTA New Starts Evaluation

The Section 5309 New Starts Program is the federal government's primary program for providing financial support to locally-planned, implemented, and operated fixed-guideway transit major capital investments. The New Starts evaluation process is used in conjunction with the evaluation process under NEPA, for which this AA/DEIS was prepared. GRTA is seeking New Starts funding for the BRT element of the HOV/TOL/BRT Alternative. If this alternative is selected as the preferred alternative, the proposed project will be subject to the FTA New Starts evaluation and rating process when GRTA requests approval to begin the preliminary engineering (PE) phase of project development. This section describes how FTA evaluates projects for its New Starts funding recommendations.

Table 7-6. Summary of Effectiveness of Build Alternatives

Project Goal/Criteria/Measures	Effects of Build Alternatives Compared to No-Build Alternative
Goal: Improve Transportation Effectiveness	
• Effectiveness of Highway Alternatives in Improving Travel in Corridor	
– Changes in Freeway Traffic Volumes	Increase in total daily traffic volumes on I-75/I-575 and reduction in general-purpose lane volumes under all alternatives. Largest increase in volumes under HOT Option and lowest under Allgood Flyover Option.
– Changes in Freeway Throughput	Increase in total daily VMT throughput by 14 percent on I-75 and 15 percent on I-575 under HOV/TOL. Under HOT, VMT throughput projected to increase by 18 percent on I-75 and by 21 percent on I-575.
	Daily VMT per lane mile on I-75 under HOT/TOL would increase from 15,100 to 15,700; on I-575, from 20,800 to 21,800.
	Total daily VMT and VMT per lane mile projected to be 3 percent lower under Allgood Flyover Option.
	Peak period VMT on I-75 highest in northbound direction during p.m. peak under HOT Option.
	Peak period VMT on I-575 highest in northbound direction during p.m. peak under HOV/TOL.
	Decrease in VMT on I-575 under HOT Option because of high demand and high toll rate on I-75 south of the split.
– Freeway Levels of Service by Lane Group	Marginal reduction in congestion in general-purpose lanes.
	LOS C in all segments in southbound HOV lanes on I-75 during a.m. peak period except south of I-285 with LOS E.
	During p.m. peak period, LOS E in segment south of I-285; LOS D south of I-575; and LOS E south of Big Shanty Road under HOV/TOL.
	Under Allgood Road, LOS E south of I-285 and LOS D south of Franklin, south of flyover, and south of Big Shanty Road.
	LOS C to D in HOV lanes on I-575 under HOV/TOL and LOS C under HOT/TOL.
– Average Travel Times over Freeway Segments	Reduction in travel time of 2 min. in a.m. peak direction and 4 min. in p.m. peak direction for travel in general-purpose lanes between Windy Ridge Parkway and Hickory Grove Road.
	Reduction in travel time of 12 min. in a.m. peak direction and 6 min. in p.m. peak direction for travel in general-purpose lanes between Windy Ridge Parkway and Sixes Road
	HOV and TOL travel times would be 50 percent lower than times in the general-purpose lanes
– Travel Time Savings	HOV/TOL Alternative: 32,457 hours daily HOT Lane Option: 36,438 hours daily
• Effectiveness of Transit Alternatives in Improving Travel in Corridor	Daily transit user benefit hours: 700 under HOV/TOL; 7,500 HOV/TOL/Reduced BRT; 8,500 HOV/TOL/TSM; and 11,400 HOV/TOL/BRT.
• Effectiveness of Alternatives in Improving Access to Activity Centers	Highest percentage reduction in transit travel times under HOV/TOL/Reduced BRT and HOV/TOL/BRT Alternatives - 20 to 30 percent
	HOV travel times to activity centers outside study area reduced by 7 to 9 percent and to activity centers in study area by 16 percent.
	SOV travel reduced but by a smaller percentage.

Table 7-6. Summary of Effectiveness of Build Alternatives (continued)

Project Goal/Criteria/Measures	Effects of Build Alternatives Compared to No-Build Alternative
Goal: Provide Additional Transportation Options	Reduction in daily SOV trips by 500 under HOV/TOL, 5,900 under HOV/TOL/Reduced BRT, 6,700 under HOV/TOL/TSM, and 8,800 under HOV/TOL/BRT.
Goal: Improve the Quality of Life	
• Effects on Natural Resources	None of the alternatives would cause or exacerbate a violation of NAAQS. Only minimal differences among alternatives.
	Adverse effects on streams, wetlands, and floodplains that will require mitigation under all build alternatives. Only minimal differences among alternatives.
	No effect to endangered or threatened species.
	An estimated 13 properties proposed for acquisitions are contaminated sites.
• Effects on Built Environmental	A total of 286 to 320 parcels would be affected by full or partial acquisition depending on the alternative.
	Displacement of 294 to 328 residential units and 43 to 46 commercial buildings depending on alternative
	Displacement of a church under build alternatives. Roswell Rd Interchange Alignment Option would avoid church and displace several additional commercial properties.
Goal: Improve Transportation Equity	All of the build alternatives would result in more than equitable travel time savings for disadvantaged populations.
Goal: Provide Cost Effective and Affordable Transportation Improvements	
• Total Year-of-Expenditure Capital Costs	HOV/TOL Alternative: $3.52 billion HOV/TOL/TSM Alternative: $3.92 billion HOV/TOL/BRT Alternative: $4.07 billion HOV/TOL/Reduced BRT Alternative: $3.80 billion
• Difference in Capital Costs for Options	Inside TOL Option: -$245 million Allgood Flyover Option: +$20 million Roswell Road Interchange Alignment Option: +$30 million HOT/TOT Option: +$59 million
• 2030 Incremental Transit O&M Costs	HOV/TOL Alternative: +$158,000 HOV/TOL/TSM Alternative: +$27.57 million HOV/TOL/BRT Alternative: +$27.59 million HOV/TOL/Reduced BRT Alternative: +$19.32 million

Each year FTA submits its *Annual Report on New Starts* to Congress as a companion document to the agency's annual budget submitted by the President (FTA, 2006). The report provides recommendations for allocation of New Starts funds under Section 5309 of Title 49 of the United States Code. The Transportation Efficiency Act for the 21st Century (TEA-21) requires that FTA use the following project justification criteria to evaluate New Starts projects: mobility improvements; environmental benefits; cost effectiveness; operating efficiencies; transit-supportive existing land use, policies and future patterns; and other factors. FTA must also consider the local financial commitment for the proposed project. Collectively, the criteria are intended to measure the overall merits of the project and the sponsor's ability to build and operate the proposed project.

FTA reviews the project justification and local financial commitment criteria for candidate projects and assigns a rating for each criterion. For some of the project justification criteria, the proposed project is compared against a New Starts "baseline alternative." The New Starts baseline alternative consists of improvements to the transit system that are relatively low in cost and represent the "best that can be done" to improve transit without a major capital investment. As such, it is usually different from the baseline (represented by the no-build alternative) against which environmental impacts are measured in NEPA documents. A candidate project is given an overall rating of "High", "Medium-High", "Medium", "Medium-Low" or "Low", based on ratings assigned by FTA to each of the project justification and local financial commitment criteria identified above. These ratings are important, as FTA considers them in its decision to recommend projects for New Starts funding. Specifically, FTA will not recommend funding for projects that are rated "Medium-Low" or "Low." However, a "High", "Medium-High" or "Medium" rating does not automatically guarantee a funding recommendation.

Project evaluation is an on-going process. FTA evaluation and rating occurs annually in support of budget recommendations presented in the *Annual Report on New Starts* (FTA, 2006) and when projects request FTA approval to enter into preliminary engineering or final design. Consequently, as proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings are updated to reflect new information.

7.4 Comparison of Trade-Offs Among the Alternatives

The purpose of the trade-offs analysis is to provide decision-makers with a comparison of the alternatives using the key differences among the alternatives across all five perspectives – effectiveness, impacts, cost-effectiveness, financial feasibility, and equity. In selection of the preferred alternative, decision-makers will consider the evaluation results presented in this document and comments from agencies and the public during the AA/DEIS comment period.

In the comparison of trade-offs, attention is given first to the tradeoffs between the No-Build Alternative versus the build alternatives. Second, the transit alternatives are addressed through a comparison of the trade-offs among the transit improvements under the HOV/TOL, HOV/TOL/TSM, HOV/TOL/BRT, and HOV/TOL/Reduced BRT Alternatives. Finally, trade-offs involved in the decision on the design and operation options under the build alternatives are compared.

7.4.1 Trade-Offs between the No-Build and Build Alternatives

Table 7-7 presents a comparison of trade-offs between the No-Build Alternative and build alternatives. The No-Build Alternative encompasses planned highway and transit improvements that will be built whether or not the improvements in the build alternatives are implemented. The effects from improvements assumed under the No-Build Alternative are the responsibility of the agencies and jurisdictions implementing the improvements. Under the No-Build Alternative, there would be no effects as a result of the proposed improvements of the build alternatives, but the benefits of the alternatives, likewise, would not occur.

Compared to the No-Build Alternative, the highway and transit improvements under the build alternatives would be more effective in meeting the project goals used to assess how well the alternatives address the transportation needs identified in Chapter 1, Purpose and Need. Most importantly, the build alternatives would provide additional transportation options that increase

Table 7-7. Comparison of Trade-Offs between No Build and Build Alternatives

Criteria/Measures	Alternatives	
	No Build	Build
Effectiveness		
Transportation Effectiveness	●	✚
Additional Transportation Choices	●	✚
Quality of Life	●	✚
Cost Effective and Affordable Transportation Improvements	●	✚
Transportation Equity	●	✚
Costs and Benefits	O	✚
Financial Feasibility	O	O

Rating: ✚ Better ● Worse O Neutral

transportation system capacity in the I-75/I-575 corridor and would improve access to activity centers. The improvements would improve mobility and support the investments consistent with local land use plans without degrading air quality and causing adverse impacts on the environment. The highway and transit improvements would be provided on an equitable basis in terms of benefits provided to the various population groups and, in general, environmental impacts. The build alternatives would result in displacements of residential units and businesses and impacts on streams, wetlands, and floodplains that would require mitigation.

In terms of costs, the build alternatives would achieve the purpose and need in an efficient manner. Although implementation of the build alternatives represents a substantial investment of federal and local financial resources, the build alternatives are financially feasible.

7.4.2 Trade-Offs among Transit Alternatives

The transit build alternatives under consideration are the HOV/TOL/TSM, HOV/TOL/BRT, and HOV/TOL/Reduced BRT Alternatives. The HOV/TOL Alternative is considered a highway alternative without any improvement in transit services other than the improved transit travel times provided by the HOV lanes and the planned transit improvements that are part of the No-Build Alternative. Table 7-8 presents a comparison of trade-offs among the transit alternatives.

The HOV/TOL/BRT Alternative would be the most effective of the transit alternatives in improving travel in the Northwest Corridor. This alternative would offer the most frequent service and result in the highest transit ridership and user benefit hours of the transit alternatives under consideration. This alternative would also provide the highest level of accessibility to and connectivity between regional activity centers.

The BRT stations and service provided under the HOV/TOL/BRT and HOV/TOL/Reduced BRT Alternatives would provide a new transportation option for travelers in the corridor. With the highest reduction in SOV trips, the HOV/TOL/BRT Alternative would have the greatest influence on the mode of transportation people choose to use. The improved mobility provided by the BRT stations and services could be considered an enhancement to the quality of life of the corridor residents and employees. The BRT stations would provide a transit investment supportive of redevelopment/ development in station areas and is consistent with local land use plans. The HOV/TOL/TSM

Table 7-8. Comparison of Trade-Offs among Transit Alternatives

Criteria/Measures	Transit Alternative		
	TSM	BRT	Reduced BRT
Effectiveness			
Transit Level of Service	O	+	O
Transit Ridership	O	+	O
Transit User Benefit Hours	O	+	O
Access to Activity Centers	O	+	O
Additional Transportation Choices	●	O	O
Quality of Life	O	O	O
Cost Effective and Affordable Transportation Improvements	●	O	O
Transportation Equity	●	O	O
Costs and Benefits	●	O	O
Financial Feasibility	●	O	O

Rating: + Better ● Worse O Neutral

Alternative would improve mobility, but would continue to operate bus service without any major transit investment in the form of BRT stations that would promote redevelopment/ development in the study area. Although displacements would increase with property acquisitions associated with the BRT stations, residents in the vicinity of stations would also receive benefits associated with improved transit access provided by the stations. No additional adverse environmental impacts would occur compared to the HOV/TOL/TSM Alternative.

All of the alternatives are considered financially feasible, but the HOV/TOL/BRT and HOV/TOL/Reduced BRT Alternative would produce the most benefits and would be the most cost effective.[2] GRTA is seeking New Starts funding for the BRT element of the HOV/TOL/BRT Alternative and there is no assurance that New Starts funding will be received from FTA. Thus, the key tradeoff for this alternative is that although it produces the most benefits, its financial feasibility is dependent on FTA approval. In contrast, no New Starts funding is being requested for the HOV/TOL/TSM Alternative or the HOV/TOL/Reduced BRT Alternative. These two alternatives would have to be funded locally. The most financially feasible of these two alternatives is the HOV/TOL/Reduced BRT Alternative.

7.4.3 Trade-Offs between Inside and Outside Truck-Only Lanes

As described in Chapter 2, Alternatives Considered, there are two options for the location of the truck-only lanes on I-75 in the Northwest Corridor. The truck-only lanes could be located in the center of the roadway between the HOV lanes and the general-purpose lanes located to the outside; or, the truck-only lanes could be located to the outside of the roadway between the general-purpose lanes and the outside edge of the right-of-way.

The two options would be equally effective in meeting most of the project goals. There would be some difference in impacts. With the truck-only lanes to the outside, additional right-of-way

[2] Cost effectiveness in this context refers to the comparison of the relative costs compared to the expected benefits of the alternatives rather than the comparison of life-cycle costs versus life-cycle benefits based on a benefit-cost analysis.

acquisition would be required to accommodate both the truck-only lanes and the general-purpose lane ramps at the interchanges. Moreover, locating the truck-only lanes to the outside places the noisier element of the project nearest to adjacent land uses. (The heavier and slower vehicles generally traveling under less congested conditions would be noisier than traffic in either the HOV or general-purpose lanes.) The truck-only lanes to the outside would also have higher costs because grade-separations would be required at the interchange ramps. The outside truck-only lanes are estimated to have year-of-expenditure costs that would be $245 million higher than the Inside TOL Option. The build alternative with the truck lanes split to the outside is considered most practical, if access to the truck-only facility is to be provided at interchanges in the future or if construction of the truck-only facility is phased after completion of the HOV lanes and reconstruction of the general-purpose lanes.

7.4.4 Trade-Offs between the Allgood Road Interchange and Flyover

Instead of direct-access ramps at Allgood Road, the build alternatives include an option to use flyover ramps. These would provide HOV access to and from the Canton Road Connector (SR-5) and the I-75 mainline. Traffic could remain in the outside general-purpose lanes and use flyover ramps for access to the HOV lanes south of Allgood Road. The proposed southbound ramp for HOV traffic would diverge from the right at Allgood Road and span the southbound I-75 general-purpose lanes to connect with the HOV lanes in the center of I-75. The northbound flyover ramp would connect the HOV lanes with the general-purpose lanes in a similar manner. This option was introduced as a result of public concerns over increased traffic in adjacent neighborhoods along Allgood Road east of I-75.

Table 7-9 presents a comparison of trade-offs between the Allgood Road interchange under the build alternatives versus the Allgood Road Flyover Option.

Table 7-9. Comparison of Trade-Offs between Allgood Road Interchange and Flyover

Criteria/Measures	Alternatives	
	Interchange	Flyover
Effectiveness		
Daily Traffic Volumes on Freeway	✚	●
Daily VMT Throughput on Freeway	✚	●
Level of Service for Freeway HOV Lanes	✚	●
Travel Times on Freeway	O	O
Cost Effective and Affordable Transportation Improvements	✚	●
Costs and Benefits	✚	●
Financial Feasibility	O	O
Public Comment	●	✚

Rating: ✚ Better ● Worse O Neutral

The Allgood Road HOV interchange under the build alternatives and the HOT Lane Option would be more effective in improving transportation in the Northwest Corridor. The Allgood Flyover Option would decrease overall traffic on I-75 and I-575 compared to the build alternatives with the interchange. The option would also result in lower daily VMT throughput compared to the Allgood

Road interchange under the build alternatives. However, volumes in the HOV lanes south of the flyover would increase under the Allgood Road Flyover Option. This would result in two additional segments of the HOV system on I-75 operating at LOS D in the northbound direction during the p.m. peak hour compared to the build alternatives with the interchange. Because of the higher cost of the flyover ramps, which is estimated at $20 million in year-of-expenditure costs, and reduced benefits, the Allgood Road Flyover Option would not be as cost effective. The option also would result in additional displacements. Although potential traffic impacts to Allgood Road would be avoided with the flyover ramps, the option would increase traffic at other HOV and general-purpose interchanges compared to the build alternatives. The Allgood Flyover Option would divert less traffic from parallel roadways to I-75. In short, it would not produce the same benefits although its costs would be higher. A key trade-off is that local residents were opposed to the HOV interchange because of potential traffic impacts.

7.4.5 Trade-Offs of the Roswell Road Interchange Alignment Option

A design option to the build alternatives provides for a shift in the I-75 alignment to the east between South Marietta Parkway and SR-120/Roswell Road. The purpose of this shift in alignment is to avoid the displacement of the Gospel Light Community Church located on Frey's Gin Road on the west side of the freeway. This optional alignment, however, would affect commercial properties adjacent to the east side of the freeway. Right-of-way and other costs associated with the option are estimated to be $30 million higher in year-of-expenditure costs than the HOV/TOL Alternative with displacement and relocation of the church.

7.4.6 Trade-Offs between HOV and HOT Lanes

Under the build alternatives, there is an option to use the HOV lanes as HOT lanes. The proposed HOV lanes under the build alternatives would be restricted to buses and vehicles with two or more occupants, as well as certified alternative fuel vehicles. The HOT Lane Option under the build alternatives would allow use of the HOV lanes as HOT lanes. In the option, SOVs would be permitted to use the HOV lanes by paying a toll. Table 7-10 presents a comparison of trade-offs between the HOV and HOT lanes under the build alternatives.

Table 7-10. Comparison of Tradeoffs between HOV and HOT Lanes

Criteria/Measures	Alternatives	
	HOV	HOT
Effectiveness		
Daily Traffic Volumes on Freeway	●	✚
Daily VMT Throughput on Freeway	●	✚
Level of Service for Freeway	●	✚
Travel Times on Freeway	●	✚
Additional Transportation Options	●	✚
Cost Effective and Affordable Transportation Improvements	●	✚
Transportation Equity	O	O
Costs and Benefits	●	✚
Financial Feasibility	O	O

Rating: ✚ Better ● Worse O Neutral

The comparison of tradeoffs indicates that the HOT lanes would be more effective in improving transportation in the Northwest Corridor than HOV lanes. Overall daily traffic volumes and daily VMT throughput would be higher with HOT lanes and the level of service for the lanes would be improved over the build alternatives with HOV lanes. The reason LOS is improved under the HOT Lane Option is because the traffic volumes using the lanes can be controlled by dynamic tolling where the toll rate can vary in response to demand. The toll rate would vary by segment so that the volume in all segments would be maintained at LOS C. Under the HOV lanes, there would be some segments where the volumes in the HOV lanes would exceed LOS C. Travel times also would be lower under the HOT Lane Option. The option provides a new travel choice that is not currently available to travelers within the Northwest Corridor. Both alternatives were considered equally effective from the standpoint of transportation equity. The HOT Lane Option is considered to perform better from a cost-benefit standpoint because it produces greater benefits with no significant increase in costs. The difference in cost is estimated at $59 million in year-of-expenditure dollars, or less than 2 percent of the total cost of the project. This compares very favorably to a 12 percent increase in travel time savings under the option. (Note this cost estimate also includes tolling of the TOT lanes.)

Both the build alternatives with the HOV lanes and the HOT Lane Option are considered financially feasible. The HOT Lane Option, however, would produce less of a burden on available financial resources because costs would be offset by toll revenues.

7.4.7 Trade-Offs between Non-Toll, Truck-Only versus TOT Lanes

The build alternatives include an option for tolling the truck-only lanes – the TOT Lane Option. The tolls would be collected as a revenue source to help defray the cost of construction. Because both truck-only lanes and TOT lanes are equally effective in improving transportation in the Northwest Corridor, and they are similar in costs, the only difference in the TOT Lane Option compared to the build alternatives is financial feasibility.

A financial feasibility analysis has been prepared for the project. The financial plan has determined that the truck-only lanes are only feasible with toll revenues from HOT lanes and truck-only toll lanes. The technical analysis found that over 60 percent of the through truck traffic in the I-75 corridor occurs during off-peak periods when traffic volumes are lower. Based on "willingness to pay" by truckers, the volume of truck traffic using the TOT lanes during off-peak periods may not be high enough to generate sufficient revenue for the lanes to be financially feasible. The reason is that there would be no travel time advantage in the TOT lanes compared to the general-purpose lanes. Thus, the use of the TOT lanes may have to be mandatory for through trucks in order to be financially feasible. Under mandatory use, the toll would need to be set at a rate that does not cause trucks to divert to alternative routes but provides toll revenues sufficient for the project to be financially feasible. The trade-off is that the trucking industry has expressed opposition to mandatory use of the lanes.

7.5 Selection of the Locally Preferred Alternative

Following the circulation of the AA/DEIS and after the 45-day public review and comment period, a preferred alternative will be selected by GDOT and GRTA from among the build alternatives and roadway design and operational options evaluated in this AA/DEIS. The technical information included in this document, particularly the comparative evaluation data in this chapter, and input from the public and agencies during the comment period and from the public hearing, will provide the basis for the final selection of the preferred alternative. The preferred alternative along with any options to the preferred alternative and the No-Build Alternative will be

carried forward for evaluation in the FEIS, if a decision is made to advance the project to the PE/FEIS (or Preliminary Engineering) phase of project development.

In selection of the preferred alternative, a decision will be made on the roadway design options under consideration. These options pertain to location of the truck-only lanes to the inside or the outside, inclusion of the Allgood Road interchange or flyover ramps, and modification of the I-75 alignment south of Roswell Road to shift the roadway to the east to avoid displacement of the church on Frey's Gin Road. Other decisions pertain to operation of the HOV lanes as HOT lanes and the truck-only lanes as TOT lanes. If TOT lanes are selected for inclusion in the LPA, a decision would then be made on whether use of the lanes by through trucks should be voluntary or mandatory.

Based on the evaluation results in this AA/DEIS and input received to date from the public and agencies, GDOT has identified the truck-only lanes to the inside as preferred over the truck-only lanes to the outside because the year-of-expenditure costs would be $245 million less and the inside lanes would have fewer noise impacts. The HOT Lane and TOT Lane Options have also been identified as preferred over the build alternatives with HOV and truck-only lanes because of the improved effectiveness and financial feasibility of the tolled lanes. Although these design options have been identified as preferred, final selection of the preferred alternative will not be made until the alternative's impacts and comments on the AA/DEIS and from the public hearing have been fully evaluated. No preferred alternative has been identified between the inclusion of the Allgood Road interchange or flyover option, the modification of the I-75 alignment south of Roswell Road to avoid the church on Frey's Gin Road, or whether the truck-only toll lanes will be mandatory or voluntary. This decision on mandatory or voluntary tolling of trucks will be made based on the additional traffic and revenue studies to be conducted in support of the FEIS and preparation of the FHWA-required Initial Financial Plan for Major Projects.

A decision will also be made on the preferred transit alternative from among the transit alternatives under consideration. The build alternatives considered consist of the HOV/TOL/TSM Alternative, HOV/TOL/BRT Alternative, and the HOV/TOL/Reduced BRT Alternative. The other transit alternative is the HOV/TOL Alternative. This alternative is not considered to be a transit build alternative. Of these alternatives, the HOV/TOL/BRT Alternative is considered a New Starts alternative that is proposed for funding under the Section 5309 New Starts program. It has also been identified to be the preferred alternative because it would be the most effective of the transit alternatives in improving transportation in the Northwest Corridor. However, this alternative is subject to approval by FTA through its New Starts rating process. A medium rating is sufficient for the project to be advanced in the federal project development process and for the project to be recommended for federal funding. If the alternative receives less than a medium rating, then a decision would need to be made among the other transit build alternatives – HOV/TOL, HOV/TOL/TSM, or HOV/TOL/Reduced BRT. If a decision is made to select the highway improvements without the transit improvements, then the HOV/TOL Alternative would be selected as the LPA.

7.6 Issues to be Resolved

As with most AA/DEIS studies, there are a number of issues to be resolved that pertain to the build alternatives evaluated in this AA/DEIS. These issues fall into four major categories: (1) traffic issues; (2) transit issues, (3) final mitigation commitments; and (4) other outstanding local issues. All reasonable efforts will be made to resolve these issues. Following is a discussion of the issues.

7.6.1 Traffic Issues

A number of traffic design and operational issues remain unresolved and will need to be addressed during the PE/FEIS phase.

- **LOS E during p.m. peak period for the northbound HOV lanes on I-75 between the I-575 interchange and Big Shanty Road.** Under the HOV/TOL Alternative, two HOV lanes would be provided in each direction on I-75 south of the I-575 interchange and one HOV lane in each direction north of the interchange. The results of the traffic analysis found that LOS E would exist during the p.m. peak period for the one-lane HOV segment in the northbound direction south of Big Shanty Road under this alternative. The analysis is based on the current GDOT policy of HOV 2+. Unless the policy is changed to HOV 3+, a second northbound HOV lane would be required to achieve LOS C in the segment from I-575 to Big Shanty Road for the forecast year 2030. The additional HOV lane would improve the operation to LOS C. The lane could be located in the median without any additional environmental impacts. The addition of a second HOV lane will need to be evaluated during PE/FEIS.
- **LOS D during p.m. peak period for the northbound HOV lanes on I-575**. The HOV/TOL Alternative provides for one HOV lane in each direction on I-575. Because of the high traffic volumes projected for I-575, LOS D is projected to exist in several segments in the northbound direction during the p.m. peak period in 2030. However, the analysis does not assume the additional general-purpose lane that is included in the long-range plan. As such, the operation of the HOV lane would likely be acceptable from the opening year until the proposed general-purpose lane widening project is implemented provided that project is completed within the next 10 to 15 years.
- **LOS E in the northbound direction of I-75 from the project terminus north of Hickory Grove Road to State Route (SR) 92.** The results of the traffic analysis of the HOV/TOL Alternative found that the merging of the HOV and truck-only lanes would cause the freeway to operate at LOS D or LOS E in the segment from the project terminus to SR-92, which indicates a potential bottleneck compared to a LOS C for this segment under the No-Build Alternative. An option was analyzed in which an additional northbound lane, potentially the second truck-only lane, would be continued north to SR-92 as a drop exit lane at the ramp. The results of the analysis of the auxiliary lane found that its operation would improve traffic conditions in this segment to LOS C. Because there are no other funded programs or proposed improvements that might address this issue, the auxiliary lane will need to be evaluated during PE/FEIS. There are potential impacts on streams and wetlands that will need to be considered as part of the evaluation prior to a decision on the issue.
- **Lower usage of northbound HOT lane on I-575 during p.m. peak period.** The results of the traffic analysis found that during the p.m. peak period the northbound HOT lane would have a lower volume than the other build alternatives with HOV lanes. The volume is lower because of the high traffic demands and the high toll rate needed to manage the volume in the HOT lanes on I-75 south of the I-575 interchange. The analysis is based on the assumption of HOV3+ for the HOT lanes. Alternative access to the HOT lane, such as a slip ramp, may be considered as an option to increase the utilization of the HOT lane, or the lanes on I-575 could be operated as HOV lanes.
- **LOS E in the northbound direction of I-575 from the project terminus to Canton Road/State Route (SR) 5**. For I-575, the analysis shows that the merging of the HOV lane would potentially cause a bottleneck. The freeway would operate at LOS E conditions (below the targeted goal of LOS D) under the build alternatives and assuming no additional third lane south of the Sixes Road interchange. This would result in creating a bottleneck

because the freeway operation to the north of the Canton Road interchange would operate at LOS C. These unacceptable conditions, however, are based on 2030 projections that do not account for the long-range plan to widen I-575. As such, the operation of the freeway would likely be acceptable from the opening year until the proposed general-purpose lane widening project is implemented provided that the project is completed within the next 10 to 15 years. However, in the short term, the impact can be mitigated by completing the existing third lane northbound from Sixes Road to the next general-purpose interchange at Canton Road. Currently a third lane exists in the reach covering about 6,000 feet of the total distance of 16,300 feet between the interchanges.

7.6.2 Transit Issues

The following transit issues remain unresolved and will need to be addressed during the PE/FEIS phase.

- **Travel Forecasting Model**. Travel demand forecasting models are used to produce the forecast of transit ridership and user benefits, plus estimates of capital and operating costs. The models also produce forecasts of parking demand and bus requirements, which affect the cost estimate, and they are used to forecast transit fare revenues. FTA has expressed concerns about the travel forecasts produced thus far, and has advised GRTA that it cannot accept these forecasts as the basis for evaluating the project under the New Starts criteria. Until these concerns are resolved, it is not known how well the BRT alternatives will perform under FTA's cost-effectiveness measure, and whether or not the BRT alternative is likely to qualify for New Starts funds. Estimates of capital costs, operating costs, and fare revenues are also subject to change. However, as noted in Chapter 4, the model results are considered to represent a reasonable forecast for the purpose of defining the physical characteristics of the transit alternatives, such as the location of BRT stations, bus bays at transit transfer facilities, and park-and-ride spaces. Although uncertainties may still exist with the forecasts, the "footprint", or the right-of-way required by the transit facilities, is not likely to increase with changes in ridership. If changes in the right-of-way of the transit facilities are needed, supplemental environmental studies may be required. The need for such studies will be determined by GDOT in consultation with FHWA and FTA.
- **15th Street HOV Interchange**. The No-Build Alternative includes a planned HOV interchange on I-75/I-85 at 15th Street in Midtown. The planned interchange would be used by express buses accessing Midtown from the Northwest Corridor under the build alternatives. If the interchange is not constructed, the express bus routes would have to use the existing 14th Street general-purpose interchange or the Williams Street HOV interchange, or the Northside Drive HOV interchange and then travel through Atlantic Station to Midtown. This would require a change in the operating plan.
- **Bus Stop Locations in Midtown, Downtown Atlanta, and Perimeter Center.** The transit operating plans for the No-Build and build alternatives are described in Chapter 2, Alternatives Considered. These operating plans describe the routings and frequency of service for improved transit services to Midtown, downtown Atlanta, and Perimeter Center under the build alternatives. Bus stop locations have been identified for purposes of modeling ridership, but are considered preliminary. Final bus stop locations will be identified during preliminary engineering.
- **Arts Center Station.** The off-street bus transfer facility at the MARTA Arts Center Station would be expanded under the TSM, BRT, and Reduced BRT alternatives to provide new bays to accommodate passengers transferring between the express bus routes and the MARTA rail system. This improvement may not be needed if unused MARTA bus bays can

be converted to Cobb Community Transit (CCT) operations. This will require coordination and an agreement with MARTA.

7.6.3 Final Mitigation Commitments

While identified and quantified for the purposes of this AA/DEIS, issues relating to traffic, parking, and environmental impacts and related mitigation will need to be further refined in the PE/FEIS phase. Further investigation of these issues and identification of specific reduction and/or mitigation measures will be conducted during the PE/FEIS phase of the project and the committed mitigation measures will be incorporated into the FEIS.

7.6.4 Other Outstanding Local Issues

Coordination with the City of Atlanta is required to address outstanding issues related to traffic impacts from buses operating on-street within Midtown and downtown Atlanta, impacts of the MARTA Arts Center Station on the surrounding area, and use of a planned multimodal passenger terminal in downtown Atlanta instead of the Arts Center Station.

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