

Chapter 5 - Preliminary Assessment of Strategies

This chapter includes a comprehensive list of transportation improvements that the study analyzed to address the issues of safety, mobility, economic development and future growth in the SR 316 Corridor. From this list, three of the alternative strategies were selected for further analysis. They include the “Baseline Condition” represented in Figure 2-12 along with the improvement of SR 316 to a 4-lane freeway with HOV lanes. Compared to other strategies analyzed, the study recommends that a 4-lane freeway design with HOV lanes is most responsive to addressing the corridor’s current and future issues.

HOV lanes could be implemented in several different ways, each having different operational layouts with distinct advantages and disadvantages. The study identified two potential types of HOV lane designs, selected a preferred HOV design, and incorporated it into the 4-lane freeway concept. The basic cross-sectional designs for a 4-lane freeway with each of the two alternate HOV lane designs are shown in Figure 5-2.

Only long-range type improvements are presented in this chapter. Without a recommended long-range transportation plan for the corridor that includes a preliminary timetable with implementation dates for its key elements, specification of short-term projects would be impractical.

5.1 Strategy Identification

The comprehensive list of potential improvements, referred to as improvement “strategies”, were identified and analyzed in this study and are discussed in this chapter. Where appropriate, the list includes a description of each specific strategy. This is followed by a qualitative assessment for each strategy. After this assessment, the study recommended a “short list” of three strategies to evaluate in further detail. The performance and feasibility of the three strategies were evaluated in light of objective criteria set forth by consensus of the SR 316 Study’s Advisory Committee and later validated by the general public and stakeholders in public involvement meetings held in each county of the study area.

Before the three “short list” strategies were identified, several other strategies (beyond those listed in this section), were posed by the public or by the study’s stakeholders. An example includes the discussion of looking at a 4-lane roadway in each direction, which was not chosen for further evaluation because the additional costs for acquiring right-of-way and environmental mitigation appeared to outweigh the potential public benefits of mobility and economic development.

Another strategy that was discussed during the public involvement process for further consideration was to either preserve or acquire right-of-way in the median area of SR 316 for future intercity or commuter passenger rail service. This was not chosen for further evaluation because the Georgia

Rail Passenger Authority (GRPA) is planning for Commuter Rail service between Athens and Atlanta on an alignment following the existing railroad tracks paralleling SR 316 through the cities of Bogart, Statham, Winder, Auburn and Dacula. The tracks cross over SR 316 immediately west of Winder Highway/SR 8, between Lawrenceville and Dacula on their way to Atlanta. Preliminary review of travel demand in the corridor strongly suggests that both a commuter rail component and improvements to SR 316 will be vital to meeting future mobility and travel options in the entire SR 316 corridor.

The study identified the following six strategies as potential improvements to further refine and evaluate. More than six preliminary concepts were initially looked at; the six strategies below are those that were screened out as those that could potentially address the most critical needs in the corridor or that would be feasible due to factors such as cost constraints. It is noted that auxiliary improvements, such as collector-distributor roads; frontage roads; park and ride lots; auxiliary lanes or ITS-related enhancements, would need to be investigated as part of any final recommended strategy.

Strategy A – Baseline Condition. The baseline condition is also referred to as the future “No-Build” strategy. This option includes proposed projects already listed in the formally adopted plans of the Atlanta Regional Commission (ARC), Athens-Clarke Oconee Regional Transportation Study (ACORTS), and GDOT State Transportation Improvement Program (STIP). This includes projects in ARC’s 2025 Regional Transportation Plan (RTP) and ACORTS 2025 RTP. These road improvement projects were shown in Figure 2-12 and are listed below:

- Re-design & reconstruct the existing interchange at I-85 & SR 316;
- The proposed limited access, 4-lane, Northern Arc Expressway from US 41 in Cartersville to SR 316 in Lawrenceville;
- Reconstruct the at-grade intersections at SR 316 & Collins Hill, as well as SR 316 & SR 20, to grade-separated interchanges;
- Build HOV-lanes on SR 316 from I-85 to Drowning Creek Road;
- Extend Metropolitan Atlanta ITS architecture eastward on SR 316 from I-85 to SR 20;
- A proposed 4-lane Winder Bypass in Barrow County that includes a grade-separated interchange with SR 316;
- Widen US 78/SR 10 between Athens Hwy. & Athens Loop/SR 10 from 4 to 6-lanes;
- Widen SR 53/Mars Hill/Oconee Connector from 2 to 4 lanes between SR 15 and SR 316;
- Extend Jennings Mill Parkway north from Epps Bridge Road to Jennings Mill Road;

- Construct new partial interchange on Athens Loop/SR 10 at proposed Jennings Mill Pkwy. Extension with access to and from the north only; and
- Construct new connector road between Daniels Bridge Road (south of Athens Loop) and Epps Bridge Rd. (north of Athens Loop).

Under Strategy A, SR 316 would remain a principal arterial type of roadway. With the proposed grade separations at Collins Hill and SR 20, the existing urban freeway section of SR 316 would be extended approximately 1.5 miles to the east. As per ARC’s 2025 RTP, Strategy A assumes no other grade separation projects on SR 316; the planned HOV-lanes on SR 316 in Gwinnett County would not be grade separated.

There are also two new public transportation services being planned in the ARC 2025 RTP, ACORTS 2025 RTP or the GDOT STIP. Recently, commuter bus service linking Lawrenceville and Atlanta has been implemented in Gwinnett County. The feasibility of intercity rail or bus service connecting Athens to Atlanta is currently being investigated in a study sponsored by the GRPA. Some form of intercity public transportation service could be implemented in the corridor during the short-term but it could also take longer. Different types of commuter or intercity bus/rail services linking Athens and Atlanta do not have implementation schedules. As such, it is not possible to reasonably assume a specific public transportation mode, route, or level-of-service in this study. It is, however, reasonable to assume that plans for commuter rail or commuter bus service could be implemented during the 25-year planning horizon of this study. In light of that, land acquisition for potential park-and-ride lots and bus/rail terminals was considered as this study’s improvement strategies were identified and evaluated.

In preparation for moving people during the 1996 Olympics, GDOT and City of Atlanta opened the first stage of its Intelligent Transportation System (ITS) architecture on much of the Interstate System inside I-285. Now, referred to as the NaviGator system, it consists of these ITS features: video detection system; closed circuit television cameras; dynamic message signs; highway advisory radio; and road weather information systems. Since the Olympics, GDOT, with the cooperation of local governments, extended its NaviGator system outside I-285. As part of the recently completed I-85 HOV-lane extension project, ITS architecture was installed alongside I-85 for an additional 11.8 miles from Chamblee-Tucker Road in Dekalb County to SR 316 in Gwinnett County.

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The NaviGator system is designed to promote efficient operations and enhance safety of the total transportation system by means of incident management, advanced communication systems and public outreach. Its partners include local governments, the Georgia State Highway Patrol, transit operators and traffic management associations (TMA's). These organizations provide information and services that support alternative forms of transportation to commuters who typically use single occupant vehicles.

Strategy B – Intelligent Transportation System (ITS) and Intersection Improvements. Building upon the baseline condition of Strategy A, Strategy B also includes deployment of the GDOT’s basic ITS infrastructure east of SR 20 plus a number of operational and safety improvements, such as: turn lanes at intersections; traffic control modifications; an access management program; and selective roadway realignments and/or improvements to drivers’ sight distance at intersections.

Strategy C – 4-Lane Freeway Without High Occupancy Vehicle (HOV) Lanes. This strategy includes the baseline projects of Strategy A, as well as the conversion of SR 316 into a freeway type of roadway with essentially the same cross-sectional design that already exists. Under this strategy, SR 316 would include 2 general purpose through-lanes in each direction and a 36 foot grassy median. The major design changes would be grade-separating existing at-grade intersections or terminating cross streets north and south of SR 316 between SR 120 in Lawrenceville and the Athens Loop/SR 10 in Oconee County. This strategy was first conceived by GDOT preliminary planning in the mid 1990's based on studies done in the early 1990's. A list of intersecting cross-streets proposed by Strategy C is shown in Table 5-1. The table also shows those cross-streets that would cross over or under SR 316 (without full access) and those cross streets that would be terminated north or south of SR 316.

Strategy D - 4-Lane Freeway With HOV Lanes. This strategy builds upon the freeway design proposed in Strategy C and includes the baseline projects in Strategy A. It differs from Strategy C because it includes HOV lanes. The basic cross-sectional design for each direction of travel would include the following: two general-purpose, through-travel lanes available for all vehicle types; and one HOV lane (for multi-occupant vehicles only).

Strategy E - 6-Lane Freeway Without HOV Lanes. This builds on Strategy C including the baseline projects from Strategy A, except there would be three general-purpose traffic lanes in each direction. In Gwinnett County, this strategy would consist of three general-purpose lanes plus an HOV lane in each travel direction. It could also include modest alterations such as not adding the third general-purpose lane through Barrow and Oconee counties.

Table 5-1
Initial Treatment of Cross Streets in Freeway Design

Cross Street Name	Existing Design	Proposed Design	Access w/SR 316
Gwinnett County			
I-85	Grade-Separated	Grade-Separated	Yes
Boggs	Grade-Separated	Grade-Separated	Yes
Herrington	Grade-Separated	Grade-Separated	No
Sugarloaf Pkwy.	Grade-Separated	Grade-Separated	Yes
Riverside Pkwy.	Grade-Separated	Grade-Separated	Yes
Lawrenceville-Suwanee	Grade-Separated	Grade-Separated	No
SR 120/Duluth Hwy.	Grade-Separated	Grade-Separated	Yes
Walther Blvd.	At-Grade	At-Grade (C-D Road)	Yes
Collins Ind. Way	At-Grade	At-Grade (C-D Road)	Yes
Collins Hill	At-Grade	Grade-Separated	Yes
SR 20/Buford Dr.	At-Grade	Grade-Separated	Yes
Hi-Hope	At-Grade	Grade-Separated	Yes
Progress Center	At-Grade	Grade-Separated	Yes
Cedars	At-Grade	Grade-Separated	Yes
Hurricane Trail	At-Grade	Grade-Separated	Yes
Fence	At-Grade	Terminate	No
US 29/Winder Hwy.	At-Grade	Grade-Separated	Yes
Proposed Northern Arc	None	Grade-Separated	Yes
Harbins	At-Grade	Grade-Separated	Yes
Williams Farm	At-Grade	Terminate	No
Drowning Creek	At-Grade	Grade-Separated	Yes

Strategy F - 6-Lane Principal Arterial Without HOV Lanes. This strategy would include the baseline projects in Strategy A, except there would be three through traffic lanes in each travel direction east of SR 20. Also, the existing freeway portion in Gwinnett County would remain the same except for the addition of an HOV-lane in each direction. There would be three general- purpose lanes and one HOV lane in each direction of travel east of SR 20. This strategy could also include alterations. For example, it could be scaled down in Barrow and Oconee counties by not including the third general- purpose lane in each direction of travel.

Table 5-1 (Continued)

Cross Street Name	Existing Design	Proposed Design	Access w/SR 316
Barrow County			
County Line	None	None	No
Kilcrease	At-Grade	Grade-Separated	No
Patrick Mill	At-Grade	Grade-Separated	Yes
SR 324/Carl Bethlehem	At-Grade	Grade-Separated	No
SR 81/Charles Floyd	At-Grade	Grade-Separated	Yes
Harry McCarty	At-Grade	Terminate	No
SR 11/Monroe Hwy.	At-Grade	Grade-Separated	Yes
Harrison Mill	At-Grade	Grade-Separated	No
Church	At-Grade	Terminate	No
Proposed Winder Bypass	At-Grade	Grade-Separated	Yes
Jackson Trail	At-Grade	Terminate	No
SR 53/Hog Mountain	At-Grade	Grade-Separated	Yes
Cosby	At-Grade	Terminate	No
Wall	At-Grade	Terminate	No
McCarty	At-Grade	Terminate	No
SR 324/Statham	At-Grade	Grade-Separated	Yes
Barber Creek	At-Grade	Grade-Separated	No
Craft	At-Grade	Terminate	No
Oconee County			
Dials Mill Ext.	At-Grade	Grade-Separated	No
Dials Mill	At-Grade	Terminate	No
Pete Dickens	At-Grade	Terminate	No
McNutt Creek	At-Grade	Grade-Separated	No
Mars Hill	At-Grade	Grade-Separated	No
US 78/Michael Moina Hwy	Grade-Separated	Grade-Separated	Yes
Julian Dr.	At-Grade	Grade-Separated	No
Jimmy Daniel	At-Grade	Grade-Separated	Yes
Virgil Langford	At-Grade	Terminate	No
Oconee Connector	At-Grade	Grade-Separated	Yes
SR10/Athens Loop	Grade-Separated	Grade-Separated	Yes

5.2 Strategy Assessment

Each of the six strategies was then screened to identify those that would best address transportation and land-use problems in the corridor. Five criteria were used to guide the strategy assessment:

- Safety - the relative capability of a strategy to lower the accident rate.
- Mobility – this issue concerns two aspects: (1) reducing motorists' delay; and (2) supporting commuting choices by alternative transportation modes (e.g. transit, carpooling).
- Economic Development – this issue considers two aspects: (1) sufficient road capacity to support existing commerce and to accommodate anticipated growth; and (2) providing good accessibility to key properties inside the SR 316 Corridor whose successful development is an important part of land-use plan implementation.
- Environmental – this issue addresses the amount of right-of-way needed to construct each strategy. The assessment assumed that those basic strategies needing more right-of-way, wider bridges, and structures would lead to greater environmental impacts.
- Cost - Considers the estimated order-of-magnitude costs for right-of-way and construction.

The screening process was qualitative, although much of the reasoning is derived from information presented in Chapter 2 through Chapter 4, as well as from the description of strategies presented in this chapter. In particular, the accident analyses presented in Chapter 3 was an important component in the screening process.

A summary of the strategies' assessment is shown in Table 5-2 and described using the terms "LO", "MED" and "HI". This methodology revealed the relative advantages and disadvantages of each strategy in comparison with others. The relative measure of "HI" denotes that a strategy would address a particular screening criteria better than the other basic strategies. "LO" denotes that a strategy would not address a particular screening criteria as well as other basic strategies. The comparison term, "MED" is applied when a strategy addresses particular criteria better than others, but not as well as other strategies in the case where all of the alternatives address the issue almost equally.

Safety. Strategies C, D and E would provide the greatest reduction in accidents, particularly those involving injuries or fatalities. As such, they receive a "HI" mark in Table 5-2. These three strategies entail reconstructing the principal arterial sections of SR 316 into a freeway type roadway. In terms of total accidents in the corridor, a slight reduction would be expected as these accidents may occur where the freeway ramps connect with intersect-

Table 5-2
Preliminary Screening Assessment Summary

	A	B	C	D	E	F
County	Future Baseline Condition	Intelligent Transportation System (ITS)	4-Lane Freeway Without HOV	4-Lane Freeway With HOV	6-Lane Freeway Without HOV	6-Lane Principal Arterial Without HOV
SAFETY						
Gwinnett	MED	MED	HI	HI	HI	MED
Barrow	LO	MED	HI	HI	HI	LO
Oconee	LO	MED	HI	HI	HI	LO
MOBILITY						
Gwinnett	MED	MED	MED	MED	MED	MED
Barrow	LO	LO	MED	HI	MED	MED
Oconee	LO	LO	MED	HI	MED	MED
ECONOMIC DEVELOPMENT						
Gwinnett	MED	MED	MED	MED	MED	MED
Barrow	MED	MED	MED	MED	MED	MED
Oconee	MED	MED	MED	MED	MED	MED
ENVIRONMENTAL						
Gwinnett	MED	MED	MED	MED	LO	LO
Barrow	HI	HI	HI	MED	MED	MED
Oconee	HI	HI	HI	MED	MED	MED
COST						
Gwinnett	HI	HI	MED	MED	LO	LO
Barrow	HI	HI	MED	LO	LO	LO
Oconee	HI	HI	MED	LO	LO	LO

ing/interchanging cross streets. Substantial reductions in accidents involving injuries and fatalities, however, would be expected under Strategies C, D and E. Severe types of accidents involving at least one injury or fatality are most likely to occur when fast moving vehicles conflict with slower moving vehicles. Implementation of a freeway-type design, with grade-separated intersections, would reduce the number of conflicting movements as well as speed differentials between vehicles. The impact on SR 316 would be to sharply reduce, if not eliminate, most of the severe accidents.

Grade-separating the existing at-grade intersections would increase safety because the severity of the accidents that do actually occur at the ramps and the cross streets would be expected to less severe that with the at-grade intersection. Many of the injury and fatal accidents now occurring on SR 316 would sharply decrease and "property damage only" type accidents would be more likely at ramp intersections with cross streets.

The expected accident reduction on SR 316 resulting from grade-separations was estimated by comparing actual accident experience on SR 316 with estimates for SR 316 assuming it was a freeway type of roadway. The number of accidents estimated on SR 316 if it was all freeway was based on the statewide average accident rates for 4-lane freeways. Computed accident savings are presented in Table 5-3 by functional classification. The accident rates are distinctly different for urban and rural roads, and for principal arterial and freeway facilities. Upgrading to a freeway type design would produce an estimated total savings of 315 accidents. Of the total, 184 are injury-type accidents and five are fatality accidents. The net reduction represents the number that would be expected only on SR 316 itself, not for the entire corridor.

Table 5-3
Estimated Accident Reduction Assuming Basic Freeway Design

FUNCTIONAL CLASS		Number of Accidents		
		Total	Injury	Fatal
Urban	Principal Arterial	268	94	1
	Freeway	135	35	0
	Reduction (Urban Section)	133	59	1
Rural	Principal Arterial	290	161	6
	Freeway	108	36	2
	Reduction (Rural Section)	182	125	4
Total Reduction (Urban and Rural)		315	184	5

(1) Estimated annual number of accidents per year

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Except for at SR 20 and Collins Hill Road, Strategies A, B and F do not propose grade separating the existing at-grade intersections on the principal arterial sections of SR 316. Therefore, a "MED" impact is assigned to these strategies for Gwinnett County. Strategy B, with the ITS and intersection improvement features, would also include incident management, variable message signs to alert motorists, and advanced communications features that would reduce accidents throughout the corridor, but probably not as effective as the strategies featuring grade-separation of the existing interchanges.

Mobility. There are two aspects to consider in assessing the relative strength of each strategy with regards to mobility. The first is how well it reduces motorists' delay. The second considers how much the strategy provides motorists with transportation choices. The only alternative assigned a "HI" mark was Strategy D (the 4-Lane Freeway with HOV lanes). The "HI" mark was also assigned to Strategy D for Barrow and Oconee counties because the other options include HOV lanes in Gwinnett County only.

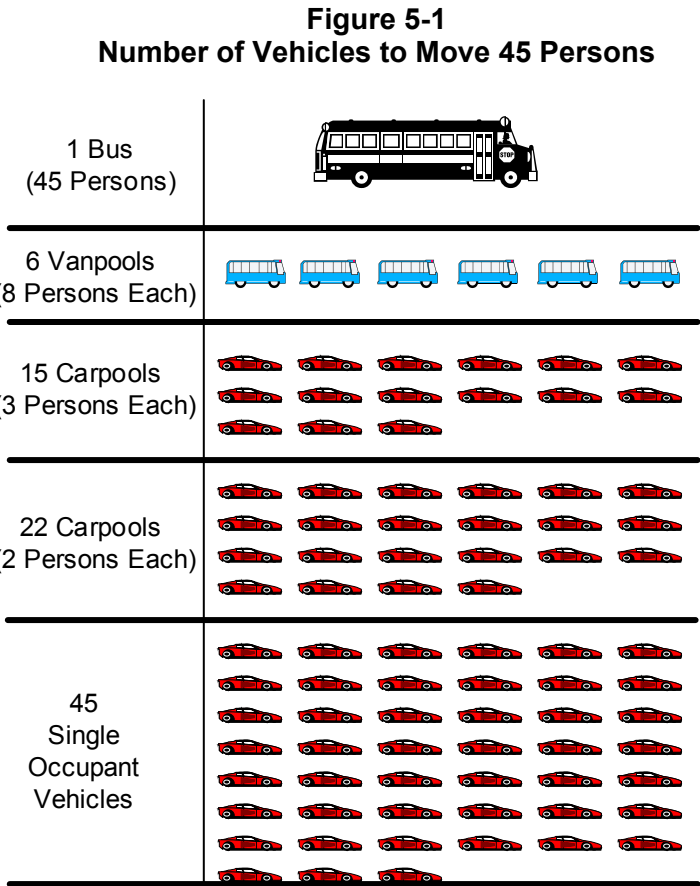
HOV lanes support travel modes like carpooling and transit that give commuters alternatives to the single occupant vehicle mode of travel. Since all of the strategies include HOV lanes in Gwinnett County, each alternative was given a "MED" under Gwinnett for its relative ability to address mobility. As for reducing delay, Strategy C, Strategy D, Strategy E and Strategy F were considered equivalent. Under these strategies, traffic flow at all existing bottlenecks on the north side of Lawrenceville would be improved. However, motorists could experience slightly more delay on the westbound freeway portion in Gwinnett County during the morning commute because the morning peak hour volume is likely to increase there. Currently, morning traffic volumes in the westbound direction of travel are metered, in effect, by existing congestion at Hi-Hope, SR 20, and Collins Hill.

HOV lanes provide two advantages for carpools, vanpools and transit. First, they can significantly increase the number of people carried by the road in fewer vehicles. This fact is illustrated in Figure 5-1. Second, when the public recognizes these benefits, there is a possibility that a significant number of single occupant vehicle drivers will switch to commuting in a carpool, vanpool or transit. HOV lanes have worked well in many settings throughout the United States and Canada. Their effectiveness relies largely on the willingness of individuals to create or join carpool, or use public transportation for their daily commute.

There are strong signs suggesting that HOV lanes will be highly successful in the SR 316 corridor. Recently instituted express bus service in Gwinnett County is serving three times more riders than were projected prior to the opening of service. The recent extension of the I-85 HOV lanes to SR 316 is considered to be instrumental in allowing these buses to operate on schedule and be a competitive commuting option. In addition, this study's own O-D survey on SR 316 revealed that 28% of those vehicles surveyed contained two or more persons. That percentage drops to 18% for commute trips,

although many of the other trips currently happening on the corridor are in HOV-eligible vehicles.

There would not be significant additional capacity added in Barrow or Oconee County under Strategy "A" or Strategy "B". Since there are no HOV lanes to support alternative modes, these two alternatives were assigned a "LO" mark in Barrow and Oconee.



Source: Texas Transportation Institute

Economic Development. The evaluation of each strategy's impact on economic development was based on two factors: (1) roadway capacity to support existing businesses and expected growth; and, (2) accessibility to properties inside the corridor. Strategy F, the 6-Lane Principal Arterial, has the strongest impact for this criterion. Initially, Strategy F also appeared to support economic development better than the other alternatives: it would add one general-purpose lane in each direction from SR 20 in Gwinnett County to the Athens Loop/SR 10 in Oconee County, and it would allow for direct access to properties abutting SR 316. However, closer inspection and analysis of Strategy F reveals its weakness compared to the scenarios with grade-separated interchanges for several reasons. First, the amount of additional capacity furnished by one additional lane in each direction is less than the amount of extra capacity that would be supplied by converting the

existing roadway to a freeway design. Moreover, Strategy F would be a less attractive option for motorists due to travel times compared to a strategy featuring a freeway design. Because this could affect employment decisions of potential job seekers using SR 316 for their daily commute, Strategy F was assigned a grade of "MED" for economic development.

The 4-lane and 6-lane freeway strategies would provide additional roadway capacity on SR 316 between SR 20 and the Athens Loop as well, but would not produce direct or close access to some adjacent properties. In terms of travel time accessibility, the three freeway design strategies would perform better than their principal arterial counterparts. Strategy A and Strategy B, the other non-freeway alternatives would score well in terms of providing access to key properties, but not in terms of making additional capacity available to support both existing and future developments in the corridor.

Local land use decisions involving property adjacent or near to SR 316 in both Barrow County and Oconee County have recognized GDOT's previous studies recommending the upgrade of SR 316 to a grade-separated freeway. Strategies C, D, and E are consistent and complementary to these counties' land-use decisions that are consistent with the vision of a making all of SR 316 a grade-separated freeway.

Environmental. Based on the right-of-way needs, Strategy A, Strategy B, and Strategy C get "HI" ratings in Barrow and Oconee Counties, but "MED" in Gwinnett County. These strategies have essentially the same right-of-way needs in Gwinnett County as Strategy D; therefore, strategies A, B, C and D are assigned "MED" in Table 5-2. Strategy E and Strategy F were assigned "LO" marks in Gwinnett County because additional right-of-way would be needed for the eight total lanes featured in that strategy. Strategies featuring six total lanes would have a neutral impact on the environment in Barrow and Oconee Counties when compared to the four-lane freeway (and HOV lanes).

Aside from the right-of-way requirement impacts on the environment, there are other environmental benefits from Strategy D. With the Atlanta region in non-attainment of federal clean air standards, extension of the HOV lanes past Gwinnett County could enhance the roadway LOS for carpools, vanpoolers, and transit users. If more commuters from outside metro Atlanta are encouraged to use these transportation alternatives, fewer single occupant vehicles would enter the Atlanta region. Consequently, this would contribute to the lowering of vehicular emissions from commuters in the SR 316 corridor.

Cost. Alternative strategies were assessed for relative cost in terms of right-of-way needs for their basic design and their cost to construct. Strategies with the lowest estimated costs relative to others were assigned a "HI" mark in Table 5-2.

Strategy A and Strategy B ranked "HI" relative to the others in all counties primarily because the right-of-way needs would be minimal. Strategy A's

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cost would not be insignificant, but has the lowest cost of the six strategies. Strategy B also received a "HI" rating for cost; its cost would be higher than Strategy A due to the implementation of ITS components and addition of turn lanes at intersections. The costs for ITS and turn lanes would be significantly lower than those associated with grade separating intersections east of SR 20 in Gwinnett County. Therefore, Strategy C (the 4-Lane freeway without HOV lanes) was assigned a relative mark of "MED" even though it has the same basic right-of-way needs as strategies A and B in terms of its design. Similarly, Strategy D was awarded a relative mark of "MED" because it has the same cross-sectional design as Strategy C in Gwinnett County. In Barrow and Oconee Counties, the cost for adding HOV lanes in Strategy D would significantly increase its construction costs in relation to Strategy E; therefore the cost grade assigned to Strategy D was dropped to "LO".

A relative mark of "LO" was assigned to Strategy E and Strategy F for Gwinnett, Barrow and Oconee Counties. Both strategies have basic total six-lane cross-sections whose lanes would be general-purpose lanes. In Gwinnett County, where HOV lanes are in the baseline Strategy A, a total eight-lane cross-section would be needed for these strategies. The total eight-lane cross-section in Gwinnett County would require higher construction costs compared to the other strategies.

5.3 Strategy Selection

Selecting one to three alternatives from the exhaustive list of candidate strategies for further study was a straightforward process. The most important objectives were safety, mobility and economic development. By consensus, the Department of Transportation staff, local elected officials and the general public agreed that their highest priority in developing a long-range transportation plan was safety in the corridor. In light of this emphasis, the three strategies consisting of a freeway design over the length of SR 316 became candidates for further consideration. These were: Strategy C (4-lane freeway without HOV); Strategy D (4-lane freeway with HOV); and, Strategy E (6-lane freeway without HOV).

Another strategy that would make safety conditions better, to a limited extent, is Strategy B, (ITS and Intersection Improvements). This option would include a comprehensive application of access management strategies, ITS intersection treatments and geometric improvements at intersections along the entire length of SR 316, in addition to future baseline improvements.

By itself, Strategy B, maintains at-grade intersections. Even with access management, geometric intersection improvements and ITS applications that are components of this strategy, traffic conditions that lead to a higher rate of severe accidents will exist along SR 316. That is, a relatively large volume of vehicles traveling at high speeds on SR 316 would be likely to conflict with the growing number of motorists accessing or crossing over SR 316 at cross streets. In light of existing conditions and considering the amount of traffic growth that is anticipated in this corridor, grade-separating the intersections is the optimum long term improvement option ensuring the safety and mobility concerns will be adequately addressed.

If minimizing cost and environmental impacts were the highest priorities, Strategy A (Future Baseline Condition) and Strategy B (ITS and intersection improvements) would be recommended for further analysis. In light of cost savings, consideration was given to the possibility of combining elements of Strategy A or Strategy B with the freeway options. However, it did not make sense to formulate a hybrid strategy on different sections of SR 316 without significantly compromising gains in safety and mobility. In addressing implementation issues later in the report, a hybrid alternative may make sense in an interim capacity as staged construction of the full, long-range improvement could take many years under the traditional funding scenario. Also, elements of Strategy B would be important as short term recommendations if implementation of the long term recommendation is delayed.

In addition to safety, the next most common issues voiced by local elected officials, stakeholders and the general public throughout the study's development were economic development and mobility. To determine if any more strategies could be eliminated prior to more detailed evaluation, the three freeway-type strategies were screened in more detail to determine how well they would address economic development and mobility issues in the corridor.

With regards to economic development, each of the freeway-type strategies were limited in their ability to offer either direct, or "nearby", access to properties immediately adjacent to SR 316. To address this issue, collector-distributor roads (C-D) and/or frontage roads, parallel to SR 316 could be added to those strategies featuring a freeway-type design. Inclusion of C-D and/or frontage roads would raise the right-of-way and construction costs for each of the freeway alternatives significantly.

The 4-lane freeway without HOV lanes (Strategy C) would be adequate in meeting the mobility needs of existing and future development in the short-term, but not through the year 2025. Based on population and total employment forecasts in the corridor, significant traffic congestion would be apparent by the horizon year. Based on the growth forecast, the 4-lane freeway with HOV lanes (Strategy D) and 6-lane freeway without HOV lanes (Strategy E) would better accommodate anticipated future growth compared to Strategy C.

As alluded to in the screening for economic development, Strategy D and Strategy E are preferred to Strategy C due to their ability to minimize congestion and delay on SR 316, particularly in later years of the planning horizon, near 2025. Strategy E has a significant drawback in terms of mobility; it could contribute to congestion at the SR 316/I-85 interchange. This is because more traffic would arrive at this interchange in a shorter period of time as a result of the additional general-purpose lane. Recurring traffic tie-ups experienced by westbound morning commuters heading towards southbound I-85 could be more frequent and last longer. As for mobility and the potential to encourage carpool and transit opportunities in Barrow and Oconee Counties, Strategy D is preferred over other freeway-type strategies.

Therefore, Strategy D (4-Lane Freeway With HOV Lanes) is the long-term option that is most responsive to transportation and land-use issues in the SR 316 corridor. It should be particularly effective in terms of its potential to reduce the number of severe accidents while affording mobility for motorists by supporting the development of alternative transportation modes. Under this strategy, there would also be increased roadway capacity in Barrow and Oconee counties – an important feature evident in light of the growth expected throughout the 25 year planning window. This additional capacity and availability of commuting options will also support economic development activity in the corridor.

For these reasons, Strategy D, in combination with added C-D or frontage roads running parallel to SR 316 along selected sections, was identified by the study for further analysis for these reasons:

- The reduction in severe-types of accidents;
- Alleviate roadway congestion and delay;
- Support alternative travel modes through the entire corridor; and
- Accommodate growth and economic development.

As part of its further analysis, Strategy D (the four-lane freeway with HOV lanes) evolved into two variations, which are referred to as "alternatives". Each alternative includes HOV lanes, but differ because one alternative would have the HOV lanes be separated from the general-purpose lanes by a barrier, while the other alternative would not have the HOV lanes separated by a physical barrier.

For identification purposes, the barrier separated variation is referred to as Alternate 1 (of Strategy D) and the non-barrier separated HOV lane option as Alternate 2 (of Strategy D). Cross sections of each alternative's proposed design are shown in Figure 5-2.

Both alternatives have significantly different operational and design characteristics. Alternative 1 would have a 130 feet traveled way, with shoulders that would fit into SR 316's existing right-of-way. Due to the barrier separating HOV lanes from general purpose lanes, access to the HOV lanes would be limited. As such, HOV-type vehicles would be able to get to and from the HOV lanes using special HOV-only ramps at specific interchanges. Alternative 2 does not have an inside shoulder and the traveled way is 120 feet.

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Figure 5-2
Proposed Cross-Sectional Design Options - HOV Facility

