Chapter 7 - Implementation

The study findings include short range and long term transportation improvements on SR 316. The short-range recommendations include projects that can reasonably be expected to be implemented in the next five years. The initial time frame for long-term improvements covered a 6-25 year planning horizon but was adjusted to a 5-10 year horizon because of the need for prompt implementation of the full set of recommended improvements.

Both the short range and long term elements of the SR 316 Improvement Plan consist of projects whose justification resulted from analyses in this study, as well as projects whose justification and sponsorship was determined prior to this study. Projects in the short-range element that provide immediate improvements to operational and safety conditions on SR 316are provisional. They are provisional in the sense that the decision to implement them should consider how quickly elements of the long-term plan could be implemented. The amount of operational and safety benefits anticipated from the short-range improvements are small in comparison with those expected from the long-range elements. Moreover, benefits from short-range projects would last only until the construction phase of the long-range improvements begin. As such, the decision to allocate resources for implementation of the short range improvements on SR 316 should be weighed against the anticipated timeline associated with funding and implementation of the long range improvements to SR 316.

A crucial issue affecting the implementation of the recommended long-range transportation plan for the SR 316 Corridor is funding. The sheer scope of SR 316 improvements relegates it to the category of major public investment. The state has typically funded these types of major projects through traditional funding sources (federal and state funds) or a combination of traditional and innovative financing. Funding decisions have been based on the availability of alternative resources, the viability of the project and the urgency of the public need and purpose.

The first step in developing a funding element for SR 316 improvements is to establish and agree upon the preferred alternate concept. Then the estimated cost of the preferred alternate would be matched with potential funding sources. The funding sources explored include traditional and innovative combinations of federal funding, state resources, private resources, and local funds. Based on the mix of available resources, different short-term improvements and construction staging scenarios can be developed.

Successful implementation of the study's recommendations will rely on coordinating the institutional relationships of the public and private entities involved, as well as the roles and responsibilities of each in financing, design, construction and operations. This chapter includes a description of the short-range improvement plan; selection of the preferred alternate for SR 316; a description of the long-range transportation plan for the SR 316 Corridor; and, a discussion of different sources of potential funding and their availability for funding the recommended long-range improvements. This chapter will also address other implementation issues such as agency coordination and the next steps for further development of the recommendations.

7.1 Short-Range Plan Recommendations

Prior to this study, GDOT had already been implementing relatively easy and low cost intersection improvements to increase safety and operations on SR 316. These have included the following types of treatments:

- Installation of flashing beacons on traffic signals at intersections with high accident frequency;
- Added or lengthened turn lanes to separate vehicles turning off of SR 316 from traffic on the mainline; and,
- Access management strategies that eliminated through and left-turn movements from unsignalized intersections where the accident experience suggested that less access would produce safer conditions.

Safety gains expected from intersection modifications or piecemeal access management strategies are smaller in comparison with those anticipated from grade-separating the existing intersections. These grade-separations, as featured in this study's long-range recommendations, should produce significant increases in safety.

7.1.1 Short Range Projects - SR 316

Short-range projects are those having relatively low costs that can be implemented relatively quickly. They were obtained by evaluating results from the operational and safety analyses of existing conditions. Due to their relative simplicity and unsystematic nature, they will not solve the operational and safety problems on SR 316, but could provide marginal safety and/or slightly better operations at specific intersections. These projects can be grouped into three categories: traffic control; geometric improvements; and, intelligent transportation systems (ITS) solutions.

Traffic Control. These measures are focused on reducing the number of turning movement conflicts. As such, their primary emphasis is to improve safety; however, they also improve traffic operations somewhat. Several types of traffic control changes were identified: (1) adding more phases to a signal to allow turning movements to occur without conflict with opposing traffic; (2) increasing green time for specific phases; (3) increasing green time of a protected left-turn; (4) adding new traffic signals to unsignalized intersections; and, (5) replacing yield signs with stop-controlled cross streets. Table 7-1 identifies these intersections and the specific modifications proposed. These improvements were based mainly on deficient operations, particularly in the urban intersections in Gwinnett County, but accident experience was also examined as a potential reason for improvement.

Table 7-1
Recommended Traffic Control Improvements

Intersection	Traffic Control Improvements	Estimated Cost
Riverside Pkwy	Increase green time for left-turns on EB exit ramp	$5,000
Progress Center Avenue	Add new traffic signal	$50,000
Hurricane Trail	Add protected-left signal phase to EB SR 316	$5,000
State Route 8	Add protected-left signal phase to NB Winder Hwy.	$5,000
State Route 11	Add protected-left signal phase to NB SR 11	$5,000
Mars Hill Road	Replace Yield signs with Stop signs	$5,000
US 78/SR 10	Add new traffic signal to WB exit ramp termini	$50,000
Virgil Langford Road	Replace Yield signs with Stop signs	$5,000
Total		**$130,000**

Funds for implementing these traffic control improvements can come from a number of local, state, and federal spending accounts for transportation improvements. To minimize the funding impact on other recommended priority projects in the corridor, and in light of the relatively small cost, the study recommends that the Lump Sum Safety category of state and federal funds be pursued if these projects are developed.

Geometric Intersection Improvements. This category of short-range improvements includes the construction of new or additional turn lanes at intersections. They generally improve safety by removing slower moving vehicles from the path of faster moving vehicles that are traveling through the intersection. The addition of left-turn lanes also increases an intersection's storage capacity by reducing delay to motorists in the through-lanes. Similarly, right-turn lanes allow turning traffic to make a right-turn-on-red without being blocked behind vehicles waiting to turn left or travel through the intersection. Table 7-2 contains a list of geometric intersection improvements that were identified as a result of the operational and safety analyses (for existing conditions).

Table 7-2
Recommended Geometric Intersection Improvements

Intersection	Description	Estimated Cost[1]
Hi-Hope Road	Add left-turn lane to SB approach/ Extend right-turn lane on SB approach	$350,000
Fence Road	Add right-turn lane to SB approach	$200,000
State Route 8	Add 2nd left-turn lane to EB SR 316	$400,000
Harbins Road	Extend left-turn lane on NB approach	$200,000
Drowning Creek Road	Add left-turn lane on NB approach	$150,000
Patrick Mill Road	Add left-turn lane to SB approach/ Add left-turn lane to NB approach	$500,000
Carl Bethlehem	Add left-turn lane to SB approach/ Add left-turn lane to NB approach	$400,000
US 78/SR 10	Extend WB Right-turn lane	$250,000
Kilcrease Road[2]	Add left-turn lane to SB approach/ Add left-turn lane to NB approach	$200,000
Harrison Mill Road[2]	Add left-turn lane to SB approach/ Add left-turn lane to NB approach	$200,000
Dials Mill Road[2]	Add left-turn lane to SB approach/ Add left-turn lane to NB approach	$200,000
McNutt Creek Road[2]	Add left-turn lane to SB approach/ Add left-turn lane to NB approach	$200,000
Total		**$3,250,000**

(1) Costs do not include design, utility relocation or right-of-way
(2) Provisional recommendation for implementation

The last four intersection improvements listed in the table are provisional recommendations. Their justification is based on results of the operational analyses which indicated that vehicles on some minor street approaches to SR 316 experience long delays while waiting to turn onto or cross over SR 316. In terms of safety, these improvements could be counterproductive because less delay on the unsignalized cross streets could encourage more turning movements onto SR 316 at these intersections -- it would be desirable to move these turning movements to signalized intersections

The costs for individual geometric projects are estimates that do not include design, utility relocation or right-of-way. Actual costs could vary significantly from those listed in Table 7-2 depending on the need for utility relocation, right-of-way acquisition, excavation and drainage treatments.

Compared to traffic control modifications, these types of short-range improvements require significant. As such, the decision to implement these, especially, should carefully consider how quickly construction could begin on the recommended long-range improvements to SR 316. Obtaining funds for these improvements could adversely affect the availability of funds for the long-range improvements recommended for SR 316 as well as other high priority improvements proposed elsewhere.

Funding for the geometric improvements in Table 7-2 could come from a number of local, state or federal spending accounts. Partial funding by local governments is practical for these improvements when the cross street intersecting SR 316 is a local road. Time to develop and implement local funding agreements is required that could lessen the time period that operational and safety benefits accumulate from the improvement. Any issues that delay implementation of these improvements could significantly reduce their cost-effectiveness.

Intelligent Transportation Systems (ITS). Short-range ITS strategies can be implemented along SR 316 to improve safety and reduce congestion. A more extensive ITS infrastructure can be achieved with a fiber optic backbone installed along the entire corridor. While this treatment would be more applicable in the in the long ranger vision, there are some short-term ITS improvements that could be marginally effective in improveing safety and traffic flow on SR 316.

- Speed/queue detection stations provide for enhanced safety at specific locations having safety concerns. In particular, these systems can identify driving conditions where motorists may be traveling too fast for conditions, especially as they approach to intersections where delays are present. If necessary, such systems could be initially installed on a standalone basis, i.e. not integrated into GDOT's NaviGAtor system, or integrated on a temporary basis (until the fiber optic backbone is in place) using wireless communications. The estimated cost for equipping an intersection approach with the speed/queue detection is $65,000; a typical intersection it would cost $130,000 to furnish both approaches.
- Red light running cameras. Many jurisdictions across the nation are using red light cameras to increase compliance and improve safety. Such systems do not require a law enforcement officer to be present to observe the offence and issue a citation or attend time-consuming court hearings. Red light cameras obviate the need for dangerous chases in the event that the violator does not stop. They also provide round-the-clock deterrence. Specific locations for red light cameras on SR 316 are not recommended because they will depend on local characteristics and law enforcement jurisdictions' participation. The estimated capital cost per intersection is $110,000. Annual maintenance and operating costs per intersection would be around $60,000 per year.

During construction of any short-range or long-range improvements in the corridor, ITS components provide the means to enhance safety and mobility through work zones. Using combinations of portable detection, surveillance, control, and traveler information devices (signs and radio), ITS components can be used on a temporary basis to reduce delays, or provide notice of delays, and enhance safety through work zones for motorists and workers. Interfaces could be with the statewide TMC, local TCCs, or even temporary control centers. As work zones are completed, the portable devices can be dynamically relocated to other active work zones.

In addition to these general ITS components, there are two elements specifically identified to be placed at several intersections. These include flashing warning lights plus a "Signal Ahead" warning sign on an intersection approach; and flashing strobe lights installed on the signal head to alert drivers of red lights. These two elements presently exist at some SR 316 intersections and it is recommended that they be added or upgraded to several others. Higher intensity flashing lights (using LED-type beacons) displayed prominently at intersections will improve the drivers' awareness at intersection approaches. Table 7-3 lists intersection locations where flashing light type improvements would be effective. Funding for the implementation of these warning devices could be pursued through state and federal lump sum allocation for safety improvements.

Table 7-3
Flashing Light Intersection Improvements

Intersection	Estimated Cost	
	Flashing Beacons[1]	Strobe Lights[2]
Collins Hill Road	$30,000	$2,500
Progress Center Avenue	$30,000	$2,500
Cedars Road	$30,000	$2,500
Winder Hwy./SR 8	$30,000	$2,500
Harbins Road	$30,000	$2,500
Patrick Mill Road	$30,000	$2,500
Carl Bethlehem Road	$30,000	$2,500
State Route 81	$30,000	$2,500
Total	**$240,000**	**$20,000**

Notes:
(1) Flashing beacons with Signal Ahead warning lights. Per two approaches.
(2) Red single section traffic signal heads with strobe lights. Per approach.

7.1.2 Previously Planned Short Range Projects

Several significant transportation improvements could be fully implemented in the SR 316 Corridor during the next five years. These are multi-million dollar projects are reflected in the baseline condition. They are not all located directly on SR 316, but are improvements to roads feeding into SR 316. They will provide short-term relief in terms of mobility in the corridor. They are also important in terms of creating the type of transportation infrastructure that will be needed to fully implement the long-term transportation improvements. They offer early opportunities to acquire property for future park-and-ride lots that will be needed to make HOV lanes function effectively. They include:

- I-85 at SR 316 – An interchange reconstruction project in Gwinnett County.
- Duluth Highway/SR 120 (Sugarloaf Parkway to Riverside Parkway) – A road widening project in Gwinnett County that will increase the number of existing lanes from 2 to 4.
- Winder Bypass (SR 316 to SR 53) – A new 4-lane road in Barrow County that will bypass the City of Winder on the east side of the City.
- SR 53/Mars Hill Road (SR 15 to SR 316) – A road widening project in Oconee County that will increase the number of lanes to a total of four.

Gwinnett County expects to raise almost $200 million for transportation improvements from its most recent Special Purpose Local Options Sales Tax (SPLOST) over the next four years. As property development occurs and transportation improvements are planned in the SR 316 corridor in the short-range, Gwinnett County could be a significant partner in planning and providing the needed support system that will make HOV lanes function effectively in the SR 316 corridor.

In addition, the Gwinnett County portion of the proposed Northern Arc project could receive construction funds during the next five years. The proposed Northern Arc is planned as a 4-lane, controlled access facility on new alignment that would have a limited number of interchanges. While it would divert traffic off the most congested sections of SR 316 and improve mobility in the SR 316 corridor, it would not provide as good an opportunity for park-and-ride lots as the other short-range improvements listed above.

7.2 Long Range Plan Recommendations

Two sets of alternates were developed for SR 316 based on study's analyses results. Both included grade-separating interchanges for access to SR 316. An HOV lane in each direction is recommended to address the future travel demand in the entire. These HOV lanes would also assist in relieving current congestion by satisfying the high occupancy vehicle demand that currently exists. Moreover, the HOV lane concept can be coordinated with the existing HOV improvements on I-85 and the forthcoming improvement of the I-85/ SR 316 interchange. As noted previously, this study analyzed two HOV alternatives for SR 316. Tables 7-4 and 7-5 detail the advantages and disadvantages of each alternative.

Alternate 1- Barrier Separated HOV Lanes - Exclusive access to the HOV lanes would be from HOV-only interchanges. There would be no access to and from the HOV lanes by way of the general purpose lanes.

Table 7-4
Advantages and Disadvantages of Barrier Separated HOV

Alternate 1 – Barrier Separated HOV Lanes
Has potential to offer very high level-of-service to HOV-eligible vehicles and to motorists in the general purpose lanes as well. In terms of safety, it eliminates weaving conflicts between HOV lane motorists and vehicles in general purpose lanes and eliminates the temptation of motorists in general purpose lanes from making abrupt maneuver in attempt to get into faster moving HOV lane. In terms of operations, with elimination of weaving movements between HOV and general purpose lanes, traffic flow in the general purpose lanes will be smoother.
Enforcement of HOV-lane violators is made easier
May reduce overall accessibility to HOV lanes, but provides better access for those HOV-eligible vehicles who get on and off facility at designated HOV interchanges.
HOV barriers could reduce sight distances in HOV and general purpose lanes compromising level-of-service and require additional lighting.
Potential to provide high levels of service to niche travelers: carpools, vanpools, and bus transit, especially to certain activity centers.
Higher cost in contrast to non-barrier separated HOV.
Offers more flexibility in terms of financing options. Barrier separated HOV lanes would allow for the option of High Occupancy Toll (HOT) lanes, where the use of excess HOV lane capacity would be available to single occupant vehicles (SOVs) for a fee.
It is sometimes impractical to provide exclusive HOV lane access at busy interchanges. Making high volume interchanges operate reasonably well without exclusive HOV ramps is a challenge. With additional HOV ramps at a busy interchange, the ability to develop a cost-effective design with acceptable operating conditions is an even bigger challenge.

Alternate 2- HOV Lanes Without Barriers - This design allows for access to HOV lanes access from any interchange by way of crossing the general purpose lanes. HOV eligible traffic would enter or leave the facility by way of the general purpose lanes along with traffic using the general purpose lanes.

Table 7-5
Advantages and Disadvantages of non-Barrier Separated HOV

Alternate 2 - HOV Lanes Without Barriers
Has potential to offer high level-of-service to HOV-eligible vehicles and to motorists in the general purpose lanes under certain conditions. If a majority of motorists using the HOV lanes accessed them and exited off them where the general purpose lanes were not congested, then they would operate better and safety concerns would be lessened.
Enforcement of HOV-lane violations is difficult.
Improves overall accessibility to HOV lanes.
Lower implementation and operational cost in contrast to alternative with barriers. Preliminary cost estimates indicated that Alternate 2 could cost as much as 15% less than Alternate 1.
Greater flexibility in terms of conversion to general purpose lanes in the future, if HOV lanes are deemed unsuccessful.

Alternate 1, the barrier separated HOV facility, is recommended for implementation over Alternate 2 for the reasons listed below.

- It maximizes safety and operations in HOV lanes and general purpose lanes (see Section 6.3).
- It will provide a higher level of service for both single occupant vehicle (SOV) and HOV commuters;
- It will broaden the number of federal funding opportunities available to support the implementation of all long-range transportation improvements recommended by the study.
- It is compatible and readily coordinated with existing and future public transit plans.

7.3 Project Costs

The estimated project cost for implementing Alternate 1 ranges between $750 and $850 million. This cost includes preliminary engineering, right-of-way acquisition and construction in the following amounts:

- Preliminary Engineering- $50 million;
- Right-of-way- $200-$250 million; and,
- Construction - $500-$550 million.

The cost estimate includes the access locations identified in Table 7-6 and the recommended improvements listed below.

- Reconstructing SR 316 into a freeway-type facility from SR 120 to the Athens Loop.
- Adding two barrier separated HOV lanes (one in each direction) over the entire length of SR 316.
- Building a collector-distributor road system in Gwinnett County between SR 120 and Winder Hwy/SR 8.
- Adding auxiliary lanes between existing interchanges on SR 316 between SR 120 and Boggs Road in Gwinnett County.

Existing land uses and near-term developments make the collector-distributor and auxiliary roads essential for providing adequate operating conditions on the improved facility in Gwinnett County.

The study's long-range transportation plan for the corridor does specify a need for new local (frontage) roads along SR 316 in Barrow and Oconee Counties to improve accessibility for short trips. Implementation of these access roads, including their funding, would primarily be the responsibility of the respective local governments. This estimated cost for Alternate 1 does not include ancillary transportation system improvements, such as: the extension of ITS architecture; express bus service; parking lots for carpooling and bus transfer stations; or, improving approaches on local roads proposed to interchange with SR 316.

7.4 Funding Alternatives

Based upon the estimated $750 to $850 million cost for the study's recommended long-range improvements, it is necessary to determine the potential for available funds to complete the project. There were several approaches investigated to establish a funding program for the recommended improvements. Each approach has an impact on the time frame for project implementation and staging of improvements. The approaches investigated included:

- Traditional federal funds;
- State resources, bonds;
- Local funds; and,
- Toll collection.

7.4.1 Traditional Federal Funds

Traditionally, federal funds have been the primary source of funds for major capital improvement projects. Federal funds are programmed by GDOT for projects statewide (including Barrow and Oconee counties) and prioritized by the Atlanta Regional Commission (ARC) for the Atlanta region (including Gwinnett County).

Table 7-6
Recommended SR 316 Access Locations

General Purpose/ SOV Access Locations	HOV Access Locations
Boggs Road	Herrington Rd.
Sugarloaf Parkway	Lawrenceville- Suwanee Rd.
Riverside Parkway	Walther Blvd./Hurricane Shoals
SR 120	High Hope Road
Collins Hill Road	Cedars Road
SR 20	Northern Arc
Hi-Hope Road	Harbins Road
Cedars Road	Drowning Creek Rd.
Hurricane Trail	Kilcrease Road
US 29/SR 8	Bethlehem Road
Northern Arc	Harry McCarty Road
Harbins Road	Harrison Mill Road
Drowning Creek Rd.	Barber Creek Road
Patrick Mill Road	Dials Mill Road
SR 81	Virgil Langford Road
SR 11	
Winder Bypass	
Hog Mt. Road/SR 53	
Statham Road/SR 324	
Bogart Parkway	
US 78/SR 10	
Jimmy Daniel Road	
Oconee Connector	
Athens Bypass	

To illustrate the difficulties of pursuing federal funds needed for the SR 316 improvements, it is necessary to compare the funds needed in light of funds currently being received for the area. For example, most of the SR 316 corridor that is an arterial roadway with at-grade intersections is located in Congressional District 11. The total amount of traditional state and federal transportation funds available for all projects in this district is $100 million per year. As previously noted, the total estimated cost for improving all of SR 316 is estimated to be between $750 million and $850 million. Theoretically, if only traditional state and federal transportation funds were pursued for improving all of SR 316, the upgrade of the corridor would exclusively consume almost nine complete years worth of available funding. Under this scenario, these funds would not be available for other important and needed transportation projects in the other counties and cities in Congressional District 11. Therefore, it is unlikely that a single project in District 11 would receive such a significant amount of the available federal funds for an extended period of time.

Another major factor influencing the use of federal transportation funds is the state law requiring that transportation funding, on average, be disbursed equally among the state's eleven Congressional Districts. This means that additional federal transportation funds would not be available from other Congressional Districts to use for the recommended improvements on SR 316.

Due to these factors, it is evident that if only traditional federal funds are pursued for the SR 316 improvements, full project implementation could take up to 20 years. The extended time frame is mainly due to the funding and budgetary constraints outlined above. Should federal funds be the only funding option, then the short-range improvements recommended for SR 316 should be implemented as expeditiously as possible.

However, the safety and transportation service needs in the corridor are too critical to treat with short-range projects for an extended period of time. Moreover, additional federal and state resources would be needed to fund geometric intersection improvements which would further exacerbate the ability to obtain federal funds for the long-range SR 316 improvements. It is in this context that GDOT must explore other funding options to supplement the federal available dollars for SR 316 improvements.

7.4.2 State Resources

The State of Georgia has recently approved the sale of bonds to accelerate implementation of two major transportation improvement programs over the next several years. One is the Governor's Road Improvement Program (GRIP) consisting primarily of developmental roadways in rural Georgia. The other program is the Governor's Transportation Choices Initiative (TCI) whose goal is to accelerate projects designed to address transportation, environmental and economic development needs in the metro Atlanta and throughout the State. Some of the projects being funded in the TCI program include construction of transit corridors and new HOV lanes.

There are two efforts currently underway which may provide additional State resources to the SR 316 project. One is a proposal bill in the legislature (House Bill 1214) to include SR 316 in the GRIP program. Should this be adopted by the House and Senate and signed by the Governor, then additional resources could be provided for the improvements recommended. The other is a proposal in the draft FY 2003-2005 ARC TIP to include construction of the HOV lanes along SR 316 from I-85 to Drowning Creek

in Gwinnett County. The proposal includes the programming of approximately $174 million worth of improvements to be funded with bonds.

7.4.3 Local Resources

All three counties along SR 316 have traditionally relied on local option sales taxes (SPLOSTS) to construct infrastructure and community facility improvements. A profile of existing SPLOSTS in Gwinnett, Barrow and Oconee counties are shown in Table 7-7.

Table 7-7
Local Government SPLOST Initiatives

County	Description
Gwinnett	Raises approximately $400 million over 4-year period from 2001 to 2004. Evenly split between Transportation and Community Services leaving approximately$200 million for transportation improvements. Transportation funding allocated to following categories: *School Safety;* *Road Safety;* *Bridges/Culverts/Drainage;* *Intersection Improvements;* *Roadway Improvements;* *Rehabilitation and Resurfacing;* *Neighborhood Speed Control;* *Sidewalk/Pedestrian/Bikeway Improvements;* *Transportation Planning; and,* *Unpaved Road Improvements.*
Barrow	Raises approximately $40 million over 5-yearperiod from 2001 to 2005 Funds allocated to following types of projects: *Road improvements;* *Traffic Concerns;* *Renovation of County Annex;* *Work Release Program;* *Senior Citizens Center;* *Renovate Adult Learning Center;* *Two new fire stations;* *Recreational Facilities;* *Land Acquisition; and ,* *Sewer Expansion.*
Oconee	Raises approximately $13.5 million over 5-year period from 2000 to 2004. Funds allocated to following types of projects: *Water and Sewer System;* *Recreational and Cultural Facilities;* *Improvements to roads, streeets and bridges;* *Animal Shelter Facilities; and,* *Expansion of County Jail .*

The amount of funds have traditionally been limited for Barrow and Oconee and concentrated on countywide improvements. While Gwinnett County's SPLOST revenue is substantial, their unmet transportation and community facility needs transcend the borders of the SR 316 corridor. It does not appear that enough local funds could be allocated to the SR 316 improvements to significantly reduce the $100 to $170 million share of local match needed to secure full funding through the traditional sources. It is possible that some of these local resources would be dedicated to constructing local access roads on an as needed basis and for improvements/upgrades to the cross streets intersecting with SR 316.

7.4.4 Toll Financing

Because there are significant public benefits to be gained, in terms of safety and operations, to be expected by implementing the long-range SR 316 improvement project, the feasibility of using toll revenues was studied as another source of revenue. The major advantage of using tolls is the ability to expedite the project's implementation. Other advantages include: the ability to generate a large amount of revenue quickly, toll rates and toll collection can be adjusted on the HOV lanes; the actual roadway users pay a share of the improvements in the form of a toll, or "user fee"; and, toll charges are usually graduated by vehicle weight and size.

The potential disadvantages of tolls are the ability for all income groups to pay the toll and the potential cost of toll collection operations and enforcement. To address these disadvantages it will be important that alternate routes to SR 316 continue to be accessible to all income groups and that costs for operations, maintenance and enforcement are included in any future, detailed toll studies for the corridor.

Motorists have a number of alternative routes to SR 316. For some trips in the SR 316 corridor, alternative routes will provide motorists with a level of service that is as good, or nearly as good. as the route using SR 316. For others, alternative routes will result in higher travel times and inconvenience. Some of the roadways providing alternate routes to SR 316 are listed in Table 7-8, by county. Preliminary toll analyses completed using the study's travel demand model indicate that up to 5,000 vehicles per day could divert from SR 316 to other roadways. That level of diversion would be expected to occur on several sections of the US 29/Athens Highway/Atlanta Highway facility in Gwinnett, Barrow, Oconee and Clarke counties. For example, diversions of up to 2,000 to 4,000 vehicles per day are predicted on sections of SR 53 in Barrow and Oconee County and onto US 78/SR 10 in Oconee County.

Two roadways, in particular, provide long distance alternatives for motorists. Located mostly to the south of SR 316, the US 78/SR 10 facility parallels the I-85 and SR 316 corridor from metropolitan Atlanta to the Athens area. The other alternative route is located mostly between I-85 and SR 316. This route is comprised of several highway facilities, including: Lawrenceville Highway/US 29; Winder Highway/SR 8; Athens Highway/SR 8; Atlanta Highway; and, US 78/SR 10. Both of these alternative facilities merge with each other between Bogart and Athens in Clarke County.

Table 7-8
List of Alternative Routes

County	Routes
Gwinnett	Lawrenceville Highway/US 29
	Old Norcross Road
	Duluth Highway/SR 120
	I-85
	Winder Highway/SR 8
	Harbins Road
	Alcovy Road
Barrow	Athens Highway/SR 8
	Harbins Road/Patrick Mill Road
	Carl Bethlehem Road
	Bethlehem Road
	SR 53
Oconee	SR 53
	Atlanta Highway
	Mars Hill Road
	US 78/SR 10

There is a multitude of ways that a toll funding mechanism could be employed to expedite the implementation of the study's recommendations. There are only two types to pursue; each is different in its institutional framework:

Public Sponsored. The most common method of using tolls to implement projects is in conjunction with bonds. In this scenario, a public agency sells bonds to investors with the understanding that toll revenues will be used to repay the principal and interest on the bonds over a certain period of time. Revenue generated from the sale of the bonds is used to construct the facility. The bonds are then repaid with toll revenues collected after the facility is constructed. The State Road and Tollway Authority (SRTA) would have the ability to issue bonds for constructing improvements along SR 316.

Private Sponsored. In some cases a road can be "privatized" which means that a private company would take over the road from a public agency, build the recommended improvements to the roadway, and charge tolls to not only recoup their costs but also gain a guaranteed profit. Once these costs were recouped, the private company would return the road to the public agency.

Private sponsored toll roads are being considered more frequently by government officials throughout the country in response to funding delays that are customarily associated with dependence upon traditional

sources of revenue. Examples of three private sponsored toll partnerships are described below.

91 Express Lanes - The California Private Transportation Company owns and operates 10 miles of express toll lanes on the Riverside Freeway in Orange County, California. This private enterprise constructed 2 express lanes in the center of the freeway in each direction of travel for $130 million in 1996. The only access points to the express lanes are at the beginning and end of the facility. Payment of tolls is done strictly by means of electronic equipment. Vehicles using the 91 Express Lanes must be equipped with a transponder tag that is read at an automated toll plaza.

Dulles Greenway - This 14 mile toll road through Loudoun County, Virginia was built and is operated by the Toll Road Investors Partnership II. It is the only 4-lane expressway facility in the travel corridor between Washington, D.C.'s Dulles Airport and Leesburg, Virginia. The facility was constructed in 1995 at a cost of $350 million.

Route 28 Corridor Improvements - The Commonwealth of Virginia recently selected a private consortium of transportation firms to construct $300 - $400 million of highway improvements in the Route 28 corridor of Northern Virginia. The improvements include grade-separation of 10 existing intersections along with the addition of one through-lane in each direction of travel. The corridor is 14 miles in length and connects I-66 to SR 7. The private consortium, in this case, joined into a financial partnership with the Commonwealth. The Virginia Department of Transportation committed $85 million to the project that is approximately 20% of the total cost.

Recommendations to pursue either a public or private sponsorship type of toll operation typically depend on the following parameters: the amount of revenue needed to complete all improvements; the time frame needed to implement the improvements; and, the degree of private sector involvement in a tollway's development and operation.

There are a number of hybrid funding mechanisms that could be used along with the toll collection approach. Some of these approaches could combine toll funds with various levels of funding from traditional state and federal resources. Examples of these are: (1) toll collection to cover full project implementation (preliminary engineering, right-of-way, construction and future maintenance and operation); (2) toll collection to cover implementation over just part of SR 316; (3) toll collection to cover the cost of grade-separating intersections and converting the general purpose lanes to freeway standard but not for the HOV lanes; and (4) using traditional resources for a traffic and revenue study, preliminary engineering, right-of-way acquisition and toll collection to cover the construction, maintenance and operations for the entire facility.

This study completed a preliminary investigation of the potential for tolls on SR 316. The investigation was performed as part of the study's modeling effort to synthesize a number of factors that investors would evaluate in the process of determining a project's feasibility. These factors included existing traffic, anticipated growth of population and employment in the corridor, and future travel patterns. The analysis of current and future travel demand, in combination with the estimated project costs, maintenance and operation costs and an assumed interest rate indicated that implementation of the SR 316 project improvements would be feasible under the toll collection funding scenario.

The investigation of toll feasibility used average toll rates of $0.08 to $0.10 per mile that are commensurate with rates charged on existing toll roadways in the nation. Based on this preliminary feasibility analysis, a substantial share, if not all, of the cost for the recommended improvements could come from revenues generated by collecting tolls from motorist using SR 316. Below is an example of passenger car toll rates being used on other facilities in the southeast.

- Dallas North Tollway, Texas- $.11 per mile
- President George Bush Turnpike, Dallas, Texas- $.11 per mile
- East-West Expressway, Orlando, Florida- $.10 per mile
- Bee Line Expressway, Orlando, Florida- $ .10 per mile
- GA 400, Atlanta, Georgia- $ .20 per mile

Due to the urgency with which safety and mobility needs in the SR 316 corridor need to be addressed, the study recommends that toll revenues, in combination with available funding from traditional federal and state sources, be used to accelerate implementation of the SR 316 recommended improvements. To assure that the process continues toward implementation, the following steps need to be undertaken immediately:

- Preliminary engineering concept studies;
- Traffic and Revenue studies; and,
- Environmental studies.

7.5 Coordination

A significant level of coordination activities will be necessary for the following reasons:

- Opportunities will be presented to reserve rights-of-way along intersecting cross streets for park-and-ride lots and bus transfer station facilities at the proposed Winder Bypass, SR 120 (Riverside Pkwy. to Atkinson) and SR 53/Mars Hill/Oconee Connector (SR 15 to SR 316).
- Coordination with local governments will provide opportunities to acquire property for ancillary facilities that will increase the attractiveness of HOV lanes in large-scale developments such as the University Center in Gwinnett; further build-out at Progress Center in Gwinnett; further development at the Barrow Industrial Park; and the proposed Gateway development in Oconee County.
- Coordination of the implementation schedule for the HOV lanes with Gwinnett Transit, GRTA and any Traffic Management Associations (TMA's) in the corridor. All these organizations stand to benefit from construction of the HOV lanes and sponsor programs or projects promoting them.

Coordination with other transportation providers and planning partners will need to be extensive as the project moves forward. For the SR 316 HOV lanes to achieve their full potential, express bus service, park-and-ride lots and convenient connections between the park-and-ride lots and SR 316 will be needed. The costs of these auxiliary transportation improvements/services were not included in the improvement cost estimate for SR 316. Nevertheless, local government and regional transportation planners have proposed them and the findings of this study support the need for these projects. To the extent possible, scheduling of these other improvements should coincide with the final construction schedule of SR 316. Some of these improvements are related to Gwinnett County's new transit system, the system wide HOV plans and GRTA's express bus plans.

7.6 Recommended SR 316 Improvement Program

The recommended SR 316 Improvement Program is composed of two basic elements: a short-range element and a long-range element. The short-range element consists of projects that are to be completed within the next five years. The long-range program is defined to include improvements expected to be implemented within the next ten years because of the urgency to address compelling safety problems on SR 316. The relative importance of grade-separating intersections along SR 316 to improve safety is noted in Section 5.0 of this report.

The short-range program is composed of the projects listed in Tables 7-1, 7-2 and 7-3. The estimated cost for all of these improvements is approximately $4,000,000 and eligible funds can be pursued from existing federal, state and local sources. That figure assumes that four SR 316 intersections would be equipped with speed/queue detector technology and one intersection furnished with camera equipment installed to identify vehicles running red lights.

In addition to these improvement projects, the short-range program includes three studies that should begin within the next year, using existing state and federal funds. These studies should be initiated as soon as possible to reduce

the potential of delaying the long-range improvement program. These studies are:

- Environmental Studies and Documentation
- Investment Grade Traffic and Revenue Study For Toll Financing
- Conceptual Engineering Studies

The long-range program consists of the following:

- Reconstruct SR 316 from SR 120 to the Athens Loop into a freeway-type facility with interchanges at locations identified in Table 7-6;
- Add two barrier separated HOV lanes, one in each direction of travel, over the entire length of SR 316 (I-85 to Athens Loop) with HOV interchanges at the locations identified in Table 7-6;
- Build a collector-distributor road system in Gwinnett County between SR 120 and Winder Hwy/SR 8; and
- To improve traffic operations, add auxiliary lanes between existing interchanges on SR 316 between SR 120 and Boggs Road in Gwinnett County.

The estimated cost of the long-range program is between $750,000,000 and $850,000,000 with funding recommended to come from a combination of toll revenues and federal/state funds.