2 Chatham Interstate Plan - Potential Project Recommendations

This section presents the final recommendations of the Chatham County Interstate Needs Analysis and Prioritization Plan. **Table 2.1** (see page 2-2) presents a list of these recommendations with project details and purposes. **Figure 2.1** (see page 2-3) presents a map showing the location of the potential project recommendations within Chatham County. The concept layouts for each recommendation along with a project description are on the pages that follow in the corresponding order.

The initial assessment of the existing and projected future conditions identified 27 Analysis Areas within the Interstate system in Chatham County. Potential solutions were examined to address the needs and deficiencies associated with these locations. These areas then underwent quantitative and qualitative analyses to identify those Analysis Areas and potential solutions that demonstrated the greatest need and potential for improvement. Analysis Areas were dismissed for numerous reasons. Some simply did not have a direct impact on the Interstate system, others were far enough along in the planning and programming process that it did not make sense to include in this planning study (i.e. the widening of I-516 between I-16 and Veterans Parkway, PI # 522850, is a needed improvement; however, preliminary engineering is underway and thus would not benefit from being studied in this planning level exercise). Several Analysis Areas and projects were the subject of other ongoing studies and were rejected to prevent duplication of analyses. Many Analysis Areas were discounted because they did not demonstrate sufficient justification.

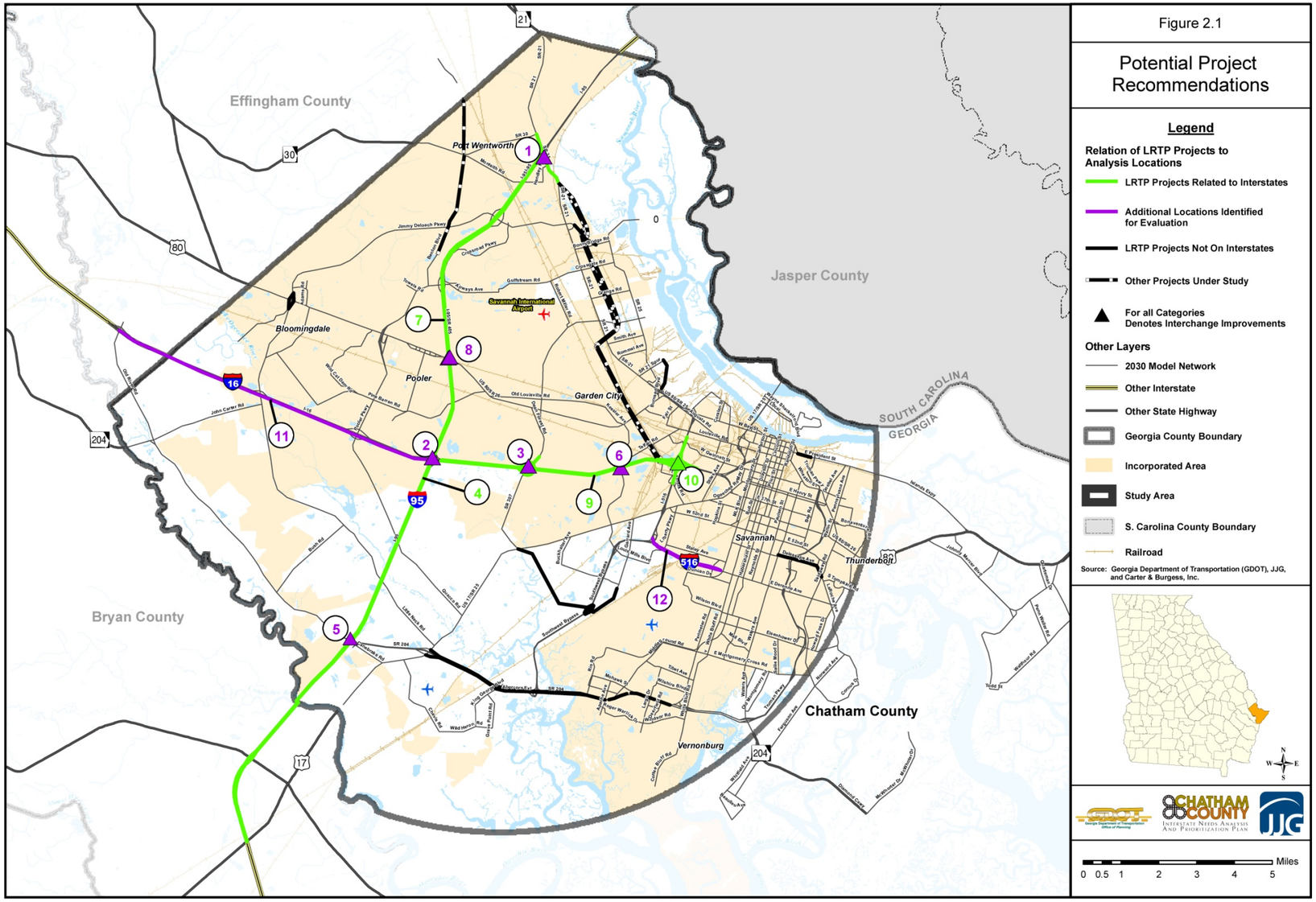
The result of this refinement process yielded the twelve potential project recommendations presented on the following pages. These recommendations do not necessarily represent the twelve most important projects within Chatham County as of 2008; instead, these recommendations are the twelve most needed Interstate projects that are currently unfunded for construction.

Following this section, this report details the steps used to identify, refine, and develop these project recommendations.

Table 2.1: List of Potential Project Recommendations

No.	Project Location	From	To	Type	Lanes		Length (mi)	Purpose	GDOT PI #	Included in CUTS 2030 LRTP?
					Existing	Proposed				
1	I-95 at SR 21	Vicinity of Interchange		Interchange Reconstruction	-	-	-	Improve roadway capacity and I-95 interchange operations	N/A	No
2	I-16 at I-95	Vicinity of Interchange		Interchange Reconstruction	-	-	-	Operational and capacity improvement associated with conversion to a partly directional interchange (removal of part of cloverleaf)	N/A	No
3	I-16 at SR 307/Dean Forest Road	Vicinity of Interchange		Interchange Reconstruction	-	-	-	Safety and operational improvements and enhancement of truck access	N/A	No
4	I-95	US 17 in Bryan County	I-16	Widening	6	8	7.7	Increased capacity to accommodate projected traffic volume	511035	Yes
5	I-95 at SR 204	Vicinity of Interchange		Interchange Reconstruction	-	-	-	Reconstruction of interchange to accommodate future capacity needs	N/A	No
6	I-16 at Chatham Parkway	Vicinity of Interchange		Interchange Reconstruction	-	-	-	Reconstruction of interchange to accommodate future capacity needs	N/A	No
7	I-95	I-16	SR 21	Widening	6	8	13.1	Increased capacity to accommodate projected traffic volume	511165	Yes
8	I-95 at US 80	Vicinity of Interchange		Interchange Reconstruction	-	-	-	Safety and operational improvement of US 80 interchange with I-95	N/A	No
9	I-16	I-95	I-516	Widening	4	6	7.3	Provide capacity along I-16 corridor	N/A	Yes
10	I-16 at I-516	Vicinity of Interchange		Interchange Reconstruction	-	-	-	Operational and capacity improvement associated with conversion to a directional interchange (removal of left-side entrances from I-516 to I-16)	0006256	Yes
11	I-16	Old River Rd. In Effingham County	I-95	Widening	4	6	7.6	Provide Interstate capacity to accommodate future demand	N/A	No
12	I-516	Veterans Parkway	Mildred Street	Widening	4	5	2.1	Increased capacity to accommodate projected traffic volume	N/A	No

Figure 2.1: Potential Project Recommendations



2.1 *Potential Project Recommendation #1: I-95 at SR 21 Interchange Improvements*

2.1.1 Project Description

The proposed project would widen SR 21 in the vicinity of the I-95 interchange and add turn lanes at all intersections to improve operations. As shown in **Figure 2.2** (see page 2-5), the project would add a two lane loop ramp for I-95 northbound to SR 21 northbound traffic. A single lane loop ramp for I-95 southbound to SR 21 southbound traffic would also be provided. In order to accommodate high traffic volumes, SR 21 would be widened to four lanes in each direction between I-95 and SR 30 to the north. South of I-95, SR 21 would be widened to six lanes for approximately one half mile. O'Leary Road would be realigned with Hendley Road in order to provide acceptable intersection spacing in the vicinity of the interchange.

2.1.2 Need and Purpose

The I-95 at SR 21 interchange provides a vital connection for the port area to the south and Effingham County to the north. In addition to serving traffic between I-95 and these destinations, SR 21 serves high volumes of peak hour commuting trips between residential areas of Effingham County and employment centers near the port. This interchange is currently experiencing significant traffic congestion due to high traffic volumes. Traffic queues on the I-95 northbound offramp extend onto the Interstate. Additionally, traffic queues extend over a mile along SR 21 northbound in the PM peak period. These congested conditions have driven a steady increase in accidents with the interchange experiencing a crash rate well above average for interchanges within Chatham County.

The I-95 at SR 21 interchange also experiences significant truck movements by providing a direct access point to I-95 for goods movement in and out of the Georgia Port's Authority Garden City Terminal. The port is planning for significant growth, as are Port-related businesses elsewhere along the corridor. The Georgia Ports Authority (GPA) and GDOT are planning a port connector road to provide efficient movement of freight from the port to SR 21 near I-95. In conjunction with these efforts, Effingham County and Chatham County, in cooperation with GDOT, are planning the Effingham Parkway, a multilane road connecting this area of Chatham County with the rapidly developing Effingham County. If constructed, this route is likely to reduce overall traffic demand on the SR 21 interchange, particularly for travel between Effingham County and areas to/from the south on I-95. The Chatham Interstates Travel Demand Model was expanded in a related project and used to analyze the effect that Effingham Parkway would have on traffic volumes along SR 21. Since the exact location and date of the implementation of Effingham Parkway is unknown, this concept represents the interchange improvement needed by 2030 without the implementation of the proposed Effingham Parkway. The effect the Effingham Parkway would have on SR 21 is discussed and analyzed later in this report.

The purpose of these interchange improvements is to relieve existing congestion and accommodate anticipated traffic growth along this developing corridor. By reducing congestion and allowing commuters and trucks to efficiently access I-95, these improvements will improve mobility and safety at this important interchange.

Improvements to the SR 21 interchange were analyzed and simulated using Synchro software and TransModeler software, respectively. This analysis considered various roadway and intersection configurations to provide acceptable operations in 2030 with the minimum improvements. The results of the operations analysis indicated the need for additional through lanes along SR 21, as well as turn lane enhancements at the Interstate ramps and adjacent intersections. The analysis shows the intersections will operate with acceptable LOS in the horizon year (2030) with the recommended improvements. Simulation of the interchange confirmed acceptable operation of the interchange with no queuing problems observed.

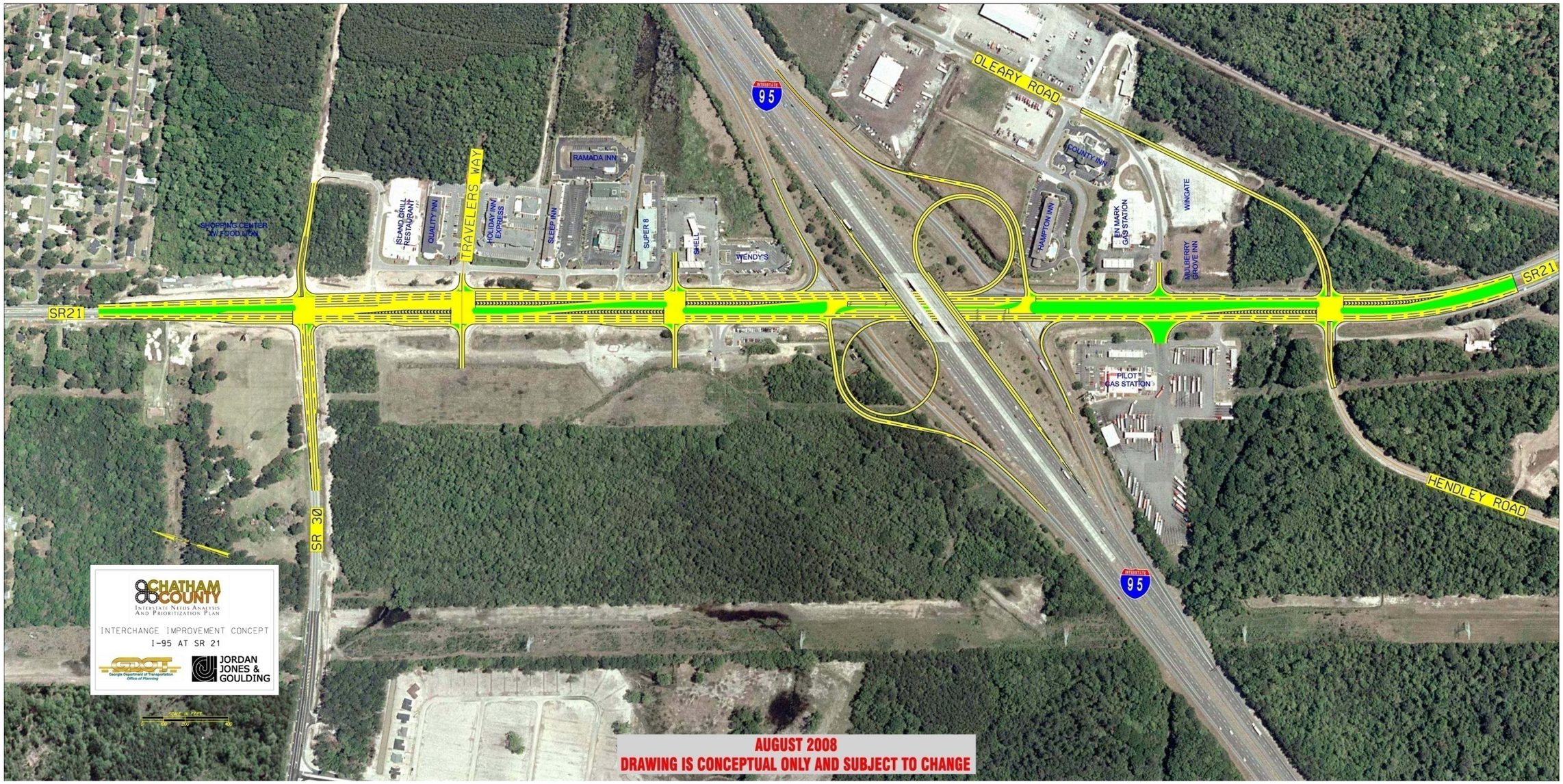
2.1.3 Logical Termini

The northern terminus of this interchange improvement is at SR 30. SR 30 serves as an important state route providing access to much of Effingham County. Since a significant portion of traffic utilizing the I-95 and SR 21 interchange travels to and from SR 30, this major traffic generator serves as a logical terminus. The southern terminus is located just south of the relocated O'Leary Road and Hendley Road intersection. Since this improvement is an operational improvement, the point at which no additional improvements are needed serves as a logical terminus. South of this intersection, additional improvements are not necessary. Thus this point provides the southern logical terminus.

2.1.4 Cost Estimates

Construction Cost:	$21,750,000
Right of Way	$36,750,000
Subtotal	**$58,500,000**
Contingency @ 20%	$11,750,000
Preliminary Engineering	$2,250,000
Total Cost Estimate	**$72,500,000**

Figure 2.2: Potential Project Recommendation #1: I-95 at SR 21 Interchange Improvements



2.2 *Potential Project Recommendation #2: I-95 at I-16 Interchange Improvements*

2.2.1 Project Description

The proposed project would reconstruct the I-95 at I-16 Interstate to Interstate interchange by replacing the two most heavily traveled loop ramps with directional flyover ramps. As shown in **Figure 2.3** on page 2-7, this project would replace the westbound I-16 to southbound I-95 loop ramp with a directional flyover ramp. The project would also replace the southbound I-95 to eastbound I-16 loop ramp with a directional flyover ramp. These improvements would replace the two most travelled loop ramps with flyovers and eliminate three of the four weave areas on this Interstate to Interstate interchange.

The weave area between the eastbound I-16 to northbound I-95 and the northbound I-95 to westbound I-16 loop ramps would be relocated onto a collector-distributer (CD) road, thus eliminating all weaving areas from the mainline Interstate. With very low existing and projected volumes on these two ramps, it would not be cost feasible to replace these loops with directional flyover ramps.

2.2.2 Need and Purpose

I-95 and I-16 serve as the primary Interstate facilities serving Chatham County. These Interstates also serve as vital roadways for southeast Georgia and the eastern seaboard of the United States. The I-16 at I-95 interchange is a critical hub of the Interstate system in Chatham County, as all through trips and most regional Interstate trips pass through this interchange. Truck traffic comprises a significant portion of the traffic volume on this interchange and the I-95 corridor will continue to be an important route for access to trucking destinations and service of through traffic. With I-95 and I-16 carrying much of the truck and automobile traffic within Chatham County, the operational effectiveness of this interchange is of critical importance to the overall Interstate system in the county. The purpose of this project is to accommodate existing and future traffic demand and ensure efficient truck and automobile mobility on this important interchange. This improvement would also improve safety by eliminating loop ramps and weaves from this interchange.

Under existing conditions, congestion and periodic slowing of vehicles utilizing this interchange in the PM peak hours has been observed. This is particularly evident when trucks must climb the grade from I-16 to eastbound to I-95 northbound and I-16 westbound to I-95 southbound then merge with high speed traffic. The current configuration is experiencing marginal operations during the existing PM peak hour and will experience significant growth through 2030. The weaving analysis for the year 2030 conditions reveals LOS E and F under the current configuration. These weaving areas would be eliminated by the implementation of this project. The analysis shows the single remaining weave to operate at LOS A in 2030 with implementation of the project.

2.2.3 Logical Termini

Since this project is an interchange for two Interstate facilities, there are northern, southern, eastern, and western termini. The logical termini for all four legs of this interchange reconstruction project are located where the interchange reconstruction ties into the Interstate mainlines to the north, south, east, and west of the project. Since this is an operational improvement, additional improvements to the Interstate beyond these limits are not needed.

2.2.4 Cost Estimates

Construction Cost:	$54,750,000
Right of Way	$1,250,000
Subtotal	**$56,000,000**
Contingency @ 20%	$11,250,000
Preliminary Engineering	$5,500,000
Total Cost Estimate	**$72,750,000**

Figure 2.3: Potential Project Recommendation #2: I-95 at I-16 Interchange Improvements

2.3 *Potential Project Recommendation #3: I-16 at SR 307 (Dean Forest Road) Interchange Improvements*

2.3.1 Project Description

As shown in **Figure 2.4** on page 2-9, the proposed project would widen the SR 307 bridge over I-16 to accommodate two through lanes in each direction as well as dual left turn lanes onto the I-16 eastbound and westbound entrance ramps. The project would widen the SR 307 approaches to the interchange to include right turn lanes onto the I-16 ramps. The project would also reconstruct all I-16 ramps and include dual left turn lanes and a single right turn lane at their intersections with SR 307.

2.3.2 Need and Purpose

The I-16 at SR 307 interchange is important since SR 307 serves as a primary route to the main gate to the Georgia Port's Authority Garden City Terminal. This terminal is the primary container port in Georgia and generates significant truck traffic. In addition, crash rates at the interchange are greater than the statewide average. Heavy traffic volumes regularly cause queuing onto the Interstate from the I-16 eastbound exit ramp, creating an unsafe condition for Interstate and interchange traffic. The purpose of this project is to accommodate existing and future traffic volumes, improve access to and from the port area, as well as improve safety on this important interchange.

Improvements to the SR 307 interchange were examined using operational analysis and simulation using Synchro software and TransModeler software, respectively. This analysis considered various roadway and intersection configurations to provide acceptable operations in 2030. The results of the operations analysis indicated that this interchange would experience unacceptable (LOS E or F) conditions without the improvements presented here. The operational analysis showed that all intersections will operate with acceptable LOS during horizon 2030 with the recommended improvements. Simulation of the interchange confirmed acceptable operation of the interchange with no queuing onto the Interstate observed.

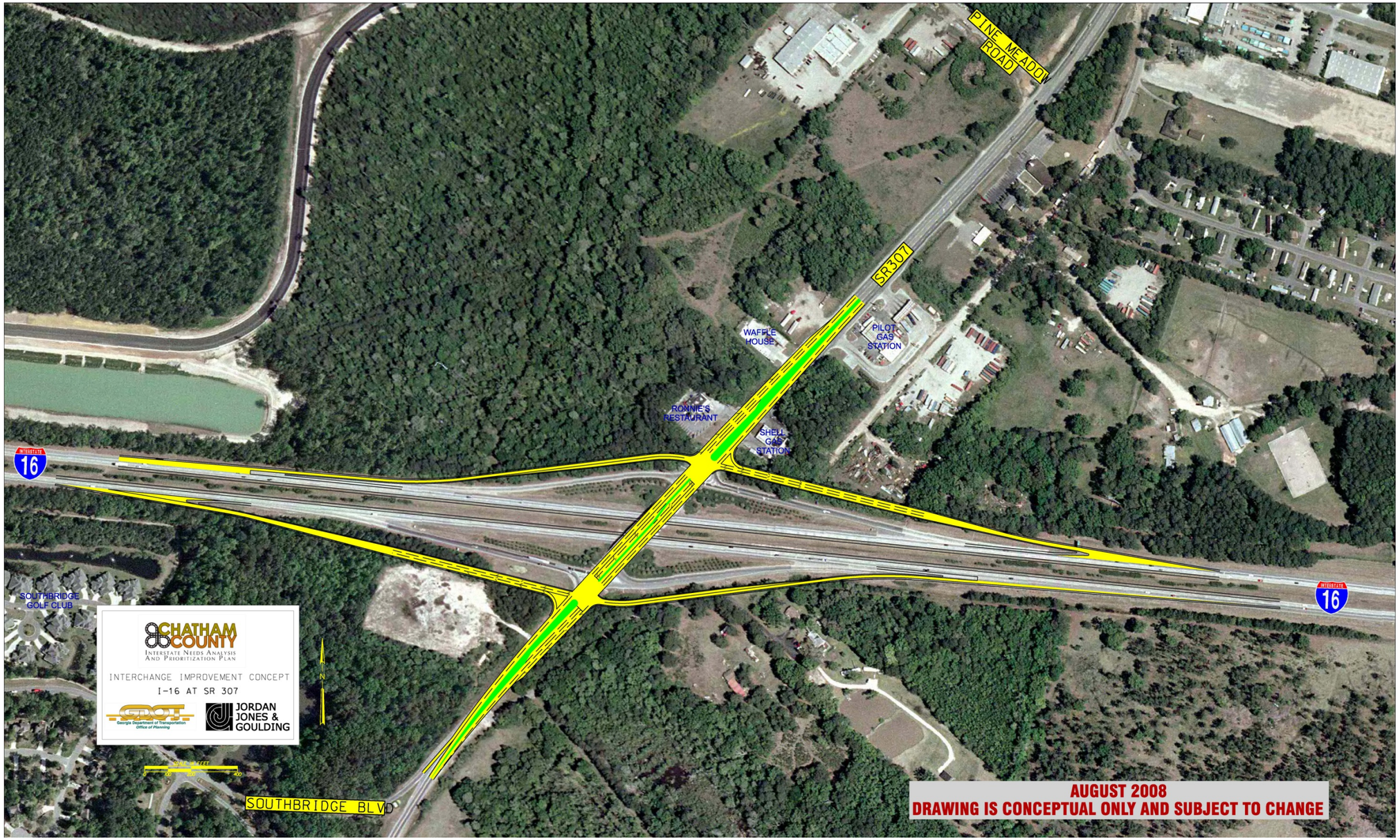
2.3.3 Logical Termini

The I-16 at SR 307 project is an operational improvement project and does not require improvements to SR 307 to the north or south of the Interchange. The southern terminus is located immediately south of the interchange where the SR 307 improvements would tie into the existing two-lane section of SR 307. Since additional improvements are not needed beyond this point, this serves as a logical terminus. The northern terminus is located immediately north of the interchange where the SR 307 improvements would tie into the existing five-lane section of SR 307. Since additional improvements are not needed beyond this point, this serves as a logical terminus.

2.3.4 Cost Estimates

Construction Cost:	$11,250,000
Right of Way	$8,750,000
Subtotal	**$20,000,000**
Contingency @ 20%	$4,000,000
Preliminary Engineering	$1,250,000
Total Cost Estimate	**$25,250,000**

Figure 2.4: Potential Project Recommendation #3: I-16 at SR 307 Interchange Improvements



2.4 *Potential Project Recommendation #4: Widening of I-95 from US 17 in Bryan County to I-16 (PI No. 511035)*

2.4.1 Project Description

This project would add an additional lane in each direction to I-95 between the US 17 in Bryan County and I-16. As shown in **Figure 2.5** on page 2-11, this widening would generally occur on the inside of the northbound and southbound lanes. When this segment of I-95 was widened from four lanes to six lanes, all I-95 bridges were reconstructed with enough width to accommodate a future additional lane in each direction. This additional width on the bridges was built to the inside of the existing lanes, thus the future widening would occur to the inside. Since all widening would occur to the inside, a barrier wall would be required to safely separate northbound and southbound traffic.

2.4.2 Need and Purpose

The purpose of this project is to provide additional capacity along I-95 in order to accommodate increasing traffic volumes, improve safety, and facilitate reliable truck movement within Chatham County. The needs assessment examined a variety of performance measures to determine the need for improvements along I-95. This segment of the I-95 corridor is projected to have a high volume-to-capacity ratio in 2030, resulting in deficient freeway LOS. Truck traffic will comprise a significant portion of the traffic volume and the I-95 corridor will continue to be an important route for access to trucking destinations and service of through traffic. In addition, crash rates on this segment of I-95 are greater than the statewide average.

Under the existing six-lane configuration, this segment of I-95 is expected to experience a maximum volume-to-capacity ratio of 1.15 by 2030 (see freeway LOS table below). Widening of I-95 from US 17 in Bryan County to I-16 from six to eight lanes will provide the additional capacity needed to serve future traffic volumes. The Chatham Interstates Plan Travel Demand Model indicates a volume-to-capacity ratio of 0.80 to 0.88 (corresponding to LOS D conditions) can be achieved in 2030 with the recommended freeway widening. Although LOS C conditions are preferable, it would require two additional lanes in each direction to achieve this. The proposed eight-lane road section would have all bridges already widened to accommodate one additional lane with no additional ROW requirements. A project converting this section to five lanes in each direction would add significant ROW and construction cost.

Level of Service	Volume/Capacity Ratio
LOS A,B,C	< 0.70
LOS D	0.70 – 0.84
LOS E	0.85 – 0.99
LOS F	1.0 +

2.4.3 Logical Termini

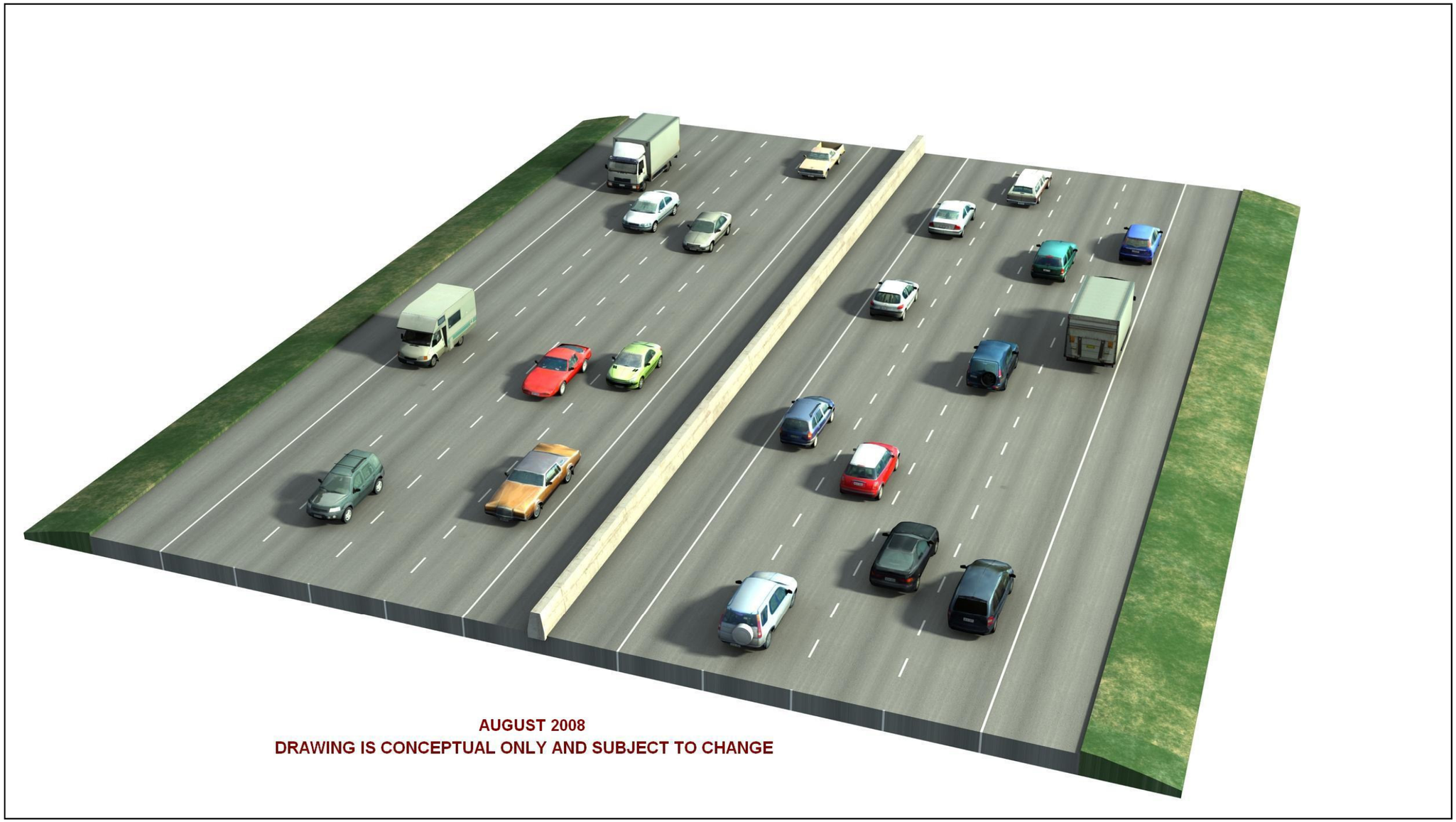
In order to determine the southern logical termination point for widening of I-95 to eight lanes, the Chatham County Plan travel demand model data and GDOT count station volume data were examined. The growth rate calculated from the model was 2.26 percent per year. This was applied to volume data for GDOT count stations to determine the southern terminus for widening I-95. The travel demand model for 2030 indicates the need for widening I-95 to eight lanes extends along I-95 south from I-16 past SR 204 to the limits of the model. An examination of GDOT traffic count data indicates the LOS C conditions will be achieved where traffic volumes are reduced to 70 percent of capacity, or 102,620 vehicles per day. This occurs south of US 84 in Liberty County. If this location were used as logical termini, this project would need to traverse two additional counties. Although this location is the point at which traffic volumes allow I-95 to operate at LOS C, the US 17 interchange several miles south of the Chatham County line should provide logical termini since it is a major arterial providing access to Chatham, Bryan, and Liberty Counties. During the concept development phase of this project, a detailed analysis of traffic volumes along I-95 may reveal a large enough reduction in traffic at this interchange so as to warrant this location as the southern terminus of this project

The northern terminus for this project is located at I-16. Since a large percentage of I-95 traffic travels to and from I-16, this location was chosen as the northern logical terminus.

2.4.4 Cost Estimates

Construction Cost:	$57,000,000
Right of Way	N/A
Subtotal	**$57,000,000**
Contingency @ 20%	$11,500,000
Preliminary Engineering	$5,750,000
Total Cost Estimate	**$74,250,000**

Figure 2.5: Potential Project Recommendation #4: Widening of I-95 from US 17 to I-16



2.5 *Potential Project Recommendation #5: I-95 at SR 204 Interchange Improvements*

2.5.1 Project Description

As shown in **Figure 2.6** on page 2-13, the proposed project would widen SR 204 to three lanes in each direction to the east of I-95 as well as add turn lanes at all intersections in order to accommodate anticipated traffic growth. The I-95 northbound and southbound ramp intersections would be improved to provide additional left turn lanes for vehicles exiting and entering the Interstate. The intersection of SR 204 at Gateway Boulevard would be converted to a right-in right-out driveway and the full access intersection would be relocated approximately one-half mile to the east. Due to the close proximity of the Gateway Boulevard intersection to the I-95 northbound ramp, it would be necessary to relocate this intersection further away from the interchange to improve traffic operations.

2.5.2 Need and Purpose

SR 204 is an important east-west arterial, serving as a primary access roadway for Bryan County and Liberty County traffic traveling to and from the Savannah area. SR 204 also serves the rapidly growing southwest quadrant of Chatham County. The I-95 at SR 204 interchange provides the only Interstate access for southern Chatham County. The purpose of these interchange improvements is to accommodate growing traffic volumes, provide improved Interstate access, and maintain acceptable interchange operation.

Improvements to the SR 204 interchange were examined using operational analysis and simulation using Synchro software and TransModeler software, respectively. This analysis considered various roadway and intersection configurations to provide acceptable operations in 2030. The results of the operations analysis indicated the need for widening of SR 204 and adding additional turning lanes at the ramp intersections and adjacent intersections. It also recommended the relocation of the full access intersection of SR 204 at Gateway Blvd. further east to allow for efficient operation of the interchange ramps. The operational analysis shows that all intersections will operate with acceptable LOS during horizon 2030 with the recommended improvements. Simulation of the interchange confirmed acceptable operation of the interchange with no queuing problems observed.

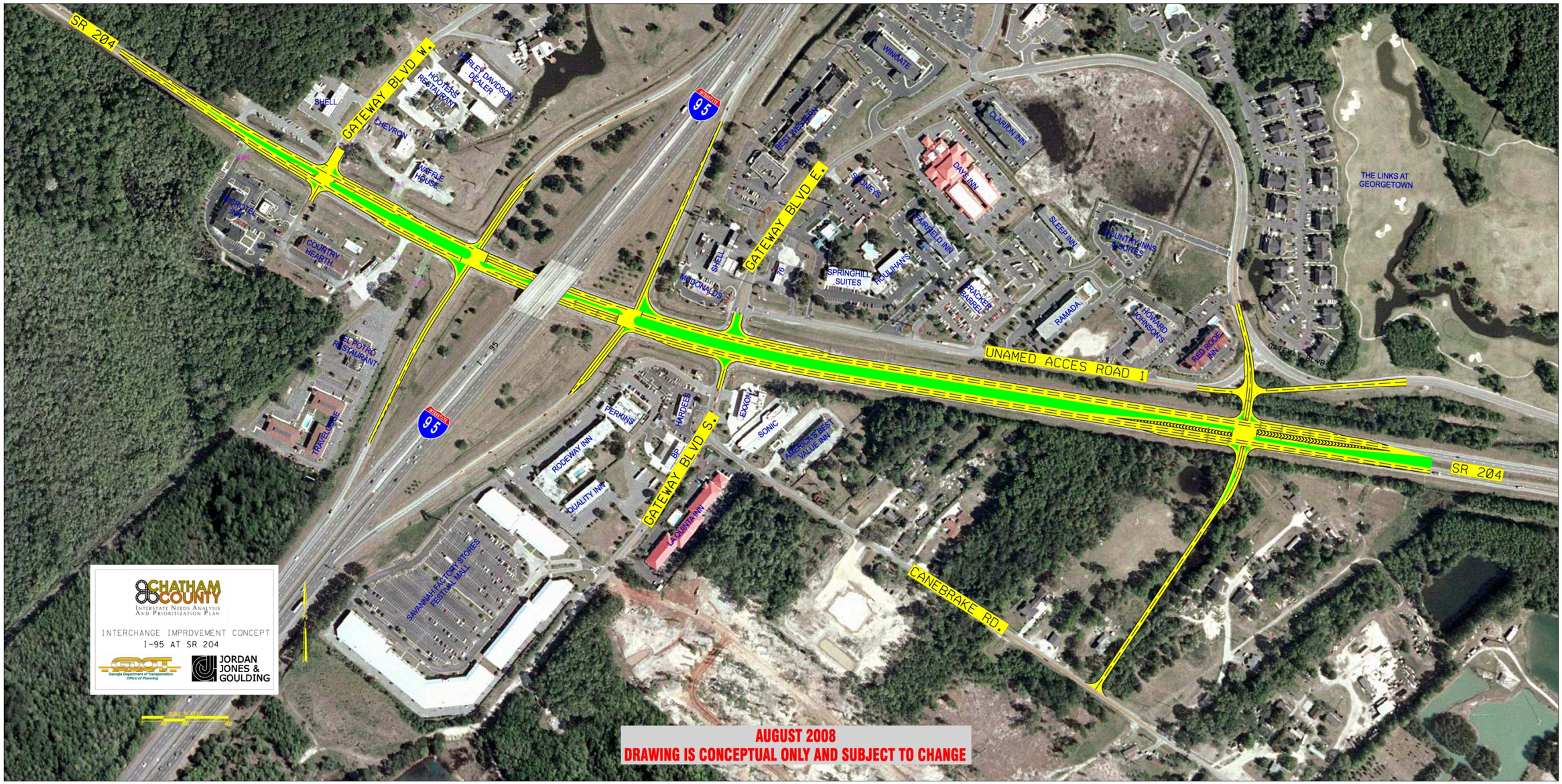
2.5.3 Logical Termini

The western terminus is located where the proposed widening ties into the existing two-lane SR 204 to the west of I-95. Since additional widening is not needed beyond this point, this serves as logical terminus. The eastern terminus is located just east of the relocated Gateway Boulevard intersection. At this point, the proposed widening would tie into the existing four-lane section. As with the western terminus, additional widening to the east is not needed, thus this location provides a logical terminus.

2.5.4 Cost Estimates

Construction Cost:	$10,000,000
Right of Way	$4,250,000
Subtotal	**$14,250,000**
Contingency @ 20%	$2,750,000
Preliminary Engineering	$1,000,000
Total Cost Estimate	**$18,000,000**

Figure 2.6: Potential Project Recommendation #5: I-95 at SR 204 Interchange Improvements



2.6 *Potential Project Recommendation #6: I-16 at Chatham Parkway Interchange Improvements*

2.6.1 Project Description

As shown in **Figure 2.7** on page 2-15, the proposed project would widen the Chatham Parkway bridge over I-16 to accommodate two through lanes in each direction as well as dual left turn lanes onto the I-16 eastbound and westbound entrance ramps. The project would also reconstruct all I-16 ramps and include dual left turn lanes and a single right turn lane at the intersections with Chatham Parkway. The I-16 westbound loop ramp would be enlarged in order to allow sufficient vehicle storage at the intersection with Chatham Parkway.

The southbound approach to I-16 on Chatham Parkway would be widened to three lanes to accommodate heavy southbound traffic wishing to access westbound I-16. Immediately south of I-16, Chatham Parkway would be widened to three lanes in order to accommodate traffic from I-16 eastbound.

2.6.2 Need and Purpose

The I-16 at Chatham Parkway interchange is a local access interchange providing Interstate access for local trips. A large private school immediately north of the interchange generates significant traffic volumes. In the morning, traffic using this interchange to access the school queues along the I-16 westbound loop ramp. This queuing extends almost to I-16. This interchange does not serve as a primary truck access point within Chatham County. Chatham Parkway is expected to experience significant congestion by 2030 without improvements. Additionally, crash rates at the interchange are greater than the countywide average. The purpose of this project is to accommodate existing and future traffic volumes and improve safety on this local access interchange

Improvements of the Chatham Parkway interchange were examined using operational analysis and simulation using Synchro software and TransModeler software, respectively. This analysis considered various roadway and intersection configurations to provide acceptable operations in year 2030. These results indicate the need for additional turning lanes for freeway access on Chatham Parkway and the freeway ramps. The Interstate ramp intersections are expected to operate at LOS F in 2030 without these improvements. These intersections will operate with acceptable LOS during horizon year 2030 with the recommended improvements. Simulation of the interchange confirmed acceptable operation of the interchange with no queuing problems observed.

2.6.3 Logical Termini

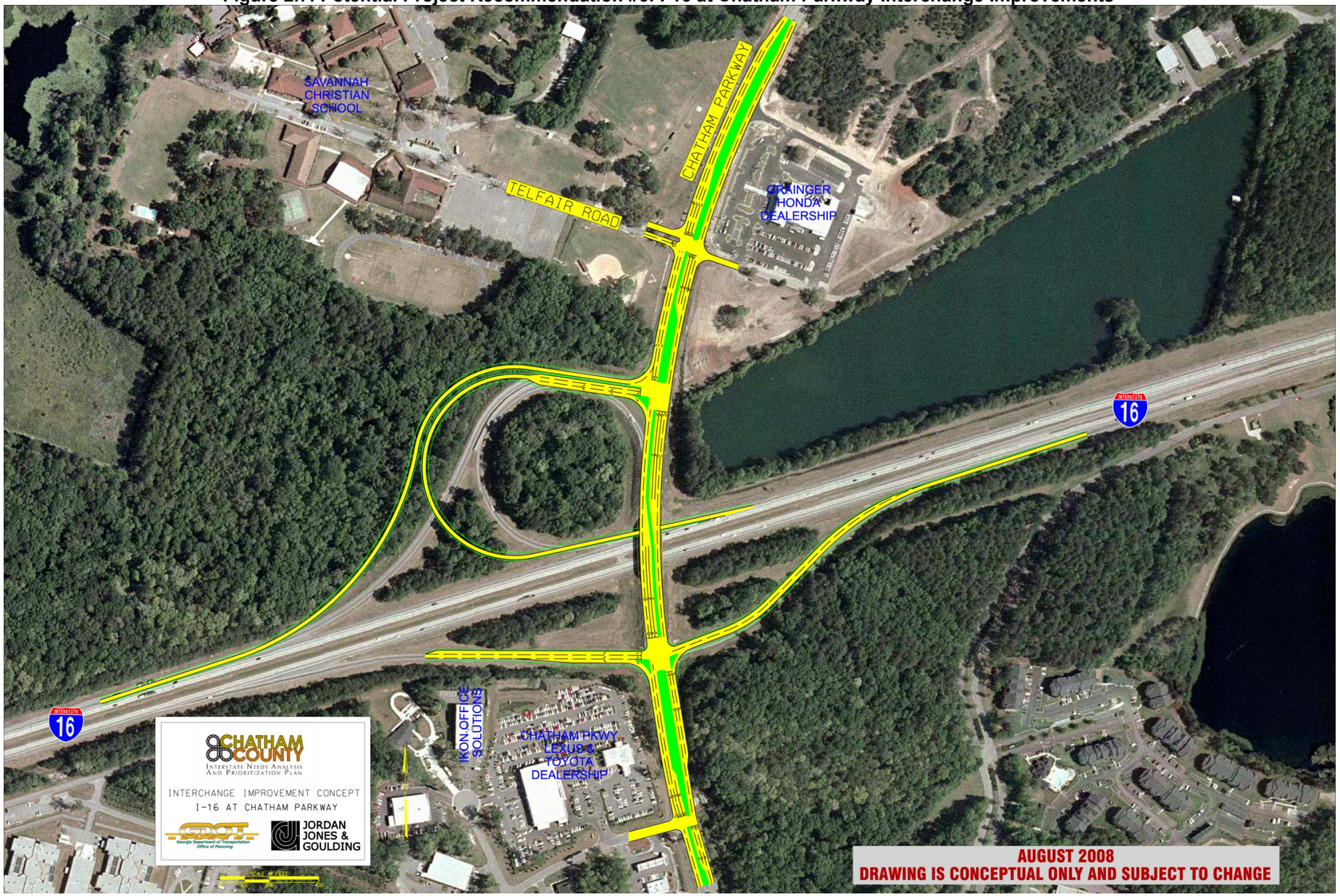
The I-16 at Chatham Parkway project is an operational improvement project and does not require significant improvements to Chatham Parkway to the north or south of the Interchange. The southern terminus is located at the first driveway access immediately south of I-16. Since Chatham Parkway requires no additional improvements south of this driveway, this point serves as a logical terminus.

The northern terminus is located approximately 1000 feet north of Telfair Road, which serves as the entrance to the school north of I-16. The improvements would tie into the existing five-lane section of Chatham Parkway to the north. Since additional improvements are not needed beyond this point, this serves as a northern logical terminus.

2.6.4 Cost Estimates

Construction Cost:	$37,250,000
Right of Way	$4,750,000
Subtotal	**$42,000,000**
Contingency @ 20%	$8,500,000
Preliminary Engineering	$3,750,000
Total Cost Estimate	**$54,250,000**

Figure 2.7: Potential Project Recommendation #6: I-16 at Chatham Parkway Interchange Improvements



2.7 *Potential Project Recommendation #7: Widening of I-95 from I-16 to SR-21 (PI No. 511165)*

2.7.1 Project Description

This project would add an additional lane in each direction to I-95 between I-16 and SR 21. As shown in **Figure 2.8** (see page 2-17), this widening would generally occur on the outside of the northbound and southbound lanes. When this segment of I-95 was previously widened from four lanes to six lanes, all I-95 bridges were reconstructed with adequate width to accommodate a future additional lane in each direction. Furthermore, all outside shoulders were built to full pavement depth to accommodate and additional lane in the future. Thus, the future widening of this segment of I-95 would occur to the outside of the existing lanes.

2.7.2 Need and Purpose

The purpose of this project is to provide additional capacity along I-95 in order to accommodate increasing traffic volumes, improve safety, and facilitate reliable truck movement within Chatham County. The needs assessment examined a variety of performance measures to determine the need for improvements along I-95. This segment of the I-95 corridor is projected to have a high volume-to-capacity ratio in year 2030, resulting in deficient freeway level of service (LOS). Truck traffic will comprise a significant portion of the traffic volume and the I-95 corridor will continue to be an important route for access to trucking destinations and service of through traffic. In addition, crash rates on this segment of I-95 are greater than the statewide average.

Under the existing six-lane configuration, this segment of I-95 is expected to experience a maximum volume-to-capacity ratio of 1.1 by 2030 (see freeway LOS table below). Widening of I-95 from I-16 to SR 21 from six to eight lanes will provide the additional capacity needed to serve future traffic volumes. The Chatham Interstates Plan Travel Demand Model indicates a volume-to-capacity ratio of 0.50 to 0.68 (corresponding to LOS C or better conditions) can be achieved in 2030 with the recommended freeway widening.

Level of Service	Volume/Capacity Ratio
LOS A,B,C	< 0.70
LOS D	0.70 – 0.84
LOS E	0.85 – 0.99
LOS F	1.0 +

2.7.3 Logical Termini

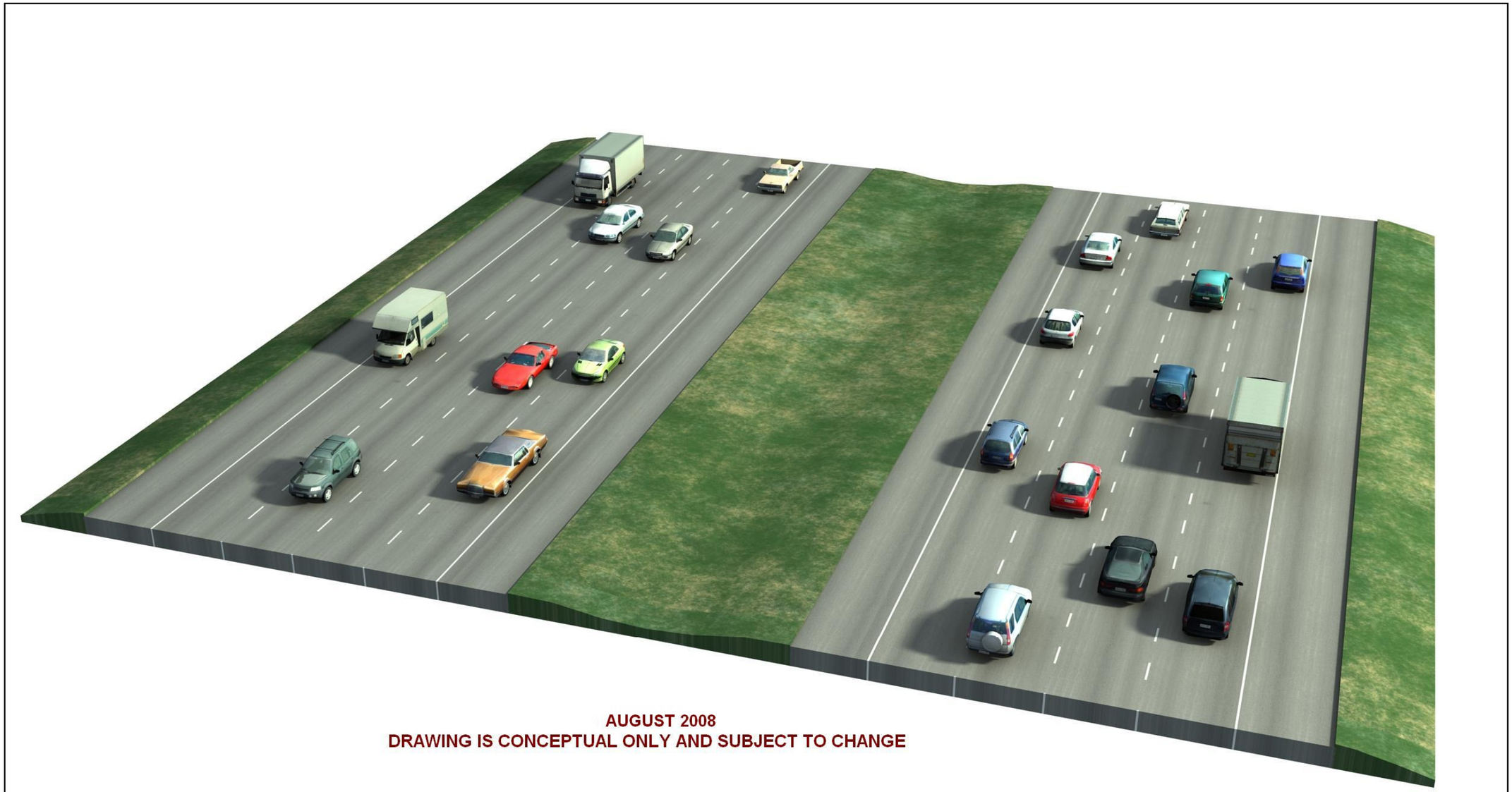
In order to determine the northern logical termination point for widening I-95 to eight lanes, the Chatham Interstate Plan Model (2006) data and South Carolina Department of Transportation count station volume data were examined. The travel demand model for 2030 indicates the need for widening I-95 to eight lanes extends along I-95 north from I-16 to SR 21. North of SR 21, a six-lane cross-section is recommended (as the volume-to-capacity ratio is less than 0.70). Since an eight-lane section in not necessary in order to adequately accommodate 2030 volumes north of SR 21, this location was chosen as the northern logical terminus.

The southern terminus for this project is located at I-16. Since a large percentage of I-95 traffic travels to and from I-16, this location was chosen as the southern logical terminus.

2.7.4 Cost Estimates

Construction Cost:	$45,000,000
Right of Way	N/A
Subtotal	**$45,000,000**
Contingency @ 20%	$9,000,000
Preliminary Engineering	$4,500,000
Total Cost Estimate	**$58,500,000**

Figure 2.8: Potential Project Recommendation #7: Widening of I-95 from I-16 to SR 21



2.8 *Potential Project Recommendation #8: I-95 at US 80 Interchange Improvements*

2.8.1 Project Description

The proposed project would widen US 80 to three lanes in each direction in the vicinity of the I-95 interchange and add turn lanes at all intersections in order to accommodate anticipated traffic growth. As shown in **Figure 2.9** (see page 2-19) the I-95 northbound and southbound ramp intersections would be improved to provide additional left turn lanes for vehicles exiting and entering the Interstate. Additional turn lanes would also be provided at the intersection of Bourne Avenue to provide improved operation. This interchange improvement would not preclude the possible future construction of an interchange on I-95 at Pine Barren Road.

2.8.2 Need and Purpose

US 80 is an important east-west arterial serving traffic traveling between Effingham County, the City of Bloomingdale, and the City of Pooler west of I-95 and the port area, the Savannah International Airport, as well as downtown Savannah east of I-95. Along with I-16, US 80 serves as a primary east-west corridor in central Chatham County. The I-95 at US 80 interchange serves this significant east-west traffic movements as well as traffic traveling to and from I-95. The purpose of these interchange improvements is to accommodate growing traffic volumes, provide improved east-west mobility, and maintain acceptable interchange operation.

Improvement of the US 80 interchange was examined by operational analysis and simulation using Synchro software and TransModeler software, respectively. This analysis considered various roadway and intersection configurations to provide acceptable operations in 2030 with the minimum improvements. Results of the operations analysis indicated the need for three through lanes westbound and eastbound to accommodate heavy traffic volumes along US 80 at the interchange. In order to accommodate heavy northbound left turns in 2030, a triple left turn for the northbound off ramp is needed. The analysis indicates that the intersections will operate at acceptable LOS during in 2030 with the recommended improvements. Simulation of the interchange confirmed acceptable operation of the interchange with no queuing problems observed.

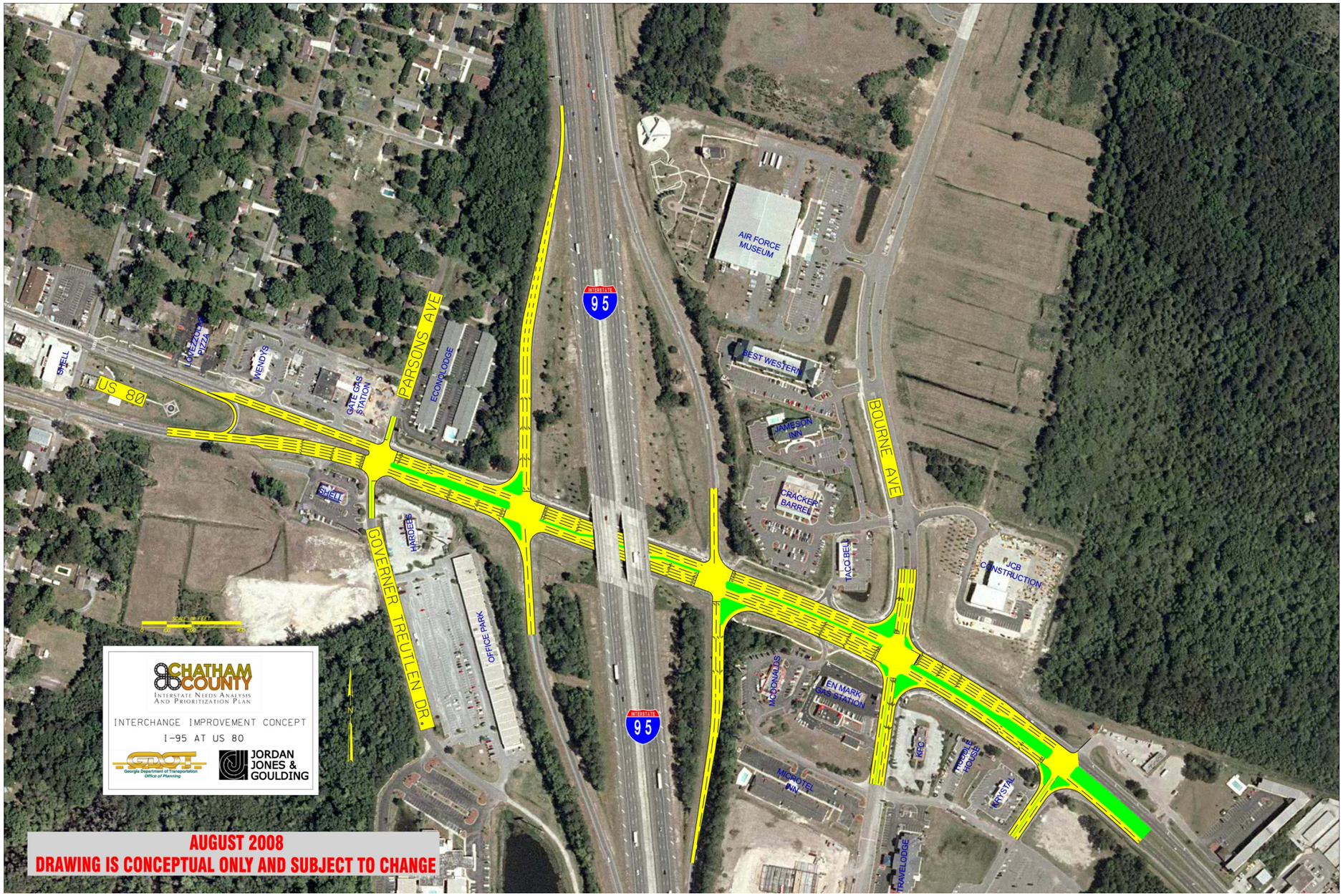
2.8.3 Logical Termini

The western terminus is located where the proposed widening ties into the existing one way pair section of US 80. Since additional widening is not needed beyond this point, this serves as logical terminus. The eastern terminus is located just east of the Bourne Avenue intersection. At this point, the proposed widening would tie into the existing four-lane section. As with the western terminus, additional widening to the east is not needed, thus this location provides a logical terminus.

2.8.4 Cost Estimates

Construction Cost:	$30,000,000
Right of Way	$2,500,000
Subtotal	**$32,500,000**
Contingency @ 20%	$6,500,000
Preliminary Engineering	$3,000,000
Total Cost Estimate	**$42,000,000**

Figure 2.9: Potential Project Recommendation #8: I-95 at US 80 Interchange Improvements



2.9 *Potential Project Recommendation #9: Widening of I-16 from I-95 to I-516*

2.9.1 Project Description

This project would add an additional lane in each direction on I-16 between I-95 and I-516. As shown in **Figure 2.10** on page 2-21, this widening would occur on the inside of the eastbound and westbound lanes. The one overpass on this section of I-16 was constructed with enough width to accommodate an additional lane in each direction to the inside of the existing lanes, thus the future widening would occur to the inside. Since all widening would occur to the inside, a barrier wall would be required to safely separate northbound and southbound traffic.

2.9.2 Need and Purpose

The purpose of this project is to provide additional capacity along I-16 in order to accommodate increasing traffic volumes, improve safety, and facilitate reliable truck movement within Chatham County. This segment of the I-16 corridor is projected to have a high volume-to-capacity ratio in 2030, resulting in deficient freeway LOS. Truck traffic, though important, does not comprise as significant a portion of the traffic volume as it does along I-95. However, truck traffic volumes will exceed the statewide average along I-16 near I-516. In addition, crash rates throughout I-16 east of I-95 are greater than the statewide average. Therefore, the primary purpose of this project is to provide additional capacity to meet future travel demand on I-16 west of I-95 as well as improve safety on the segment of Interstate.

Widening of I-16 from I-95 to I-516 from 4 to 6 lanes will provide the additional capacity needed to serve future traffic volumes. Without this widening, this segment of I-16 is expected to operate at LOS E in 2030. With the additional lanes, a volume-to-capacity ratio of 0.69 to 0.73 can be achieved in 2030 with the recommended freeway widening (see freeway LOS table below). This corresponds to LOS C & D conditions along I-16 east of I-95.

Level of Service	Volume/Capacity Ratio
LOS A,B,C	< 0.70
LOS D	0.70 – 0.84
LOS E	0.85 – 0.99
LOS F	1.0 +

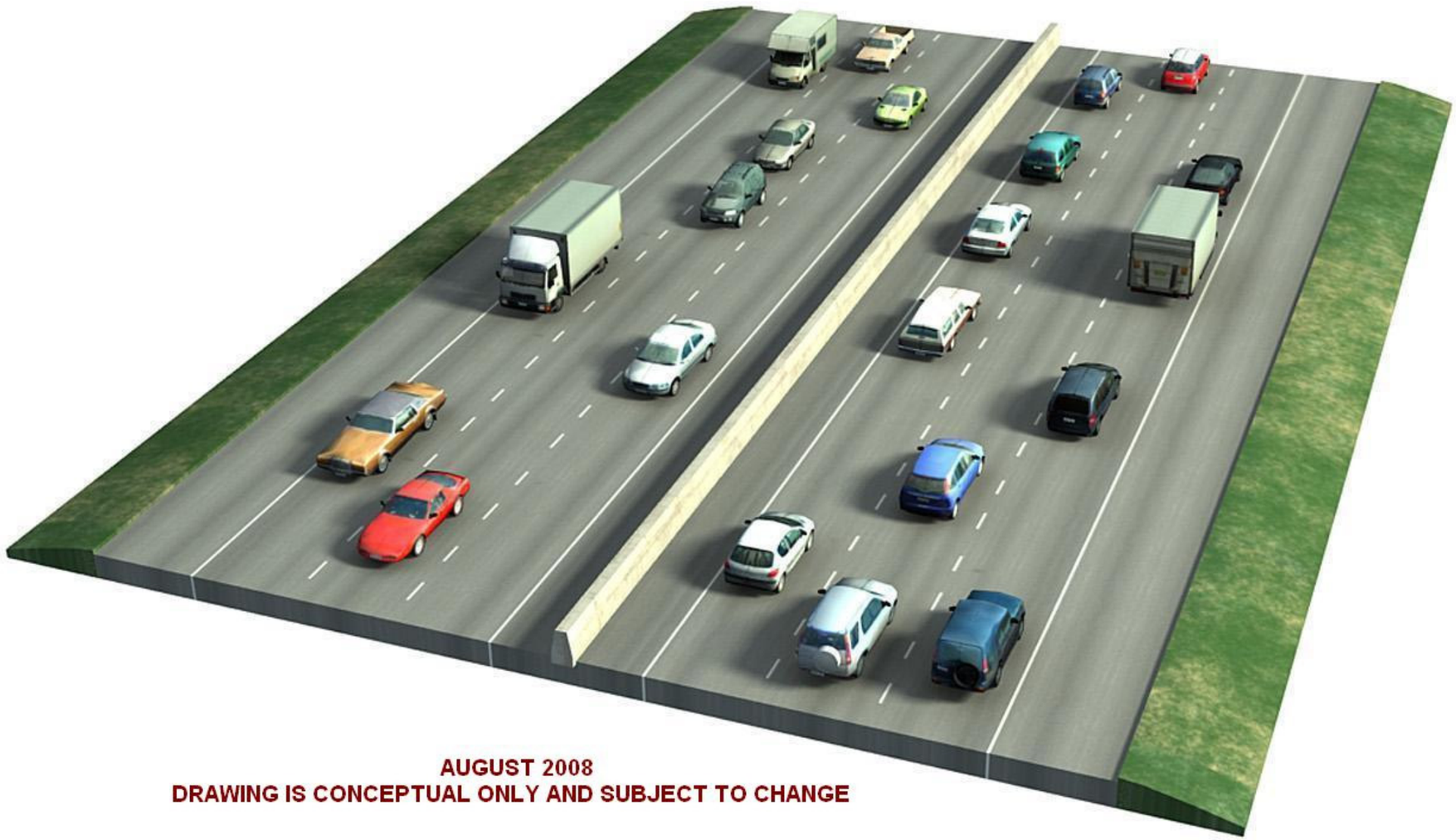
2.9.3 Logical Termini

The western terminus for this project is located at I-95. Since a large percentage of I-16 traffic travels to and from I-95, this location was chosen as the western logical terminus. I-516 was chosen as the eastern logical terminus since a large portion of traffic on I-16 travels to and from I-516. Additionally the widening of I-16 to the east of I-516 is not necessary to accommodate 2030 traffic demands.

2.9.4 Cost Estimates

Construction Cost:	$60,000,000
Right of Way	N/A
Subtotal	**$60,000,000**
Contingency @ 20%	$12,000,000
Preliminary Engineering	$6,000,000
Total Cost Estimate	**$78,000,000**

Figure 2.10: Potential Project Recommendation #9: Widening of I-16 from I-95 to I-516



2.10 *Potential Project Recommendation #10: I-16 at I-516 Interchange Improvements (PI No. 0006256)*

2.10.1 Project Description

As shown in **Figure 2.11** on page 2-23, the proposed project would realign I-16 on a new location through the center median between the existing eastbound and westbound lanes. By realigning mainline I-16 onto a separate facility the existing I-16 eastbound and westbound roadways would serve as interchange ramps, rather than mainline Interstate. The existing lanes would access the new mainline lanes via entrance and exit ramp junctions.

2.10.2 Need and Purpose

The existing I-16 at I-516 interchange has several geometric deficiencies. The main geometric deficiency is the two left-hand entrance ramps that I-516 traffic must utilize to access I-16. While left-hand ramps were common during initial construction of the Interstate system, experience has revealed these ramps to be unsafe and undesirable. With slower traffic entering the mainline Interstate on the left, the potential for conflict between the fast moving, left lane mainline traffic and the slow moving left-hand entrance ramp traffic is exacerbated. The purpose of this project is to remove this conflict.

In recent years, the Federal Highway Administration has made efforts to remove left-hand entrances when possible. In most interchange configurations, left-hand entrances can only be removed with expensive directional flyovers or significant interchange reconfigurations. For heavily traveled Interstate-to-Interstate junctions, these expenditures are often warranted. The I-16 at I-516 interchange does not represent the primary Interstate junction in Chatham County. Crash rates within the interchange vicinity are below the Chatham County average. For these reasons, a multi-level, directional interchange was not considered for this location. Instead, a simplified solution was developed that separated mainline Interstate traffic from left-hand entering ramp traffic.

The proposed project would realign mainline I-16 onto a new location between the existing eastbound and westbound lanes. This would allow the existing I-16 lanes to operate as interchange ramps serving only the traffic entering and exiting I-16. While not eliminating the left-hand entrances, this project would eliminate the conflict between the high speed mainline traffic and the left-hand entering ramp traffic.

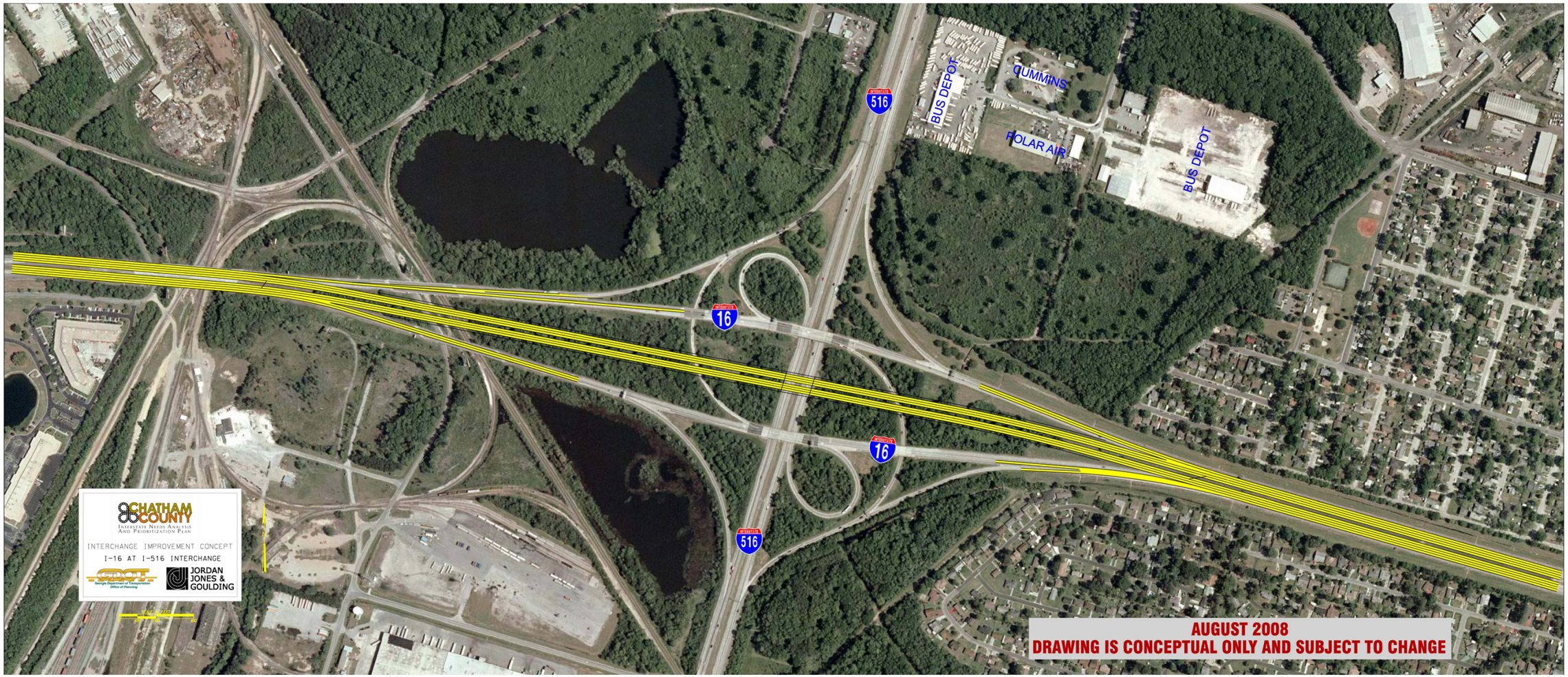
2.10.3 Logical Termini

The eastern and western project termini are the locations where the interchange improvements tie back into the existing mainline I-16. To the east and west of I-516, the existing I-16 mainline sections would tie into the relocated mainline as ramp junctions, the new I-16 mainline would then align with existing 1-16. Since these two points are the locations beyond which interchange improvements are not necessary, these locations provide logical termini.

2.10.4 Cost Estimates

Construction Cost:	$36,000,000
Right of Way	$500,000
Subtotal	**$36,500,000**
Contingency @ 20%	$7,250,000
Preliminary Engineering	$3,500,000
Total Cost Estimate	**$47,250,000**

Figure 2.11: Potential Project Recommendation #10: I-16 at I-516 Interchange Improvements



2.11 *Potential Project Recommendation #11: Widening of I-16 from Old River Road in Effingham County to I-95*

2.11.1 Project Description

This project would add an additional lane in each direction to I-16 between Old River Road in Effingham County to the west and the I-95 interchange to the east. As shown in **Figure 2.12** on page 2-25, this widening would generally occur on the inside of the eastbound and westbound lanes. This segment of I-16 has a wide enough existing median to accommodate an additional lane in each direction without the construction of a barrier wall to separate eastbound and westbound traffic. This widening project would require the widening or construction of new bridges over major water crossings.

2.11.2 Need and Purpose

The purpose of this project is to provide additional capacity along I-16 in order to accommodate anticipated traffic volumes by 2030. The needs assessment examined a variety of performance measures to determine the need for improvements along I-16. This segment of the I-16 corridor is projected to have a high volume-to-capacity ratio in 2030, resulting in deficient freeway LOS. Truck traffic, though important, does not comprise as significant a portion of the traffic volume as it does along I-95. In addition, crash rates on this segment of I-16 are less than the statewide average. Therefore, the primary purpose of this project is to provide additional capacity to meet future travel demand on I-16 west of I-95.

Widening of I-16 from Old River Road in Effingham County to I-95 from 4 to 6 lanes will provide the additional capacity needed to serve future traffic volumes. The Chatham Interstates Plan Travel Demand Model indicates a volume-to-capacity ratio below 0.60 can be achieved in 2030 with the recommended freeway widening (see freeway LOS table below). This corresponds to LOS C conditions along I-16 west of I-95. The I-16 corridor volume is projected to reduce significantly west of Chatham County. The Old River Road interchange in Effingham County will serve significant traffic volumes in the future for access to a planned industrial center in the vicinity of the interchange. Therefore, it is recommended to continue widening of I-16 to this interchange.

Level of Service	Volume/Capacity Ratio
LOS A,B,C	< 0.70
LOS D	0.70 – 0.84
LOS E	0.85 – 0.99
LOS F	1.0 +

2.11.3 Logical Termini

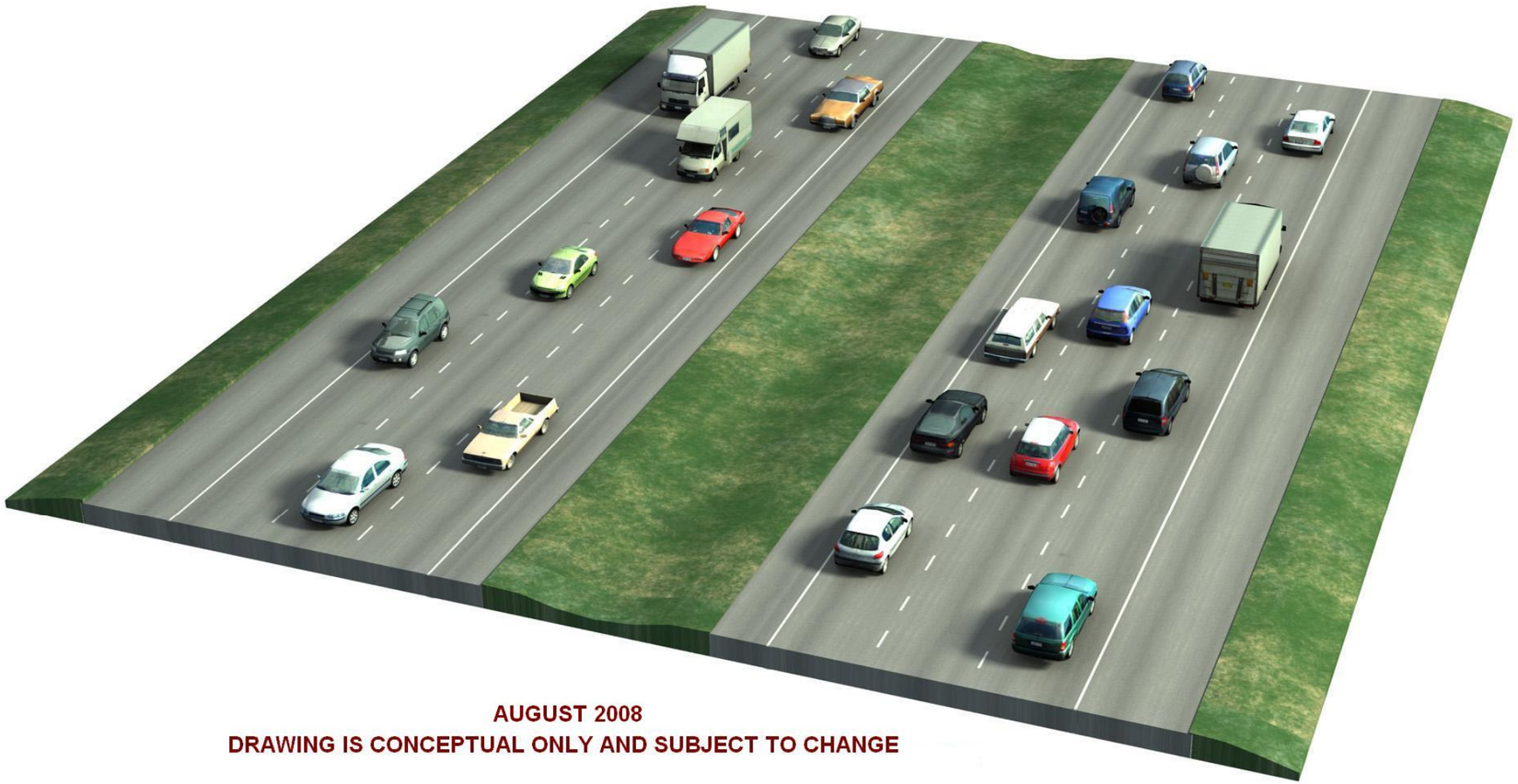
The Chatham County travel demand model results and GDOT count station volumes were examined in order to determine the logical western termini point for the I-16 widening to six lanes west of I-95. Model results indicate that, for 2030, the need for widening I-16 to six lanes extends to Old River Road. Past this location, a significant drop in traffic occurs due to the magnitude of development planned for the area surrounding the interchange. An examination of GDOT volumes factored by a growth rate of 2.35 percent per year to 2030, showed that a four-lane facility would operate at LOS C or better west of the Old River Road interchange. Since no additional widening of I-16 would be necessary beyond the Old River Road interchange in Effingham County, this point was chosen as the western logical terminus.

The eastern terminus for this project is located at I-95. Since a large percentage of I-16 traffic travels to and from I-95, this location was chosen as the eastern logical terminus.

2.11.4 Cost Estimates

Construction Cost:	$46,000,000
Right of Way	N/A
Subtotal	**$58,500,000**
Contingency @ 20%	$11,750,000
Preliminary Engineering	$2,250,000
Total Cost Estimate	**$72,500,000**

Figure 2.12: Potential Project Recommendation #11: Widening of I-16 from Old River Rd to I-95



2.12 *Potential Project Recommendation #12: Widening of I-516 from Veterans Parkway to Mildred Street*

2.12.1 Project Description

As shown in **Figure 2.13** on page 2-27, the proposed project would add an additional eastbound Interstate lane to I-516 from approximately Veterans Parkway to Mildred Street. At this point the three eastbound lanes would tie into the existing three eastbound lanes of Derenne Avenue.

2.12.2 Need and Purpose

The purpose of this project is to provide additional eastbound capacity and storage to I-516 as it approaches the signalized intersection of Derenne Avenue and Montgomery Street. Under current conditions, this I-516 eastbound approach experiences significant queuing in the PM peak period. This queuing originates at the Montgomery Street intersection, which is unable to accommodate freeway volumes. This queuing was observed to extend over a mile to the west on I-516. This queuing contributes to high crash rates in this area.

Although this additional Interstate lane will not address the capacity constraint at the Montgomery Street intersection, it will provide additional capacity and storage and will likely result in shorter queuing. CUTS and the City of Savannah are currently designing and implementing intersection operations improvements along DeRenne Avenue and Mildred Street which should address some of the queuing that is currently present.

2.12.3 Logical Termini

The western terminus for this project is located just east of the I-516 interchange with Veterans Parkway. Since queuing along I-516 is not expected to continue past Veterans Parkway, widening beyond this point is not necessary. The eastern terminus is located where the project widening would tie into the three eastbound lanes at Mildred Street. This intersection provides a logical terminus since the Interstate ends and ties into the surface street network at this point.

2.12.4 Cost Estimates

Construction Cost:	$9,000,000
Right of Way	$1,750,000
Subtotal	**$10,750,000**
Contingency @ 20%	$2,250,000
Preliminary Engineering	$1,000,000
Total Cost Estimate	**$24,000,000**

Figure 2.13: Potential Project Recommendation #12: Widening of I-516 from Veterans Pkwy to Mildred St