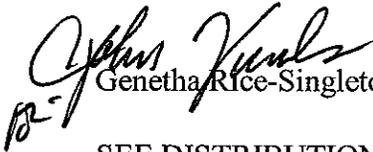


**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE** P. I. No. 0006041, Cherokee County **OFFICE** Preconstruction  
CSSTP-0006-00(041)  
I-575 @ Sixes Road Interchange Reconstruction  
**DATE** August 11, 2008

**FROM**  Genetha Rice-Singleton, Assistant Director of Preconstruction

**TO** SEE DISTRIBUTION

**SUBJECT APPROVED PROJECT CONCEPT REPORT**

Attached for your files is the approval for subject project.

Attachment

DISTRIBUTION:

- Brian Summers
- Glenn Bowman
- Ken Thompson
- Michael Henry
- Keith Golden
- Brent Story
- Paul Liles
- Kent Sager
- Dewayne Comer
- BOARD MEMBER

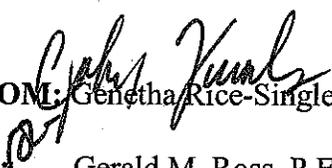
**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENTAL CORRESPONDENCE**

**FILE:** P.I. No. 0006041, Cherokee County  
CSSTP-0006-00(041)  
I-575 @ Sixes Road Interchange Reconstruction

**OFFICE:** Preconstruction

**DATE:** January 30, 2008

  
**FROM:** Genetha Rice-Singleton, Assistant Director of Preconstruction

**TO:** Gerald M. Ross, P.E., Chief Engineer

**SUBJECT: PROJECT CONCEPT REPORT**

This project is the reconstruction of the Sixes Road interchange over I-575. The purpose of this project is to provide necessary improvements to accommodate traffic growth on the interchange as well as widen Sixes Road within the study area to match the current four lane projects to the east and west of the interchange. With projects underway to widen Sixes Road to a four lane roadway immediately to the east and west of I-575, the project is needed to avoid a bottleneck condition along this roadway. In addition, Sixes Road provides interstate access to this rapidly developing area of Cherokee County. Base year and design year traffic on Sixes Road is 28,100 VPD (2012) and 52,450 VPD (2032), and the proposed speed design is 45 MPH.

The proposed project will modify the existing diamond interchange with Sixes Road. The existing bridge will be left in place; it will have two through lanes heading east and a single left turn lane onto I-575 northbound. A new bridge over I-575 will be constructed north of the existing bridge, allowing for two through lanes heading west, and a double left turn lane onto I-575 southbound. The new bridge will accommodate the future I-575 HOV construction. Sixes Road will be widened to the proposed bridge, and will tie to the current construction projects on either side of the interchange. The I-575 NB exit ramp will be widened to a two lane exit, with a total of four lanes at its terminal with Sixes Road to allow for dual left and right turn lanes. The SB entrance ramp will have three lanes transitioning down to two lanes. The NB entrance ramp will have two lanes transitioning down to one lane and the SB exit ramp will be a single lane ramp with three lanes at the terminal to allow for turn lanes for each movement. Traffic on Sixes Road will be maintained during construction; however, ramp construction will require a temporary detour exit ramp to facilitate leveling/overlay activities.

Environmental concerns include requiring a COE 404 permit; a Categorical Exclusion will be prepared; a public hearing will be held; Time saving procedures is not appropriate.

P.I. No. 0006041, Cherokee County  
Page 2  
January 30, 2008

The estimated costs for this project are:

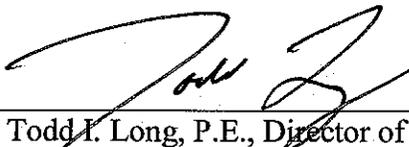
	<u>PROPOSED</u>	<u>APPROVED</u>	<u>FUNDING</u>	<u>PROG DATE</u>
Construction (includes E&C)	\$10,447,000	\$14,126,000	L050	LR
Right-of-way	\$2,901,000	\$2,901,000	L050	2009
Utilities (reimbursable)	-0-			

\*Notification letter sent to Cherokee County 1-8-07/ PFA needed.

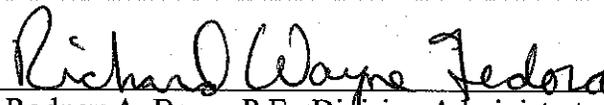
I recommend this project concept be approved.

GRS: JDQ  
Attachment

CONCUR

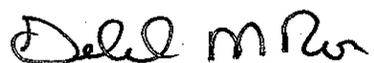
  
\_\_\_\_\_  
Todd I. Long, P.E., Director of Preconstruction

APPROVED

  
\_\_\_\_\_  
Rodney A. Barry, P.E., Division Administrator FHWA

for

APPROVED

  
\_\_\_\_\_  
Gerald M. Ross, P.E., Chief Engineer



**Federal Highway Administration  
Georgia Division**

**Route Slip**

Date: 7/22/08

Routing Symbol: **GDOT**  
Johnny Quarles

	Per Your Request		For Your Signature
	For Your Information		Comment
XX	Per Our Conversation	XX	Take Appropriate Action
	Note and Return		Prepare Reply for Signature of
	Discuss With Me		
	For your Approval		

**Remarks:**

Project: CSSTP-0006-00(041), Cherokee County  
I-575 @ Sixes Road Interchange Reconstruction  
Concept Report FHWA Approval

As mentioned in our phone conversation today (7/22/08) the following amendments were made to the concept report received on June 16, 2008 for the above noted project.

The following documents were submitted via email on 7/22/08 and the noted actions were taken:

Utilities Cost Estimate:	Inserted into the concept report
Northwest Corridor Project Communication Record:	Inserted into the concept report
Need and Purpose:	Inserted into the concept report
Typical Section No. 1 and No. 2	Not inserted into the concept report. The FHWA comment referred to the sidewalk being a maximum 2% cross slope to meet ADA standards. Instead the revised typical shows 2% on the roadway. From the layout provided in the concept report, it appears that superelevation (SE) will be required on the alignment. Therefore, the initial typical section will remain in the document. However, the maximum cross slope for the sidewalks should be noted on the typical sections included in the preliminary plans.

If you have any questions please contact me, with the telephone number listed below.

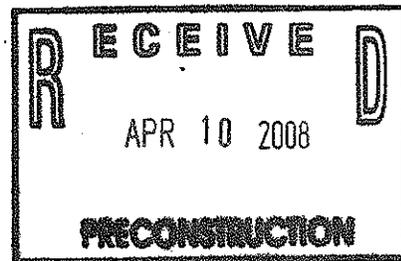
Thank you,  
Christy

From: Telephone: (404) 562-3638

Routing Symbol: **Christy Poon-Atkins - FHWA**



Federal Highway Administration  
Georgia Division



Route Slip

Date: 4/10/08

Routing Symbol: **GDOT**  
Johnny Quarles  
Attention: Tim Matthews

	Per Your Request		For Your Signature
	For Your Information		Comment
	Per Our Conversation	XX	Take Appropriate Action
	Note and Return		Prepare Reply for Signature of
	Discuss With Me		
	For your Approval		

Remarks:

Project: CSSTP-0006-00(041), Cherokee County  
I-575 @ Sixes Road Interchange Reconstruction  
Concept Report attached for revision

From: Telephone: (404) 562-3638

Routing Symbol: Christy Poon-Atkins - FHWA



# Route Slip

Distribution:

U.S. DEPARTMENT OF  
TRANSPORTATION

To: Name	Date	Org/Rtg Symbol
Ms. Gena Abraham, Commissioner	4/10/08	GDOT

- Per Your Request
- For Your Action
- Per Our Conversation
- Note and Return
- Discuss With Me
- For Your Approval
- For Your Information

Remarks:

From:	Telephone	Org/Rtg Symbol.
Christy Poon-Atkins	404) 562-3638	HTM-GA

Form DOT F1320.9 (Rev 5-81) Supersedes All Previous Editions

\*U.S. Government Printing Office: 1991 -525-056/40223



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Georgia Division**

61 Forsyth St. SW  
Suite 17T100  
Atlanta, GA 30303

April 10, 2008

In Reply To:  
HPD-GA

Ms. Gena Abraham, Commissioner,  
Department of Transportation  
No. 2 Capitol Street  
Atlanta, Georgia 30334

Dear Ms. Abraham:

We have reviewed the Concept Report submitted with your letter dated January 30, 2008, detailing aspects of the proposed I-575 @ Sixes Road Interchange Reconstruction project CSSTP-0006-00(041), Cherokee County

FHWA offers the following comments:

**Concept Report Comments:**

1. In paragraph 2 of the attached Need and Purpose, Land Use and Development Trends section, the discussion of land use seems to contain some error. It is stated that the west side of the interchange is mainly residential and expected to remain residential. Also it states that the west side of the interchange has been identified for commercial and industrial development. If the discussion of the west side of the interchange is in error, please ensure that the section is revised to reflect the appropriate information.
2. The concept report does not identify neither the interchange located to the north of the project nor the interchange located to the south of the project. Please be sure to include reference to the interchanges that are adjacent to the existing interchange of I-575 & Sixes Road. The report should note the impact, if any, that the interchange project will inflict on the functioning of the existing elements of the I-575 system within the project area. Please ensure to discuss the impact the interchanges adjacent to the Sixes Road interchange project has on the proposed project in the concept report.
3. As mentioned in the Interdepartmental Correspondence in front of the Concept Report, it will be necessary to acquire a COE 404 Permit for the project. However, there is no mention of the preparation of a Practical Alternatives Report (PAR) that justifies the selection of the preferred alternative, for the I-575 & Sixes Road Interchange, that Georgia Department of Transportation (GDOT) would like to carry forward to the design

**MOVING THE  
AMERICAN  
ECONOMY**



process. Please ensure that the PAR for the proposed project is completed and referenced in the concept report, as documented in the GDOT Plan Development Process (PDP).

4. In the section on Traffic control during construction, on page 5, it is noted that the ramps will possibly require detours. Please discuss which ramps will require a detour and explain how the detoured ramps will continue to facilitate traffic on and/or off the Interstate during construction.
5. In the Environmental Concerns section, on page 5, the concept report notes three items without any discussion. The report should serve as an informative document. Please provide a summarized discussion of the environmental issues on the project. The concept report notes the following concerns: *Possible 404 permit, 4(f) at Mill / Church, and UST's*.
6. Since there will be some utility involvement, please note the type of utility and the owner of the utility.
7. The discussion of Alternate B is very brief. It is noted that Alternate B addresses the traffic capacity needs but there is no justification of the additional costs. Please address the following:
  - a) How does Alternate B differ in the way it addresses the traffic capacity needs in comparison to the Preferred Alternate?
  - b) How does the interchange function with the implementation of Alternate B?
    - i Does the loop ramp improve the efficiency of traffic flow?
  - c) How does the cost of implementing Alternate B compare to the cost of implementing the Preferred Alternate?
  - d) What are the safety benefits of each alternative?
  - e) Please discuss the overall operations and provide more discussion of Alternative B. Further analysis of this alternative could possibly reveal an opportunity to improve operations by incorporating free flow movement of traffic with a loop ramp.
8. In review of the project cost estimate, is it accurate to reflect no cost for utilities. Please verify.
9. The typical section of Sixes Road currently shows proposed sidewalk along both sides. Please ensure that the ADA maximum 2% for the cross slope is noted.
10. Although it was previously determined that an IMR will not be required for the project, from the brief traffic analysis included in the report, it appears that an operational

analysis is required. Please ensure that an electronic copy of the operational analysis performed on the interchange is submitted to FHWA.

- a) In review of the Level of Service Analysis section of the report, it appears that the operations of some sections of the interstate decline or do not improve with the implementation of the project. Therefore, revising the lane configuration on the ramps and at the intersections should be considered and evaluated as possible options to improve the level of service. Furthermore, optimizing the signals to improve operations should also be considered in effort to improve level of service.
    - i. Please explain the impact to the interstate and discuss some possible mitigation, if reasonable modifications do not improve the current level of services.
  - b) Please provide information on the impact the I-75 / I-575 major project has on this proposed project.
    - i. Also, how does the major project relate to the I-575 @ Sixes Road project in terms of concept and schedule?
11. In the discussion of table 2, it is stated that 'As with the freeway segment results, the ramp LOS is heavily influenced by the high traffic volumes on the freeway. Since the scope of this project does not address interstate capacity, additional interchange capacity would have no effect on ramp LOS results.' Please provide some explanation for this statement or make the appropriate revisions.
- a) The statement noted above seems to be contradictory of the Need and Purpose for the project. The stated Need and Purpose is to provide necessary improvements to accommodate traffic growth on the interchange as well as widen Sixes Road.
12. Considering that there is a significant difference in the ramp queue lengths for the No-Build condition compared to the Build condition, please provide some reference to the length of the existing and proposed interchange ramps.
13. Has a signal analysis been performed to ensure that the interchange signals are functioning to allow an optimal level of service? If not, please ensure that a signal analysis is performed to verify if improving the signal timing will improve the operations of the interchange.
14. In table 5: Sixes Road and I-575 Interchange Area Accident Analysis, the numbers for accident difference and injury difference are noted with an 'x'. Please explain the significance of the 'x'.

- b) In reference to I-575 in table 5, please revise the SR number as 417 instead of 0417.

Your cooperation in addressing the above comments will be highly appreciated. After the comments noted above have been addressed, please re-submit the concept report for our review and approval. If you have any questions or would like to meet to discuss any of the comments presented, please contact Christy Poon-Atkins at 404-562-3638.

Sincerely,

A handwritten signature in cursive script, appearing to read "Rodney Barry".

Rodney Barry, P.E.  
Division Administrator

**FHWA Comment # 1:**

In paragraph 2 of the attached Need and Purpose, Land Use and Development Trends section, the discussion of land use seems to contain some error. It is stated that the west side of the interchange is mainly residential and expected to remain residential. Also it states that the west side of the interchange has been identified for commercial and industrial development. If the discussion of the west side of the interchange is in error, please ensure that the section is revised to reflect the appropriate information.

**GDOT Response:**

This is a typo in the concept need and purpose. The location of the commercial development is located on the EAST side of the interchange.

**FHWA Redirect:**

No further FHWA Comment.

**FHWA Comment # 2:**

The concept report does not identify neither the interchange located to the north of the project nor the interchange located to the south of the project. Please be sure to include reference to the interchanges that are adjacent to the existing interchange of I-575 & Sixes Road. The report should note the impact, if any, that the interchange project will inflict on the functioning of the existing elements of the I-575 system within the project area. Please ensure to discuss the impact the interchanges adjacent to the Sixes Road interchange project has on the proposed project in the concept report.

**GDOT Response:**

There are two interchanges located on the North and South side of Sixes Road interchange. The interchange located to the South is West Mill Street/Towne Lake Pkwy. The interchange located to the North is Canton Road. The configuration of the interchange of Sixes Road is not changing. Therefore, there will be no major impacts to the adjacent facilities. Due to the excessive queuing of traffic on I-575 from the south-eastern off ramp, we are proposing to add additional storage via widening and lengthening the ramp.

**FHWA Redirect:**

On an existing interchange, impacts to the interstate from the interchange will be related to the design traffic utilizing the interchange to access the interstate not the configuration of the interchange. The impact onto the interstate produced by the projected traffic is what should be discussed in the concept report. As briefly noted in the GDOT Response, one impact is from the south-eastern off ramp traffic onto the interstate. Other impacts such as previously mentioned should be discussed as well as the measures taken to resolve or, if unable to completely resolve, lessen the impact to the interstate. [Traffic growth/Interstate impacts/Resolution... is also discussed in GDOT Responses 11 and 12.]

**GDOT Response:**

A brief description of the impacts to I-575 have been included with the concept report. (see page 8)

**FHWA Comment #3:**

As mentioned in the Interdepartmental Correspondence in front of the Concept Report, it will be necessary to acquire a COE 404 Permit for the project. However, there is no mention of the preparation of a Practical Alternative Report (PAR) that justifies the selection of the preferred alternative, for the I-575 & Sixes Road

Interchange, that Georgia Department of Transportation (GDOT) would like to carry forward to the design process. Please ensure that the PAR for the proposed project is completed and referenced in the concept report, as documented in the GDOT Plan Development Process (PDP).

**GDOT Response:**

Our original concept shifted the ramps on to new location which could have resulted in a major stream impact and subsequently an Individual 404 permit. After the VE study, we decided to keep the ramps on existing location which allowed us to avoid the major impact to the stream. Therefore, at most a Nationwide 404 permit would be required and would not require a practical alternatives report (PAR).

**FHWA Redirect:**

Since information contained in the Concept Report that was previously reviewed by FHWA does not represent the current project proposal but an initial proposal to shift the ramps, please ensure that all information provided in the revised concept report is consistent with the current project proposal.

**GDOT Response:**

The Concept Report reflects the current project proposal with the incorporation of the VE study recommendations. (see page 7).

**FHWA Comment #4:**

In the section on Traffic control during construction, on page 5, it is noted that the ramps will possibly require detours. Please discuss which ramps will require a detour and explain how the detoured ramps will continue to facilitate traffic on and/or off the Interstate during construction.

**GDOT Response:**

The ramps will not be detoured for staging purposes. Temporary paving will be utilized to minimize disruption to traffic flow at the ramp termini. After the VE study, we decided to construct asphalt ramps which will significantly reduce staging impacts.

**FHWA Redirect:**

Please provide discussion in the Concept Report.

**GDOT Response:**

Information regarding the staging requirements of the chosen alternate has been added to the Concept Report. (See page 5)

**FHWA Comment #5:**

In the Environmental Concerns section, on page 5, the concept report notes three items without any discussion. The report should serve as an informative document. Please provide a summarized discussion of the environmental issues on the project. The concept report notes the following concerns: *Possible 404 permit, 4(f) at Mill / Church; and UST's.*

**GDOT Response:**

During the concept development, initial screening discovered two sites that would warrant 4(f) coordination. The sites were the Old Mill on Sixes Road located on the West side of I-575 outside of the project limits and a Church/cemetery located on the East side of the project at North Rope Mill road. Sixes Road will be shifted to

the north on the east side of the interstate to avoid the cemetery. The project will stay completely within existing RW and tie to existing sixes road 4-lane section with no impacts to the Mill or property. After finalizing the concept, it was clear that we would not impact the two sites. Due to the required limited access for interstate facilities, there are possible UST impacts for a gas station located on the North-West quadrant of the interchange. Detailed investigation will come during the preliminary design process.

**FHWA Redirect:**

Please provide discussion in the Concept Report.

**GDOT Response:**

Environmental concerns in the area have been detailed within the concept report.

**FHWA Comment # 6:**

Since there will be some utility involvement, please note the type of utility and the owner of the utility.

**GDOT Response:**

District utilities mentioned in the concept team meetings that no major utilities on the project that would drive the concept. There is a new pump station located on the north-east quadrant that will be avoided. Utilities located in the project area are Atlanta Gas Light, Bellsouth Telecommunication, Comcast, Cherokee County Water, and Georgia Power. During preliminary design, District Utilities will conduct a second review for utility coordination.

**FHWA Redirect:**

Even if there are no utilities that will drive the project, if there will be some utility involvement on this project, please be sure to note the utility information in the Concept Report.

**GDOT Response:**

The utility owner information has been added to the section on coordination. (see page 6)

**FHWA Comment #7:**

The discussion of Alternate B is very brief. It is noted that Alternate B addresses the traffic capacity needs but there is no justification of the additional costs. Please address the following:

- A. How does Alternate B differ in the way it addresses the traffic capacity needs in comparison to the Preferred Alternate?

**GDOT Response:**

Alternate B differs from the preferred Alternate due to the addition of a loop ramp from Sixes Road westbound to I-575 southbound. The purpose of this loop would be to accommodate this WB to SB traffic in a free flow loop rather than a left turn at the I-575 SB intersection. Alternate B was eventually discounted since the loop was not necessary to maintain acceptable LOS at the I-575 SB Ramp @ Sixes Road intersection in the design year. Also, the implementation of the loop would likely impact property associated with Roberts Mill/Vaughn's Mill, an identified historic resource that is potentially eligible for inclusion in the National Register of Historic Places.

**FHWA Redirect:**

In the GDOT Response it is noted that a loop ramp would likely impact a historic property, this suggests that the alternative was not drawn/design to know if there would be an impact to the

historic property or not.

**GDOT Response:**

The word likely has been removed. A design of this alternate was performed and it was shown to adversely affect the Mill property.

- B.** How does the interchange function with the implementation of Alternate B?  
i. Does the loop ramp improve the efficiency of traffic flow?

**GDOT Response:**

The I-575 SB Ramp @ Sixes Road intersection would be the only intersection that would benefit from the implementation of Alternate B. This is because the WB to SB loop ramp would replace WB left turn phase at this intersection. By replacing this phase, the intersection would operate as a two phase signal. Although the LOS would improve slightly at the intersection under Alternate B, this intersection is not expected to experience heavy delay in the Preferred Alternate. The WB to SB left turn is projected to carry 800 vehicles in the AM peak hour. These 800 vehicles are opposed by only 545 vehicles in the EB direction. The traffic at this interchange is predominately travelling to and from I-575. Since Sixes Road ends several thousand feet east of the interchange, this road does not serve as a major east-west arterial in Cherokee County. Instead this road serves mainly commuter traffic wishing to access the Interstate.

A ramp junction analysis reveals that the Alternate B loop ramp would operate at LOS D, however the downstream entrance ramp would continue to operate at LOS F, as in the Preferred Alternate. As discussed later, this ramp fails due to the high volumes on the Interstate, and can only achieve acceptable LOS with the addition of lanes to the I-575.

With relatively low east-west traffic demand, the slight improvement in intersection operation at this one intersection as a result of the loop ramp does not warrant the selection of Alternate B. Furthermore, the addition of a second entrance ramp to I-575 is not justified since this loop ramp would not relieve the LOS F conditions at the downstream ramp.

**FHWA Redirect:**

Please provide some discussion in the Concept Report.

**GDOT Response:**

Information has been added to the Concept Report. (See page 7)

- C.** How does the cost of implementing Alternate B compare to the cost of implementing the Preferred Alternate?

**GDOT Response:**

The cost of alternate B will be greater due to the additional cost of RW and materials to build the new loop as well as shift the existing diamond ramps out.

**FHWA Redirect:**

This GDOT Response suggests that the benefit of alternate B does not outweigh the cost of the alternative

**GDOT Response:**

Because the benefit of alternate B does not outweigh the cost of the loop ramp, Alternate B was eliminated. (See page 7)

**D. What are the safety benefits of each alternative?**

**GDOT Response:**

The majority of local access interchanges within the metro-Atlanta are configured as diamond interchanges, thus the addition of a loop ramp to the Sixes Road interchange would likely impede driver expectancy. Westbound traffic that is accustomed to turning left to get on a southbound ramp would now have to turn right onto a loop ramp. This would be likely to cause confusion among drivers unfamiliar with the area. Free flow loop ramps also provide a safety problem to pedestrians. Since these loops have no signal control, safe pedestrian movement across the interchange on the north side would be hindered. Loop ramps are often essential to efficient interchange operation, and are thus unavoidable at times. However, with the Preferred Alternative able to adequately accommodate traffic demand, the addition of the loop included in Alternate B is not justified.

**FHWA Redirect:**

Proper signing should always be utilized to ensure drivers are properly directed; therefore impedance on driver expectancy because of an interchange with a loop ramp versus an interchange without a loop ramp should not be a basis for eliminating the alternative. Furthermore, loop ramps have been incorporated in other areas.

**GDOT Response:**

Driver expectancy/safety was not the basis for eliminating this alternative. While other interchanges may have incorporated loops, in this case the additional construction cost of the loop combined with the additional necessary right of way are not justified because the preferred alternative is able to adequately accommodate traffic demand. (See page 7)

**E. Please discuss the overall operations and provide more discussion of Alternative B. Further analysis of this alternative could possibly reveal an opportunity to improve operations by incorporating free flow movement of traffic with a loop ramp.**

**GDOT Response:**

As discussed previously, the addition of a westbound to southbound loop ramp, as proposed in Alternate B, would likely allow for slightly improved traffic flow. This improved traffic flow would come at the expense of pedestrian safety on the interchange. This loop ramp would also likely cause an adverse effect and require right of way from a potentially eligible historic resource in the NW quadrant of the interchange. A right-of-way taking from an eligible resource would require a Section 4(f) analysis to be completed as part of the NEPA process. A Section 4(f) taking is only justified if there is no 'feasible and prudent' alternative. In the case of this interchange, the Preferred Alternate is feasible and prudent since it would accommodate traffic demand and avoid any impact to this potential 4(f) resource. For these reasons, a diamond interchange was chosen as the Preferred Alternate at this stage.

**FHWA Redirect:**

Please provide explicit information in the Concept Report.

**GDOT Response:**

A description of the reasoning for eliminating Alternate B has been provided in that section (See page 7)

**FHWA Comment #8:**

In review of the project cost estimate, is it accurate to reflect no cost for utilities. Please verify.

**GDOT Response:**

After district utility review, it was determined that non-reimbursable costs of \$312,500.00 for Cherokee County Water, Atlanta Gas Light and Bellsouth as well as reimbursable costs of \$210,000.00 for Georgia Power was within the limits of this project. Therefore, the total utility cost is \$522,500.00. (see attached Utility estimate from District)

**FHWA Redirect:**

The District utility estimate was not attached. (To be submitted with the Concept Report)

**GDOT Response:**

An estimate will be included with the revised Concept Report.

**FHWA Comment # 9:**

The typical section of Sixes Road currently shows proposed sidewalk along both sides. Please ensure that the ADA maximum 2% for the cross slope is noted.

**GDOT Response:**

The cross slope for all sidewalks on the project will be 2% maximum.

**FHWA Redirect:**

Please provide information in the Concept Report.

**GDOT Response:**

The typical section has been modified in the Concept Report.

**FHWA Comment #10:**

Although it was previously determined that an IMR will not required for the project, from the brief traffic analysis included in the report, it appears that an operational analysis is required. Please ensure that an electronic copy of the operational analysis performed on the interchange is submitted to FHWA.

**GDOT Response:**

Electronic copies of the analysis are attached.

**FHWA Redirect:**

The attachment only contained output data files. Please provide the Simulation (\*.trf) files to view the operations in Corsim.

**GDOT Response:**

The traffic files will be attached with this correspondence.

- A. In review of the Level of Service Analysis section of the Report, it appears that the operations of some sections of the interstate decline or do not improve with the implementation of the project. Therefore,

revising the lane configuration on the ramps and at the intersections should be considered and evaluated as possible options to improve the level of service. Furthermore, optimizing the signals to improve operations should also be considered in effort to improve level of service.

i. Please explain the impact to the interstate and discuss some possible mitigation, if reasonable modifications do not improve the current level of service.

**GDOT Response:**

Optimizing the signals will be completed by the signal design engineer during the design phase.

B. Please provide information on the impact the I-75 / I-575 major project has on this proposed project.

i. Also, how does the major project relate to the I-575 @ Sixes Road project in terms of concept and schedule?

**GDOT Response:**

A meeting was held on December 3, 2007 with GDOT Road Design and the Major project Team with John Hancock (GDOT), Ron Morris and Steve Curtis for coordination of the two projects (see attached meeting minutes).

**FHWA Comment #11:**

In the discussion of table 2, it is stated that 'As with the freeway segment results, the ramp LOS is heavily influenced by the high traffic volumes on the freeway. Since the scope of this project does not address interstate capacity, additional interchange capacity would have no effect on ramp LOS results.' Please provide some explanation for this statement or make the appropriate revisions.

A. The statement noted above seems to be contradictory of the Need and Purpose for the project. The stated Need and Purpose is to provide necessary improvements to accommodate traffic growth on the interchange as well as widen Sixes Road.

**GDOT Response:**

The purpose of this project is to provide necessary improvements to accommodate traffic growth on this interchange as well as widen Sixes Road within the study area to match the current four-lane projects to the east and west of the interchange. The proposed project is expected to have acceptable intersection level of service as well as minimal queuing on the exit ramps. The level of service for several of the merge/diverge areas is unacceptable due to the high projected volumes on I-575. Without additional lanes on I-575, there are no ramp configurations that would operate at LOS D or better. The HCM analysis methodology for ramp junctions takes into account the volumes on the ramp as well as the freeway, thus, if freeway volumes are nearing capacity, the operation of the ramp will fail regardless of ramp volume or configuration. This is the case for several of the Sixes Road ramps. Additional lanes on I-575 would be the only solution to achieving acceptable LOS on these ramps. Additional north south capacity on I-575 through Cobb and Cherokee Counties is beyond the scope of this local access interchange improvement. A project to eight lane I-575 would have significant financial and air quality implications to the entire region.

**FHWA Redirect:**

Please provide discussion in the Concept Report. Also, unless all possible configurations have been evaluated, stating that 'there are no ramp configurations that would operate at LOS D or better' may not be an accurate statement. Furthermore the use of auxiliary lanes to convey traffic from the cross road significantly past the area on the interstate with low LOS could possibly improve operations. Please include explicit information in

the Concept Report.

**GDOT Response:**

Information has been provided in the concept report. (See page 3 of the Traffic & Safety Report)

**FHWA Comment #12:**

Considering that there is a significant difference in the ramp queue lengths for the No-Build condition compared to the Build condition, please provide some reference to the length of the existing and proposed interchange ramps.

**GDOT Response:**

The north-bound off ramp will be extended to accommodate the traffic queuing on I-575. The existing ramps are 1600 ft long with queuing 320 ft for PM peak on the interstate. The proposed condition will lengthen the ramp at this location to 1740 ft long to accommodate additional storage. The no-build condition will result in >1600 feet of Queue length for PM peak period. (See table 3 in the traffic section of the concept report.)

**FHWA Redirect:**

Please provide discussion in the Concept Report.

**GDOT Response:**

Information has been added to the Concept Report. (see page 8)

**FHWA Comment #13:**

Has a signal analysis been performed to ensure that the interchange signals are functioning to allow an optimal level of service? If not, please ensure that a signal analysis is performed to verify if improving the signal timing will improve the operations of the interchange.

**GDOT Response:**

The operation of the traffic signals on the I-575 at Sixes Road interchange was optimized as part of the traffic analysis. This included the adjacent intersections. As in most of the metro-Atlanta region, the signals on Sixes Road in the vicinity of the interchange will be part of a coordinated signal system. As part of a system, all signals will operate with the same cycle lengths by time period and be coordinated together to optimize traffic flow. Most metro area signal systems utilize a 140 to 160 second cycle length, sometimes higher. For this analysis, a 140 second and 150 second cycle length was utilized for the AM and PM peak periods respectively. The signal timing was adjusted to achieve progression and reduce congestion where necessary.

**FHWA Redirect:**

This GDOT Response does not coincide with FHWA Comment 10, which notes that the signal optimization will be completed by the signal design engineer during the design phase. Please ensure consistency.

**GDOT Response:**

No inconsistency exists. Two signal optimizations will be conducted. A design analysis will be performed during the design phase of the project and after installation the timing will be further optimized in the field.

**FHWA Comment #14:**

In table 5: Sixes Road and I-575 Interchange Area Accident Analysis, the numbers for accident difference and injury difference are noted with an 'x'. Please explain the significance of the 'x'.

**GDOT Response:**

The 'x' represents a multiplier for the statewide average accident and injury rate to attain the accident and injury rate for the project. i.e.  $618/554 = 1.11$  and  $252/135 = 1.9$ . The difference in % is as follows:

Sixes Rd		Accident	Injury
2003	-	+10.4%	+46.4%
2004	-	+30.0%	+70.9%
2005	-	+8.06%	-3.23%

I-575		Accident	Injury
2003	-	+1.96%	+0.00%
2004	-	-17.3%	+8.33%
2005	-	-17.0%	-16.7%

**FHWA Redirect:**

All relevant information should be included in the Concept Report so it can be read and understood by anyone.

**GDOT Response:**

The table has been reformatted to remove the multiplier. The values have been listed as percentages of change.

- A. In reference to I-575 in table 5, please revise the SR number as 417 instead of 0417.

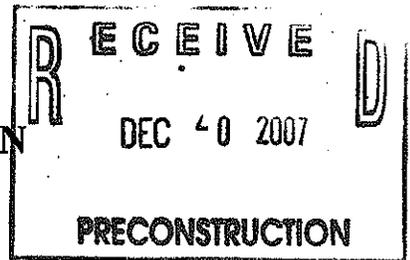
**GDOT Response:**

The SR number should be 417 instead of 0417.

**FHWA Redirect:**

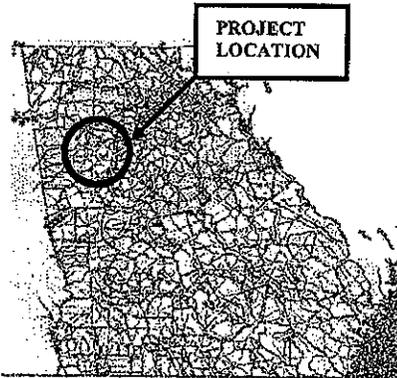
No further FHWA Comment.

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF ROAD DESIGN  
PROJECT CONCEPT REPORT**



Project Number: CSSTP-0006-00(041)  
County: Cherokee  
P. I. Number: 0006041

Federal Route Number: I-575  
State Route Number: SR 5

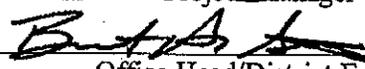


Recommendation for approval:

DATE 12/5/2007

  
Project Manager

DATE 12/6/2007

  
Office Head/District Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and the State Transportation Improvement Program (STIP)

DATE 12/18/07

  
State Transportation Planning Administrator

DATE \_\_\_\_\_

State Transportation Financial Management Administrator

DATE \_\_\_\_\_

State Environmental/Location Engineer

DATE \_\_\_\_\_

State Traffic Engineer

DATE \_\_\_\_\_

District Engineer

DATE \_\_\_\_\_

Project Review Engineer

DATE \_\_\_\_\_

Bridge Design Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF ROAD DESIGN  
PROJECT CONCEPT REPORT**

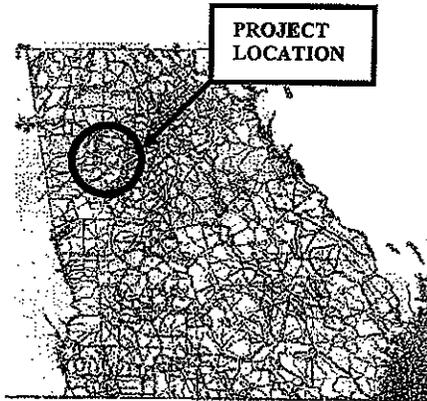
Project Number: CSSTP-0006-00(041)

County: Cherokee

P. I. Number: 0006041

Federal Route Number: I-575

State Route Number: SR 5

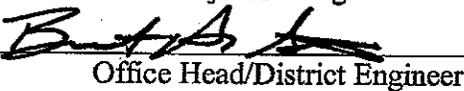


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DATE 12/5/2007

  
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DATE 12/6/2007

  
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DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Financial Management Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Environmental/Location Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Traffic Engineer

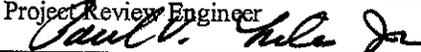
DATE \_\_\_\_\_

\_\_\_\_\_  
District Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

DATE 1/6/07

  
Paul V. Hula Jr.

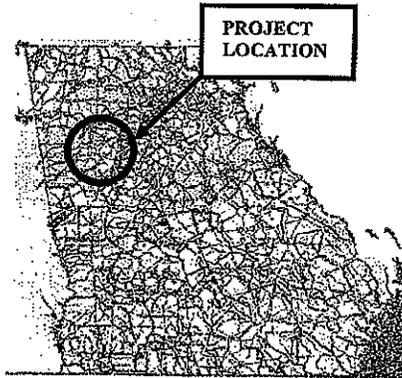
\_\_\_\_\_  
Bridge Design Engineer

Page 1

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF ROAD DESIGN  
PROJECT CONCEPT REPORT**

Project Number: CSSTP-0006-00(041)  
County: Cherokee  
P. I. Number: 0006041

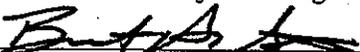
Federal Route Number: I-575  
State Route Number: SR 5



Recommendation for approval:

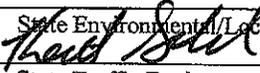
DATE 12/5/2007

DATE 12/6/2007

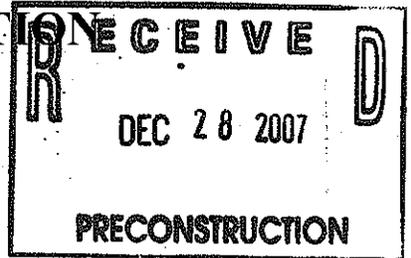
  
 \_\_\_\_\_  
 Project Manager  
  
 \_\_\_\_\_  
 Office Head/District Engineer

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DATE \_\_\_\_\_  
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\_\_\_\_\_  
State Transportation Planning Administrator  
\_\_\_\_\_  
State Transportation Financial Management Administrator  
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State Environmental/Location Engineer  
  
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District Engineer  
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Project Review Engineer  
\_\_\_\_\_  
Bridge Design Engineer  
Page 1

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA



INTERDEPARTMENT CORRESPONDENCE

**FILE:** P.I. No. 0006041 **OFFICE:** Environment/Location  
**DATE:** December 27, 2007  
**FROM:** *GB/SBK* Glenn Bowman, P.E., State Environmental/Location Engineer  
**TO:** Genetha-Rice Singleton, Assistant Director of Preconstruction  
**SUBJECT:** **PROJECT CONCEPT REPORT**  
CSSTP-0006-00(041) / Cherokee County  
Sixes Road @ I-575

The above subject Concept Report has been reviewed and appears satisfactory subject to the following comment:

- 1) Concept Report needs to mention that PIOH was held and a meeting summary should be attached to the report.

If you have any questions, please contact Glenn Bowman at (404)699-4401.

GB:lc

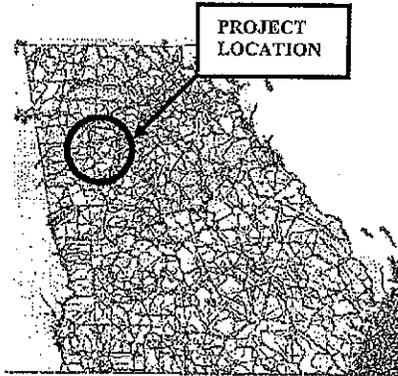
Attachment

cc: Brian Summers  
Jamie Simpson  
Angela Alexander  
Keith Golden  
Brent Story  
Paul Liles  
Kent Sager

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF ROAD DESIGN  
PROJECT CONCEPT REPORT**

Project Number: CSSTP-0006-00(041)  
County: Cherokee  
P. I. Number: 0006041

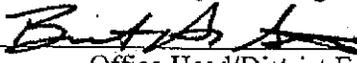
Federal Route Number: I-575  
State Route Number: SR 5



Recommendation for approval:

DATE 12/5/2007

DATE 12/6/2007

  
 \_\_\_\_\_  
 Project Manager  
  
 \_\_\_\_\_  
 Office Head/District Engineer

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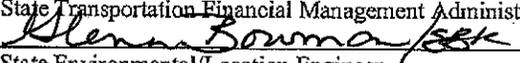
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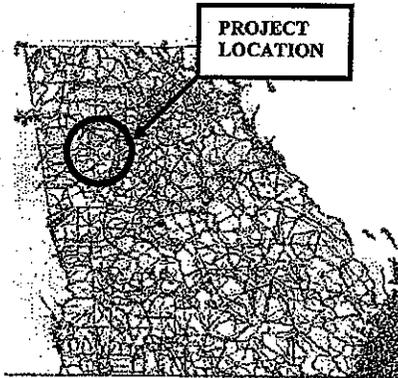
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\_\_\_\_\_ State Transportation Planning Administrator  
 \_\_\_\_\_ State Transportation Financial Management Administrator  
  
 \_\_\_\_\_ State Environmental/Location Engineer  
 \_\_\_\_\_ State Traffic Engineer  
 \_\_\_\_\_ District Engineer  
 \_\_\_\_\_ Project Review Engineer  
 \_\_\_\_\_ Bridge Design Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF ROAD DESIGN  
PROJECT CONCEPT REPORT**

Project Number: CSSTP-0006-00(041)  
County: Cherokee  
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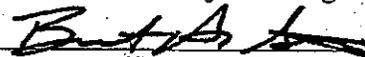


Recommendation for approval:

DATE 12/5/2007

  
\_\_\_\_\_  
Project Manager

DATE 12/6/2007

  
\_\_\_\_\_  
Office Head/District Engineer

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DATE \_\_\_\_\_

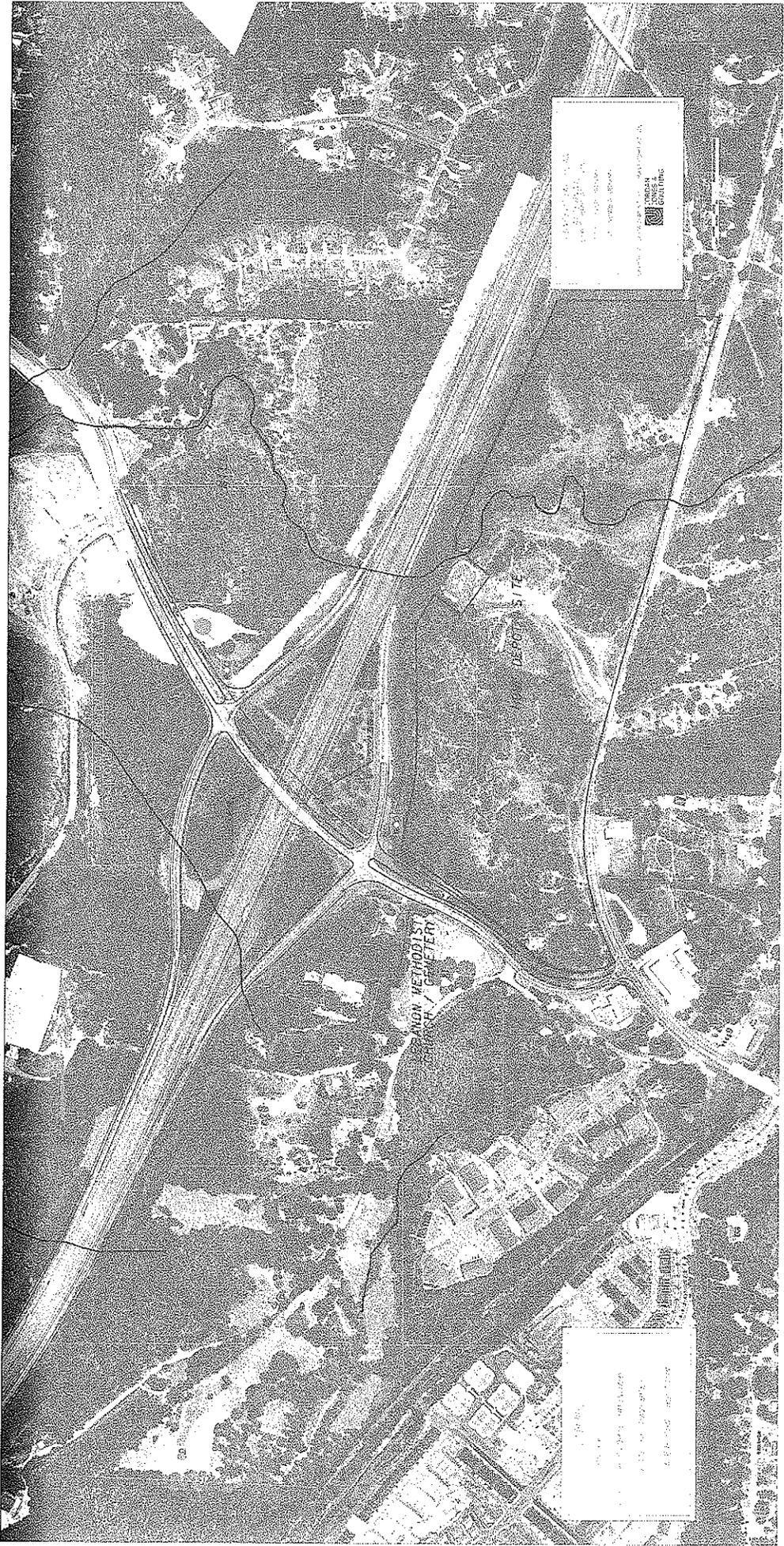
\_\_\_\_\_  
District Engineer

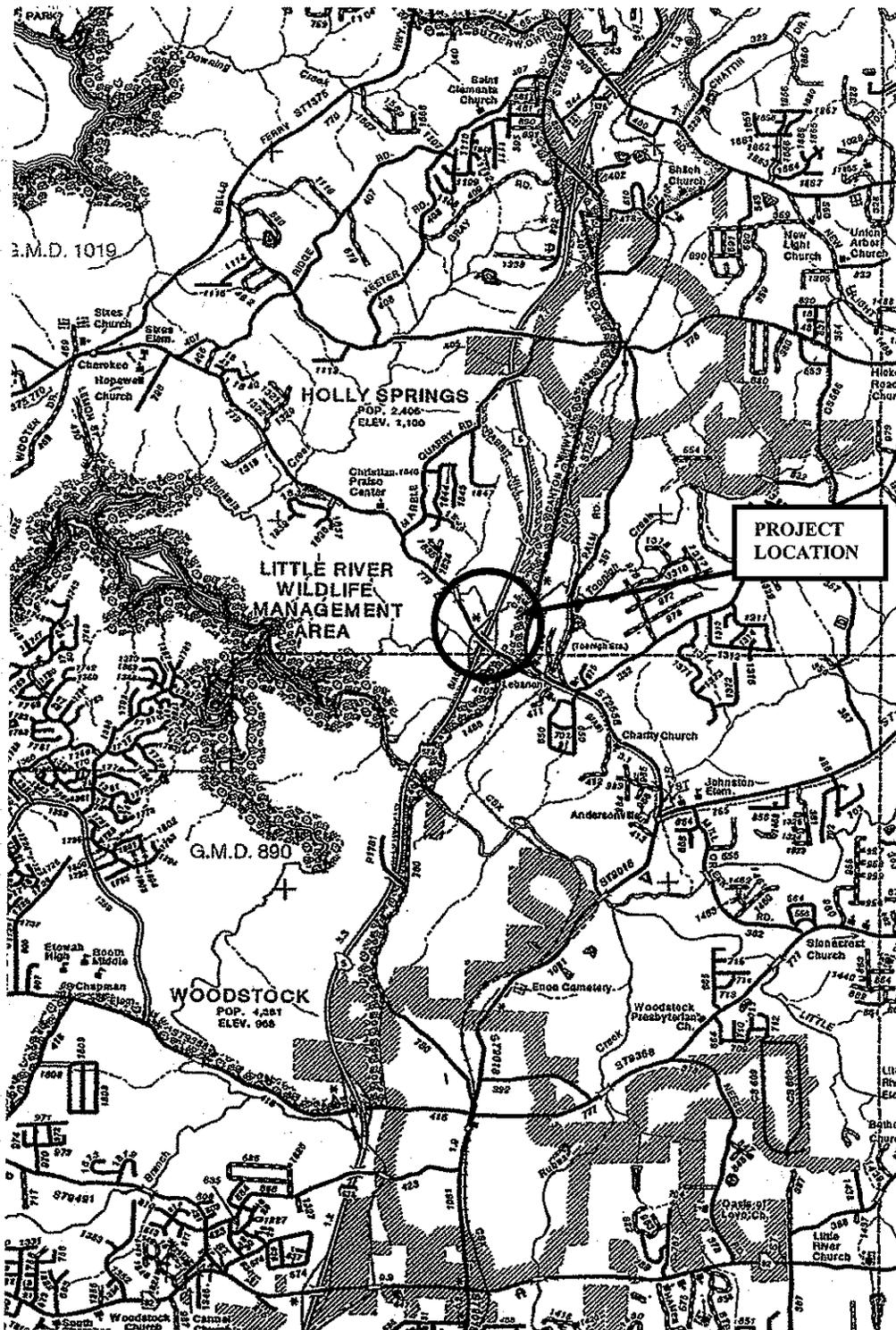
DATE \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
Bridge Design Engineer





**Need and Purpose:** The purpose of this project is to as widen Sixes Road within the study area to match the current four-lane projects to the east and west of the interchange as well as provide necessary improvements to accommodate traffic growth on this interchange as well. With projects underway to widen Sixes Road to a four-lane roadway immediately to the east and west of I-575, this project is needed in order to avoid a bottleneck condition along this roadway, which provides interstate access to this rapidly developing area of Cherokee County. With this interchange already experiencing congested conditions, the operational and capacity improvements provided by this project are essential to accommodate traffic growth and maintain safe conditions at this location. (See attached Need and Purpose)

**Description of the proposed project:**

The project is located in Cherokee County, between the Cities of Woodstock and Holly Springs, near M.P. 11 on I-575. The proposed project will modify the existing diamond interchange with Sixes Road. The existing bridge will be left in place; it will have two through lanes heading east and a single left turn lane onto I-575 NB. A proposed bridge over I-575 will be constructed north of the existing bridge, allowing for two through lanes heading west, and a double left turn onto I-575 SB. The two ramps on the south side of the interchange will be widened with asphalt pavement; the I-575 NB exit ramp will be widened to a two-lane exit, with a total of four lanes at its terminal with Sixes Road to allow for dual left and right turn lanes. The SB entrance ramp will have three lanes transitioning down to two lanes; this allows for a right thru lane from Sixes Road eastbound and the dual lefts from Sixes Road westbound. The two ramps on the north side of the interchange will be widened; the NB entrance ramp will have two lanes transitioning down to one lane, and the SB exit ramp will be a single lane ramp with three lanes at the terminal to allow for turn lanes for each turning movement.

Sixes Road will be widened to the north to tie to the proposed bridge, and will tie to the current construction projects on either side of the interchange. Both these projects will widen the existing 2-lane facility to a 4-lane urban section with a 20' raised median. The proposed project will taper from the full section across the bridges back to the 20' raised median section within the project limits.

**Is the project located in a Non-attainment area?**  Yes  No.

**PDP Classification:** Major  Minor

**Federal Oversight:** Full Oversight (X), Exempt( ), State Funded( ), or Other ( )

**Functional Classification:** *Sixes Road -Urban Major Collector; I-575 – Interstate Principal Arterial*

**U. S. Route Number(s):** I-575

**State Route Number(s):** SR 5

**Traffic (AADT):**

I-575:

Current Year: (2012): 88,200

Design Year: (2032): 146,900

**Sixes Road:**

Current Year: (2012): 28,100 Design Year: (2032): 52,450

**Existing design features:**

- Typical Section: Sixes Road (currently under construction) 4-12' lanes, 20' raised median, 16' urban shoulders, 5' sidewalks. Between Ramps: 3-12' lanes across existing bridge. I-575: 4'-12' lanes, 64' depressed median, 14' outside shoulder (10' paved), 10' inside shoulder (4' paved). Ramps: 16'-24' lanes, 8' outside shoulder (6' paved), 6' inside shoulder (4' paved) shoulders.
- Posted speed 45mph(sixes) / 70mph (I-575)
- Minimum radius for curve: Sixes: 350' (at Canton Hwy), I-575: 2864', Ramps: 1145'.
- Maximum super-elevation rate for curve: 8%(I-575) / 6%(Sixes and Ramps)
- Maximum grade: 4% (I-575) / 5.3% (Sixes) / 5.86% (Ramps)
- Width of right of way: 400'(I-575); 100' (Ramps), 80 to 115' varies (Sixes)
- Major structures: 057-0064-0: 52'-4" wide X 320' long
- Major interchanges or intersections along the project: I-575 at Towne Lake Parkway, Sixes Road, and Holly Springs Parkway, and Sixes Road at Old SR 5.

**Proposed Design Features:**

**Sixes Road:**

- Proposed typical section(s): *2 through lanes in each direction, raised median varies from 20' to 68' to accommodate up to three turning lanes at the interchange, curb and gutter with 16' urban shoulder with 5' sidewalks on each side.*
- Proposed Design Speed Mainline: 45 mph
- Proposed Maximum grade Mainline: 5.5% Maximum grade allowable: 6%.
- Proposed Maximum grade Side Street: N/A Maximum grade allowable: N/A
- Proposed Maximum grade driveway 12%.
- Proposed Minimum radius for curve 2290'. Minimum radius allowable 711'
- Proposed Maximum super-elevation rate for curve: 4%
- Right of way
  - Width: Varies – will be located at the outside of urban shoulder.
  - Easements: Temporary ( ), Permanent (X), Utility (X), Other ( ).
  - Type of access control: Full ( ), Partial (X), By Permit ( ), Other ( ).
  - Number of parcels:10 (for entire project). Number of displacements:
    - Business: 1
- Structures:
  - Bridges: Proposed 4-span prestressed I-beam girder with 340' length, 64'-5" width.

**Typical Ramps:**

- Proposed typical section(s): Lane widths vary from 16'-48', 12' outside shoulder (10' paved), 6' inside shoulder (4' paved).
- Proposed Design Speed : 55 mph at I-575, 45 mph otherwise
- Proposed Maximum grade: 6%                      Maximum grade allowable: 7%.
- Proposed Maximum grade Side Street : N/A
- Proposed Maximum grade driveway: N/A
- Proposed Minimum radius for curve 1150'                      Maximum radius allowable: 1150'
- Proposed Maximum super-elevation rate for curve: 6%
- Right of way:
  - Width: Stays inside existing right of way.
  - Easements: Temporary ( ), Permanent (X), Utility ( ), Other ( ).
  - Type of access control: Full (X), Partial ( ), By Permit ( ), Other ( ).
- Structures:
  - N/A

**I-575:**

- Proposed typical section(s): Existing section will stay as-is, except for where new ramps are tying in.
- Major intersections and interchanges: Sixes Road at I-575.
- Traffic control during construction:
  - (Pre VE Study Alternate): Possible detours of ramps to facilitate leveling/overlay activities.
  - (Post VE Study Alternate): Temporary paving will be utilized to minimize disruption to traffic flow at the ramp termini. Asphalt ramps will be constructed which should greatly reduce staging impacts.

- Design Exceptions to controlling criteria anticipated:

	<u>UNDETERMINED</u>	<u>YES</u>	<u>NO</u>
HORIZONTAL ALIGNMENT:	( )	( )	(X)
ROADWAY WIDTH:	( )	( )	(X)
SHOULDER WIDTH:	( )	( )	(X)
VERTICAL GRADES:	( )	( )	(X)
CROSS SLOPES:	( )	( )	(X)
STOPPING SIGHT DISTANCE:	( )	( )	(X)
SUPERELEVATION RATES:	( )	( )	(X)
HORIZONTAL CLEARANCE:	( )	( )	(X)
SPEED DESIGN:	( )	( )	(X)
VERTICAL CLEARANCE:	( )	( )	(X)
BRIDGE WIDTH:	( )	( )	(X)
BRIDGE STRUCTURAL CAPACITY:	( )	( )	(X)

- Design Variances; 11' turn lanes for westbound lefts onto I-575 southbound
- Environmental resources on or near this project:
  - *Roberts Mill /Vaughn's Mill (Historic resource eligible for inclusion on the national register)*

- *Lebanon Methodist Church / Cemetery*
- *UST's.*
- Level of environmental analysis:
  - Categorical exclusion (X),
  - Environmental Assessment/Finding of No Significant Impact (FONSI) ( ), or
  - Environmental Impact Statement (EIS) ( ).
- Utility involvements: *Undetermined.*

**Project responsibilities:**

- Design, GDOT Office of Road Design
- Right of Way Acquisition, GDOT
- Relocation of Utilities, Individual Utility Companies
- Letting to contract, GDOT
- Supervision of construction, GDOT
- Providing material pits, N/A
- Providing detours, GDOT

**Coordination**

- Cherokee County, City of Woodstock, City of Holly Springs, other GDOT projects in the area.
- Initial Concept Team meeting held on January 19, 2007. Minutes attached.
- Other projects in the area:
  - STP-00MS(348), PI No. 662620: Old SR 5 from Holly Springs to Woodstock City Limits.
  - STP-0002-00(637), PI No. 0002637: Sixes Road from I-575 to Old SR 5.
  - MSL-0003-00(434), PI No. 0003434: I-575 from Sixes Road to SR 20 – HOV Lanes
  - CSNHS-0006-00(043), PI No. 0006043: I-575 at Rope Mill Connector (Woodstock Interchange)
  - CSNHS-0008-00(256), PI No. 0008256: I-75/I-575 HOV/BRT and Truck Lanes
  - Old SR 5 from Sixes Road north to Rabbit Hill Road, widening from 2 lanes to 4 lanes, to be let to construction fall 2007.
- Utilities
  - Atlanta Gas Light
  - Bellsouth Telecommunications
  - Comcast
  - Cherokee County Water
  - Georgia Power

**Scheduling – Responsible Parties' Estimate**

- Time to complete the environmental process: 18 Months.
- Time to complete preliminary construction plans: 12 Months.
- Time to complete right of way plans: 4 Months.
- Time to complete the Section 404 Permit: 6 Months.

- Time to complete final construction plans: 12 Months.
- Time to complete to purchase right of way: 24 Months.

**Other alternates considered:**

Alternate A: Loop ramp from NB I-575 to WB Sixes Road. Proposed location of Home Depot site and existing location of pump station will conflict with ramp.

Alternate B: Loop ramp from EB Sixes Road to SB I-575.

Alternate B includes the addition of a loop ramp from Sixes Road westbound to I-575 southbound. The purpose of this loop would be to accommodate the WB to SB traffic in a free flow loop rather than a left turn at the I-575 SB intersection. Alternate B was eventually discounted since the loop was not necessary to maintain acceptable LOS at the I-575 SB Ramp at Sixes Road intersection in the design year. Also, the implementation of the loop would impact property associated with Roberts Mill/Vaughn's Mill, an identified historic resource that is potentially eligible for inclusion in the National Register of Historic Places.

With relatively low east-west traffic demand, the slight improvement in intersection operation at this one intersection as a result of the loop ramp does not warrant the selection of Alternate B. Furthermore, the addition of a second entrance ramp to I-575 is not justified since this loop ramp would not relieve the LOS F conditions at the downstream ramp.

Since the preferred alternate addresses traffic capacity needs as well as this alternate, no justification for the additional costs is found.

Preferred alternate (prior to VE study): Sixes Road will be adjusted to the north of the existing bridge over I-575 to allow for stage construction of a new 7-lane bridge which will replace the existing bridge. The proposed bridge over I-575 will allow for 2 through lanes in each direction, a double left turn onto I-575 SB, a left turn lane onto I-575 NB, a raised median and sidewalks on each side. The ramps on all quadrants will be reconstructed with concrete pavement; the I-575 NB exit ramp will be widened to a 2-lane exit, with a total of 4 lanes at its terminal with Sixes Road to allow for dual left and right turn lanes. The SB exit ramp will be a single lane ramp with 2 lanes at the terminal to allow for turn lanes for each turning movement. The NB entrance will have one lane, and the SB entrance ramp will have 2 lanes to allow for the dual lefts from Sixes Road and will continue to its terminal with I-575. This alternate was revised during the value engineering process in order to minimize construction costs.

Preferred alternate (VE study incorporation): In a cost saving measure, the existing bridge over I-575 at Sixes Road will remain in place. A second bridge to the north will be constructed to allow for two through movements as well as two left turn lanes onto I-575 southbound. The existing bridge will carry two through movement lanes as well as a single left turn lane onto I-575 northbound. Because the existing bridge will remain in place, only minor reconstruction of the ramp should be necessary improving the cost of construction as well as right of way requirements.

Project Concept Report page 8  
Project Number: CSSTP-0006-00(041)  
P.I. Number: 006041  
County: Cherokee

The north-bound off ramp will be extended to accommodate the traffic queuing on I-575. The existing ramps are 1600 ft long with queuing 320 ft for PM peak on the interstate. The proposed condition will lengthen the ramp at this location to 1740 ft long to accommodate additional storage removing it from the through lanes of I-575 resulting in a positive impact to the freeway.

**Comments:**

**Attachments:**

1. Cost estimate
2. Initial and Final CTM minutes
3. Typical Sections
4. Need and Purpose
5. Traffic and Safety Report
6. Value Engineering Implementation Report

### Estimate Report for file "Sixes Road Concept"

Section ROADWAY ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	75000.00	TRAFFIC CONTROL -	75000.00
153-1300	1	EA	76829.70	FIELD ENGINEERS OFFICE TP 3	76829.70
201-1500	1	LS	321706.00	CLEARING & GRUBBING -	321706.00
205-0001	84100	CY	10.00	UNCLASS EXCAV	841000.00
206-0002	55700	CY	10.00	BORROW EXCAV, INCL MATL	557000.00
310-1101	20000	TN	20.00	GR AGGR BASE CRS, INCL MATL	400000.00
400-3604	1010	TN	97.28	ASPH CONC 12.5 MM SMA, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL & H LIME	98252.80
400-3624	1010	TN	87.81	ASPH CONC 12.5 MM PEM, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL & H LIME	88688.10
402-1812	3000	TN	80.00	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	240000.00
402-3121	14000	TN	80.00	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	1120000.00
402-3130	2800	TN	80.00	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	224000.00
402-3190	4000	TN	80.00	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	320000.00
413-1000	5300	GL	2.00	BITUM TACK COAT	10600.00
433-1000	400	SY	126.26	REINF CONC APPROACH SLAB	50504.00
441-0104	2950	SY	33.67	CONC SIDEWALK, 4 IN	99326.50
441-0301	6	EA	2172.56	CONC SPILLWAY, TP 1	13035.36
441-0748	400	SY	56.52	CONCRETE MEDIAN, 6 IN	22608.00
441-6222	4500	LF	19.04	CONC CURB & GUTTER, 8 IN X 30 IN, TP 2	85680.00
441-6740	4000	LF	15.02	CONC CURB & GUTTER, 8 IN X 30 IN, TP 7	60080.00
500-0100	400	SY	4.19	GROOVED CONCRETE	1676.00
500-9999	200	CY	177.43	CLASS B CONC, BASE OR PVMT WIDENING	35486.00
550-1180	2200	LF	45.96	STORM DRAIN PIPE, 18 IN, H 1-10	101112.00
550-1240	2000	LF	54.17	STORM DRAIN PIPE, 24 IN, H 1-10	108340.00
550-1360	100	LF	86.79	STORM DRAIN PIPE, 36 IN, H 1-10	8679.00
550-4236	2	EA	1252.70	FLARED END SECTION 36 IN, STORM DRAIN	2505.40
620-0200	4000	LF	81.60	TEMPORARY BARRIER, METHOD NO. 2	326400.00
641-1100	250	LF	46.34	GUARDRAIL, TP T	11585.00
641-1200	1050	LF	16.93	GUARDRAIL, TP W	17776.50
641-5001	2	EA	634.44	GUARDRAIL ANCHORAGE, TP 1	1268.88
641-5012	6	EA	1801.20	GUARDRAIL ANCHORAGE, TP 12	10807.20
668-1100	20	EA	2784.43	CATCH BASIN, GP 1	55688.60
668-2100	5	EA	3987.53	DROP INLET, GP 1	19937.65
<b>Section Sub Total:</b>					<b>\$6,080,572.69</b>

Section EROSION CONTROL					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
162-1008	1	Lump Sum	500000.00	EROSION CONTROL - LUMP SUM	500000.00
<b>Section Sub Total:</b>					<b>\$500,000.00</b>

Section SIGNING AND MARKING/SIGNALS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
638-1001	2	LS	81504.94	STR SUPPORT FOR OVERHEAD SIGN, TP I, STA -	163009.88
638-1002	1	Lump Sum	52025.00	SIGNING AND MARKING - LUMP SUM	52025.00
647-1000	2	LS	125000.00	TRAFFIC SIGNAL INSTALLATION NO -	250000.00
<b>Section Sub Total:</b>					<b>\$465,034.88</b>

Section BRIDGE					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
500-2110	350	LF	186.20	CONCRETE PARAPET, SPCL DESIGN	65170.00
500-3002	240	CY	545.37	CLASS AA CONCRETE	130888.80
500-9000	20500	SF	110.00	BRIDGE - LUMP SUM	2255000.00
<b>Section Sub Total:</b>					<b>\$2,451,058.80</b>

**Total Estimated Cost: \$9,496,666.37**

**Subtotal Construction Cost**      **\$9,496,666.37**

E&C Rate 10.0 %      \$949,666.64

Inflation Rate 0.0 % @ 0.0 Years      \$0.00

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**Total Construction Cost**      **\$10,446,333.01**

Right Of Way      \$2,900,600.00

ReImb. Utilities      \$0.00

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**Grand Total Project Cost**      **\$13,346,933.01**

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: CSSTP-0006-00(041), Cherokee Co. OFFICE: Cartersville  
P.I. No. 0006041

FROM: Kerry D. Bonner, District Utilities Engineer DATE: July 21, 2008

TO: Brent A. Story, P.E., State Road and Airport Engineer  
ATTN: Tim Matthews, P.E., Design Group Manager

SUBJECT: REVISED PRELIMINARY UTILITY COST ESTIMATE

We are furnishing you with a Preliminary Utility Cost estimate for each utility with facilities potentially located within the project limits.

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE	LOCAL GOVT. COST
Cherokee County Water	\$ 110,000.00		
Atlanta Gas Light	\$ 231,000.00		
AT&T - Georgia (BellSouth)	\$ 3,000.00		
Georgia Power Company		\$231,000.00	
Totals	\$ 344,000.00	\$231,000.00	

Total Preliminary Utility Cost Estimate: \$575,000.00

If you have any questions, please contact Jennifer Deems at 770-387-3616.

KDB/jd

C: Jeff Baker, P. E., State Utilities Engineer;  
Jamie Simpson, Financial Management  
Mike Thomason, Area Engineer  
File/Estimating Book

## MEETING MINUTES

Sixes Road at I-575 Initial Concept Team Meeting

January 19, 2007, 9:00 AM

Large Conference Room – Cartersville District Office

Georgia Department of Transportation

### Attending:

Andy Casey	GDOT – Road Design
Tim Matthews	GDOT – Road Design
Geoff Morton	Cherokee County
Brett Buchanan	Cherokee County
Ron Wishon	GDOT – Engineering Services
Kenny Beckworth	GDOT
Steve Carter	GDOT – Engineering Services
Randy Oser	GDOT – ITS Construction
Stanley McCarley	GDOT – Traffic Operations
Lisa Wesley	GDOT – Traffic Operations
Ruth Forrester	GDOT- OEL
Ken Werho	GDOT - TS&D Design Review
Kerry Bonner	GDOT- District Utilities
Rob Bernstein	Jordan, Jones and Goulding
Alex Stone	Jordan, Jones and Goulding
Pat Smeeton	Jordan, Jones and Goulding

Andy Casey, GDOT Project Manager, introduced the project and all attendees introduced themselves.

Alex Stone, JYG Project Manager, stated the need and purpose of the project, extensive development and traffic growth will create the need to improve the interchange to accommodate future traffic demands. He handed out a copy of the draft Concept Report, Need and Purpose, and Project Location sheet with other projects in the area. Geoff Morton mentioned that there is a Home Depot site that will break ground this year in the NE corner of the intersection. We will need to coordinate with the City of Holly Springs to obtain site plan and DRI Study. He said that the unnamed roadway west of the interchange will be called Gresham Mill Parkway. He asked Cherokee County who sponsored the project initially. Geoff stated that the project was a joint effort by the City of Holly Springs and the County to move the interchange up in the transportation plan, and that the two 4-lane projects on either side of the interchange (under construction) have been driving the need for the project. The project was stated to be currently programmed for 2008 R/W and Construction was in long range.

Alex Stone then discussed the possible environmental features / resources on the project. The cemetery at Sixes and Rope Mill Road was identified, as well as the Gresham Mill. Geoff Morton said that the Mill was shown incorrectly on the concept layouts and would need to be revised. He mentioned that the Mill

property owner has asked for a driveway permit, possible redevelopment of the property. He said it was possible the property is not considered historic at this time. Andy Casey inquired about the outfall of the streams crossing the Concept area; Alex said he would review the quad map after the meeting.

Rob Bernstein from JJG presented the traffic patterns and safety concerns. Rob stated that the regional travel demand model was used to predict traffic growth. Rob stated that the high traffic volumes are coming to/from the south on I-575. The highest movements are from I-575 NB to Sixes EB and WB, Sixes WB to I-575 SB, and Sixes EB to I-575 SB. He said that the crash history is not a concern currently but that accidents would increase with future traffic demands if the interchange is not improved.

The team was then asked if there have been any public concerns or complaints about the project. No one has taken any complaints from the public to date. Geoff Morton said that when the 4-lane projects are complete, complaints will probably arise. He said that Holly Springs is looking at Canton Highway as a potential commercial corridor and that the NE corner of the interchange was planned for retail development. This could change the small amounts of traffic crossing the bridge. JJG will look at this further in their analysis.

Alex Stone then summarized the projects near the project area. Cherokee County said that the project to 4-lane Sixes Road east of the interchange is slated to be let to construction in April 2007. They mentioned that the City of Holly Springs is planning to 4-lane Canton Highway from Sixes Road northward. The City of Woodstock is going to hire a design consultant to move forward with the Woodstock Parkway Interchange project. Rob Bernstein asked if JJG's traffic analysis should include the Woodstock Parkway Interchange and the I-575 HOV project. All agreed to leave these projects in the analysis.

Rob Bernstein said that an IMR is needed for this project. Pat Smeeton asked GDOT if this is the case if the diamond configuration is kept. Andy Casey said that this would be looked into.

District Utilities said that there were no major utilities in the project area that would drive the concept design. Geoff Morton said there is a new pump station on the NE corner of the interchange and will need to be avoided. There are also water and sewer facilities going to and from the facility. The District asked JJG to coordinate with Grant Waldrop with GDOT for ATMS conflicts.

Alex Stone then presented the alternates. The alternate with the loop in the NE corner will conflict with the Pump station and the Home Depot development. The team asked how the current concepts would be stage constructed. Alex discussed the concerns with widening the existing box girder bridge, having falsework and a very low clearance during construction. District Construction

agreed, but that the bridge has a good rating. Andy Casey said that it would be a decision to be made by Bridge Design. Andy Casey said that GDOT would want two through lanes on all bridge approaches. Thus, the option with the double right with a signal might be more applicable. JJG said they would look at having a third through lane to Canton Highway but the Cemetery would need to be avoided. Geoff brought up the fact that the funding in the Program is inadequate to fund the Right of Way and Construction and will need to be updated.

Andy Casey summarized the action items. JJG will need to coordinate with the County in order to obtain any development plans in the area to update the traffic analysis. Andy stated that he wants a final CTM and have the PIOH already scheduled so that it would occur shortly after it.

Ruth Forrester mentioned that the project could only need a Categorical Exclusion. She stated she would need the layouts to start the Environmental studies.

Andy Casey then adjourned the meeting.

## MEETING MINUTES

Sixes Road at I-575 Final Concept Team Meeting

June 7, 2007, 9:00 AM

Large Conference Room – Cartersville District Office

Georgia Department of Transportation

### Attending:

Tim Matthews	GDOT – Road Design
Chris Rudd	GDOT – Road Design
Geoff Morton	Cherokee County
Brett Buchanan	Cherokee County
Jim Martinez	City of Holly Springs
Joel Stone	City of Holly Springs
Jerry Cooper	Cherokee County
Anthony Griffin	City of Holly Springs
Ron Wishon	GDOT – Engineering Services
Lisa Wesley	GDOT – Area Construction
Ken Werho	GDOT - TS&D Design Review
Stan Horton	GDOT- District Utilities
Alex Stone	Jordan, Jones and Goulding
Pat Smeeton	Jordan, Jones and Goulding

Tim Matthews, GDOT Project Manager, introduced the project and all attendees introduced themselves. He explained that he was now the project manager and that Chris Rudd would be the design engineer.

Alex Stone, JIG Project Manager, introduced the project, went over the project description and location. He and Pat handed out copies of the Concept Report and attachments, as well as the meeting agenda. Pat Smeeton stated the Need and Purpose of the project and summarized the existing traffic conditions, and the proposed traffic projections / analysis / modeling. Joel Stone asked when the project was programmed currently. Tim Matthews stated that the project is in 2008 Right of Way and Long Range construction, but the GDOT management date for construction was 2009, which indicates the need to get the project moved up in the program. Joel said that GDOT would need to coordinate their desire with ARC to get it placed in the next TIP. Pat stated that an IMR might not be needed, as the existing diamond interchange is only being upgraded but the overall configuration is not changing. Joel asked what the timetable was if JIG has to get the IMR approved. Pat said it should be a shorter time than normal, as it should be very straightforward.

Alex Stone then discussed the possible environmental features / resources on the project. The cemetery at Sixes and Rope Mill Road was identified, as well as the Gresham Mill. Toonigh Creek crossed under I-575 just north of Sixes Road. A possible Nationwide 404 permit may be necessary.

Alex explained the existing and proposed features of the interchange. Mr. Stone described the future typical section of I-575 that the bridge would need to span. He explained the layout of the bridge and that it would replace the existing box girder bridge with a 7-lane concrete prestressed I-Beam bridge. Alex explained how the bridge would be stage constructed. He went on to explain that the barrier walls on the ramps could be replaced to minimize right-of-way impacts. Geoff asked if there would be sidewalk on the bridge. Alex said that the width has not been set, but there would be sidewalk on both sides of the roadway. Ron asked if there are bike lanes. Geoff said that the 4-lane projects on either side of the interchange did not include bike lanes, and Pat said that Sixes Road is not included in any bikeway plans. Joel asked if there should be two HOV lanes shown for the I-575 future section. Alex said that there were no projects programmed for this, but another lane could be added to the section if the shoulders were reduced. Ken asked if the I-575 lanes shown in the future typical section were programmed. Pat said that the lanes were included in the current RTP. Joel asked if the Sixes Road bridge could accommodate HOV ramps. Pat explained that the bridge was not designed or designated as an HOV access point and that any potential HOV access would occur at an HOV-only interchange. Alex went over the other project in the area. The Holly Springs team said that they were sponsoring a project to 4-lane Canton Road from Sixes Road to Rabbit Hill Road. The project should start construction this fall.

The team was then asked if there have been any public concerns or complaints about the project. No one has taken any complaints from the public to date.

District Utilities said that there were no major utilities in the project area that would drive the concept design. Geoff Morton said there are also water and sewer facilities going to and from the facility.

Ron mentioned that there were a few items to be revised in the Concept Report. The bridge should have 4 spans with a total length of 340'. The project responsibilities need to be filled in. Ken said that the cover sheet should change the approval name to State Traffic Engineer.

Alex asked if there were any comments regarding the concept cost estimate. Ken said that with ATMS, the signal install prices should be increased and the total signing and marking should be approximately \$500,000. Geoff Morton questioned the cost of the concrete pavement. Alex said he would verify the correct quantity. Ron said that the bridge cost should be quantified in square feet, and the unit cost should be in cost per square feet.

The District asked JJG to coordinate with Grant Waldrop with GDOT for ATMS conflicts.

Tim summarized the action items, and projected schedule. He said that there is a VE study on July 9-12, and although the current cost estimate is less than \$25

million, it would be safe to go ahead and hold it just in case the costs rise. The PIOH will be held in Woodstock on August 14. The Concept should be finalized quickly after that, depending on the need for the IMR. GDOT will commence design once the concept is approved.

Tim then adjourned the meeting.

**Northwest Corridor Project  
Communication Record**

Meeting Minutes       Telecon       Conference Notes

<b>Distribution – Attendees:</b> Pete McMahon, Bill Blank	<b>Date, Time &amp; Place:</b> December 3, 2007; 2:00 PM; GDOT Conference Room
<b>Attendees:</b> GDOT: John Hancock, Christopher Rudd; GTP: Steve Curtis, Ron Morris	<b>Chairperson:</b> John Hancock
<b>Subject:</b> Sixes Road Improvements	<b>Recorded By:</b> Steven Curtis
<b>Attachments:</b> None	

MEETING ITEM NO.	DESCRIPTION	ACTION BY	FORECAST COMPLETION DATE
1	Sixes Road is being widened to 4 lanes. The Concept Plans include a new and separate parallel bridge to the existing two-span box girder bridge and improvements to the ramps. The work is being performed by GDOT with JJG as the subconsultant. ROW acquisition is expected to begin September 2008.	N/A	N/A
2	The Typical Sections nearly matches the NWC I-575 Typical Sections except for the following: <ul style="list-style-type: none"> <li>▪ Fixed barriers separating the HOV lanes</li> <li>▪ Future auxiliary lanes shown (0 ft to 24 ft)</li> </ul>	N/A	N/A
3	The new bridge is proposed to be a 4 span AASHTO girder bridge with the piers located at the fixed barrier locations.	N/A	N/A
4	Coordination of the Typical Section concerning fixed versus movable barriers and pier locations will be required once the NWC Typical Section is selected.	Steve Curtis	1-15-08
5	Coordination with the southern Sixes Road ramps as possible auxiliary lanes between Ridgewalk and Sixes Road interchanges to be coordinated. Heavy volume of traffic on the northbound I-575 exit ramp to Sixes Road.	Steve Curtis	1-15-08
6	GTP to overlay GDOT ramp improvement with NWC concept.	Ron Morris	12-18-07
7	GDOT to schedule follow-up meeting following Sixes Road Concept review and selection of NWC I-575 Typical Section.	John Hancock	1-15-08





## **Need and Purpose**

The proposed project would reconstruct the I-575 at Sixes Road interchange in Cherokee County, Georgia. The purpose of this project is to provide necessary improvements to accommodate traffic growth on this interchange as well as widen Sixes Road within the study area to match the current four-lane projects to the east and west of the interchange. With projects underway to widen Sixes Road to a four-lane roadway immediately to the east and west of I-575, this project is needed in order to avoid a bottleneck condition along this roadway, which provides interstate access to this rapidly developing area of Cherokee County. With this interchange already experiencing congested conditions, the operational and capacity improvements provided by this project are essential to accommodate traffic growth and maintain safe conditions at this location.

### Planning Background and Project History

This project has been identified by Cherokee County as one of two high priority interstate projects needed in this rapidly growing county. The City of Holly Springs has also identified this project as one of their most important transportation improvements. GDOT has included this interchange project in the Statewide Transportation Plan (SWTP) as project number CSSTP-0006-00(041) and P.I number 006041. This project is also included in the Atlanta Regional Commission's Regional Transportation Plan (RTP) as CH 189. The project is authorized for PE, with ROW and construction programmed in long range.

### Land Use and Development Trends

Intense residential and commercial development has driven a steady increase in traffic volumes within Cherokee County over the past decade. This trend is expected to increase with the population of Cherokee County expected to increase from 141,903 in 2000 to 277,209 by 2030 according to Georgia Department of Community affairs. Between 2000 and 2005, Cherokee County experienced a 29.8% population increase, making it the sixth fastest growing county in Georgia.

The land to the west of I-575 along Sixes Road is mainly residential and expected to remain residential according to the Cherokee County Future Land Use Map. This area is experiencing intense residential development and this trend is expected to continue. The land to the east of I-575 has been identified by the City of Holly Springs for commercial and industrial development. This area is expected to transition from mainly open land to commercial and industrial uses. A development of regional impact (DRI) was recently approved in the northeast quadrant of the interchange. This commercial development is expected to generate over 13,000 vehicle trips per day.

### Logical Termini

The eastern project terminus is located approximately 825 feet east of the existing I-575 northbound ramp intersection. The project would tie into Project STP-0002-00(637) which will improve the Sixes Road at SR 5 (Canton Hwy) intersection. At this location, the project will match the four-lane typical section of the intersection improvement project and provide a logical terminus.

The western logical terminus is located approximately 800 feet west of the I-575 existing southbound ramp intersection. This project would tie into the completed four-lane project which widened Sixes Road from Bells Ferry Road to this point. By matching the four-lane typical section of this local project, this location provides a logical terminus.

**TRAFFIC & SAFETY  
REPORT**

**Sixes Road @ I-575 Interchange  
Reconstruction**

Project Number: CSSTP-0006-00(041

P. I. Number: 0006041

County: Cherokee

*Prepared for:*  
Georgia Department of Transportation

The purpose of this traffic and safety study is to evaluate existing and future conditions for the Sixes Road at I-575 interchange improvement project in Cherokee County, Georgia. The purpose of this project is to provide necessary improvements to accommodate traffic growth on this interchange as well as widen Sixes Road within the study area to match the current four-lane projects to the east and west of the interchange. With projects underway to widen Sixes Road to a four-lane roadway immediately to the east and west of I-575, this project is needed in order to avoid a bottleneck condition along this roadway, which provides interstate access to this rapidly developing area of Cherokee County. With this interchange already experiencing congested conditions, the operational and capacity improvements provided by this project are essential to accommodate traffic growth and maintain safe conditions at this location.

### Existing and Projected Traffic Volumes

Existing traffic volumes were collected at all study intersections on Sixes Road, on all interstate ramps, as well as on I-575 during the second week of November, 2006. The existing traffic volumes are shown in Figure 1. As presented in Figure 1, traffic volumes at all intersections, freeway segments, and ramps are approaching capacity conditions for the existing facilities.

Cherokee County has experienced dramatic land use and population changes within the past decade. Intense residential and commercial development has caused much of southern Cherokee County to transition from a rural to suburban area. This rapid growth is expected to continue with the county population and employment numbers expected to almost double by 2030 according to the GA Department of Community Affairs. The population, employment and land use changes expected in Cherokee County by 2030 will cause a substantial increase in traffic demands as well as affect travel patterns.

In order to accurately reflect the impact that these changes will have on traffic conditions in the future, the Atlanta Regional Commission's (ARC) approved 2030 travel demand model was utilized in the development of build year traffic volumes. With right-of-way and construction funds not currently programmed for this project, it was assumed that 2012 would be the earliest year that the project could be opened to traffic. Accordingly, 3032 was the build year utilized for this traffic study.

In order to develop 2032 traffic volumes, the 2030 travel demand model was run to reflect traffic growth to 2032. Since the travel demand model is a macroscopic tool used for predicting regional travel demand and traffic patterns, 2032 design traffic was not taken directly from the model. Instead, the model was utilized to determine percent growth rates for each facility between existing and future years. These growth rates by approach were then applied to the existing traffic volumes to develop the future (3032) design traffic. This method more accurately accounts for the changes in travel patterns that development and land use changes will affect. Build year (2032) design traffic is presented in Figure 2.

### Level of Service Analysis

Since the Sixes Road interchange is a congested interchange that currently experiences queuing between intersections and on interstate ramps, the TRAF-CORSIM microsimulation model was utilized to analyze the existing, future no-build, and future build conditions. TRAF-CORSIM is a network simulation program that was developed by the Federal Highway Administration (FHWA) for detailed analysis of traffic operations of surface streets and freeway facilities. This model was developed, calibrated and run according to FHWA guidelines for microsimulation models.

Basic freeway segment, ramp merge/diverge, and intersection level-of-service analysis was prepared for existing (2006), future (2032) no-build, and future (2032) build conditions. In addition, interstate ramp queuing was analyzed for each condition. There were no weaving segments within the study area. The results of these analyses are presented in Tables 1 – 4.

Table 1 presents the results of the basic freeway segment analysis. As presented in this table, I-575 southbound between Canton Hwy and Sixes Road currently operates at level-of-service (LOS) 'F'. This is due to the high traffic volumes along I-575 southbound in the AM peak hour as well as a result of queuing that occurs from the Sixes Road off-ramp. In the future no-build condition, I-575 experiences LOS 'F' on this same segment, as well as on I-575 northbound between Rope Mill Road and Sixes Road in the PM peak hour. This is due to high freeway volumes and queuing at the Sixes Road interchange that backs out onto the interstate. The future build condition also experiences a LOS 'F' condition on I-575 northbound between Rope Mill Road and Sixes Road. This is due to the high expected traffic volumes on I-575. The density on this segment during the build condition is significantly lower than in the no-build condition. This is because the Sixes Road northbound off ramp does not queue onto the freeway in the build condition.'

Table 2 presents the results of the freeway ramp merge/diverge analysis. Ramp merge/diverge analysis is a function of the density of traffic on the freeway as well as the ramp. As Table 2 presents, the I-575 southbound ramps at the study interchange currently operate at unacceptable LOS. In the future, multiple ramps operate at unacceptable LOS in both the no-build and build condition. The build condition does not experience the extremely high densities experienced in the no-build condition. As with the freeway segment analysis, this is due to the queuing of vehicles onto the freeway from the Sixes Road ramps in the no-build condition. Although this queuing does not occur in the build condition, several ramps are expected to operate at unacceptable LOS. As with the freeway segment results, the ramp LOS is heavily influenced by the high traffic volumes on the freeway. Since the scope of this project does not address interstate capacity, the proposed interchange improvements of widening Sixes Road would have no effect on freeway traffic or therefore ramp merge and diverge LOS results.

With freeway and ramp levels-of-service heavily influenced by interstate volumes and capacity, a queue length analysis was performed to ensure that the proposed project would not negatively affect freeway and ramp operation. Table 3 present the results of the queue length analysis. Queues exceeding available storage length are expected to occur.

**Table 1: TRAF-CORSIM Freeway Segment Analysis Results**

Segment	Direction	Existing Condition (Year 2006)				No-Build Condition (Year 2032)				All-Build Condition (Year 2032)			
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
I-575 between Canton Hwy and Sixes Road	Southbound	94.5	F	22.0	C	82.4	F	32.1	D	29.9	D	31.8	D
I-575 between Sixes Road and Rope Mill Road	Southbound	59.1	E	22.7	C	31.1	D	32.0	D	34.6	D	34.6	D
I-575 between Rope Mill Road and Sixes Road	Northbound	13.7	B	24.4	C	21.4	C	157.9	F	20.9	C	77.2	F
I-575 between Sixes Road and Canton Hwy	Northbound	12.0	B	18.1	C	17.6	B	13.9	B	17.3	B	21.2	C

**Table 2: TRAF-CORSIM Ramp Merge and Diverge Area Analysis Results**

Segment	Direction	Existing Condition (Year 2006)				No-Build Condition (Year 2032)				All-Build Condition (Year 2032)			
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
I-575 Off Ramp to Sixes Road	Southbound	122.05	F	22.2	C	112.17	F	36.67	E	42.15	E	35.66	E
I-575 On Ramp from Sixes Road	Southbound	44.68	E	22.6	C	31.75	D	31.97	D	53.63	F	34.1	D
I-575 Off Ramp to Sixes Road	Northbound	13.76	B	25.81	C	43.51	E	188.88	F	24.2	C	79.74	F
I-575 On Ramp from Sixes Road	Northbound	11.95	B	18.12	C	16.95	B	12.61	B	17.53	B	19.92	C

**Table 3: TRAF-CORSIM Queue Length Analysis Results**

Ramp	Ramp Length (ft)		Existing Condition (Year 2006)		No-Build Condition (Year 2032)		Alt1 - Build Condition (Year 2032)	
			Am Peak	PM Peak	Am Peak	PM Peak	Am Peak	PM Peak
	Existing	Proposed	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)
I-575 Southbound Off Ramp	1300	1400	>1300	260	>1300	680	600	300
I-575 Northbound Off Ramp	1600	1740	180	320	>1600	>1600	700	400

**Table 4: TRAF-CORSIM Intersection Levels of Service Results**

Sixes Road Intersections	Existing Condition (Year 2006)				No-Build Condition (Year 2032)				Alt1 - Build Condition (Year 2032)			
	Am Peak		PM Peak		Am Peak		PM Peak		Am Peak		PM Peak	
	Control Delay (veh/sec)	LOS	Control Delay (veh/sec)	LOS	Control Delay (veh/sec)	LOS	Control Delay (veh/sec)	LOS	Control Delay (veh/sec)	LOS	Control Delay (veh/sec)	LOS
I-575 Southbound Ramps	58.8	E	17.6	B	80.8	F	41.5	D	39.3	D	31.5	C
I-575 Northbound Ramps	55.0	E	78.4	E	121.7	F	128.7	F	20.9	C	20.7	C
Highway 5 (Canton Hwy)	20.0	C	62.9	E	291.3	F	494.0	F	169.8	F	315.3	F

at three of the four Sixes Road interchange ramps under future no-build conditions. Excessive queuing does not occur in the build condition. These results clearly indicate that without the interchange improvements proposed in this project, queuing onto the interstate will occur in the future.

Table 4 presents the results of the intersection analysis on Sixes Road. The results show that the existing intersections are experiencing unacceptable LOS. These conditions are expected to significantly worsen by 2032 without major improvements. The congestion expected at these intersections under the 2032 no-build conditions is the reason for the ramp queuing previously presented. With these intersections unable to accommodate the high traffic demands, severe intersection delays cause queuing that exceeds available storage. Both interstate ramps operate at LOS 'D' or better under 2032 build conditions. The operational improvement of these interstate ramps is essential to the safe operation of this interchange. The intersection of Sixes Road and Highway 5 (Canton Hwy) is expected to operate at LOS 'F' conditions in all future conditions. This intersection is not within the limits of this project and further widening of Sixes Road at Highway 5 is not feasible due to a cemetery on the south side of the road and a historical property on the north side. As development occurs within the study area, this historical property is likely to be developed. Once this happens, it is likely that additional lanes at the intersection will be implemented.

#### Safety Analysis

Table 5 presents accident analysis for Sixes Road and I-575 within the study area. The accident and injury rates calculations are based on 2003-2005 accident and traffic data obtained from Georgia Department of Transportation. For Sixes Road, accident and injury data was collected for 1/2 mile to the east and west of I-575. For I-575, accident and injury data was collected for 1 mile to the north and south of Sixes Road.

**Table 5: Sixes Road and I-575 Interchange Area Accident Analysis**

Year	Number of Accidents	Number of Injuries	Accident Rate	Injury Rate	Statewide Average Accident Rate	Statewide Average Injury Rate	Accident Percent Difference	Injury Percent Difference
<b>Sixes Road (CR 779): Urban Collector Street</b>								
2003	27	11	618	252	554	135	+11.6%	+86.7%
2004	30	18	658	395	461	115	+42.7%	+243.5%
2005	27	6	558	124	513	128	+8.8%	-3.1%
<b>I-575 (SR 417) NB/SB from Sixes Road: Urban Interstate</b>								
2003	73	17	204	48	200	48	+2.0%	+0.0%
2004	67	20	162	48	190	44	-14.7%	+9.1%
2005	83	20	176	42	206	49	-14.6%	-14.3%

for similar facilities. For 2003 Sixes Road experienced an injury rate that exceeded statewide averages and 2004 experiencing a substantially higher rate. I-575 is functionally classified as urban interstate. This section of I-575 generally had accident and injury rates that were consistent with the statewide average for similar facilities.

Although this safety analysis demonstrates that the project area did not experience a significantly high accident or injury rate than similar facilities throughout the state, the LOS results indicate that without the proposed improvements, this interchange will experience very congested conditions with interstate ramps backing up onto the freeway. This project will address the operational and capacity deficiencies that, if left unaddressed, will likely drive accident and injury rates significantly higher.

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** CSSTP-0006-00(041) Cherokee  
P. I. No.: 0006041  
I-75 @ Sixes Road Interchange

**OFFICE:** Engineering Services

**DATE:** October 16, 2007

**FROM:** Brian Summers, P.E., Project Review Engineer

**TO:** Brent Story, P.E. State Road Design Engineer

**SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES**

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT No.	Description	Savings PW & LCC	Implement	Comments
<b>ROADWAY/TRAFFIC</b>				
S-2	Reduce Median width between Ramp Termini	\$330,000	No	Since the existing bridge will be retained under Alternate B-1, it will not be possible to reduce the median width due to a slight grade difference between the existing bridge and the proposed widening.
B-3	Eliminate one turn lane on bridge	\$390,000	No	Based on traffic modeling simulations, two full westbound and one full eastbound turn lane are required based on the ARC traffic projections for the year 2032.
S-4	Use AC Pavement on Sixes Road in lieu of Concrete Pavement between the Ramp Termini	\$140,000	Yes	This should be done.

ALT No.	Description	Savings PW & LCC	Implement	Comments
<b>ROADWAY/TRAFFIC - continued</b>				
S-8	Use 11' wide turn lanes on Sixes Road instead of 12' turn lanes	\$115,000 (Proposed)  \$70,000 (Revised)	NO  Yes	This should be done. The existing turn lane width on the existing bridge will be retained. The turn lane widths on the widened bridge will be 11'.
<b>RAMPS</b>				
R-1/2/4	Retain existing Ramps; widen to the inside and use AC Pavement	\$4,190,000	OK Yes	This should be done.
<b>BRIDGE/ALIGNMENT</b>				
B-1	Retain existing Bridge; build parallel structure to the North Side	\$1,740,000	Yes	This should be done.
S-7	Retain existing Bridge; build parallel structure to the South Side	\$2,100,000	No	This alignment would impact a cemetery on the south side of Sixes Road just east of the I-575 Interchange.
S-1	Adjust Sixes Road alignment; construct bridge in one stage	Design Suggestion	No	This would result in additional Right of Way impacts since the new bridge would have to be constructed totally separated from the existing bridge.
B-7	Construct two span bridge using MSE Wall End Abutments	\$665,000	No	This scenario was based on removing and replacing the existing bridge which will now be retained.
<b>DESIGN SUGGESTIONS</b>				
R-5	Minimize Retaining Wall	Design Suggestion	OK Yes	This will be done. Since the existing ramp alignment will be retained, the need for Retaining Walls will be eliminated.
R-6	Reduce length of 2-Lane NB Exit Ramp	Design Suggestion	OK No	Based on the Capacity Analysis the 2 Lane NB Exit Ramp is necessary to accommodate the required turning movements coming from I-575 NB to WB Sixes Road.

A meeting was held on October 4, 2007 to discuss the above recommendations. Alex Stone with JJ & G, Andy Casey, Tim Matthews and Christopher Rudd with Road Design, and Brian Summers, Ron Wishon, and Lisa Myers with Engineering Services were in attendance. Another meeting was held on October 16, 2007 with the above personnel and additional information was provided.

The results above reflect the consensus of those in attendance and those who provided input.

Approved: signed by Gerald M. Ross Date: October 23, 2007  
Gerald M. Ross, P. E., Chief Engineer

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
for Rodney Barry, P.E., FHWA Division Administrator

BKS/REW

Attachments

c: Gus Shanine  
Todd Long  
Paul Liles  
Tim Matthews  
Chris Rudd  
Jack Muirhead  
Lonnie Jones  
Kenny Beckworth  
Nabil Raad  
Ruth Forrester  
Lisa Myers