

## RECORD OF DECISION

EDS-500(5)

PI #661950

### **Bartow County US 411 Connector**

The Federal Highway Administration (FHWA) Georgia Division Office has evaluated a proposal of the Georgia Department of Transportation (GDOT) to provide improved access to I-75 from the US 411 corridor in Bartow County, Georgia. Based upon studies documented in the Final Supplemental Environmental Impact Statement (FSEIS), through an extensive public involvement process in consultation with other local, State, and Federal agencies, and in accordance with the requirements of the National Environmental Policy Act (NEPA), the alternative selected for advancement to the final design and construction phase is identified as the D-VE Alternative. The proposed US 411 Connector would be a four-lane limited access roadway from the existing US 411/US 41 interchange to a modified interchange at the existing I-75/SR 20 interchange.

#### **Project History**

The need for the proposed facility was first identified in 1985. A final federal agency action was approved by the FHWA Georgia Division for the US 411 Extension with a Final EIS in 1989. In 1993, a local property owner, the Rollins family, challenged the NEPA procedural process, and the Kellogg Community challenged their status as a community eligible for inclusion on the National Register of Historic Places in the United States District Court for the Northern District of Georgia. The challenge was successful. The District Court concurred that the project had independent utility but ordered further consideration of alternatives. The political and legal history of this project has been further chronicled in the FSEIS.

The need to provide increased mobility with a more direct connection from US 411 at US 41 to I-75 still exists. Explosive growth in the area has somewhat minimized the need to spur economic development, but has increased the need to provide congestion relief to existing surface streets and to separate trucks traveling through the area from the local roadway network. Since the Notice of Intent to prepare a Supplemental EIS was published in the Federal Register in 2003, the GDOT and local planners have had the opportunity to measure the purpose and need of the US 411 Connector against the reality of time and circumstances. As described in detail in the FSEIS, we now know that the actual

traffic along the US 411 corridor has outpaced the original predictions made in 1989 by as much as 25 percent. With the changing growth and traffic patterns, studies have shown us that a route farther south than the 1989 Preferred Alternative would most effectively meet the predominant demand to travel southeasterly through the corridor, separate local and through traffic trips, and relieve congestion on the existing roadways in the project area.

### **Project Need and Purpose**

The proposed US 411 Connector is needed to improve connectivity for the SR 20/US 411 corridor to the Interstate system by providing a more direct link between US 411 at its interchange with SR 3/US 41 west of Cartersville, and I-75. The following are some of the deficiencies to be addressed by the proposed project:

- Congestion along existing major routes in the area causing delays and resulting in poor access to the existing land uses in the project area.
- Lack of linkage of major routes to the Interstate system in the area.
- Lack of mobility for vehicles, both on existing roads and for through traffic.
- Reduced safety as a result of congestion in the corridor.
- Conflict between through-traffic (especially heavy truck traffic) and local traffic along the existing connection to the interstate.

Performance measures were developed in order to evaluate how the alternatives met the project need. The project Need and Purpose, and the performance measures are described in Chapters 1 and 2 of the FSEIS.

### **EIS Alternatives**

The Selected Alternative was identified through an extensive evaluation process, during which a broad range of potential solutions was examined for improving the interstate connectivity and improving mobility and safety in the corridor. At the core of this analysis was the need to adequately address deficiencies in the existing roadway network as defined in the project Need and Purpose Statement. The specific Project Alternatives included in the FSEIS were developed using a two-step process designed to consider a full range of ways to connect US 411 and I-75 within the study area.

### **Concept Evaluation**

The first step of this process was to identify a complete set of connection “Concepts” that represented all the basic connection possibilities. These

connections included the termini of all of the alternatives identified in the original EIS. A general analysis was prepared for the concepts that covered the entire geography of the study area. This analysis included a review of traffic data, engineering considerations, and environmental constraints. The set of seven concepts and the analysis were presented to the public; resource agencies including the US Environmental Protection Agency (EPA), US Fish and Wildlife Service (USFWS), US Corps of Engineers (USACE), the Georgia State Historic Preservation Officer (SHPO) and the Environmental Protection Division of the State of Georgia (EPD); the US 411 Citizens Advisory Committee; and various interest groups to obtain their input and preferences. As a result of stakeholder input, two additional concepts were suggested for evaluation of a total of nine concepts.

Criteria were established to screen all concepts to identify those most suitable for development into reasonable alternatives. The concepts were developed and evaluated by comparing (1) what the concepts provide (i.e., how well the concepts meet the project need and purpose), and (2) what the concepts cost, in terms of money, difficulty of construction, and environmental impact. This allowed for a consistent analysis to determine the economic viability of each concept. Refer to Chapter 2 of the FSEIS and the Concepts Screening Report, on file at the GDOT, for the full evaluation of each concept.

### **Alternatives Development**

In the second step of the process, the most attractive concepts identified from the concept analysis were developed into specific project alternatives. The identified set of project alternatives was considered to cover a full range of reasonable alternatives, and each one was developed fully and analyzed completely as part of the EIS process.

A total of thirteen alternatives were developed for further evaluation. From these, four original build alternatives were found to be reasonable. A complete discussion of these alternatives can be found in Chapter 2 of the FSEIS. The build alternatives originally determined to be reasonable included Alternatives A, AB, B, and D. NEPA also requires that the No Build Alternative be considered; however, this alternative is not considered reasonable as it does not satisfy the project need and purpose. The determination of reasonable build alternatives was based on the factors that most distinguished the alternatives: achieving the need and purpose of the project, avoiding the use of historic sites on or eligible for the National Register of Historic Places (NHRP), and minimizing both the number of displacements and the degree of community disruption.

Alternative D, from which all derivations of the preferred and selected alternative have originated, had the most support from stakeholders during the extensive coordination and public involvement efforts conducted throughout the alternative development and analysis process. Resource agencies stated preferences for alignments further to the south to avoid Waters of the U.S. and protected species habitats but have supported the preferred alternative with the mitigation measures proposed.

During the course of the EIS process, several additional cultural resources in the project area were determined eligible for the NRHP: the existing US 41 Corridor, Civil War trenches, and the Guyton Ore Bank. Alternatives A, AB, B, and D were all determined to incur a Section 4(f) use, as defined by Section 4(f) of the DOT Act of 1966, so avoidance and minimization variations were considered for each of these alternatives. As demonstrated in the FSEIS, it was determined that there were no feasible and prudent avoidance alternatives associated with Alternatives A, AB, B, or any variations on these alternatives. An alternative that avoids any use of Section 4(f) resources was found to be feasible and prudent. This alternative was further refined from the original Alternative D to address concerns gleaned through additional public involvement and became known as the D-Avoidance/Minimization alternative.

The D-Avoidance/Minimization alternative was determined to meet the need and purpose of the proposed project while having the least overall amount of environmental impacts. Compared to the other alternatives considered, this alternative was second lowest in amount of stream and noise impacts but was lower than all others in regard to relocations of residents and businesses and properties in the "influence area" in the FSEIS. It was selected as the Preferred Alternative because it had lower overall environmental impacts compared to the other alternatives considered, improved on an alternative that had the greatest public support, and completely avoided the use of land from Section 4(f) protected resources.

The D-Avoidance/Minimization alternative would consist of a new roadway with two lanes in each direction separated by a 68-foot median. In order to assure that it operates as efficiently as possible, the roadway would be designed with limited access. That is, access could only be gained at three points along the roadway with interchanges instead of intersections. These interchanges would be located at US 41 (the western project terminus), at SR 61, and at I-75 (the eastern project terminus). Due to the relatively close proximity of existing interchanges along I-75 within the project study area, it is not possible to place a new interchange at I-75 to simply serve traffic on the US 411 Connector. To do so would create unsafe conditions on I-75 created by the interchange entrance and exit ramps being spaced too closely and causing potential conflicts. Since the D-

Avoidance/Minimization alternative ties into I-75 closest to SR 20, it would be necessary to provide a modified interchange that allows for access to both SR 20 and the US 411 Connector. The D-Avoidance/ Minimization alternative provides for a fully directional interchange. This means that direct, non-stop access would be provided from I-75 to both SR 20 and the US 411 Connector. Again, because of the need for the interchange to serve both US 411 and SR 20, this would be accomplished with a series of elevated ramps at several different levels. This is the optimal design that would attract the most traffic from the existing roadway network and provide the most safe and efficient access for the new US 411 Connector.

### **Value Engineering Study**

A Value Engineering (VE) study is required on Federal-funded projects that are estimated to cost over 25 million dollars. The GDOT conducts VE studies on all projects estimated to cost over 10 million dollars. The purpose of the VE Study is not to reshape or change the purpose and need of a proposal but to refine the preferred alternative, , to one that maximizes the benefits associated with the constructed improvements while minimizing costs to the public.

Since the FSEIS was signed in August 2007, the project was reexamined in light of budgetary constraints to develop a less costly alignment that would still effectively accomplish the Need and Purpose of the project. A multidisciplined value engineering team was convened to conduct the required study and concluded that, while the D-Avoidance/ Minimization alternative represents an optimal design, it cannot be completely funded at this time. Therefore, the D-VE Alternative (See Figure 1 - Selected Alternative Location Map) was designed as a scaled-down version that would provide comparable benefits with reduced environmental impacts at a cost that is less than two-thirds of the originally estimated cost of the D-Avoidance/Minimization alternative.

The D-VE Alternative would essentially reduce the footprint of the project. The median width would be reduced to 44 feet and the allowable grades on the project increased to allow the alignment to more closely follow the natural terrain, resulting in a decrease in earthwork activity. These factors represent minor decreases from optimal design recommendations but would still be within the range of accepted American Association of State Highway and Transportation Officials (AASHTO) standards. Three interchanges would still be provided with the D-VE alternative, at US 41, SR 61 and I-75. The sizes of these interchanges would be reduced from the original designs but still meet AASHTO design standards. At I-75, the fully directional interchange would be reduced to a split-diamond interchange. That is, instead of utilizing ramps to directly access I-75 to and from SR 20 and US 411, a driver would be required to stop at the top

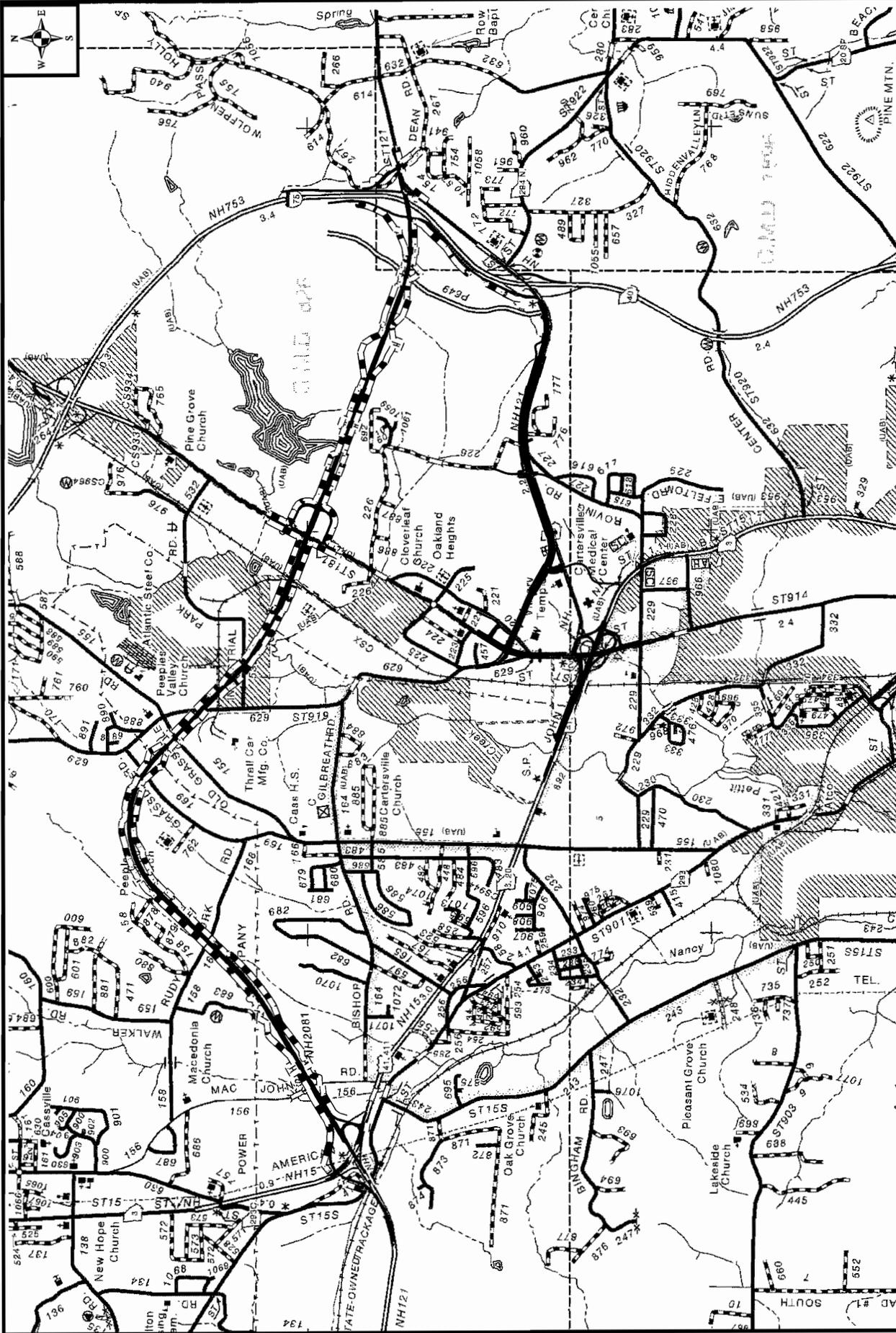
of the I-75 exit ramps before proceeding to either SR 20 or US 411. Additionally, in order to access US 411 from I-75 south of the roadway, motorists would utilize a portion of SR 20 located east of I-75. While this might not be as operationally efficient as the D-Avoidance/Minimization design, it would still meet the need and the purpose of the project at a greatly reduced cost to the public. Furthermore, although the traffic predicted to utilize this facility would be reduced with the reduced design, the volumes would still be high enough to warrant a four-lane facility the day construction is completed and the US 411 Connector is open to traffic.

Questions were generated by members of the Citizen's Advisory Committee as to whether the full range of alternatives should be reexamined in light of these changes. However, the FHWA maintains that the changes proposed in the Value Engineering study would have been similar for any alternative. That is, reductions in design would have been made for every alternative and the same proportional conclusions would have been made about the viability of each alternative. The VE study did not result in any change in the general alignment of the roadway and still represents the environmentally preferred alternative that best serves the needs of the traveling public. In addition, since the D-Avoidance/Minimization alternative was found to be the only reasonable alternative to avoid the use of 4(f) properties, the reasons for elimination of the other reasonable alternatives would not have changed.

A Technical Memorandum dated August 2008, and incorporated by reference, documents the changes proposed and the resultant decrease in environmental impacts, and it provides a documented conclusion that the current proposed design would not represent a significant change from the design concept and scope of the D-Avoidance/Minimization alternative. Additional meetings were held with Federal and State resource agencies, the Citizen's Advisory Committee and the public at large to present the D-VE alternative. No substantial issues were raised, and the resource agencies were very supportive of the decreases in impacts to natural resources. Because of the additional public involvement conducted, the fact that the general alignment of the project was not altered, the fact that the project area of potential effect had been thoroughly evaluated in the FSEIS and the resultant impacts to the human and natural environment were essentially the same or were decreased, the FHWA determined that no additional information would be gained by requiring a supplemental document to advance the D-VE Alternative as the selected alternative.

### **Selected Alternative**

FHWA has determined that the Selected Alternative is D-VE. This is the environmentally preferred alternative that sufficiently addresses the need and



-  Right of Way
  -  Proposed Pavement
  -  Future State Route 20
- 0 0.25 0.5 1 Miles

# Alternative D-VE



U.S. 411 Connector  
 Bartow County  
 EDS-500(S) - P.I. 661950



purpose for the action while best balancing important environmental, community and economic values. The Selected Alternative also incorporates appropriate measures to avoid, minimize and mitigate potential impacts to the region's environment.

Construction of the US 411 Connector would provide a more direct connection to I-75 for through-traffic from western Bartow County as well as Floyd County and westward into Alabama. In addition, regional through-traffic would be separated from local traffic along the existing connection (US 411/US 41 and SR 20), substantially improving the safety and convenience of local access and circulation by reducing congestion in the corridor. The diversion of through truck traffic away from the existing connection would enhance the safety and operation of SR 20 and US 41/SR 3. The continued growth and economic vitality of Bartow and Floyd counties and the cities of Cartersville and Rome would be supported by the implementation of the US 411 Connector by improving access to the interstate system for both general and truck traffic. In addition, the City of Cartersville and surrounding areas of Bartow County would benefit from the congestion relief on the local road system provided by the US 411 Connector. The construction of the US 411 Connector is necessary to maintain the safe and efficient operation of the arterial roadway system in Bartow County.

Since the FSEIS was approved, studies have shown a marked decrease in vehicle miles traveled nationwide as a direct result of increased fuel prices. This fact might suggest some consideration of future traffic predictions in regards to the proposed project. While it is impossible to discern what this would mean for the future traffic demands on the US 411 Connector, it is presumed and has been historically demonstrated that the law of supply and demand would eventually serve to balance transportation needs with fuel costs, resulting still in a future demand for this new facility. Given the past underestimation of traffic and the fact that even a 5 percent reduction in traffic would still warrant the four-lane facility, the need for the US 411 Connector as proposed is still justified.

### **Potential Impact Areas, Measures to Minimize Harm, and Mitigation**

The Council of Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR §§1500-1508) requires that not only direct impacts, but indirect and cumulative impacts also be evaluated. A panel of experts in the areas of land use planning, resource conservation, development, and traffic analysis was convened to try to determine the changes in land use that could occur with the reasonable alternatives developed for this project. The results of this Delphi panel were incorporated into the analysis of the overall impacts to the human and natural environment expected to result from the US 411 Connector project.

All reasonable measures to minimize harm to the human, natural, and physical environment have been incorporated into this project and are documented in the FSEIS. Throughout the NEPA process, alternatives were progressively refined to reduce the amount of impacts to wetlands and streams, cultural resources, the human environment, and to reduce impacts to habitat for threatened and endangered species. Public input was used extensively throughout the project development process to refine alternatives to reduce relocations, and enhance communities. The following measures will serve to mitigate the unavoidable impacts.

### **Jurisdictional Waters**

Unavoidable impacts to 1.47 acres of wetlands and 701 linear feet of streams would be mitigated with compensatory measures that would generate suitable credits according to the Standard Operating Procedures (SOP) for Compensatory Mitigation. Mitigation would occur as close to the project impacts as practicable and within the same eco-region and eight-digit U.S. Geological Survey (USGS) Hydrologic Unit Catalog, according to regulatory agency guidelines for mitigation in Georgia.

Potential on-site mitigation areas were presented to the resource agencies at the Practicable Alternatives Report (PAR) meeting held in June 2006. Based upon the preference of the agencies to complete mitigation as close to the impact site as possible, GDOT is presently investigating the use of on-site areas to provide mitigation for adverse impacts to streams and wetlands associated with the US 411 Connector project. If it is determined that on-site opportunities are not feasible for mitigating the impacts to streams and wetlands, mitigation credits would either be purchased from a mitigation bank or debited from an existing GDOT-owned mitigation bank. Prior to the submission of the required Section 404 Individual Permit, GDOT will hold an interagency meeting with FHWA, USEPA, USFWS, and the USACE to finalize the development of the specific mitigation plan to compensate for impacted waters.

### **Water Quality**

The proposed US 411 Connector lies entirely within Priority Area Two defined by the Etowah Habitat Conservation Plan (HCP), which set draft guidelines for Runoff Limits and Priority Area Protection for the Etowah watershed. The objective of the HCP is, through better site design and comprehensive water quality management practices, to minimize and mitigate the impact of land development on aquatic species and darter streams in the Etowah watershed. Priority areas are regions where more protective stormwater management is

necessary for the preservation of imperiled aquatic species. Priority Area Two is classified as important for protecting downstream habitat and populations of less sensitive imperiled fishes, such as the Cherokee darter.

As part of the continued design for this project, GDOT has agreed to meet the HCP storm water run-off standards by incorporating recommended enhanced swales and stormwater ponds into the final design.

### **Threatened and Endangered Species**

The Cherokee darter (*Etheostoma scotti*) and suitable habitat for this federally-threatened fish species were identified within Pettit Creek and Nancy Creek, as well as in tributaries to these creeks. The original preferred alternative would have required replacing culverts in two of these creek systems. Thus formal consultation under Section 7 of the Endangered Species Act was conducted with a finding of may affect, likely to adversely affect this species. The USFWS issued a Biological Opinion, citing measures to minimize impacts to the Cherokee darter before, during, and after construction.

The revised design, Alternative D-VE, does not require work on culverts in these creeks. Therefore, Section 7 Consultation was reopened, and resulted in a new determination that the project may affect but is not likely to adversely affect the Cherokee darter.

Nevertheless, the proposed project will still contain these listed measures to minimize any impact to the species:

- Construction of bridges at all streams where darter habitat was identified.
- Design of bridges to keep stormwater runoff from entering the streams directly (Please also refer to FSEIS Section 7.2.5, Water Quality).
- Enhanced swales and stormwater ponds would be incorporated into the final design, in accordance with the Etowah HCP.

### **Section 106 of the National Historic Preservation Act**

A finding of Adverse Effect has been determined for the Ledford House, a NRHP eligible resource. No use of land within the historic boundary would be required, as the edge of required right-of-way would be approximately 405 feet southeast of and outside the eligible National Register boundary of the property. However, implementation of the proposed project alternative would result in a 14.5 decibel (dBA) noise increase at the property, thereby introducing audible elements that diminish the integrity of the property's significant historic characteristics or features.

Section 106 mitigation for adverse impacts to the Ledford House and for a Civil War trench located within existing right-of-way have been stipulated in a Memorandum of Agreement (MOA) ratified on October 27, 2006. Specific mitigation measures can be found in Chapter 4 of the FSEIS and are summarized as follows:

- A noise abatement wall would be constructed on the proposed project in the vicinity of the Ledford House.
- A context study on early farmsteads in Bartow County shall be undertaken as further mitigation for the Ledford House.
- The limits of the Civil War trench shall be marked as an Environmentally Sensitive Area (ESA) on project plan sheets with instructions prohibiting clearing or grubbing, ground-disturbing activity or staging of vehicles or equipment within the ESA.

### **Noise**

The proposed roadway alignment and improvements are expected to produce an impact at 68 different receptor locations. A cost-benefit analysis was conducted at each impacted receptor location where a noise barrier was determined to be feasible. Based on determinations of feasibility and reasonableness, noise barriers are proposed at three locations to provide noise reduction at 47 impacted receptors.

### **Air Quality**

The US 411 Connector project is located in Bartow County, which is within the Atlanta nonattainment area for 8-hour ozone and fine particulate matter (PM<sub>2.5</sub>), but outside the 13 county Atlanta Regional Commission metropolitan planning area. In accordance with Section 176(c) of the Clean Air Act (42 U.S.C. 7506(c)), transportation projects in nonattainment and maintenance area must be found to conform to the purpose of the State air quality implementation plan (SIP). This demonstration is achieved by meeting the criteria of the transportation conformity regulations (40 CFR 93).

The transportation conformity rule requires, for projects outside the boundary of a metropolitan area but inside the boundary of a nonattainment or maintenance area that contains part of the metropolitan area, that the project not interfere with the implementation of any transportation control measures in the applicable SIP (40 CFR 93.113(d)) and that a currently conforming long range transportation

plan (LRTP) and a short range transportation improvement program (TIP) be in place at the time of project approval (40 CFR 93.114). The US Department of Transportation made a conformity determination on the Envision6 2030 RTP/FY 2008-2013 TIP on October 10, 2007. The US 411 Connector project was included in the regional emissions analysis that supports the conformity determinations of the Plan and TIP and there have been no significant changes in the project's design concept, scope or implementation schedule, as used in the conformity analysis.

The transportation conformity rule also requires a hot spot analysis as part of project level conformity in PM2.5 nonattainment areas for projects of local air quality concern (40 CFR 93.116 and 93.123). It was determined through interagency consultation that the US 411 Connector project was a project of air quality concern and a qualitative hot spot analysis was completed for the project (see Appendix B of the FSEIS). The analysis demonstrated that the US 411 Connector project will not cause or contribute to any new localized violations of the PM2.5 NAAQS nor will it increase the frequency or severity of any existing violations. There is currently not an applicable State air quality implementation plan for PM2.5, and thus there are no PM2.5 control measures in such plan for the project to comply with (40 CFR 93.117).

The US 411 Connector project met the requirements of 40 CFR 93 for 8-hour ozone and PM2.5 and is found to conform. This conformity determination meets all of the applicable Clean Air Act section 176(c) requirements for federally funded or approved transportation projects. Specifically, the requirements for PM hot-spot analysis are codified at 40 CFR 93.116 and 93.123. By meeting these regulatory requirements as well as other requirements in the conformity regulations, this conformity determination demonstrates compliance with the requirements of CAA section 176(c)(1).

### **Visual**

The Selected Alternative would result in impacts to visual resources along the corridor. The following measures would be used to guide the final project design to help mitigate the effect of additional visual effects from the proposed project:

- Preservation of existing trees and wetlands within the construction zone where the entire width of the zone is not needed to accommodate grade changes and safety zones; additional new landscaping would be provided where existing trees cannot be preserved or noise barriers are not proposed to screen adjacent neighborhoods and land uses from the roadway, as well as to visually enhance the corridor itself;

- Landscaping of interchanges and around new bridges and walls;
- Re-vegetation of slopes and medians with native plant materials where feasible in order to blend with the natural landscape;
- Construction of cut-and-fill slopes at a 2:1 slope or flatter for re-vegetation where practical;
- Rounding top of cut slopes to blend with natural terrain and drainages;
- Grading of fill slopes to blend with the natural landscape, undulating the form with varied slope ratios;
- Use of specialized techniques to create natural-appearing cut slopes where needed;
- Coordination of architectural detailing of walls, bridges, overpasses, and underpasses with existing elements in the landscape;
- Minimization of heights of retaining walls in highly visible areas; and
- Underground placement of utilities where practical.
- As part of the final design process, the project design team would coordinate with the public to discuss potential visual mitigation plans in greater detail. The purpose of this coordination would be to ensure that the community is supportive of the proposed visual and aesthetic mitigation measures, and to allow specific community input regarding the mitigation details.

### **Transportation**

Access for traffic traveling north on I-75 to the US 411 Connector will be provided along an existing portion of SR 20 east of I-75. This traffic movement will involve four additional traffic signals through the corridor, one at each ramp connection, one at the US 411 intersection and one currently located on SR 20. This accounts for the additional 90 seconds of travel time required for the D-VE design. However, the US 411 Connector/I-75 Interchange Traffic Analysis Summary (Figures 6 and 7) provided in the August 2008 Technical Memorandum referenced earlier, shows that SR 20 will still operate at an acceptable level of service in the design year, 2034, during the peak traffic hours of the day.

During the final design process, the GDOT will reevaluate the need to install a traffic signal at the SR 61/Industrial Park Road intersection location.

### **Environmental Monitoring**

As part of the commitment to continue efforts to minimize impacts from the project, several monitoring and coordination commitments have been made and are identified in this ROD, the FSEIS, and the Section 106 MOA. Monitoring programs will include the conditions of the Section 404 Permit with respect to

waters impacts, including mitigation requirements. Prior to project construction FHWA and GDOT will obtain all appropriate permits and approvals to ensure compliance with Federal and State regulations. The following table includes a summary of the permits and monitoring requirements for this project.

Commitment/Requirement	Agencies Involved	Permit Required
Develop a water quality protection plan following the Etowah HCP standards.	FHWA, USFWS, and EPA	N/A
Develop a storm water monitoring plan to be followed during construction.	FHWA, USFWS, and EPA	N/A
A post-construction water quality monitoring plan would be developed to evaluate effects to aquatic habitat at bridge and special culvert crossings.	FHWA, USFWS	N/A
Obtain Individual Section 404 permit for unavoidable impacts to streams and wetlands.	USACE	404 Permit
Obtain a stream buffer variance for Streams 20 and 25, and as needed at other locations.	Georgia EPD	Stream Buffer Variance
Complete innovative culvert design including channel improvements utilizing Rosgen methods for streams where bridges are not proposed.		N/A
Complete a pilot study to develop a Stream Crossing Design Manual for Southeastern Piedmont and Blue Ridge Road Crossing Guidelines utilizing the results of the water quality monitoring to determine effectiveness of innovative culverts.	USFWS, USACE	N/A
Complete an inventory of existing standard culverts (in conjunction with HCP) in the project region to develop a baseline for comparison to innovative culverts.	USFWS	N/A

## **Project Coordination**

Public involvement for the US 411 Connector project included a comprehensive initiative with six Citizen's Advisory Committee meetings, four community and neighborhood meetings, three separate focus group meetings to provide outreach to low income and minority communities potentially impacted by the project, five open house public meetings (including one Public Hearing Open House), a detailed and interactive website, a telephone hotline, media releases, and project-specific newsletters. The Citizen's Advisory Committee was comprised of local government representatives, neighborhood representatives, and other stakeholders who expressed interest in participating on the committee. Information gleaned from these outreach efforts factored greatly into the development of the selected alternative.

Because of the Rollins family's continued interest in the project, representatives for the family have been actively engaged throughout the project development process as members of the Citizen's Advisory Committee, with an independent engineering staff to conduct separate analyses, through regular project records review, and as commenters on the NEPA evaluation process. It is recognized that many of the comments, questions and recommendations that have resulted from the family's involvement have added value to the decision-making process and also represent the views of other stakeholders in the project area. Consequently, the GDOT has worked throughout the process to be very responsive to all requests for information, analysis of additional suggested alternatives, and additional traffic analyses. A compendium of comments, analyses and meeting minutes with representatives of the Rollins family as well as a GDOT disposition of all comments has been included in Appendix A.

Through early coordination and scoping for this project, numerous Federal and State resource agencies played very active key roles in the development of reasonable alternatives and in working to avoid, minimize, and mitigate for potential environmental impacts. More recently, the results and recommendations from the VE Study were presented to the Citizens Advisory Committee, the public at large, and to the Federal and State resource agencies actively involved throughout the project development process.

### **Comments on FSEIS**

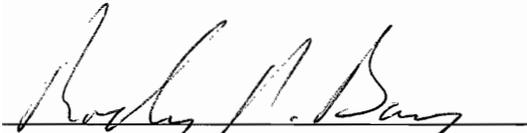
Comments on the FSEIS were received from the Environmental Protection Agency (EPA) and from King and Spalding on behalf of the Rollins family. Comments concerned verification of project inclusion in the region's transportation plan, recommendation of future coordination with affected communities for noise wall designs, inclusion of environmental commitments in

the ROD, traffic modeling and modeling assumptions, traffic analyses, and project costs. These comments were thoroughly addressed by the GDOT and did not alter the FHWA's decision to proceed with the Selected Alternative. Comments from the EPA and disposition of these comments have been included in Appendix B. As stated earlier, a compendium of comments, analyses and meeting minutes with representatives of the Rollins family throughout the project development process and a disposition of all comments has been included in Appendix A.

## Record of Decision

The FSEIS fully evaluates the social, economic and environmental impacts of five alternatives, and the selected alternative is a variation on the earlier preferred alternative resulting from a value engineering study, the D-VE Alternative. It is the least damaging practicable alternative given all the considerations required by NEPA, Section 7 of the ESA, Section 404 of the Clean Water Act, Section 106 of the National Historic Preservation Act, and other applicable statutes. The process of developing this build alternative was inclusive of the State and Federal resources agencies whose expertise and jurisdictional concerns shaped this decision.

The FHWA and the GDOT have employed accepted methodologies to accurately assess the need and purpose of the project and evaluate a full range of reasonable alternatives. We have evaluated the direct, indirect and cumulative impacts of the proposed project and have satisfied the measured hard look required of federal agencies under NEPA and related regulations. Given the analyses provided, it is our decision that the selected alignment for the US 411 Connector best serves the public. The GDOT may proceed with the D-VE alternative.



Rodney N. Barry, P.E.  
Georgia Division Administrator, FHWA

10/29/08  
(Date)

Appendix A

Compendium of Comments, Analyses and Meeting Minutes with  
Representatives of the Rollins Family

GDOT Disposition of Comments and Concerns

# KING & SPALDING LLP

RECEIVED  
SEP 15 2004

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September 14, 2004

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**Re: US 411 Connector  
Project EDS-500(5)  
P.I. Number 661950, Bartow County**

Dear Mr. Keeper:

As you know, King & Spalding LLP represents the interests of the Rollins family, who own approximately 1,800 acres of contiguous property in Bartow County. A number of the corridors under consideration for the above-referenced project, the U.S. 411 Connector, encroach upon or adversely impact that property. Accordingly, the Rollins are very interested in plans GDOT is developing for the project, as reflected in our formal comments on the proposal August 2, 2004.

In those comments, we expressed concern and dismay that GDOT inexplicably has failed to include the most direct and least expensive route among the alternatives considered. In addition, in a letter of September 7, 2004, we requested a reasonable opportunity to fully and completely review, analyze and comment on traffic data that has not been made available pursuant to our August 13, 2004 Georgia Open Records Act request prior to GDOT making any further determinations to limit the scope of its concept analyses from the current options.

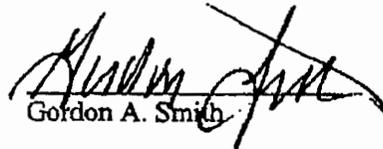
Yet in the September 2004 edition of The 411 Connector newsletter, which we received last week, GDOT indicates that by the time of the next Public Information Open House this fall, several concepts will have been eliminated and those remaining will be further developed. As we have advised in prior correspondence, it is inappropriate for GDOT to begin narrowing options when the most direct and least expensive route has not been considered. In reviewing public records related to the project, we have found absolutely no consideration of the so-called "Ridge Route," despite the fact that 10 years ago a federal court halted essentially this same project for failing to consider an identical route in its process. We reiterate our request that GDOT not

eliminate any concepts from consideration until we have had a reasonable opportunity to review and analyze the crucial traffic data that may prove integral to the selection of a final route.

In addition, Page 2 of the 411 Connector newsletter appears to imply that GDOT has identified and met with only one African-American community in the area. In fact, we know of at least two other potentially impacted communities, centered on Cline Smith Road and Johnson Lane, and we would be happy to assist GDOT in contacting members of those communities as part of its environmental justice outreach.

As before, we urge GDOT to work with us and other interested parties to construct a highway that will best serve the needs of all those concerned.

Sincerely,



Gordon A. Smith

cc: Mr. Harold E. Linnenkohl  
Commissioner  
Georgia Department of Transportation  
2 Capitol Square S.W.  
Atlanta, GA 30334-1002



**RFA Management Company, LLC**

December 7, 2005

David Studstill  
Chief Engineer  
Georgia Department of Transportation  
No. 2 Capitol Square, S.W.  
Atlanta, Georgia 30334

**RECEIVED**

DEC 07 2005

Chief Engineer's Office

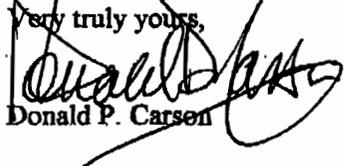
**Re: US 411 Connector  
Project EDS-500(5)  
P.I. Number 661950, Bartow County**

Dear David:

Thank you for meeting with Gary Rollins and me at the governor's office on Monday. I understand that our traffic engineer, Walter Kulash, has now had the opportunity to discuss our information needs directly with you.

In that regard, this letter confirms our understanding that in order to make our next meeting as productive as possible, you will provide to Walter a summary of Year 2030 traffic assignments for each of the concepts evaluated for the U.S. 411 Connector project. My understanding is that Walter has given you several dates next week that would work for him for a follow-up meeting. I hope we can confirm that meeting in the next few days.

We look forward to seeing you next week.

Very truly yours,  
  
Donald P. Carsen

John Watson  
Chief of Staff  
Office of the Governor  
Georgia State Capitol  
Atlanta, GA 30334

Walter Kulash  
Senior Transportation Planner  
Glatting, Jackson, Kercher, Anglin, Lopez, Rinehart, Inc.  
33 East Pine Street  
Orlando, FL 32801

Gary W. Rollins





**FILE COPY**

*Department of Transportation*

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TREASURER  
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January 11, 2006

Mr. Walter M. Kulash, P.E.  
Glattig Jackson Kercher Anglin Lopez Rinehart, Inc.  
33 East Pine Street  
Orlando, FL 32801

Re: GDOT Project No. EDS-500(5), Bartow County - The Proposed US 411 Connector

Dear Mr. Kulash:

Enclosed please find plots as discussed and requested at our meeting on January 4, 2006.  
The plots consist of the following:

- 2030 No Action TAZ Centroids
- 2030 No Action Link Travel Times
- 2030 Concept A Link Travel Times
- 2030 Concept B Link Travel Times
- 2030 Concept C Link Travel Times
- 2030 Concept D Link Travel Times
- 2030 Concept D with interchange Link Travel Times
- 2030 Concept E Link Travel Times
- 2030 Concept F Link Travel Times
- 2030 Concept F Modified Link Travel Times
- 2030 Concept F Modified with interchange Link Travel Times
- 2030 Concept G Link Travel Times
- 2030 Concept H Link Travel Times
- 2030 No Action Select Link West of US 411/US 41 interchange
- 2030 Concept D Select Link West of US 411/US 41 interchange
- 2030 Concept F Select Link West of US 411/US 41 interchange

Mr. Kulash  
Page 2  
January 11, 2006

Please note that the model does not include a Traffic Analysis Zone (TAZ) boundary map. However, the TAZ Centroids map enclosed provides similar information.

As discussed, we are available to meet with your traffic modeler upon request. The meeting will be at JJG's office in Norcross, GA, and JJG will have the model and personnel present to discuss issues concerning the model. Please contact Rich Williams at 404.699.4438 to coordinate a mutually acceptable time and date for the meeting.

Thank you again for your continued interest in this important project.

Sincerely,



David E. Studstill, Jr. P.E.  
Chief Engineer

DES/hdk/aeh

C: John Watson  
Gary Rollins  
Donald Carson  
Harvey Keepler  
Alan Hunley  
Rob Bernstein



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February 23, 2006

Mr. Rich Williams  
Georgia Department of Transportation  
3993 Aviation Circle  
Atlanta, GA 30336

RE: GOD Project EDS-500(5), Bartow County, US 411 Connector  
GJ#18733.01

Dear Mr. Williams:

In a continuation of the process outlined in our meeting, in Atlanta, on January 4, 2006, we would like to proceed with the meeting at JJG's office in Columbia, South Carolina, to complete our discussion of the travel demand forecasting model ("traffic" model) and the role of results from that traffic model in the concept evaluation phase of the 411 Connector project. As we agreed on January 4, we are requesting that your office coordinate and schedule this meeting.

The response, on the part of JJG, to the request for information made at the January 4 meeting has been prompt, cooperative and most helpful. With the information furnished, we will be able to focus closely on the remaining areas of interest, most importantly:

- Basis for free-flow link travel speeds used in the traffic models.
- Relationship, of link travel times used in the traffic models, to on-the-ground travel time runs made by the 411 Connector project prior to the traffic modeling effort.
- Adjustments (if any) to the concept travel times in response to intersection capacity analysis conducted on assigned volumes obtained from runs of the traffic model.

Please be aware that areas may be more related to the subsequent use and interpretations of the modeling, rather than the model results per se.

At our meeting of January 4, the suggested representatives from JJG were Rob Bernstein and Alan Davis. Attending from Glatting Jackson will be myself and either Laurence Lewis or Brent Lacy, both involved on a daily basis with application and interpretation of travel demand forecasting models. We will advise you about representatives from the Rollins family. Tentatively, those would be Thorne Winter and Donald Carson. We are assuming



that you will be the primary representative from Georgia DOT, and will bring others if and as appropriate.

Our available dates for meeting are the following: March 20, 27 and 28.

Thanks for your efforts in arranging this most important meeting. Please feel free to call with any questions or comments you may have.

Sincerely,

Walter M. Kulash, P.E.

WMK/pae

CC: Mike Weiss

DRAFT

DRAFT

**US 411 Connector  
Project EDS-500(5)  
Bartow County  
P.I. No. 661950**

**MEETING SUMMARY**

MEETING DATE: March 7, 2006, 1pm - 4pm

MEETING LOCATION: JIG, Training Room 4

ATTENDEES: JIG: Todd Hill, David Ashley, Sarah Adams, Alan Davis, Rob  
Bernstein  
GDOT: Rich Williams  
Glatting Jackson: Walter Kulash  
RWA: Thorne Winter and Don Carson

PREPARED BY: Sarah Adams

SUBJECT: Traffic Model Discussion  
2077.039

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**Conversation Summary:**

**General**

- Alan Davis gave an overview of the modeling process:
  - JIG Started with GDOT's 21-County Travel Demand Model, which is based on ARC's travel demand model for the Metropolitan Atlanta Area.
  - A sub-area model of Bartow County was extracted from the 21-County model. A sub-area model of the study area road network, which includes all links in the network, was then extracted from the Bartow County model.
  - We developed a base future year model and used this to forecast traffic volumes and travel times for all concepts; volumes and travel times between two common points were determined and used to compare the Concepts.

**Discussion**

Walter Kulash asked a number of questions that were answered either by Rob Bernstein or Alan Davis.

- Are the travel times in the breakdown at congested times?

- Yes.
- Where does the traffic go that is not using the northern concepts?
  - The traffic is taking the fastest routes to its various destinations ('fastest' as determined by the model).
- Where did the travel times come from?
  - The model computes speeds and travel times based on network characteristics (capacity, distance, free-flow speed, etc) and traffic conditions (congestion).
- Is it ever appropriate to input speeds? [*i.e., to revise the free-flow speeds included in the original model*]
  - It can be. Speeds were reviewed for reasonableness.
- Was this done for this project?
  - Some of the speeds were adjusted based on planned future improvements.
- How does the model account for [*the impact on traffic operations of*] future development along existing SR 20?
  - The model uses a Volume Delay Function that is associated with each type of link. The 'link types' reflect the type of development and account for other conditions. Future development was considered, consistent with adopted plans.
- Did you specify link types for the model?
  - We verified that the link types included in the original model were accurate, and made no changes to them.
- Is it ever appropriate to specify link types? [*i.e., to revise the link types included in the original model*]
  - Possibly. We always validate them for accuracy, which we did in this model. The link types were accurate so we did not make changes to them.
- Is there anything in the model that accounts for changes?
  - Yes, road projects that are planned to be in place before 2030 were added to the model 2030 network (Existing and Committed Network).
- Is there a link type tied to signals per mile?
  - Yes. However, signals are not the only characteristic of a road type.
- What does the No-Action say about the delay at the SR 61/SR 20 interchange?
  - The delay is still there but there are also improvements in place.
- What was the purpose of the TEI Origin-Destination study?
  - The survey was done for GDOT to provide information and input for this project. In addition to the O-D study, a travel time survey was done by JJG during the initial stage of the project.
- Why did the existing travel time survey done for the Concepts Screening Report (CSR) have slower speeds for the No-Action?
  - The travel time survey was done for existing conditions, and was measured by engineers driving on existing roadways between a few selected points on a

single day, while the No Action speeds were computed by the model for typical future conditions.

- Is the travel time data reliable?
  - Yes, it is accurate for the 2004 conditions it measured. However, it is applicable to other time periods only to the extent that traffic conditions during those other time periods are similar to the conditions during the data collection period.
- What fraction of daily traffic was loaded?
  - 24 hours' worth. "Daily" times are a summation of all times in the day.
- Where did the peak hour models come from?
  - JIG developed them for the alternatives. Times and volumes are based on all trips in the network, not just those from endpoint to endpoint.
- Why is the travel time for the No-Action in the CSR 16 minutes, while the one for the same alignment in the alternatives analysis is 9.5 minutes?
  - These times cannot be directly compared. The former is a preliminary, manual estimate prepared for illustrative purposes, while the latter is a detailed computation based on complete network data that is done within the traffic assignment model.
- Why was the No-Action travel time 16 minutes in the CSR?
  - Travel times in the CSR estimated using travel distance and an engineer's preliminary estimate of a typical average speed. The resulting generic numbers are estimates for relative travel times on these routes for the peak period. They were simply used to compare estimated travel times. Traffic model travel times were computed by the model for the sole purpose of comparing travel times on all the thousands of paths through the network, in order to be able to assign traffic to the fastest paths between the thousands of origin-destination pairs.
- Why not publish the traffic model travel times in the DEIS [sic]?
  - It was a judgment call; we could have, but chose to publish the travel times we had already shown the public.
- Why are the 16 minute time and the 10 minute time for the No-Action so different?
  - This question is based on comparing two numbers that cannot/should not be compared; see answers above.
- Why would no one travel on F when it has a 10 minute travel time vs. a 16 minute travel time for the No-Action in the CSR?
  - Again, this question is based on comparing two numbers that cannot/should not be compared; see answers above. Also, recognize that the traffic assignment for F indicates simply that for all trips that do not use F, the model found faster paths elsewhere in the network
- Was there discussion on the differences between the model travel times and the computations?

- Yes. We discussed the times and checked them for accuracy. We are confident that the results are correct.
- What checks did you do to confirm them?
  - We looked at congested speeds and select link volumes and speeds.
- Why is no traffic assigned to Concept F when travel times are faster than No-Action?
  - This question is based on comparing two numbers that cannot/should not be compared; the traffic times for the CSR cannot be compared to those the model uses. The model will assign traffic to the shortest path taking into account a host of other factors.
- Was there any sequence in which the link assignments were made by the model?
  - The model iterates every zone movement, finds the shortest trip time, loads traffic and then assigns links. The model then recomputes travel times and reassigns traffic until the results “close” (i.e., no trip can get to where it’s going any faster by changing paths)
- What were the free-flow speeds in the model?
  - The individual link speeds are compiled in the model databank, and can be plotted or listed if desired (in the same way that link volumes and link travel times have been plotted and provided in the past).
- The travel times in the Traffic Report closely match the engineer’s estimate except for No-Action. Why?
  - As you screen for more details, including interchange capacity, travel times often change.
- Mr. Kulash stated that he doesn’t think the decisions are based on comparable results. He doesn’t think our model reflects what will happen in reality.
  - We strongly disagree; we are confident in the accuracy of the model results. It is important to recognize that use of this model is a requirement for this project, so we cannot just ignore it, regardless of what anyone thinks of the results. In order to reach closure on the matter of model ‘accuracy’, if agreeable to GDOT we could run the model again with different inputs (i.e., free flow times). In order to insure that the model runs give Mr. Kulash the information he needs, he will need to specify (in writing) exactly which parameters he wants us to use in the assignment(s). We can provide a list of variables that can be modified.

**Action Items:**

- Rich Williams will discuss with GDOT upper management the idea of running the model again with different parameters.
- Mssrs. Kulash, Carson, and Winter will discuss with their client whether or not to have JIG run the model again with different parameters.



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March 27, 2006

Mr. Rich Williams  
Georgia Department of Transportation  
3993 Aviation Circle  
Atlanta, GA 30336

RE: US 411 Connector  
GJ#18733.01

Dear Mr. Williams:

Thank you for coordinating the informative meeting at JJ&G's office on March 6, at which we discussed the travel demand forecast modeling for the 411 Connector.

Toward the conclusion of the meeting, Rob Bernstein from JYG offered to make a run of the model for Alternative F Modified with input travel speeds adjusted to reflect the year 2030 speeds used in establishing the travel times as reported in the Concept Evaluation Study. These speeds, you will recall from our discussion at the meeting of March 6, are around one-half the model input speeds; for example, 23 miles per hour on at-grade arterials versus 42-45 miles per hour model inputs.

While we appreciate Rob Bernstein's constructive offer to try to bring closure to the issue, we believe that to be meaningful in our joint analysis, the scope of the offer must be expanded: First, it should include all of the previously-considered concepts, and second, it should include the other evaluation criteria discussed in our recent meetings:

1. **Other (Non-Traffic) Factors** – Rerunning the traffic model for Alternative F Modified without revisiting the other evaluation criteria (for example, environmental, constructability, EVI) presents only a part of the picture for the concept or alternative. Without the rest of the evaluation updated, new traffic numbers would be inconclusive. As we think through the likely outcome of revised traffic numbers, we repeatedly arrive at the conclusion that the currently outstanding questions are resolved only by another full cycle through the concept and alternative evaluation phases.
2. **Comparability Among Concepts** – A run of the traffic model for Concept or Alternative F Modified using revised travel speeds, as Rob Bernstein offered, would give a result that would be interesting and useful in better understanding the performance of Alternative F Modified, but would not be suitable for comparison with the other concepts or alternatives. The simple reason for this

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Glatting Jackson Kercher Anglin Lopez Rinehart, Inc.

Page 1



lack of comparability is that the traffic projections for Concept or Alternative F (revisited) would be based on “no action travel speeds” of around 23 miles per hour, while the traffic projections for the other concepts or alternatives would be based on a free-flow travel speed of around double that.

Interestingly, in comparing concepts or alternatives using non-comparable input travel times, the results would most likely favor Alternative F Modified. However, the two different sets of input travel speeds would taint such a result. As in item 1 (above), attempts to draw meaningful conclusions from revisiting the traffic projection for Alternative F Modified invariably arrive at the need to revisit the concept evaluation process for all concepts and alternatives.

3. **Unresolved Disparity Between Model Input Times and Reported Travel Times** – Although we spent a large amount of time on the subject at our meeting on March 6, the group was unable to establish why the traffic model for evaluating concepts and alternatives used input travel speeds that were around twice those projected on the basis of engineering judgment of the 411 Connector Study staff. This difference between model input and engineering judgment travel speeds gains further significance because the engineering judgment speeds were used as the basis for describing the concepts’ physical features in the Concept Evaluation Report, while the input speeds (around twice those of the publicly reported engineering judgment speeds) were used for the traffic model. Before making any further runs of the traffic model, we should have a consensus as to the correct input travel times; either those made public in the Concept Evaluation Report, or adjustments of the ARC default values to properly reflect the existing realities of traveling the corridor, and the likely characteristics of future travel. Again, as with points 1 and 2 above, resolution of this issue brings with it the need for another cycle through the concepts, not simply the piecemeal revisiting of Alternative F Modified.

Thank you for so promptly arranging our informative meeting. Please relay out thanks to Alan Davis, Rob Bernstein and other JJG staff responsible for support at that meeting.

Sincerely,

Walter M. Kulash, P.E.

WMK/pae

CC: Thorne Winter  
Mike Weiss



## Department of Transportation

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April 26, 2006

Mr. Walter M. Kulash, P.E.  
Glatting Jackson Kercher Anglin Lopez Rinehart, Inc.  
33 East Pine Street  
Orlando, FL 32801

RE: GDOT Project No. EDS-500(5), Bartow County; PI No. 661950 – The US 411 Connector

Dear Mr. Kulash:

This responds to your letter of March 27, 2006 in which you discuss the meeting of March 7, 2006 where traffic modeling efforts for the US 411 Connector project were discussed.

The purpose of the March 7<sup>th</sup> meeting was to describe the traffic model used on the 411 project and answer questions that you had regarding specific inputs and outputs for the model. Rather than restate the answers to your questions posed both at the meeting of the 7<sup>th</sup> and again in this recent letter we are attaching minutes from our March 7, 2006 meeting which appear to answer your questions.

You also note that "before making any further runs of the traffic model, we should have a consensus as to the correct input travel times." As we explained at the March 7<sup>th</sup> meeting, we believe the input travel speeds used in the original modeling work for the project are the correct ones, but we would be happy to run the revised assignments you have requested. In order to insure that we provide you exactly what you need, however, we must insist that you specify the model inputs/parameters that would answer your questions and address your concerns.

Thank you again for your continued interest in this important project.

Sincerely,

A handwritten signature in cursive script, appearing to read "Harvey D. Keeper".

Harvey D. Keeper,  
State Environmental/Location Engineer

Attachments: March 6, 2006 minutes

HDK/rjw/gth





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May 22, 2006

Mr. Harvey D. Keeper  
Georgia Department of Transportation  
2 Capitol Square, S.W.  
Atlanta, GA 30334-1002

RE: US 411 Connector, Project No. EDS-500(5), PI No. 661950  
GJ#18733.01

Dear Mr. Keeper:

Thank you for your response to my letter of March 27 discussing re-running the traffic model using input travel times for the no-build alternative consistent with those provided in the Concepts Screening Report – times which my analysis concludes will more accurately reflect traffic conditions in target year 2030. As you know, I requested that GDOT or its consultant run the model again for all concepts originally considered for the U.S. 411 Connector, along with the resultant analysis of other criteria, such as environmental impact, constructability, and economic viability. Unless all concepts are modeled with identical no-action input travel times, there will be no way to determine if the concepts screening process was conducted appropriately. We, again, request that you run the model for all concepts originally considered.

In your letter, you reiterate Mr. Williams' offer to run the model again with parameters we believe are more appropriate. What is unclear is whether your letter is acknowledging and acceding to our request that the model be run with the new no-build travel times for *all* concepts considered – and then be open to reconsidering the viability of those concepts.

More immediately concerning, however, were your attached draft minutes of the meeting I attended along with representatives of the Rollins family at Jordan Jones & Goulding's office in Norcross. Those draft minutes differ greatly from our notes and recollections from the meeting. It is particularly disturbing that the draft minutes attempt to recast our candid and helpful discussion of these important issues into a Q&A in which the concerns I raised about limitations of the traffic model and its lack of calibration to existing and future conditions were dismissed with non-responsive generalities. We have also prepared minutes, drawn from our own notes immediately after the meeting, and that we believe more accurately reflect our discussion. I am enclosing notes of the meeting prepared by my client.

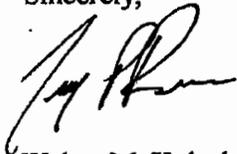
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Page 1



As always, we wish to ensure that the U.S. 411 Connector project best serves the needs of all concerned. With a number of important dates approaching, including the submission of a final Supplemental Environmental Impact Statement, we believe it is vital that any outstanding issues be resolved as soon as possible.

Thank you again for your attention to these matters.

Sincerely,

 FOR WALTER KULASH

Walter M. Kulash, P.E.

WMK/pae

CC: Thorne Winter  
Mike Weiss

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JUL 10 2006

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July 7, 2006

Harvey D. Keeper  
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Georgia Department of Transportation  
3993 Aviation Circle  
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**Re: US 411 Connector  
Project EDS-500(5)  
P.I. Number 661950, Bartow County  
Draft Supplemental Environmental Impact Statement  
EIS No. 20050432**

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Dear Mr. Keeper:

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I am writing on behalf of our clients, including the Rollins family, Gary W. Rollins and Randall Rollins (collectively, "the Rollins"). As you are aware, the Rollins' interests own approximately 1,800 acres of contiguous property in Bartow County. For approximately two years now, we have urged GDOT to reconsider its early rejection of the more northern routes proposed for the above-referenced U.S. 411 Connector – routes that were shorter and we believe would be less costly to construct. Throughout this period, in its public meetings, interim reports and finally in its Draft Supplemental Environmental Impact Statement (DSEIS), GDOT has maintained that the northern routes were excluded from further evaluation based on the results of its traffic model. That model concluded that none of the northern routes would draw southbound traffic from the existing corridor – a finding questioned by area leaders and many who live or work in the area and are all too familiar with the existing route's perpetually clogged state.

Only by pressing for more than a year for more details of the traffic model and by hiring an independent expert to review that information, were the Rollins able to uncover why the traffic model's conclusions appeared to be out of step both with GDOT's own published travel time estimates and with common sense.

Through these efforts, it has become apparent that the GDOT was promoting one set of travel time estimates in public meetings, reports, and the DSEIS, while it had substituted another set of estimates – one that projected traffic on the existing route moving significantly more quickly in 2030 than it does today – in the traffic model, leading to the comparatively poor performance of the northern routes, and thus, their early elimination as viable alternatives. In short, the GDOT:

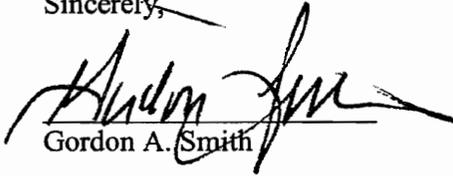
- Used reasonable travel time and speed estimates for the existing route in its dealings with the public, but used different, unsupportable figures in the traffic model;
- Never disclosed the travel time and speed estimates used in the traffic model to the general public, allowing observers to believe that the more reasonable figures had been incorporated into the traffic model's conclusion that the northern routes would not attract sufficient traffic – even as those observers questioned that conclusion – and then eliminated the northern routes from further consideration based on those undisclosed estimates;
- Insisted that the travel times and speeds used in the model were more accurate, despite evidence to the contrary; and
- Continued to promote the more reasonable figure to the public, *including publishing it in the DSEIS*, even after having made a deliberate and conscious decision to use completely different data in the traffic model.

Even after these inaccuracies were brought to the attention of the DOT on numerous occasions during the past year, the DOT has refused to explain these differences, make public disclosure of them, rerun the model, or reopen a proper evaluation of the northern routes. The only conclusion we are able to draw from this is that the GDOT deliberately used flawed and undisclosed data in the traffic model – all the while promoting more reasonable data to the public – in an effort to force the elimination of northern routes and steer the process to the more southerly routes it preferred. These actions suggest a lack of good faith by GDOT, in clear violation of the National Environmental Policy Act (NEPA), 42 USC § 4321 in its early rejection of reasonable alternatives.

We have now worked for almost two years to seek proper consideration of the northern routes based on a good faith evaluation of all alternatives. Although the Rollins hope and believe that the administrative and political process can still be righted, they are doubtful based on past experience that it will be done and are prepared, if necessary, to once again seek injunctive relief and other legal remedies to ensure that all reasonable alternatives have been fairly considered and that there has been full compliance with NEPA before work on the U.S. 411 Connector begins. In addition, the Rollins intend to share the above information with concerned parties, including community and political

leaders and others with an interest in a thorough and above-board process to determine the best location for the U.S. 411 Connector.

Sincerely,



Gordon A. Smith

cc: Harold E. Linnenkohl  
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**SUPPLEMENTAL COMMENTS TO THE DRAFT SUPPLEMENTAL  
ENVIRONMENTAL IMPACT STATEMENT, NO. 20050432**

**U.S. 411 Connector  
Project EDS-500(5)  
P.I. Number 661950, Bartow County  
EIS No. 20050432**

The interests of Gary W. Rollins and Randall Rollins (collectively referred to as “the Rollins”) own approximately 1,800 acres of contiguous property in Bartow County. The Rollins have closely followed the development of the U.S. 411 Connector project referenced above from its inception through the issuance of the Draft Supplemental Environmental Impact Statement (“DSEIS”) and provided timely comments regarding the DSEIS to the Georgia Department of Transportation (“GDOT”). Since the time for comments closed, the Rollins have received additional information concerning the U.S. 411 Connector project. Some of this information was provided by GDOT in response to requests made prior to publication of the DSEIS, or in meetings the Rollins or their representatives have attended with GDOT officials. In addition, GDOT has provided new information in its responses to the formal comments regarding the DSEIS from the Rollins, interested governmental and private agencies and other members of the public. Finally, their regular review of project files maintained by GDOT and its consultant, Jordan Jones & Goulding (JJG) confirm that documents continue to be added to the record of the U.S. 411 Connector project. Accordingly, the Rollins wish to supplement their original comments concerning the DSEIS for Project EDS-500(5), the U.S. 411 Connector (EIS No. 20050432). They request that the following comments be included as part of the project record.

- I. The data underlying the traffic model are not “entirely appropriate and strongly supported.”

In their initial comments, the Rollins expressed doubt about the conclusions of the model used by GDOT and its consultant to determine that vehicles traveling from west of the study area to points south on I-75, and vice versa, would not use the routes designated as Concepts E, F or F-Modified (collectively, “Concepts E-F”). Since the time the Rollins provided their comments to GDOT, new information provided by GDOT only further indicates that an issue with the traffic forecasting model erroneously and improperly led GDOT to drop Concepts E-F from further consideration early in the process. Thus, the Rollins disagree with GDOT’s response that the decision to forego further evaluation of those routes “was entirely appropriate and strongly supported by thorough and proper traffic analyses.”

- a. The travel time data included in the DSEIS does not match that used in the traffic predictive model.

Predicted travel times for Concepts E-F, as well as all discarded concepts, are contained in the DSEIS as well as in the Concepts Screening Report, included by reference in the DSEIS. The DSEIS states without reservation that the estimated 2030 travel time on the no-build

alternative is 16.3 minutes. DSEIS 2-8, Table 2.1.1.A-2. But GDOT has stated repeatedly that the figure reported in the DSEIS was *not* used in the traffic model that concluded that the northern routes, including Concepts E-F, would not receive further consideration. Although GDOT has provided no documentation of the actual model inputs, our meetings with GDOT officials have indicated that the model's estimated 2030 travel time on the no-build alternative is approximately 10 minutes.

Whenever this discrepancy is raised, GDOT dismisses concerns by citing to purported differences between the two travel time estimates. Indeed, GDOT representatives have stated that the two numbers "cannot/should not be compared." See "Draft Meeting Summary – March 7, 2006," forwarded to Walter Kulash April 26, 2006. GDOT "explains" this anomaly by suggesting that the numbers in the Concepts Screening Report were "estimated using travel distance and an engineer's preliminary estimate of a typical average speed," and that they "were simply used to compare estimated travel times." The travel times in the model, however, were "computed by the model for the sole purpose of comparing travel times on all the thousands of paths through the network."

Of course, this response is nonsensical. First, the two numbers certainly are comparable, quantifying the *exact same thing*: the estimated 2030 travel time on the no-build alternative. Even GDOT describes them as used for identical purposes. At best, they are purportedly the same measure reached at by different methodologies. But there is absolutely no reason these numbers cannot be compared.

Second, any suggestion by GDOT that it is somehow improper to question why the decision to eliminate northern routes using the travel time in the Concepts Screening Report is disingenuous. That figure is the *only* estimated travel time GDOT has made public. It is entirely reasonable for any person reading the DSEIS to expect that GDOT used that figure in its calculations, particularly when, as here, the published figure appears more reasonable and reliable than the figure used in the traffic model.

In fact, by repeatedly asserting that the 16.3-minute figure is only an "initial assessment" not to be considered in evaluating concepts, GDOT is acknowledging that it included in its DSEIS information it believed to be inaccurate. This is antithetical to the purpose of an Environmental Impact Statement. See National Environmental Policy Act § 1500.2 (b). GDOT calls its decision to publish the figure it now disavows a "judgment call." See "Draft Meeting Summary." But there should be no "judgment" necessary in determining whether to include information in a DSEIS that GDOT believes is wrong.

b. The travel time data used in the traffic model are simply not reasonable.

As explained above, it was improper for GDOT to provide different estimated 2030 travel times in the DSEIS from those used in its traffic model. Even if it were appropriate to provide an inaccurate estimate to the public while using another figure in its traffic model, GDOT's decision to eliminate northern routes based on the traffic model would still be problematic because the estimated travel times inputted do not appear to be correct. The Rollins have expressed this position to GDOT a number of times, including in their formal comments concerning the DSEIS,

but GDOT has dismissed these concerns. GDOT has suggested that the Rollins' concern is based on a belief that the model's determination that no traffic traveling south from the study will use any northern route is "counterintuitive," but in fact there are a number of reasons that suggest that GDOT's traffic model – and its conclusions – are wrong.

- (1) The "initial assessment" of travel times is based on more reliable data than the model input.

In its formal responses to the comments it received, GDOT suggests that the estimated 2030 no-build travel time included in the DSEIS was developed using a "sketch-planning" methodology based on limited current data." But it is our understanding that GDOT or JJ&G in fact based this figure on a measure of actual travel on the current route. The travel times used in the model, however, appear to be taken from general Atlanta Regional Commission figures for roads with similar characteristics in counties considered to be analogous to Bartow County, rather than from any data specific to the current U.S. 411.

Moreover, the wide disparity in the two figures begs reexamination. The "initial assessment" no-build travel time contained in the DSEIS is 16.3 minutes; while GDOT has not revealed the estimated travel times used in the model, for the model to determine that no southbound traffic would use a northern route, the no-build travel time would have to be quicker than those estimated for the northern routes – that is, less than 10 minutes.<sup>1</sup> DSEIS, Figure 2.1.1.A-2. That suggests that GDOT's reported time – its "initial assessment" based on observation – was off by more than 60 percent. Put another way, a figure based only on broad regional data differed by more than 60 percent from the estimate of GDOT and JJ&G personnel intimately familiar with the study area – but GDOT selected the first number.

- (2) The travel times used in the traffic model are not reasonable.

The Rollins have fully addressed this issue on the record. Comments to Draft Supplemental Environmental Impact Statement 6-7, Dec. 2, 2005. But GDOT's responses compel further discussion. In its formal response to comments concerning the DSEIS, GDOT stated that the model's conclusions were reasonable for two reasons: (1) speeds on I-75 just north of Ga. 20 would have degraded to "under 50 mph;" and (2) improvements to the existing route will increase travel speeds on Ga. 20 and connected arteries.

As explained in our formal comments, calculations based on travel times provided in the DSEIS indicate that for Concepts E-F to prove slower than the no-build alternative, traffic on the relevant portion of I-75 would need to slow more considerably than to "under 50 mph." More precisely, I-75 speeds would need to degrade to approximately 26 mph. Despite repeated requests to GDOT, the Rollins are unaware of any data supporting not only that such a degradation is projected, but that it is reasonable to expect that GDOT and federal highway

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<sup>1</sup> GDOT has never suggested that the estimated 2030 travel times for Concepts E-F were incorrect. Indeed, although they routinely point to alleged degradation of travel on southbound I-75 as a reason for the "counterintuitive" result that no southbound traffic would use a northern route, any degradation was already incorporated into the estimated concept travel times included in the DSEIS.

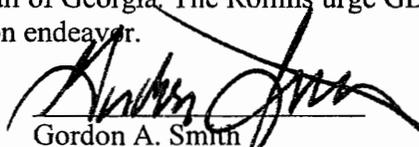
administrators would allow speeds on perhaps the state's most important interstate artery to slow to those on an unlaned residential street.

Second, GDOT's assertion that already-planned improvements to the existing route will raise the average speed on the no-build alternative from its current speed to as high as 45 mph is not borne out by data GDOT has provided. The DSEIS lists the estimated 2030 travel time for Concept A – which incorporates the planned improvements – as 15.4 minutes, less than a minute quicker than the no-build alternative, which does not include improvements. Given the 5.9-mile length of Concept A, that figure suggests that GDOT and JIG engineers estimated that travel would average approximately 23 mph on the improved existing route – barely half the speed used in the model.

Even assuming GDOT is correct in discounting the figure reported in the DSEIS, it is difficult to imagine that travel speeds on a signalized, well-developed corridor could *average* 45 mph for several miles. GDOT claims they “looked closely” at the model to ensure it was reasonable. But the Rollins believe that GDOT has a duty to explain how it can use data that contradicts not only the estimates of trained traffic engineers but also the common sense of those who live and work in the corridor.

Similarly, this raises the question of how GDOT chose to report only its “initial assessment” of 2030 travel times in the DSEIS. Its engineers called choosing to use the significantly longer times rather than the much shorter times incorporated in the model a “judgment call.” But given that GDOT already knew that members of the public might find the estimate in the model “counterintuitive” – perhaps because it estimates that traffic will flow considerably better in 2030 along the existing route than it does now – it is possible that publicly reporting the more believable figure rather than the actual estimate used by GDOT was a deliberate decision. In the DSEIS, the only way a member of the public (or a reviewing agency) could even estimate – let alone learn – the travel times GDOT used to eliminate routes from consideration was by calculating it himself or herself.

As always, the Rollins hope these comments are helpful in constructing a highway that will best serve the people of Bartow County and all of Georgia. The Rollins urge GDOT to work with us and other interested parties in this common endeavor.



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July 17, 2006

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Georgia Department of Transportation  
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Atlanta, GA 30334-1002

RE: US 411 Connector, Project No. EDS-500(5), PI No. 661950  
GJ#18733.01

Dear Mr. Keeper:

I am writing to follow up on my letter of May 22, 2006 concerning GDOT's offer to rerun the traffic model for the U.S. 411 Connector project using input travel times for the no-build alternative consistent with those provided in the Concepts Screening Report, which we believe will more accurately reflect traffic conditions in target year 2030. In that letter, I asked for clarification as to whether you, in your letter to me of April 26, were agreeing to our request that the model be run for *all* concepts originally considered for the project, followed by the resultant analysis of other criteria such as environmental impact, constructability, and economic viability. It is our position that unless all concepts are modeled with identical no-action input travel times, there will be no way to determine if the concepts screening process was conducted appropriately.

In addition, I discussed in my letter our disagreement with the draft minutes you provided of our meeting at Jordan Jones & Goulding's office earlier this year. In my response, I included our own minutes, drawn from our own notes immediately after the meeting. I would appreciate hearing your response to this issue.

As always, we wish to ensure that the U.S. 411 Connector project best serves the needs of all concerned. With a number of important dates approaching, we believe it is vital that any outstanding issues be resolved as soon as possible.

Thank you again for your attention to these matters.

Sincerely,

Walter M. Kulash, P.E.

WMK/pae

CC: Thorne Winter  
Michael Weiss





## Department of Transportation

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August 7, 2006

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RE: Georgia DOT Project EDS 500(5), Bartow County, P.I. Number 661950 - US 411 Connector

Dear Mr. Smith:

This responds to your letter of July 7, 2006 regarding the above project, including your attached "Supplemental Comments to the Draft Supplemental Environmental Impact Statement, No. 20050432." We also received a letter (dated May 22, 2006) from your traffic expert Mr. Walter Kulash of Glatting, Jackson et. al. which conveyed many of the ideas included in your letter. We have prepared a separate response to Mr. Kulash and are providing a detailed response to your letter and supplemental comments here.

In more than one section of your letter you assert that the Georgia Department of Transportation (the Department) has withheld information and been unresponsive to your requests and questions. I have to very respectfully disagree with that assertion. Throughout the (ongoing) process for development of this project, the Department has been responsive to all requests to review files and to provide information, including the 18 separate requests we received from King and Spalding and/or its agents. We instructed our consultant, Jordan, Jones and Goulding to also be cooperative in this effort. This is totally consistent with the letter as well as the spirit of both the Georgia Open Records Act and the Freedom of Information Act. Beyond the letter and spirit of these laws, we met with your consultant on more than one occasion and have attempted to answer all questions about the information contained in our records, including the travel forecast model itself, directly and in a timely manner.

We believe that your dissatisfaction with the information and answers you have received from the Department is not attributable to our lack of responsiveness but rather to your understanding and interpretation of that information. While not questioning the expertise or abilities of your consultant, you may recall that we urged you to retain a traffic modeling expert to assist you who

Mr. Gordon A. Smith  
August 7, 2006  
Page 2 of 4

had extensive traffic modeling experience and was capable of running the model himself with ability to understand and interpret that information as well as the information we provided. We urge you to revisit this area.

With regard to your statement that the Department has been unwilling to re-run the model, as has been relayed to you in previous correspondence, the modeling and analyses we have prepared for the Concept Screening and DSEIS all have been completely consistent with both regional plans and modern NEPA practice. Therefore, we see no need to re-run the model. However, despite this fact, we have on more than one occasion offered to run the model according to the parameters that your experts specify. To date you have not responded to our offer by providing the information we need to be able to prepare the model runs for you. Though well beyond what we believe to be appropriate analysis for this project, as we have previously offered, if you or your experts will specify in writing the modeling parameters you want changed, we will again model those concepts.

With regard to the "Supplemental Comments to the Draft Supplemental Environmental Impact Statement, No. 20050432" which were attached to your letter we offer the following comments.

- In Comment I, you allege that the traffic model is incorrect and that the concepts evaluation process is flawed. Specifically, it is noted in I.a. that "The travel time data included in the [Draft Supplemental Environmental Impact Statement] DSEIS does not match that used in the traffic predictive model."

*Response-*

*In Section 2 of the DSEIS, Figure 2.1.1.A-2, the travel time between US 411 at US 41 and I-75 South at SR 20 for the No Build (No Action) scenario is reported as 16.3 minutes; and the source of this information was clearly identified as the Concepts Screening Report (CSR). The methodology used to determine this travel time estimate, which is described in detail in Appendix C of the CSR, used actual travel distances and assumed average travel speeds along the routes of the proposed concepts. At this initial point in the NEPA process, the concept travel times were estimated because the regional travel model was not yet available for the consultant team to use. Subsequently, traffic forecasts were prepared for all concepts using a Bartow County sub-area traffic model, as is very clearly stated in pages 6-8 of the CSR.*

*Please note that the sub-area model forecasts represent a much higher level of sophistication and accuracy than the initial "floating car" analysis performed at the very initiation of the DSEIS. This use of updated information as the study progresses is perfectly consistent with standard NEPA document preparation practice.*

*Also in Section 2 of the DSEIS, Table 2.4-1, travel times are identified for the alternatives (not to be confused with concepts). In this table the travel time for the No Action scenario is identified as 15.8 minutes and the methodology used to calculate this (which is different from that used in the CSR), is referenced as a footnote in the table.*

*We must also point out that, while your letter and comments are directed solely at traffic issues and the associated factor of travel time, the latter is simply one measure that was used as part of the overall evaluation of the concepts. Other potential impacts, including adverse effects to federally-listed endangered species, figured into the decision not to advance concepts E and F, as discussed on page 32 of the CSR.*

- In several locations – notably I.b., I.b.(1) and I.b.(2) - your comments allege that the travel time data are incorrect, unreasonable or inconsistent, and that the...“estimated travel times inputted [to the model] do not appear to be correct.”

*Response-*

*The notion of what constitutes “reasonable” travel times is clearly open to speculation. But what is not speculative is that the results of both our initial traffic forecasts and the subsequent, much more sophisticated, sub-area traffic modeling are quite consistent. While the particular results may vary – as they can be expected to when going from an initial estimate to a complex network analysis – the pattern of the results shows a very consistent finding. Namely, that the northern concepts (E-H) failed to meet the basic project Need and Purpose; that is, they would not attract enough traffic away from the no-action US 411 scenario to justify an expenditure of public funds; while concepts B and D would improve network travel times in the study corridor and thus constitute a more viable public investment. As a result (and completely consistent with good NEPA practice), the northern concepts were not carried forward, and the more southerly concepts were more fully developed as the “range of reasonable alternatives.”*

*A notable aspect of your comments is that travel times are not inputs to the model, they are outputs. Travel times have been reported accurately throughout the DSEIS; as discussed above, they were derived by progressively more detailed and accurate methods as the concepts and alternatives evaluation process evolved. Evaluations were completed differently, depending upon what data was available at the time of reporting; moreover, the methodologies for all calculations have been referenced appropriately.*

- Several other comments follow the same thought pattern as in I.b: ...“GDOT’s decision to eliminate northern routes based on the traffic model would still be problematic because the estimated travel times inputted do not appear to be correct.”

*Response-*

*Again, travel times were not input into the model. Travel times are reported as outputs of the model; therefore, the decision to eliminate northern routes was not based on this scenario.*

*You are correct that the traffic modeling results were a major factor in determining which of the concepts were considered reasonable. As the CSR reported, the results of the concept traffic analysis were quite clear: Concepts B and D attract larger volumes of traffic and provide substantial relief to the existing US 411-I-75 connection (i.e., SR 3/US 41 and SR 20), while each of the other Concepts on new location attract significantly less traffic and provide no relief for the existing US 411-I-75 connection. Concept A, which utilizes the existing corridor, attracts a significant volume of traffic, but does not provide relief to the existing connection. All eight of the initial concepts evaluated would serve the stated purpose of providing a more direct connection to I-75. However, traffic analysis shows that the northern concepts (E, F, G, and H) attract such a small percentage of vehicles away from the existing US 41 and SR 20 corridor that insufficient congestion relief would be provided to justify a public investment in them. The concept screening process rightly concluded that the northern concepts do not meet the need and purpose of the project sufficiently to warrant further development.*

Mr. Gordon A. Smith  
August 7, 2006  
Page 4 of 4

- Your final comments (pages 3 and 4) refer to travel time data from various sources, some determined as part of the project and others identified as "general Atlanta Regional Commission figures for roads with similar characteristics in counties considered to be analogous to Bartow County..."

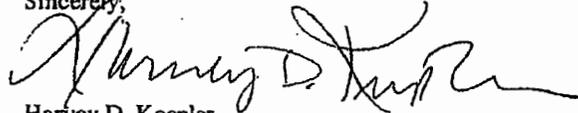
*Response-*

*All travel time methodologies and sources have been identified correctly throughout the various studies and in the DSEIS. The traffic forecasts used were derived from the officially-sanctioned regional traffic forecasting model that is based on adopted future population and employment forecasts, adopted transportation plans, and which considers future regional and local travel patterns and traffic operating conditions (i.e., congestion) on the entire transportation network (actual roads in Bartow County). Daily and weekday p.m. peak hour traffic forecasts were prepared for the eight initial corridor concepts (A - H) for Design Year (2030) and Opening Year (2010) conditions, and - primarily at the Rollins' request - for three concept variations (F-modified, and F-modified and D with an additional interchange) for Design Year conditions. Design Year and Opening Year weekday p.m. peak hour traffic forecasts were prepared for all project alternatives (A, AB, B, and D), including the Preferred Alternative.*

*The traffic model forecasts were checked for reasonableness before they were used for any purpose in the US 411 Connector Project. The traffic model was calibrated against actual traffic counts to a "precision" of about +/-10%, and based on review and evaluation of the model and its results/products, we are fully confident in the accuracy of the traffic forecasts used.*

Thank you for your comments and your continued participation in the development of this project. If you have more questions or need additional information, please let me know.

Sincerely,



Harvey D. Keeper  
State Environmental and Location Engineer

HDK/jm/gth

Cc: Harold E. Linnenkohl, GDOT Commissioner  
Robert Callan, FHWA Division Administrator



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November 22, 2006

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Chief Engineer  
Georgia Department of Transportation  
No. 2 Capitol Square, S.W.  
Atlanta, Georgia 30334

RE: 411 Connector Corridor, Bartow County  
GJ#18733.01

Dear Mr. Studstill:

Based on your discussion with Don Carson at your November 9<sup>th</sup> meeting to re-run the travel demand forecast model ("traffic model") that underlies the evaluation of concepts for the 411 Connector Corridor in Bartow County, we are pleased to offer our specific request in that regard. We feel that revisiting the evaluation of all the concepts using a more accurate traffic model will help resolve the issues concerning the validity of the Concept Evaluation process and the appropriateness of the selection of Alternative D as the preferred route.

**Review of Current Concern with Traffic Model Inputs**

In the standing traffic model for the No Action concept in the 411 Connector project, the year 2030 "congested" travel time (i.e., accounting for year 2030 traffic) is 10.5 - 10.7 minutes (eastbound - westbound) for the trip of primary concern (hereinafter "primary trip") in the project's purpose and need. This primary trip, used as the basis of comparison throughout the Concept Evaluation phase of the project, is the through trip (i.e., with neither origin nor destination within the study area) between the US411/US41 intersection at the western end of the study area and the SR 20/I-75 interchange at its eastern end.

However, in reporting the results of the concept evaluation, in the DSEIS and earlier documents, a year 2030 travel time of 16.3 minutes was reported for the primary trip under the No Action concept. In response to questions earlier this year, we were advised that the basis for this travel time was "good engineering judgment" and not the traffic model.

Other project data also supports a year 2030 travel time of at least 16 minutes for the primary trip. Assuming a 55 mph running speed, and adding in the delay at traffic signals as reported in the project's own traffic report (based on Year 2030 loadings), the travel time for the primary trip is 15.7 minutes, confirming the "good engineering judgment" exercised in reaching the 16.3-minute time reported in the Concept Evaluation analysis.



**Suggested Approach for Refining the Traffic Model**

In refining the traffic model, we recommend adjusting the input travel speed as necessary to reflect:

- Posted speed of 45 miles per hour for at least 3.0 miles of the 6.1-mile primary trip distance. This 3.0-mile segment of the corridor, between the US 411/Iron Belt Road on the west and the SR20/Cline Smith road on the east, is highly likely to continue to develop as a typical suburban corridor along a multi-lane highway, with low or non-existent level of locally required access management and with an absence of local "smart growth" land development regulations to alter the sprawl pattern. This pattern of development is characteristic of the entire Atlanta region, and there is no reason to project otherwise for the Route 411 corridor.
- The delay, to the primary trip, resulting from existing traffic signals, has already been computed for the Year 2030 No Action alternative in the project's traffic report.
- An increment of delay for the year 2030, beyond that reported in the traffic report, to reflect additional traffic signals likely to be located in the 3.0-mile segment in the center of the corridor (above) and likely to continue to develop intensively over the next 24 years, also needs evaluation. We project, for the year 2030, this 3.0-mile segment will have a traffic signal spacing of one-quarter mile, a density of signals typical of suburban strip commercial corridors and a spacing which the Georgia Department of Transportation regularly finds necessary to defend as a minimum on highways similar to US 411 and SR 20.

Our computation of the year 2030 travel time for the No Action route, recognizing the above three elements, is:

- Free flow travel time, 3.1 miles at 55 miles per hour  
and 3.0 miles at 45 miles per hour ..... 7.4 minutes
- Traffic signal delay (existing 11 intersections  
reported in the Traffic Report, plus 0.7 minutes  
acceleration/deceleration at signals) ..... 8.9 minutes
- Increment of traffic signal delay from projected four new  
signals, reflecting the increment between the eight existing  
signals in the 3.0-mile central segment of the corridor and  
the twelve signals that would be present at a one-quarter mile  
spacing by the year 2030..... 2.3 minutes
- Total travel time, Year 2030 No Action route ..... 18.6 minutes



We request that traffic model inputs be adjusted to more accurately yield a congested travel time of the above 18.6 minutes for the No Action route. These adjustments would involve the traffic model links (30-40 in number) that constitute the No Action route.

In refining the traffic model, we also recommend examining the Year 2030 travel speed and times for the segment of US 411 extending southward into Cartersville and Emerson. We do not have the benefit of intersection delay projections for the year 2030 that were used for the primary route. However, it should be possible to prepare these projections from the year 2030 assignments from the traffic report. Alternatively, a "good judgment" estimate, similar to that used in the concept evaluation phase for the primary corridor, should be used consistently in the modeling process.

We would be pleased to meet with your staff and consultants as soon as possible to discuss this approach to refining the traffic model.

Sincerely,

Walter M. Kulash, P.E.

WMK

cc: Don Carson  
Gary W. Rollins





## MEMORANDUM

**DATE:** March 13, 2007  
**TO:** David Ashley  
**FROM:** Robert Bernstein, P.E.  
**attachments:** traffic forecasting model output plots  
**SUBJECT:** US 411 Traffic Forecast Sensitivity Analysis Results

---

The US 411 Traffic Forecast Sensitivity Analysis described in this memo was prepared in response to questions, requests and directions from Mr. Walter Kulash of Glatting Jackson (on behalf of Mr. Gary Rollins). The purpose of the Sensitivity Analysis was to determine whether or not modification ('recalibration') of the traffic assignment model used for the US411 Connector Concept Screening Analysis would produce traffic forecasts that would lead to reconsideration of the northerly Corridor Concepts (Concepts E-H and F-Modified, as shown on the attached map) that were not selected for further development based on the original Concept Screening Analysis results. In a November 22, 2006, letter to GDOT, Mr. Kulash requested that the traffic assignment model input travel speeds be adjusted and the model be recalibrated to produce an I-75/SR 20-to-US411/US41 peak travel time for the 2030 No Action Alternative that he would consider to be 'more realistic' than the travel time that was produced by the model for the original Concept Screening Analysis.

The model recalibration tasks and the Sensitivity Analysis results are described in this memo.

### Recalibration Approach

A two-step approach was employed to meet the request that the model be recalibrated to reflect peak conditions (travel times) as described (Mr. Kulash suggested that an I-75/SR 20-to-US411/US41 peak travel time of approximately 18 minutes would be appropriate.)

- Step 1: modify inputs and recalibrate the Design Year (2030) No Action Alternative p.m. peak hour<sup>1</sup> model
- Step 2: make identical modifications to the Design Year 2030 Corridor Concept daily traffic models (the daily assignments for the various Concepts are to be the product of the modeling exercises)

---

<sup>1</sup> This analysis and all other US 411 Connector Project peak analyses focused on the p.m. peak hour, because it is the time period during which traffic volumes are highest and traffic operating conditions are at their worst.

**Recalibration Procedure**

There are three basic model inputs that can be modified to affect travel time outputs:

1. free flow speed
2. link (roadway) capacity
3. volume:delay function (determines speed reduction caused by traffic volume)

In order to be able to consider and address all possibilities for increasing model-derived travel times as requested, we developed three recalibration scenarios<sup>2</sup>, including one scenario that modified free flow speeds, one that modified link capacities, and one that modified volume:delay functions. Recalibration results are compiled in Table 1 and in the attached traffic forecasting model output plots.

**Table 1: Recalibration Scenario Travel Times**

Recalibration Scenario	2030 No Action Alternative p.m. peak travel time I-75/SR 20 to US 411/US 41 via SR 20 and US 41 (the "existing route")
<b>1: Reduce Free Flow Speeds by 43%</b>	<b>18.0 min</b>
<b>2: Reduce Link Capacities by 50%</b>	<b>18.7 min</b>
<b>3: Compress Volume:Delay curves by 33%<sup>a)</sup></b>	<b>17.8 min</b>

<sup>a)</sup> The Volume:Delay curves are used to determine speed reduction caused by traffic volume. Specifically, the curves relate speed as a proportion of free-flow speed to volume as a proportion of capacity. All volume:delay curves start with speed equal to free-flow speed (i.e., no speed reduction) at zero volume, and progress to approach zero speed (i.e., fully stopped traffic) at a specified volume:capacity ratio (v/c). In the volume:delay curves incorporated in the traffic forecasting model used for the US 411 Connector Concept Screening Analysis, speed approaches zero at v/c = 2.0, while in the "compressed" volume:delay curves incorporated in Recalibration Scenario 3, speed approaches zero at v/c = 1.33.

<sup>2</sup> All modifications for the recalibrations were made universally and consistently throughout the model network: free flow speed, link capacity, and volume:delay function adjustments were made in a relative and equivalent manner on all links. This approach is necessary, because applying modifications only to specific links of interest - i.e., the links on the travel path from I-75/SR 20 to US411/US41 - in order to achieve a certain result (e.g., to reduce speeds and increase travel time) is an inappropriate forecasting technique.

## Recalibrated Model Results

The final step of the sensitivity analysis process was to run 2030 daily traffic assignments for all ten of the US 411 Connector corridor concepts (Concepts A-H, F-Modified<sup>3</sup>, and No Action) using the recalibrated model. Because each recalibration scenario has unique characteristics to recommend it<sup>4</sup>, a full set of daily assignments (i.e., assignments for all ten concepts) was prepared and compiled for each of the three recalibration scenarios. Recalibrated assignment results are compiled in **Tables 2 and 3**, and **Figures 1 and 2**.

As shown in **Table 2** and **Figure 1**, none of the northerly Concepts (E-H and F-Modified) reach the minimum threshold of 18,900 vehicles per day (vpd) – the minimum volume necessary to justify building a multi-lane highway – under any of the recalibration scenarios. The highest forecasted daily volume on Concepts E, F, and F-modified was 8,100, the highest on Concept G was 9,300, and the highest on Concept H was 13,100.

Furthermore, as shown in **Table 3** and **Figure 2**, none of the northerly Concepts relieve the existing route enough to allow the existing facilities to operate at adequate service levels under any of the recalibration scenarios (daily volumes exceeding 22,000 would require major improvements on the existing route): the lowest forecasted daily volume on existing US 41 under any of the northerly Concepts was just under 36,000.

## Conclusions

We continue to believe that the original Concept Screening Analysis (as reported in the US 411 Concept Screening Report) is complete, accurate, and applicable, and that the results of the Sensitivity Analysis reported in this memo do not warrant any revision or reconsideration of the original Concept Screening Analysis, or of the conclusions and decisions derived from them.

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<sup>3</sup> The concept originally developed by the Rollins team

<sup>4</sup> Recalibration Scenario 1 (reduce free flow speed) was suggested by the Rollins team, Recalibration Scenario 2 (reduce capacities) resulted in the largest assignment of traffic to the US 411 Connector F-modified Concept, and Recalibration Scenario 3 (compress volume:delay function) is an analytically appropriate recalibration technique that retains the integrity and calibration of the underlying GDOT/ARC regional traffic forecasting model from which the project model was extracted.

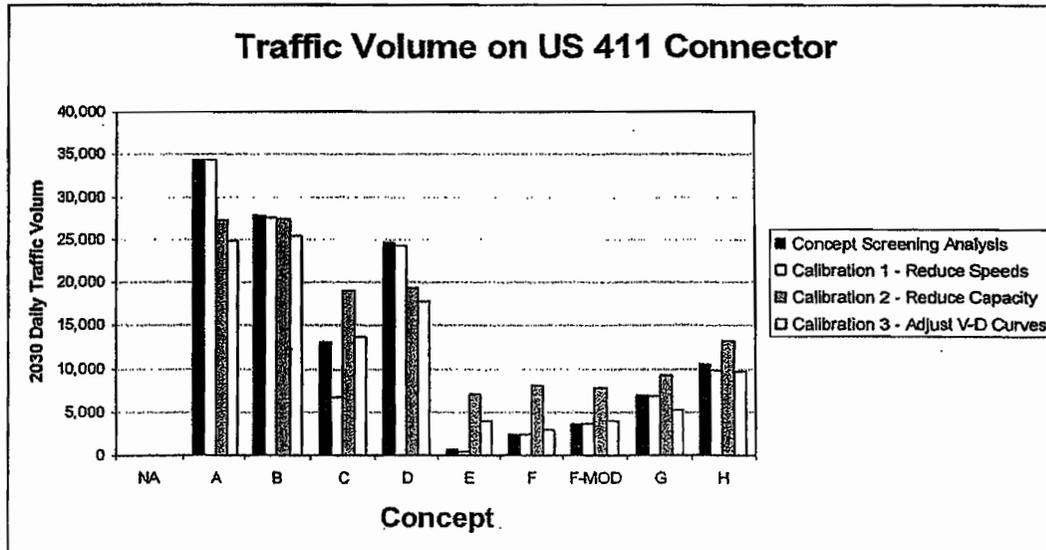
**Table 2: 2030 Daily Traffic Volumes on US 411 Connector**

US 411 Connector Threshold = 18,900 <sup>a)</sup>	No. Action	A	B	C	D	E	F	F-Mod	G	H
<b>Concept Screening Analysis</b>	-	34,400	27,800	13,000	24,700	750	2,500	3,700	7,000	10,600
<b>Recalibration 1: Reduce Speeds</b>	-	34,400	27,500	6,600	24,200	440	2,500	3,700	6,900	9,900
<b>Recalibration 2: Reduce Capacity</b>	-	27,200	27,400	19,100	19,300	7,200	8,100	7,800	9,300	13,100
<b>Recalibration 3: Adjust V-D<sup>b)</sup> Curves</b>	-	24,900	25,400	13,700	17,800	4,000	3,000	4,000	5,300	9,700

a) Per the Concept Screening Report (Fig. 4, p.28), daily volume on the US411 Connector must be at least 18,900 to justify construction of a 4-lane highway

b) "V-D": Volume:Delay Function

**Figure 1: 2030 Daily Traffic Volumes on US 411 Connector**

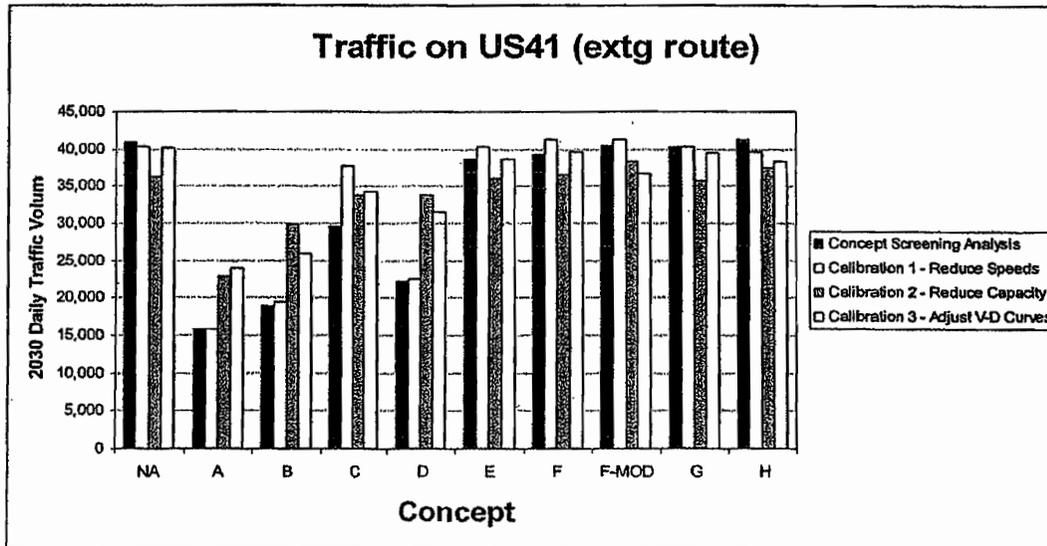


**Table 3: 2030 Daily Traffic Volumes on US 41 (the "existing route")**

US 41 (extg rte) threshold = 22,000 <sup>b)</sup>	No. Action	A	B	C	D	E	F	F-Mod	G	H
<b>Concept Screening Analysis</b>	41,000	15,800	19,000	29,500	22,200	38,600	39,300	40,400	40,300	41,200
<b>Recalibration 1: Reduce Speeds</b>	40,300	15,800	19,400	37,700	22,600	40,200	41,200	41,300	40,300	39,600
<b>Recalibration 2: Reduce Capacity</b>	36,200	22,800	29,800	33,800	33,800	36,000	36,500	38,400	35,800	37,400
<b>Recalibration 3: Adjust V-D Curves</b>	40,100	24,000	26,000	34,300	31,500	38,600	39,500	36,700	39,400	38,300

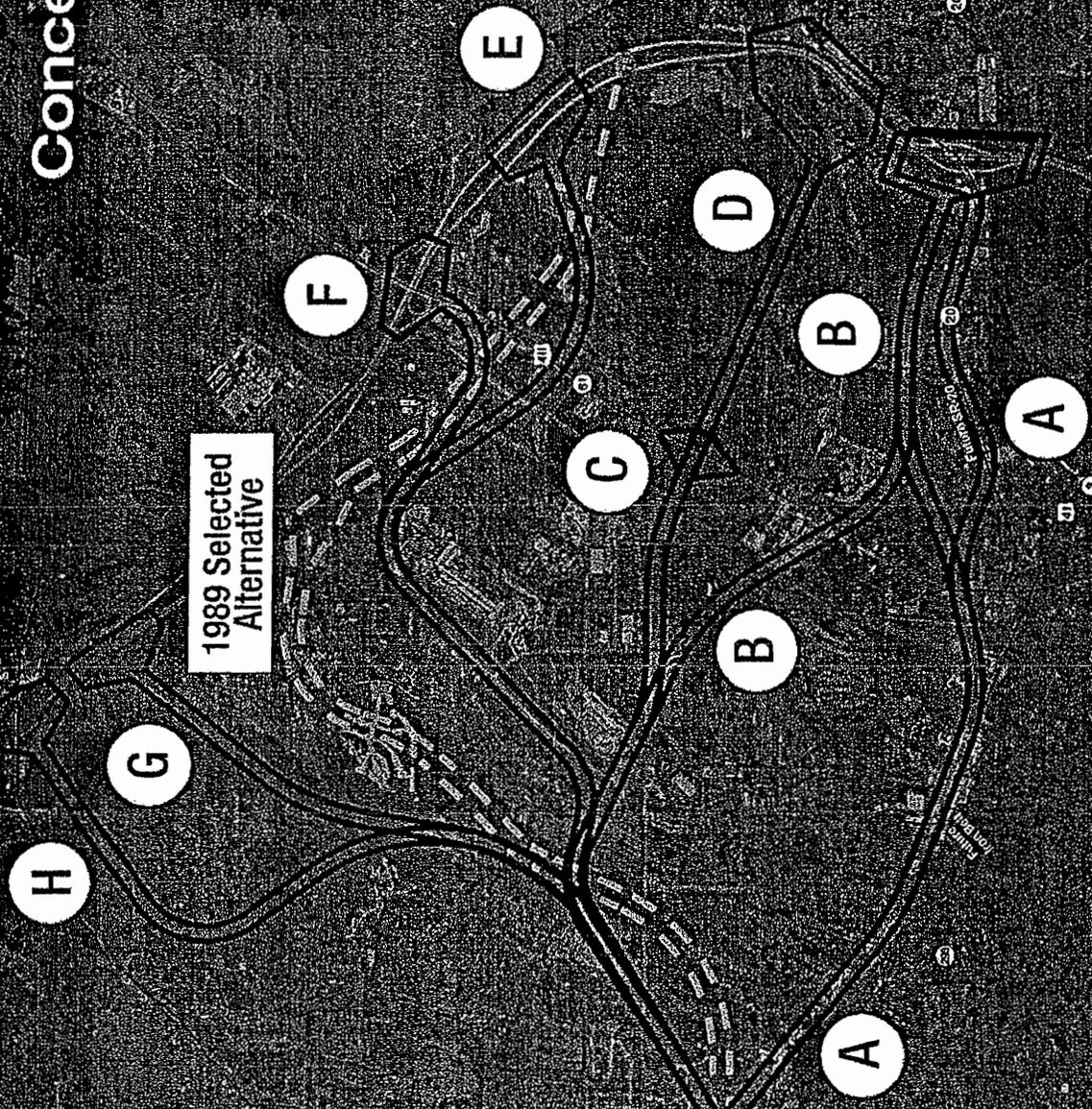
b) Per the Concept Screening Report (Fig. 4, p.28), if daily volume exceeds 22,000 on the existing route, it will not have adequate capacity and will need to be expanded

**Figure 2: 2030 Daily Traffic Volumes on US 41 (the "existing route")**



# Concepts

1989 Selected Alternative













## MEMORANDUM

**DATE:** March 26, 2007  
**TO:** David Ashley  
**FROM:** Ken Anderson  
**SUBJECT:** US 411 Connector – Updated and Refined Concept Cost Estimates

---

Updated and refined concept cost estimates for Concepts A-H and F Modified were recently made at the request of the Department in response to a request by Mr. Walter Kulash of Glatting Jackson (on behalf of Mr. Gary Rollins).

The updated Concept cost estimates are as follows:

<u>Concept</u>	<u>Cost Estimate (\$ Millions)</u>
A	\$118.7
B	\$316.0
C	\$159.5
D	\$399.6
E	\$351.3
F	\$387.1
F – Modified	\$398.9
G	\$394.3
H	\$402.9

The updated and refined estimates are based on the following parameters:

- For the interchange at US 41, the configuration of the interchange for all concepts except Concept A was assumed to be the same.
- Project length, bridge layouts, and associated earthwork, paving and other construction quantities were individually estimated for each Concept for the roadway between the US 41 and I-75 interchanges.
- The quantities for the I-75 interchange for Concepts E-H including F Modified were assumed to be the same as for Concept D. A more detailed layout for Concept D was done in earlier studies; for the purposes of updating and refining the estimates for Concepts D-H and F Modified, it was determined that the extent of construction for Concepts E-H and F Modified would be as complicated and extensive as for Concept D.

Memorandum  
March 26, 2006  
Page 2

- The cost of additional laneage based on projected traffic demand along I-75 in each direction between SR 20 and the new I-75 interchange was estimated for Concepts E-H and F Modified. Quantities for affected bridges were added.
- Rebuilding the existing US 411/SR 61 interchange at I-75 was included for Concepts F Modified, G and H. The addition of laneage along I-75 will require the reconstruction of the existing interchange layout to accommodate the added lanes.
- Right of Way costs were estimated for each of the concepts, based on project length and interchange configuration.

The cost estimate breakdown is attached.









RECEIVED  
MAY 08 2007

KING & SPALDING

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May 8, 2007

**HAND DELIVERY**

Harvey D. Keeper  
Staff Environmental/Location Engineer  
Georgia Department of Transportation  
3993 Aviation Circle  
Atlanta, GA 30336-1593

**Re: U.S. 411 Connector  
Project EDS-500(5)  
P.I. Number 661950, Bartow County  
EIS No. 20050432**

Dear Mr. Keeper:

For approximately two years, we have pressed GDOT to examine the traffic modeling procedure used by its consultant to evaluate – and eventually eliminate – several routes from consideration for the above-referenced project. In essence, our concern is that the apparent use of an unreasonable travel time for the existing route – a time different from that reported to the public – led to an inaccurate prediction that the northern routes would attract insufficient traffic, removing them from further analysis.

Most recently, GDOT agreed to conduct a “sensitivity” analysis to determine if the use of a more appropriate no-build travel time in the model would result in more traffic on northern routes in the build year. In running this test, however, GDOT’s consultant proportionally altered the travel time on every link in the network, predictably producing only minor changes in results. It is impossible to test if or how a model would respond to a single change in input – in short, to test the sensitivity of the model to revised data – if all inputs are similarly revised. Thus, GDOT still cannot state whether the use of a more reasonable no-build travel time would have led to more favorable numbers for the discarded northern routes.

In an effort to break this impasse, we consulted with Dr. David Hartgen, a professor at the University of North Carolina in Charlotte and a leading expert on traffic modeling. He was able to complete a more thorough review of the data provided by GDOT, and he has reached a number of preliminary determinations that call the results of GDOT’s model into further question. (Dr. Hartgen’s initial report is enclosed for your review.) His three main points are:

- GDOT’s consultant apparently had very little traffic data for use in developing the model: of 5,366 links in the study area, only 41 had unique traffic counts, and of those only three were segments of the existing route. This limited information left

the consultant with few options when he attempted to calibrate the base year of the model to observed traffic conditions. Thus, in order to make sure the traffic counts on the existing route matched what GDOT had observed, the consultant appears to have taken the step of imposing a travel penalty of 6 to 8 minutes on a stretch of I-75, leading the model to reflect an artificially and unreasonable 8½ mph southbound travel speed on I-75 just north of the Ga. 20 interchange, and slightly higher speeds on links further to the north. Another “adjustment” was apparently made to speed up traffic on one link of the existing route so that it took no time for a vehicle to traverse at all. Together, these would have created a large time penalty for the northern routes, which rely more on I-75 to reach the common endpoint, and failed to reflect actual conditions in the network.

- It is an important modeling principle that calibrations made to the base year be carried over to any future forecasting years. The calibration described above, however, was removed from the 2030 build-year run of the model used in the Concepts Screening Report, leaving that run apparently uncalibrated to even the limited information available about existing conditions. When later runs were made for inclusion in the DSEIS, the original calibration was removed from both the base and build year runs. Thus, it appears that the model results used to eliminate routes from further consideration were never calibrated, even to the limited data available to GDOT’s consultant. In this light, we ask for full documentation of how the model calibration was conducted and the results of the calibration.
- The consultant also assumed that peak-hour traffic in the study area amounted to 12 percent of the daily traffic count, rather than the standard 9.5 percent. Dr. Hartgen describes this as a substantial departure from established practice that may have had a material effect on the model’s results.

In summary, Dr. Hartgen’s preliminary study of the data suggests problems with the traffic model above and beyond this identified previously. Indeed, a review of Dr. Hartgen's report reveals a number of issues that call into question the reliability of the model as a whole. Given that the decision to eliminate all northern routes from consideration and devote full environmental and cost evaluation resources to the three remaining concepts was based entirely on the results of this flawed model, we believe it is appropriate either to develop a new, more reliable model, or to subject the northern routes to the same level of analysis so that all potential routes for the project can be fully considered.

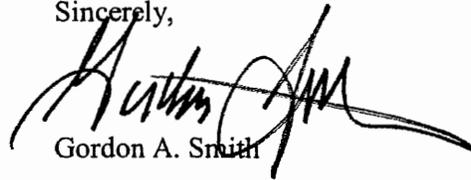
He likewise concludes that the decision by GDOT’s consultant to change all travel times when re-running the model was a questionable method of completing a sensitivity test. This failure to perform a sensitivity analysis as promised appears to us to indicate that GDOT never intended to provide a fair and good-faith study of our concerns. We also request that GDOT provide us with the data used in the re-run of the model to determine exactly what inputs were made.

May 8, 2007  
Page 3

We urge GDOT to review this report and reconsider its selection of Alternative D – by our estimate, the most expensive route and a full \$200 million more costly than Route G – as the preferred route for the U.S. 411 Connector, at least until it can determine that the forecast used to remove the shorter, less costly northern routes from consideration was conducted properly and accurately.

As always, we join GDOT in working to build the best highway for all concerned.

Sincerely,

A handwritten signature in black ink, appearing to read "Gordon A. Smith", written over a printed name.

Gordon A. Smith

Enclosure

May 8, 2007

Page 4

cc: Mike Evans  
Chairman, State Transportation Board  
212 Dahlonga Street  
Cumming, Ga 30040

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Vice Chairman, State Transportation Board  
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April 26, 2007

**RE: Preliminary Review of US 411 Connector Traffic Forecasts**

From: David T. Hartgen, Ph.D., P.E., UNC Charlotte

To: Michael Weiss, King and Spalding

**Overview**

I have been requested by King and Spalding, an Atlanta-based law firm, to review the procedures used in the traffic modeling effort for the proposed US 411 Connector, a proposed connector road from US411 to I75, in Bartow County, GA. I was asked particularly to review the procedures used to prepare traffic forecasts for alternative locations for the Connector. Although their alignments are different, each alternative (with the exception of C) generally connects US411 west of Cartersville with I75 north of Cartersville.

This memorandum constitutes my preliminary assessment of the procedures used by Jordan Jones and Goulding (hereafter JJG), the consultant to GDOT, to forecast traffic for the proposed US 411 Connector, northwest of Atlanta. We reviewed traffic assignment files, maps, memoranda, the DSEIS, and other documents provided to us by your office. We also obtained a current copy of CUBE, one of the modeling packages used for the study, from the vendor (Citilabs), and used it to read various files sent to us. However, we have not talked with JJG personnel or GDOT concerning the modeling procedure, nor have we conducted traffic assignments (which would require another package, Voyager, to do). Therefore we have not checked or attempted to duplicate the assignment results. Therefore, our assessment must be regarded as preliminary, and our findings may change if additional information becomes available.

**Materials Reviewed (in order of time)**

- Tests received 12-1-04, performed in April-May of 2004
- Sarah Adams, "Meeting Summary: July 7, 2004", JJG.
- Tests received from JJG, January 31, 2005
- Tests received from JJG, 9-20-05
- US411 Connector, Draft Supplemental Environmental Impact Statement, GADOT, September 2005.
- Gordon Smith, King and Spalding, "US 411 connector" letter to Harvey Keeper, GDOT, July 7, 2006.
- Walter Kulash, "411 Connector Corridor, Barstow County", letter to David Studstill, GDOT, Nov 22, 2006.
- R. Bernstein, "Traffic forecasting model output plots", memo to David Ashley, JJG, March 13, 2007.

Table 1 contains a listing of the computer files we have received. The first set, received December 1, 2004, consists of tests conducted in April-May 2004 and forms the basis of most of the modeling. The second set, received Jan 31, 2005, are actually duplicates of these but with conversion to 'shape' files for mapping. The third set, received September 9, 2005, were largely conducted in the latter half of 2004, and consist of additional model runs for other alternatives and updates. This sequence is important because the first 2 sets

contain the forecasts on which the initial assessment of alternatives (the July 7, 2004 memo) was made.

### **Our Understanding of the Modeling Approach**

Urban traffic forecasting models are specialized computer-based tools used to estimate traffic volumes (average daily or hourly) traffic on proposed new roads. The modeling approach used here is best described as a 'sub-area window' developed from a larger model for the Atlanta region. Essentially, a small portion (in this case, Bartow County) is 'cut out' from the larger network, the road and zone structure inside the county is more finely detailed, and additional information on travel times, traffic counts and speeds is often obtained. Origin-destination surveys and household travel surveys might also be conducted.

The traffic model for the sub-area (Bartow County) consists of about 5366 road sections ("links"), 2836 intersections and zone centroids (nodes), 296 zones, and 14 external stations. This is a medium-sized network, comparable to that of cities of about 200,000 persons.

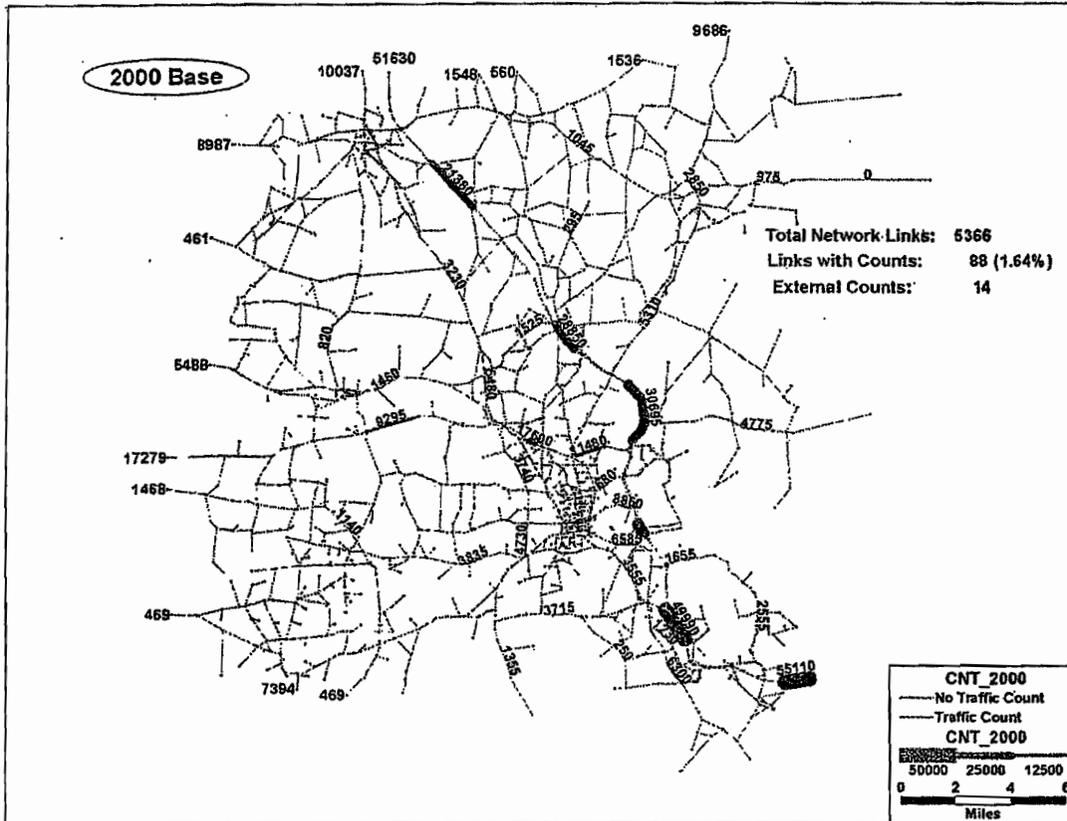
The model is operated in 3 steps:

- *Trip generation:* Trips originating and destined to each of 267 small zones in the sub-area are estimated from present and future land use.
- *Trip distribution:* Trips origins and destination are then connected using a 'gravity-like' model. Separate connections are made for three trip purposes.
- *Assignment:* Trips are then assigned to the shortest travel-time path between origin and destination, adjusting for increasing traffic (capacity-restraint equilibrium). (A fourth step, mode split, is not done here).

To be operated confidently in forecasting (as in preparing forecasts for a future road) the model must first be *calibrated*, that is, tuned in various ways, so that model-assigned traffic on major routes matches reasonably closely with actual traffic determined from traffic counts. The criteria for calibration include average percent error by volume ranges, traffic crossing screen-lines and cut-lines, total traffic (vehicle-miles and vehicle-hours) by functional class, traffic crossing into Atlanta, travel times and speeds, and traffic by hour. Adjustments made to the model for calibration purposes include inserting time adjustments ('penalties' or 'speed reductions') into specific links to divert traffic between routes, changes in capacities, changes in trip ends, changes in volume/capacity coefficients and distribution decay coefficients, and changes in network connections to zones. Once the model is deemed to be operating satisfactorily in the base year, the changes made are then carried forward into the tests of future alternative roads.

In this case, the model for Bartow County has 5366 links, of which 88 have traffic counts (of these 41 are unique counts). However only 3 counts are on US411/SR41 or SR20. (See Map 1).

Map 1. Bartow County Traffic Counts and Network.



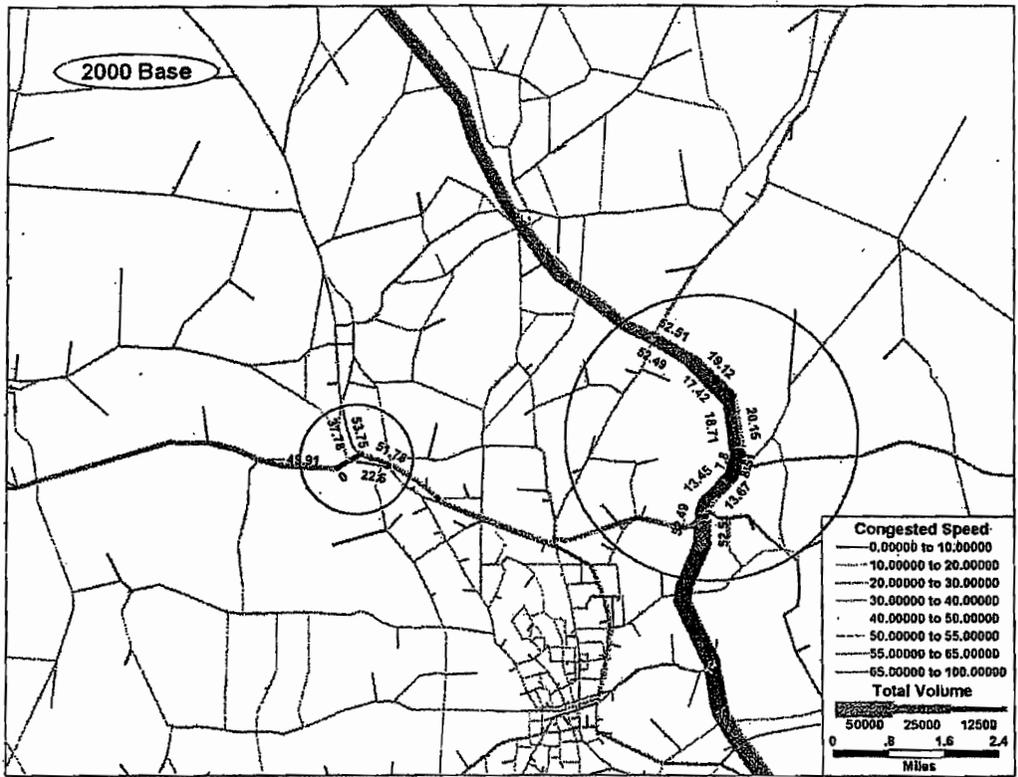
### Concerns with the modeling

Recognizing that our review is preliminary and that additional information may clarify some of our questions, the following are major subjects we have identified as being of concern:

1. **Use of travel time adjustments on 9 specific links, for some tests but not for other tests.**
  - For the first 2-series of base-year 2000 tests of the initial alternatives A-H (conducted in the April-May 2004, and then converted to ESRI shape files in January of 2005), *travel time penalties of about 2 minutes each were inserted onto 8 key links on I75, just north of US 20. For another short link (on US411 just west of SR41) a 'reverse penalty' of zero travel time was applied.* These adjustments created an artificial 'speed well' (sharp drop in speed) on I75 between SR20 and US411 north of Cartersville, and a speed-up of speed through a key intersection on US411 west of Cartersville. See Map 2. We believe that these adjustments were inserted in the calibration process in an effort to 'slow down' I75 relative to other links and thus improve the match between estimated and actual I75 southbound traffic. Similarly we believe that

the travel time reduction on the link on west US411 was made to attract more traffic to US411, thereby better matching the counts on US411.

**Map 2. Links with Travel Time Adjustments and Congested Speeds.**



- The effect of the I75 time penalties (about 6 minutes in each direction for I 75) would be to substantially lengthen travel times for alternatives F-H. Alternatives D and E would be partially affected, D by about 2 minutes, and E by about 4 minutes. C does not reach the Interstate and would not be affected. Alternatives A and B would not be affected.
- The effect of the time reduction (about ½ minute) on west US411 would be to speed up US411, making it more attractive than alternative routes to I75.
- However, *these adjustments were then REMOVED from the network when the initial set of 2030 tests was conducted in the spring of 2004, and also in the tests submitted in January of 2005.* Good modeling practice generally requires that calibration adjustments made to base year networks be carried forward into future year networks. Inexplicably, these adjustments were removed for the forecast tests. *This introduced an apparent inconsistency in the modeling procedure: using time adjustments for calibration of the model, but not for forecasting.*
- The Meeting Minutes of July 7, 2004 indicates that “All concepts north of D [this means E-H, presumably] do not meet the need and purpose because they

*don't divert significant amounts of traffic from the existing US411/SR20, but the concepts to the south [of D?] perform well".* This statement is based on the tests of the spring 2004, which contain the apparently inconsistent use of time adjustments.

- But additional review of later tests, conducted for the DSEIS in the second half of 2004, indicate that the time adjustments are not there, either in the base or future tests. This raises the question of how the revised model was calibrated, what adjustments were made if not individual link adjustments, and whether *those adjustments* were carried forward into the forecasts. Several possibilities are adjustment of various trip ends and external pairs; use of a travel survey; adjustments of speeds or capacities by various methods; and adjustments of trip distribution factors. Without further discussion or documentation we are not able to determine the details of this procedure.

## **2. Role of calibration**

- As noted above, the purpose of model calibration is to ensure a good fit between model results and observed traffic, in the base year. But in the memo of March 13, 2007, JJG treats 'calibration' as an adjustment to speeds in future tests, for purposes of conducting a sensitivity test, not for matching base-year volumes.
- We are concerned that this use of the term 'calibration' may indicate an uncertainty as to the differences between calibration and sensitivity tests, and possibly may have contributed to the use of across-the board speed adjustments for tests described in the March 13, 2007 memo.

## **3. Assumptions about the peak-to-daily traffic conversion.**

- Another assumption made in the model is the use of a single factor (8.33) to convert the peak-hour traffic to 24-hour volumes. This factor implies that 1/12 of average daily traffic occurs in the peak hour ( $100/12 = 8.33$ ).
- The problem here is that most urban traffic models have much lower peak hour expansion factors, since usually only about 9.5 percent of daily traffic occurs in the peak hour. This implies a peak-to-daily expansion factor of 10.5 ( $100/9.5 = 10.5$ ). Peak hour factors tend to fall as volumes rise because traffic moves to the 'shoulders' of time to avoid delays. Therefore future traffic forecasts should have different, higher factors to expand from peak to 24-hour.
- If the factor above (10.5) is used instead of 8.33, it would imply a 26 % increase in traffic for future AADT estimates. Failure to account for this effect could result in substantially lower traffic forecasts.

## **4. Treatment of induced travel and feedback loops.**

- There is no discussion in the materials we read concerning 'induced travel', traffic thought to be created by the addition of capacity. Induced travel is not just traffic 'diverted' from slower routes, but additional traffic created by improved accessibility and the growth it attracts. In practice it is accounted for by 'feeding back' congested speeds into the model's distribution, or by

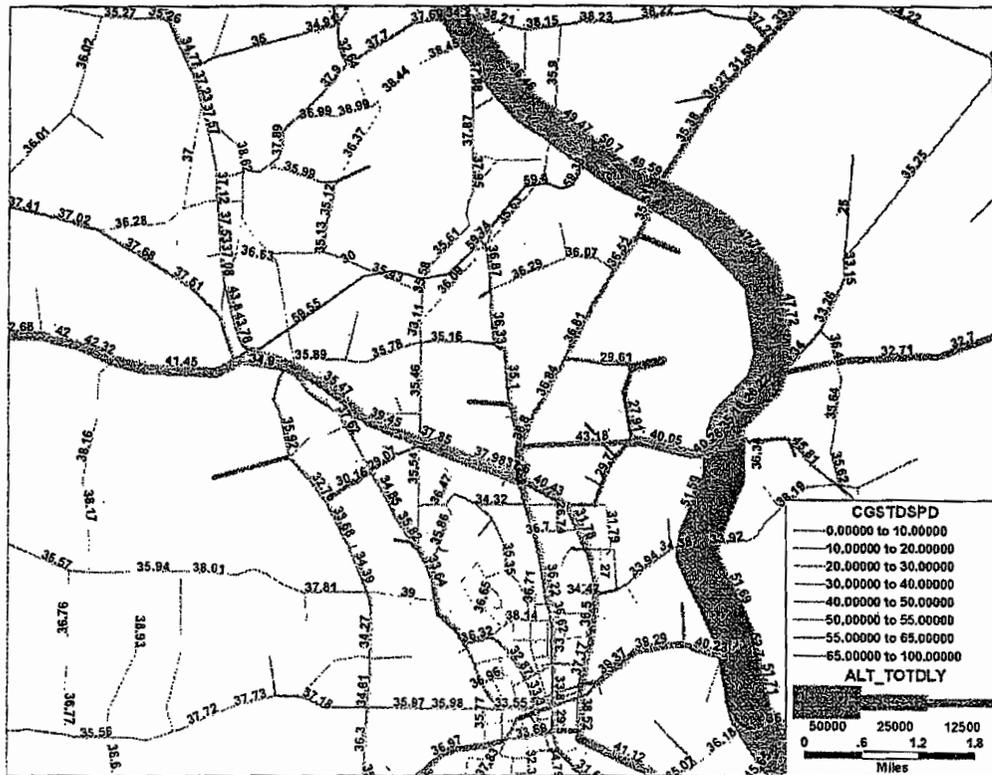
increasing development as a function of accessibility changes (see 7 below), or changing peak hour and day-of-week factors.

- Our review of the trip tables for the models shows that they are unchanged for the various alternatives, suggesting that induced travel is ignored. If included, induced travel would probably have the effect of increasing traffic on the faster (middle) alternatives relative to the more congested alternatives (A and B).

**5. Assumptions about speed on US 411/US 20.**

- Our analysis of 'congested speeds' on US 411/SR 41 indicates that for most tests, the 'congested speed' ranges from 35-40 mph. See, for example Map 3. However, if the actual (on the ground) operating speed) is below 30 mph (and might be even lower with the addition of more signals or development), then a modeled (in the network speed of about 30 mph should have been considered in the tests. One way to do this is to do sensitivity tests for speed on US 411, as requested by Kulash (memo, Nov 22, 2006)

**Map 3. Alternate F with Congested Speeds and Traffic Volumes.**





analysis indicates that the best estimate for traffic on an alternative is less than 18,600 ADT, then the solution is not to eliminate the alternative from consideration but instead to look at more modest context-sensitive designs which weigh cost versus traffic. We are thinking here of 'super-2' designs (at-grade 2-lanes with wide shoulders, some passing lanes and turn lanes at key intersections), possibly doing 2 lanes of a 'freeway' design now and then adding the other lanes later when volumes increase; 'parkway' and other context-sensitive designs that allow trucks but at lower speeds and tighter geometrics.

#### **8. Reduction of speeds in recent tests**

- The most recent round of tests (see memo of March 13, 2007) apparently reduced speeds across-the board or proportionally for groups of links. Not surprisingly, the results were similar to prior tests since that amounts to 'slowing down' the network uniformly. However, these tests are also inconsistent with the trip distribution model which would (of course) not send so many trips into Atlanta if the speeds were lower. We have not received the documentation or modeling results for these tests.
- The memo indicates that it is believed that the differential use of speed changes (for instance, testing the effect of several different speeds just on US 411) is an inappropriate forecasting technique (Memo of 3/13/07, footnote 2). We disagree. The purpose of these tests would be to determine the *sensitivity* of the forecasts, particularly the traffic on alternatives, to reasonable changes in the assumptions about speed on US411. If the results show high sensitivity as indicated by a large change in traffic volumes on some or all of the alternatives, then the reasonableness of the selection of alternatives based on volume can be re-visited. Combined with the likelihood that the modeled speed on US 411 is too high (see #4 above), a sensitivity analysis of speeds on US411 should be made. If as the GDOT consultant suggests the results are insensitive to speed changes, then that would strengthen confidence in the alternative evaluation.

#### **9. Stability of external traffic to Rome**

- The model apparently assumes the same 'external' traffic to Rome for the alternatives as with the base cases. This means the economic growth of Rome is independent of the US411 Connector.
- If a primary justification for the US 411 connector is to get Rome workers to I75, then the Connector is also likely to affect both the number of workers and the paths they take.
- This means that the tests for alternatives should have higher 'external' traffic forecasts to Rome. The effect of this would be to raise the forecasts of traffic.

### Suggestions for clarification

- **Calibration:** The processes used for calibration of the model need to be reviewed. This includes all notes and documents showing calibration criteria at various steps.
- **Counts:** Only 41 unique counts is a small number to calibrate a network of this size. Ideally more counts should have been taken so that a better calibration could be achieved. An alternative calibration method (e.g. Willumson) might also be considered that better ties into both counts and external traffic.
- **Use of time adjustments:** exact documentation of all tests, but particularly those leading to the statements in the July 7, 2004 memo, should be reviewed.
- **Tie ins:** The network should reflect the proposed tie-ins of the alternatives to the local street system.
- **Sensitivity tests:** sensitivity tests should be run to determine the sensitivity of the traffic forecasts to speeds on US 411/41.

**Table 1. Summary of Files Reviewed**

	Subfolder	Subfolder	Subfolder	Base Files- Earliest	Base Files- Latest	ESRI File Date	ESRI File Date
<b>US 41 Connector Data, 12-1-04</b>							
2000	Base			4/28/2004	5/26/2004		
	A			4/28/2004	7/28/2004		
	B			4/28/2004	5/26/2004		
	C			4/28/2004	5/26/2004		
	D			4/28/2004	5/26/2004		
	E			4/28/2004	5/26/2004		
	F			4/28/2004	5/26/2004		
	G			4/28/2004	5/26/2004		
	H			4/28/2004	5/26/2004		
2030	Base			6/23/2004	7/30/2004		
	G			6/23/2004	11/23/2004		
	H			6/23/2004	8/2/2004		

**Updated Selected Links, 1-31-05**

2000	Base			4/28/2004	5/26/2004	1/31/2005	
	A			4/28/2004	7/28/2004	1/31/2005	
	B			4/28/2004	5/26/2004	1/31/2005	
	C			4/28/2004	5/26/2004	1/31/2005	
	D			4/28/2004	5/26/2004	1/31/2005	
	E			4/28/2004	5/26/2004	1/31/2005	
	F			4/28/2004	5/26/2004	1/31/2005	
	G			4/28/2004	5/26/2004	1/31/2005	
	H			4/28/2004	5/26/2004	1/31/2005	
2030	Base			6/23/2004	7/30/2004	1/31/2005	
	G			6/23/2004	11/23/2004	1/31/2005	
	H			6/23/2004	8/2/2004	1/31/2005	

**Traffic Data Received from JJG, 9-20-05**

2004	Daily Base (Alts)			12/21/2004	12/23/2004		
	Daily Base (Concepts)			12/21/2004	12/22/2004		
	Model Development			5/24/2004	8/25/2004		
		Daily TripTable		6/23/2004	12/22/2004		
		PM Peak Hour					
		TripTable		4/6/2004	12/21/2004		
		Regional to Subarea					
		Daily		4/28/2004	12/21/2004		
		Test Daily Base		8/26/2004	8/27/2004		
	PM Peak Base (Alts)			12/21/2004	1/13/2005		
2010	PM Peak Hr Alts						
		A-2		7/9/2004	10/6/2004		
		A_B		9/8/2004	10/6/2004		
			Update				
			Nov 1	9/24/2004	11/11/2004	11/11/2004	1/13/2005
			Update				
			Oct 28	9/24/2004	10/29/2004		
		B-AG		8/23/2004	10/6/2004		

**Table 1. Summary of Files Reviewed**

Subfolder	Subfolder	Subfolder	Base Files- Earliest	Base Files- Latest	ESRI File Date	ESRI File Date
	Base		8/9/2004	10/6/2004		
	B-FW		8/19/2004	10/6/2004		
	D		8/16/2004	10/1/2004		
	TSM		8/9/2004	11/17/2004	11/17/2004	
2030 E + C Model Development						
A_B			6/15/2004	7/27/2004	7/27/2004	
	Update Aug 24		6/22/2004	9/8/2004	9/9/2004	
	Update Oct 28		6/22/2004	10/28/2004	10/29/2004	
	Update Nov 1		6/22/2004	12/9/2004	11/10/2004	
	Update Dec 9		6/22/2004	12/9/2004		
D			6/15/2004	7/27/2004	7/27/2004	
	Update Aug 10		6/22/2004	8/10/2004	8/10/2004	
	Update Aug 13		6/22/2004	8/17/2004	8/17/2004	
	Update Dec 13		6/22/2004	12/13/2004		
D With IC			6/23/2004	3/10/2005		
Daily Alternatives						
	A-1		6/23/2004	9/21/2004	9/21/2004	
	A-2		6/23/2004	9/21/2004	9/21/2004	
	A-B		6/23/2004	9/21/2004	9/21/2004	
	B-AG		6/23/2004	9/21/2004	9/21/2004	
	Base		6/23/2004	9/16/2004	9/16/2004	
	B-FW		6/23/2004	9/20/2004	9/20/2004	
	D		6/23/2004	9/16/2004	9/16/2004	
	TSM		6/23/2004	11/9/2004	11/10/2004	
F Modified with IC			6/15/2004	3/10/2005		
F Modified wo IC			6/15/2004	3/10/2005		
TSM			6/22/2004	11/17/2004	11/17/2004	



June 26, 2007

From: D. Hartgen, the Hartgen Group

To: Michael Weiss, King and Spalding

RE: Notes on Model Calibration and Speed Wells

This memo summarizes the findings of our additional investigation concerning the accuracy of the Bartow model used to estimate US 411 traffic. In this memo, we investigate two issues:

- The extent of model calibration.
- The source of speed reductions ("speed wells") in the 2000 Base and Alternative traffic assignments.

### Extent of Model Calibration

The question of how well the base year model (the ARC model and the sub-regional Bartow model) were initially calibrated has been raised as an important issue. It is well understood in traffic forecasting that base year models must be adequately calibrated before use in forecasting, since it is axiomatic that a traffic model must adequately replicate base year traffic if it to be used to forecast future traffic.

- As noted in the documentation, the model used for traffic forecasting is a sub-regional model for Bartow County (the Bartow Model), extracted from the full regional model (the ARC model). The full ARC model was (presumably) calibrated to the year 2000.
- According to the documentation (memo 2/27/04), calibration of the Bartow model was initially considered. This memo shows "calibration" as a planned work step along with gathering more traffic counts to do the calibration. However, the proposed work step was apparently dropped later, and the additional traffic counting and the re-calibration of the Bartow model was not done.
- Several references in the documentation note that federal guidelines call for the use of the regional model in traffic forecasting, to ensure consistency of population and employment forecasts. However, since a sub-area model was developed for this project, the ARC population and employment forecasts could have been used AND a re-calibration ALSO done to ensured local accuracy. Many sub-area models require additional calibration before use, because the sub-areas are often not as accurately calibrated as the overall regional model. The reasons for not doing the re-calibration here are not given, but may relate to the above requirement for regional consistency along with greater cost and longer analysis time.
- Numerous criteria are applied to traffic forecasting models to ensure they are calibrated. Among the common criteria are:
  - Overall RS error (standard error of difference counts and estimated traffic).
  - Overall regional vehicle-miles and vehicle-hours.
  - Travel time and trip length distributions
  - Screen line and cut line volume sums
  - Traffic volumes and VMT by functional class

- o Percent errors by volume range.

It is generally straightforward to get overall statistics to meet criteria (overall VMT error, is often within 1-2 percent). However calibration for smaller areas or for functional classes are more difficult to achieve. Federal calibration guidelines suggest that overall estimated VMT should be within 5 % of observed VMT<sup>1</sup>, and that volume sums by functional class should be limited to the following error:

- Freeways: <7% difference vs ADT
- Principal arterials <10%
- Minor Arterials <15%
- Collectors <25%
- Frontage roads <25%

In addition, all traffic counts should fall BELOW the maximum error threshold line shown in the attached chart<sup>2</sup>.

- Looking at the Bartow model, we identified nearby 21 locations that have actual traffic counts, and compared these with the estimated traffic from the Base Year model. The following table shows the results. The table lists the counts in order of size, along with the specific criterion from NCHRP 255.
- Most of the lower-volume roads (below 7000 ADT) are overestimated, that is the traffic assignment estimates higher traffic than the traffic count. *This means that traffic forecasts for lower-volume roads are likely to be too high in the future.*

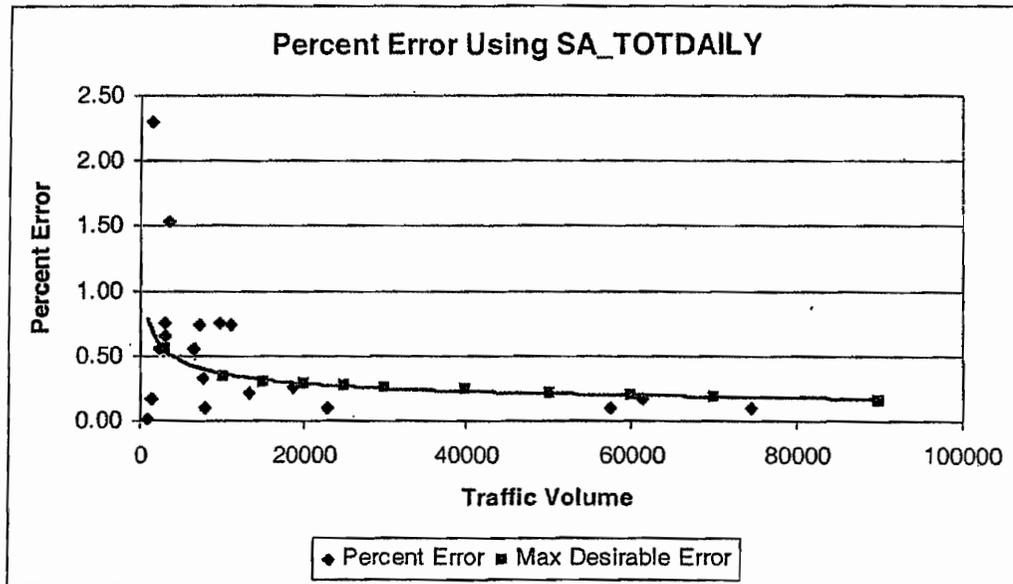
Location Number (see attached map)	Location Description	ADT, Tot Count	Tot Assigned	Diff in Total	Prop. Diff (red is negative)	Absolute Prop. Error	Max Desirable Error (NCHRP 255)
16		940	960	20	0.0213	0.0213	
11		1270	1480	210	0.1654	0.1654	
13		1360	4490	3130	2.3015	2.3015	
1		2280	3540	1260	0.5526	0.5526	
2		2920	1010	1910	0.6541	0.6541	
		3000					0.55
9		3050	5350	2300	0.7541	0.7541	
21		3310	8390	5080	1.5347	1.5347	
4		6460	2880	3580	0.5542	0.5542	
15		7110	12340	5230	0.7356	0.7356	

<sup>1</sup> Federal Highway Administration, Calibration and Adjustment of System Planning Models, USDOT, December 1990.

<sup>2</sup> National Cooperative Highway Research Program, Transportation Research Board, Report 255, Washington DC, p. 41.

6		7480	5060	2420	0.3235	0.3235	
8		7670	6940	730	0.0952	0.0952	
7		9460	2290	7170	0.7579	0.7579	
		10000					0.34
5		10960	2850	8110	0.7400	0.7400	
14		13170	10310	2860	0.2172	0.2172	
		15000					0.30
3	US 411 west	18590	23280	4690	0.2523	0.2523	
		20000					0.28
12	US 411/20	22960	20760	2200	0.0958	0.0958	
		25000					0.27
		30000					0.26
		40000					0.24
		50000					0.22
10	I-75	57700	63660	5960	0.1033	0.1033	
		60000					0.20
17	I-75	61390	71510	10120	0.1648	0.1648	
18	I-75	61390	71510	10120	0.1648	0.1648	
19	I-75	61390	71510	10120	0.1648	0.1648	
		70000					0.19
20	I-75	74670	82350	7680	0.1029	0.1029	
		90000					0.16

- Traffic for mid-volume roads, 7000-22000 ADT, are underestimated by the assignment model. These are typically the volumes for the present US411 and the alternatives. *This means that future traffic forecasts for mid-volume roads, and probably the alternatives tested, are too low in the future.*
- Traffic for higher-volume roads, here I-75, are overestimated, but by a smaller percent error. Generally those volumes are within about 10-16 percent of the traffic counts. *This means that traffic forecasts for I-75 are too high in the future.*
- Comparing the percent errors with the federal criteria, and looking at the chart, it is clear that the Bartow model fails several of the criteria. Specifically,
  - 8 of the 21 locations, all under about 15,000 ADT, have errors greater than the allowable maximum.
  - Mid-volume locations have calibration errors upwards of 25%, probably higher than the federal criteria for minor arterials and collectors.
  - Freeway locations (60-80,000 ADT), are within the maximum allowable error, but have errors higher than the guideline of <7%.

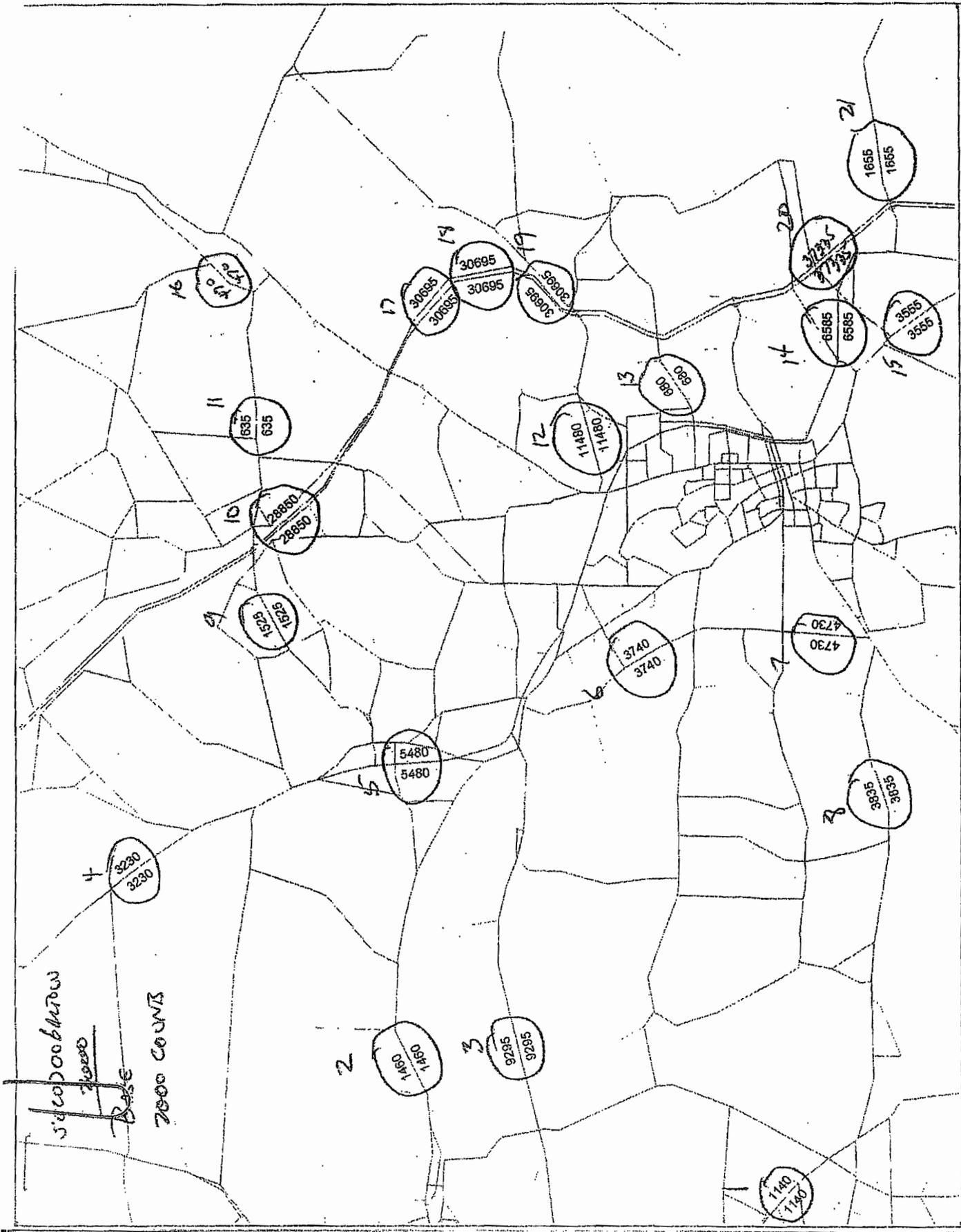


- In short, the ARC model may have been calibrated adequately for the region but there is considerable information suggesting that the Bartow model is not within acceptable calibration parameters.

#### Use and Removal of Speed Wells

- In our prior memo we identified several locations in the network (on I75 just north of SR 20) where travel time penalties were inserted in to the base traffic network and the 2000 alternative tests). These penalties created slow-downs of speed (speed wells) that had the effect of increasing the travel time for alternatives E-G. We surmised that these speed wells were added to help calibrate the model but then were inexplicably removed for later (2030) tests, but also surmised that they might have been in the original ARC network.
- We have now checked with ARC's chief modeler who has investigated this, and found that the speed wells were NOT in the 2000 base network provided to the consultant<sup>3</sup>. He further surmises that they might have been added for calibration purposes. However, it is now clear that these speed wells were added after the network was provided to the consultant, perhaps by staff in the interim period when additional calibration was being considered, and then they were removed inexplicably. We have found no reference to these speed wells in the documentation, but it is clear that they introduce an calibration 'kink' in the forecasts, since they were in the base year tests but not in the future year tests.

<sup>3</sup> Rousseau to Fields, "2000 ARC network", 6/6/2007. See attached memo.



Map of TO LINE Charlotte

cube



**From:** Fields, Milton  
**Sent:** Tuesday, June 26, 2007 4:10 PM  
**To:** Hartgen, David  
**Subject:** FW: 2000 ARC Network

---

**From:** Guy Rousseau [mailto:GRousseau@atlantaregional.com]  
**Sent:** Wednesday, June 06, 2007 5:31 PM  
**To:** Fields, Milton  
**Subject:** RE: 2000 ARC Network

Hi Milton, as you know, the procedure to calculate speeds in the model networks is a lookup table within the script (based on facility type and area type). No speeds are manually coded on any link. The congested speeds in the loaded network are a result of the equilibrium assignment. I looked at the speeds coming out of the assignments for 2000 in this area and they all seem to be in the 50+ mph range. Sounds like a calibration adjustment for the sub-area work.

Let me know if you still the network file.

Thanks,

Guy

---

**From:** Fields, Milton [mailto:mgfields@uncc.edu]  
**Sent:** Tuesday, June 05, 2007 3:33 PM  
**To:** Guy Rousseau  
**Subject:** 2000 ARC Network

Mr. Rousseau;

Dave Hartgen at UNCC has been asked to review a preliminary piece of the US 411 Connector project; specifically he is looking at the procedures used to cut out the Bartow sub-area from the ARC network. We have the notes from the consulting firm, Jordan, Jones, and Goulding (JJG), on their procedures to do this.

As you are likely aware, they started with the 2000 and 2030 ARC networks, cut-out Bartow County, added some links, and then ran some traffic assignments over the sub-area network. In several of their assignments for the 2000 network, they have a "speed well" in the bend of I-75 just NE of Cartersville, where the congested speed on the interstate drops to a low of 7.8 mph. It appears to be a calibration measure designed to shift flows off I-75 to match the actual traffic counts. This speed well does not appear in the later networks.

I am trying to find out if the speed well existed in the 2000 ARC network assignments, or was this something that first appeared in the JJG assignments. To this end, can you provide us the 2000 network for the ARC area that has the congested speeds as a data item, similar to the 2005 network (LOD05AM\_FIN) you provided us for the Reason Accessibility Study?

Thanks for your help with this.

Greg Fields  
Research Analyst  
UNC Charlotte



## Department of Transportation

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August 17, 2007

Mr. Gordon A. Smith  
King and Spalding LLP  
191 Peachtree Street  
Atlanta, Georgia 30303-1763

RE: Georgia DOT Project EDS 500(5), Bartow County, P.I. Number 661950 - US 411 Connector

Dear Mr. Smith:

The Georgia Department of Transportation has received your letter of May 8, 2007 regarding the above project, including the memorandum attached thereto that was prepared by David Hartgen (Preliminary Review of US 411 Connector Traffic Forecasts.) Please accept this acknowledgement that we are considering your suggested comments. Your comments will also become part of the project public record.

Thank you again for your comments and your continued participation in the development of this project. If you have more questions or need additional information, please let me know.

Sincerely,

*Glenn Bowman, P.E. /jem*

---

Glenn Bowman, P.E.  
State Environmental and Location Engineer

GB/jm/gth

Cc: Harold E. Linnenkohl, GDOT Commissioner



U.S. Department  
of Transportation  
Federal Highway  
Administration

Georgia Division

61 Forsyth St. SW 17T100  
Atlanta, GA 30303

September 6, 2007

In Reply Refer To:  
HTM

Mr. Harold Linnenkohl  
Commissioner  
Department of Transportation  
#2 Capital Street  
Atlanta, Georgia 30303

Subject: EDS-500(5), Bartow County Concept Report, US 411 Connector

Dear Mr. Linnenkohl:

We have reviewed the Concept Report along with a Draft Interchange Justification Report (IJR) submitted with your letter dated June 18, 2007, detailing aspects of the proposed US 411 Connector project. FHWA offers the following general comments:

**Concept Report Comments:**

- 1) The project location map included in the concept report displays adequate coverage of the project area. However, the indication of the project on the map is not clearly distinguished from the existing map roadway elements. Please ensure that the project centerline is clearly illustrated so that it doesn't merge into the map and seen as an existing component of the map.
- 2) The concept report identifies three existing interchanges that are along the project corridor, which are designated as SR 3/US 41 at SR 20, US 411/SR61 at SR 3/US 41, and I-75 at SR 20. Considering this project also proposes an access point at I-75 at the eastern terminal of the proposed corridor, there should also be a reference to the interchanges adjacent to the existing SR 20 & I-75 interchange. The interchanges that are adjacent to the existing interchange are: I-75 & US411/SR61 to the north, I-75 & SR 20 to the south, and I-75 & SR 113 to the south. It should be noted that the adjacent interchanges will be analyzed to determine the impact, if any, that the proposed interchange will inflict on the functioning of the existing elements of the I-75 system within the project area. Please ensure that the interchanges adjacent to the proposed interchange location at I-75 are discussed in the concept report as well.
- 3) As mentioned in the Environmental Concerns section of the concept report, it will be necessary to acquire an individual 404 Permit from the Corps of Engineers. However, there is no mention of the preparation of a Practical Alternatives Report (PAR) that justifies the selection of the preferred alignment that Georgia Department of Transportation (GDOT) would

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ECONOMY**



like to carry forward to the design process. Please ensure that the PAR for the proposed US 411 Connector project is included in the concept report, as documented in the GDOT Plan Development Process (PDP).

4) It is mentioned in the Coordination section of the concept report that the meeting minutes from the PAR meeting held on June 14, 2006 will be attached. However, the concept report submitted to FHWA did not contain the PAR minutes of the meeting previously held. Along with the Practical Alternatives Report mentioned in the previous comment, please ensure that the minutes from the PAR meeting are attached as well.

5) The concept report states that the design speed for the corridor will be 65 mph. The chosen design speed falls within the 2004 AASHTO policy design speeds for rural areas which is 70 mph and rolling terrain which is 60 mph. Please ensure that an explanation of the terrain within the project's area is noted in the concept report for reference.

6) The minimum grade noted on the design criteria supplemental information that was submitted to FHWA on July 23, 2007 is 0.0%. The minimum value noted does not meet the required minimum. Please reference the 2004 AASHTO policy for the required minimum value.

7) The Interchange Justification Report (IJR) should be submitted in conjunction with the concept report. Please be sure to include the IJR in the re-submittal of the concept report. For this requirement, reference can be made to the FHWA Georgia Division Guidance on Interstate Access Requests, section 4g.

8) The current cost estimate does not account for the utilities within the project limits. Please ensure that the concept report includes an estimate for the utilities on the proposed project.

9) Considering that the US 411 Connector project proposes a significant amount of bridge construction work, it is recommended to:

- a. Utilize Decision-Making Framework for Prefabricated Bridge Elements and Systems for onsite time reduction, cost savings, and safety improvements. The reference listed above is attached to the FHWA comments for your use.

#### Interchange Justification Report Comments:

10) There were six interchange design alternatives and a preferred interchange design alternative mentioned in the Interchange Justification Report, that were considered for the US 411 Connector and I-75 connection. The extent of the analysis of the interchange alternatives mentioned in the report is not sufficient for the purposes of full comparison of all alternatives to adequately serve the need and purpose of the project. The IJR limits the analysis of the US 411 Connector and I-75 connection to just the preferred interchange design alternative as compared to a No Build alternative. Each alternative suggested in the IJR are explained in terms of noting the concept description, projected ramp volumes, ramp terminal intersection entering volumes, accessibility, connectivity, design/construction issues, and environmental issues. There is nothing presented in the IJR noting any operational or safety deficiencies or any other inadequacy that would eliminate a non-preferred alternative. As such, it is difficult to perform a full comparative analysis of alternatives to completely evaluate those alternatives presented in the IJR. Please provide a complete safety and operations evaluation of the

alternatives to validate the decision to pursue the preferred interchange design alternative. Specifically, each alternative should reveal how it addresses/serves the need and purpose of the project as well as exhibit an adequacy or inadequacy in operations and safety of the access point.

- 11) In an effort to further document the justification of selecting the preferred interchange design alternative, it would be beneficial for the IJR to present a side by side comparison of all interchange design alternatives in table format similar to table 4-4a provided in the IJR on page 4-15. Providing a table as such would allow direct comparison of all alternatives as a summary of the analysis performed for each.
- 12) The conceptual diagrams used to exhibit the alternatives are too vague and do not show the details of the alternatives, which makes it difficult to understand the intent of the design. It would assist in the review of the report if the diagrams are shown in a more detailed format that would distinguish what is being proposed and what the existing portions of the interchange are. Please provide detailed diagrams of the interchange design alternatives considered for the US 411 Connector and I-75 connection.
- 13) Throughout the report, the term Design Exemptions is used to indicate whether or not AASHTO design standards are met. It is not necessary to deviate the term of this determination from the term that has been consistently used in reference to the Code of Federal Regulations (CFR) and the Plan Development Process (PDP). The term Design Exception should be used instead of the term Design Exemption. Please make this adjustment to keep the terms of the IJR consistent with the terms of the CFR and the PDP.
- 14) In the Cost Estimates and Funding sections of the IJR, it is noted that the total cost of the US 411 Connector project is estimated at \$70 million (see pages S-5 and 2-7). The estimate in the IJR is not consistent with the estimate in the project's concept report. In the concept report, the total project cost is estimated at approximately \$350 million, which doesn't include an estimate for utilities. Please ensure that an accurate and complete estimate, which will include an estimate for utilities, is noted in the IJR.
- 15) In section 2 of the IJR, figures 2-6 and 2-8 are used to indicate the traffic volumes for the 2030 Daily Traffic Volumes, No-Build Alternative and the 2030 Daily Traffic Volumes, Build Alternative respectively. There is a noted inconsistency in the terminal volumes for the two alternatives. Although these two alternatives are distinct, there are some terminals that are the same for both alternatives but the traffic volumes do not reflect the same volume in each alternative. Please explain why the volumes are different for the same terminals in each of the alternatives.
- 16) In section S.2. Policy Information, there is a reference to the US 411 Connector Concepts Screening Report (CSR) and the US 411 Connector Draft Supplemental Environmental Impact Statement (DSEIS) which indicates that the reviewer should also review supplemental documents as well as the IJR to get a complete explanation for essential sections of the IJR. Information provided in the IJR should be clear and concise when explaining all aspects of the report. To expedite FHWA approval, all information that should be considered in the review and analysis of the request should be provided in the IJR. Please include all important information to be reviewed for a complete understanding of the IJR.
- 17) In reference to section 4.1 Summary of Results, the existing conditions summary discussion makes reference to freeway mainline segments. Considering that the US 411

Connector is classified as a Rural Freeway, it is misleading to make a general reference to the route that is being analyzed. Although US 411 Connector is a new location facility, many areas of the report make reference to SR 20 existing conditions to make projections of the functioning of the new corridor. Furthermore, since this IJR is to grant access to I-75, it should be clear as to which sections of the interstate that the analysis is for. Please revise the report to ensure that the operational analysis clearly identifies I-75 and the impacts that the new interchange has on I-75. Also ensure that the report addresses the operations and safety along the US 411 Connector to show the functioning of the route in correlation to the functioning of I-75.

18) The US 411 Connector proposes a new interchange to be constructed at SR 61 & US 411. Considering that the ramp terminals at the proposed interchange at SR 61 & US 411 and the ramp terminals at the proposed US 411 Connector & I-75 interchange are very close, the IJR should also contain an operational analysis which will demonstrate how the proposed SR 61 & US 411 interchange will impact the operations of the proposed interchange at I-75 which will reflect on the operations along I-75. Please ensure that an operational analysis is performed for all interchanges that could impact the operations along I-75 as well as influence the safety of the system.

19) Please include an electronic copy of all the complete operational analysis for the interchanges along the project alignment as well as for the interchanges adjacent to the proposed interchange at I-75, also be sure that the analysis covers operations within the links along the US 411 Connector as well as the links along I-75. All electronic analysis should be included in the re-submittal of the concept report and the IJR.

Your cooperation in addressing the above comments will be highly appreciated. If you have any questions or need further clarification on any of the comments presented, please contact Christy Poon-Atkins at 404-562-3638.

Sincerely,



For: Rodney Barry, P.E.  
Division Administrator

# KING & SPALDING

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Atlanta, Georgia 30309-3521  
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RECEIVED  
OCT 23 2007

Gordon A. Smith  
Direct Dial: (404) 572-4777  
Direct Fax: (404) 572-5177  
gsmith@kslaw.com

October 15, 2007

VIA COURIER

Mr. Glenn S. Bowman, P.E.  
State Environmental/Location Engineer  
Georgia Department of Transportation  
Office of Environment/Location  
3993 Aviation Circle  
Atlanta, Georgia 30336

RECEIVED  
OCT 15 2007  
BY: *Glenn Bowman*

**Re: US 411 Connector, Project No. EDS-500(5), PI No. 661950, Bartow County**

Dear Mr. Bowman:

Attached please find the Rollins Comments on the Final Supplemental Environmental Impact Statement for the US 411 Connector Project.

Thank you for your attention.

Sincerely,



Gordon A. Smith

GAS:drs

Enclosures

cc: Commissioner Harold E. Linnenkohl (via courier)  
Ms. Jennifer Giersch (via courier)





## Department of Transportation

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April 18, 2008

Mr. Michael Weiss  
King and Spalding LLP  
1180 Peachtree Street NE  
Atlanta, Georgia 30303-3521

RE: Georgia DOT Project EDS 500(5), Bartow County, P.I. Number 661950 - US 411 Connector

Dear Mr. Weiss:

We are in receipt of your letters of February 14 and 22, 2008 regarding the above project, and offer the following responses to your comments:

Your comments are listed below in bold and followed by the Department's response (*in italics*).

**1. Question the accuracy of previous and more recent cost estimates, and whether on-going project changes are reflected in the latest published cost estimate. You also noted some potential calculation errors in the cost benefit analysis.**

*All cost estimates have been prepared following accepted standard methodologies using the unit prices as approved by the Department at the time of the cost estimate preparation. As the project development process has proceeded, there have been several rounds of revisions to the cost estimates completed. For example, during the development of the concepts, estimates based on a more general scale using factors including Cost per freeway mile, Cost per arterial mile, Cost per minor interchange, or Cost per major interchange were used. As the concepts were developed into alternatives, more specific detail for each alternative was developed, thus allowing for a more refined and detailed estimate. During the preparation of the most recent cost estimates, even greater project details have been determined as the preliminary engineering for the Preferred Alternative has advanced. What is important to note is that at each level of cost estimating, the concepts or alternatives were evaluated consistently across the board based upon the detail available and the unit prices at the time of estimation.*

*As a result of a recent Value Engineering study and ongoing design evaluations, there are several modifications that are being proposed in order to reduce the overall cost of the US 411 Connector project. These evaluations have reduced potential project cost estimates from approximately \$399 million for the original preferred alternative at a pre-design stage, to less than \$200 million for the modified preferred alternative at a Preliminary Plans stage, which includes all currently considered project modifications.*

*With respect to the cost benefit analyses, the form used is a state-wide broad scale review tool to assess whether a project is a possible candidate for expenditure of public funds. The use of the form alone does not determine whether a potential project will or will not proceed.*

**2. Questions regarding the traffic methodology and results including travel time and how they have been applied throughout the project process including the analysis of Alternative D-VE.**

*The following is a brief description of the overall traffic analysis process and timeline, which also includes specific references as to where this data was reported and publicly available throughout the project development process. In Section 2 of the DSEIS and the FSEIS, Figure 2.1.1.A-2, the travel time between US 411 at US 41 and I-75 South at SR 20 for the No Build (No Action) scenario is reported as 16.3 minutes, and the source of this information was clearly identified as the Concepts Screening Report (CSR). The methodology used to determine this travel time estimate, which is described in detail in Appendix C of the CSR, used actual travel distances and assumed average travel speeds along the routes of the proposed concepts. At this initial point in the NEPA process, the concept travel times were estimated because the regional travel model was not yet available for the consultant team to use. Subsequently, traffic forecasts were prepared for all concepts using a Bartow County sub-area traffic model, as is very clearly stated in pages 6-8 of the CSR.*

*Please note that the sub-area model forecasts represent a much higher level of sophistication and accuracy than the initial "floating car" analysis performed at the very initiation of the DSEIS. This use of updated information as the study progressed is consistent with standard NEPA document preparation practice.*

*Also in Section 2 of the DSEIS and the FSEIS, Table 2.4-1, travel times are identified for the alternatives (not to be confused with concepts). In this table, the travel time for the No Action scenario is identified as 15.8 minutes and the methodology used to calculate this (which is different from that used in the CSR), is referenced as a footnote in the table.*

*With development of Alternative D-VE, it was also necessary to update the traffic model so that analysis similar to that completed for the other alternatives considered could also be completed for this alternative. The results of this model update were presented to the CAC in January 2008 and presented to the public in February 2008.*

*All travel time methodologies and sources have been identified correctly throughout the various studies and in the DSEIS and FSEIS. The traffic forecasts used were derived from the officially-*

*sanctioned regional traffic forecasting model that is based on adopted future population and employment forecasts, adopted transportation plans, which considers future regional and local travel patterns and traffic operating conditions (i.e., congestion) on the entire transportation network in Bartow County. This model is derived from and compatible with the models used to prepare forecasts for projects throughout the Atlanta metropolitan region, and its use is required in order to ensure that analyses and decisions on all projects are based on compatible data, which in turn helps ensure that transportation funds are expended fairly and efficiently. Daily and weekday p.m. peak hour traffic forecasts were prepared for the eight initial corridor concepts (A – H) for Design Year (2030) and Opening Year (2010) conditions, and for Design Year conditions for three concept variations (F-modified, F-modified with an additional interchange, and D with an additional interchange) suggested by comments from the public. Design Year and Opening Year weekday p.m. peak hour traffic forecasts were prepared for all project alternatives (A, AB, B, D and D Avoidance/Minimization), including the modified Preferred Alternative (Alternative D-VE). Please also note that all traffic model evaluations completed throughout this project have assumed construction of all transportation improvements in the current regional transportation plan, which includes the SR 20 project located to the south of the US 411 Connector.*

*The traffic model forecasts were checked for reasonableness before they were used for any purpose in the US 411 Connector Project. The traffic model was calibrated against actual traffic counts to a “precision” of about +/-10%, and based on review and evaluation of the model and its results/products, we are fully confident in the accuracy of the traffic forecasts used.*

**3. Questioned whether the lower traffic volumes on the D-VE Alternative warrant a four lane roadway.**

*As identified in both the DSEIS and the FSEIS, the traffic volume that warrants a four-lane roadway is 18,900 vehicles per day (vpd). It is predicted that the volumes would be greater than 18,900 vpd the very first year that the roadway is open to traffic; therefore, a four-lane roadway is the appropriate design for the US 411 Connector.*

**4. Questioned whether the proposed SR 20 improvement project between I-75 and SR 61/US 41, which “serves the identical purpose” as the US 411 project, was considered when determining the need and traffic projections for the US 411 project.**

*The US 411 Connector traffic forecasts and analyses, as well as all design activities, assumed that the proposed SR 20 improvement project between I-75 and SR 61/US 41 would be constructed and open to traffic, as planned and programmed. In addition, all State and local projects programmed for completion before the US 411 Connector were similarly incorporated in the analysis and design processes.*

*Although both the US 411 Connector and SR 20 widening project serve transportation needs in the same corridor, they each serve a different need. The US 411 Connector project would improve the connection of US 411 between points west of Cartersville and I-75 while the purpose*

*of the SR 20 widening project is to improve mobility and access for local traffic along the SR 20 corridor.*

**5. Concerned that the travel times presented at the CAC are different than travel times extracted by King and Spalding from a project email.**

*Please see the response to comment #2 above, which provides a summary of the traffic modeling evaluation which has been consistently applied through out the entire project evaluation process. The Department believes that the travel time information presented at the recent CAC meeting (January 29, 2008), at the recent PIOH (February 12, 2008), and in all other final reports (including the DSEIS and FSEIS) have been reported correctly and consistently. Reviewing an email of a modeling effort that is a work in progress, and assuming that the data is as accurate as the results that are presented in a finished report, is not a comparison that the Department recommends for determination that travel times are either incorrect or inconsistent. The Department would be glad to make the technical modeling data available for your modeling experts to review. Please contact us at your convenience to set up an appointment to review this information.*

**6. Concerned that Alternative D-VE is an unwise expenditure of public funds.**

*Project cost has become an important factor in the overall project evaluation, especially in light of increased construction materials costs and more limited transportation funding budgets. Various cost and benefit analyses have been completed beginning at the concept development stage and on through determination of a Preferred Alternative. The results of these analyses is that the Alternative D-VE, which is now the Preferred Alternative, is a viable project from a cost perspective. The construction of the US 411 Connector would provide a more direct connection to I-75 for through traffic from western Bartow and Floyd counties. Through traffic would no longer be combined with locally generated traffic along the existing facilities of US 41 and SR 20, which would meet two important needs of the project: congestion in the existing corridor would be reduced, and through traffic would have an improved more direct connection to I-75. The diversion of through truck traffic away from the existing system would enhance the safety and operation of SR 20 and SR 3/US 41. The continued growth and economic vitality of the City of Rome and Floyd County would be supported by the implementation of the US 411 Connector by providing improved access to the interstate system for commercial traffic, in particular trucks. The Department believes that construction of the US 411 Connector would be a reasonable expenditure of public funds.*

**7. Concerned that Alternative D-VE will cause congestion on I-75 south of the project limits.**

*Design year (2030) congestion on I-75 south of the project limits is forecasted under all circumstances, whether or not the US 411 Connector project is built (i.e., the congestion will be there for the No-Build Alternative and all Build Alternatives, including Alternatives D-Avoidance/Minimization and D-VE), and the project will not significantly impact, positively or negatively, this future congestion. It has been determined that the need for, and benefits of, the*

*US 411 Connector project are not impacted by the I-75 congestion to the south, and the US 411 Connector project should not be tied to and constrained by the I-75 congestion to the south.*

**8. Suggested that the northern concepts are now more viable than the current preferred alternative.**

*In the early phases of this project, a set of eight concept alignments were developed to completely cover the basic ways that US 411 could be connected to I-75 between the Cassville-White Road and SR 20 interchanges. These concepts (identified as A-H), as well as the no-build alternative, were evaluated to determine which ones best met the project need and purpose and also to what extent they may adversely impact social, economic and environmental resources in the project area. The results and details of this evaluation are discussed in the Concepts Screening Report (CSR), which is on file and available for review at the GDOT Office of Environmental Location. A summary of pertinent data from this report is discussed below.*

*There are two primary needs for this project: one is to provide a more direct connection to I-75; and the other is to reduce the congestion on the arterial roadways that presently connect US 411 to I-75, which in turn would improve safety in the corridor. The findings and conclusions were developed sequentially, as follows: (1) the first basis for the findings and conclusions was the extent to which each Concept is expected to attract traffic to the new US 411 Connector (to satisfy the need for connectivity between the US 411/US 41 interchange and I-75); (2) second was the extent to which each Concept reduces traffic on the existing connection, SR 3/US 41 and SR 20 (to satisfy the need to reduce congestion on the existing corridor); and (3) third was general engineering considerations, including costs and economic viability, as well as generalized environmental impacts (impacts were reviewed to identify significant impacts that might erode or negate the identified advantages).*

*As the CSR reported, the results of the Concept traffic analysis were quite clear: Concepts B (new alignment freeway connecting to I-75 at existing SR 20 Interchange) and D (new alignment freeway connecting to existing SR 20 east of I-75) attract larger volumes of traffic and provide substantial relief to the existing US 411-I-75 connection (i.e., SR 3/US 41 and SR 20), while each of the other Concepts on a new location, including Concepts C (new alignment freeway extending only to existing US 411/SR 61) and G (new alignment freeway connecting to I-75 at existing SR 61 Interchange), attract significantly less traffic and provide no relief for the existing US 411-I-75 connection. Concept A, which utilizes the existing corridor, attracts a significant volume of traffic, but does not provide relief to the existing connection. All eight of the initial concepts evaluated would serve the stated purpose of providing a more direct connection to I-75. However, traffic analysis shows that the northern concepts (E, F, G, and H) attract such a small percentage of vehicles away from the existing US 41 and SR 20 corridor that sufficient congestion relief would not be provided. The concept screening process determined that the northern concepts **do not meet the need and purpose** of the project sufficiently to warrant further development.*

*The concepts that were found to perform the best while causing the least environmental impact were developed into more refined alternatives, and evaluated further as part of the Draft*

*Supplemental Environmental Impact Statement (DSEIS) process. The selection of Concepts A, B, and D for further development – and the decision to forego further development of Concepts C, E, F, G, H, and F “Modified” – was entirely appropriate and strongly supported by thorough and proper traffic analyses, initial environmental review, engineering feasibility assessment, and general cost/benefit evaluation. The traffic forecasts were derived from the officially-sanctioned traffic forecasting model that is based on adopted future population and employment forecasts, adopted transportation plans, and which considers future regional and local travel patterns and traffic operating conditions (i.e., congestion) on the entire transportation network. The traffic model forecasts were checked for reasonableness before they were used for any purpose in the US 411 Connector Project.*

*As a result of the recent Value Engineering study and ongoing design evaluations, there are several modifications that are being proposed in order to reduce the overall cost of the US 411 Connector project. The following list represents the modifications determined to be feasible from an engineering perspective while not causing an adverse environmental impact, and have therefore been recommended for implementation:*

- *Reduce median width from 68-feet to 44-feet*
- *Reduce nominal right-of-way (ROW) width from 400-feet to 250-feet*
- *Use folded diamond interchange rather than full diamond interchange at SR 61*
- *Related reductions in bridges, retaining walls, drainage systems, paving, erosion control, traffic control, signing/ marking/signals, guardrail, and miscellaneous items*
- *Use a split diamond connection of the US 411 Connector to I-75, which retains a diamond ramp to SR 20 from the south*
- *More compact interchange at US 41*
- *Raise design profile, and allow 7% grade to accommodate mountainous terrain*
- *Terminate Clifton Way south of the US 411 Connector, and connect it to the US 411 Connector on the north side with an at-grade intersection for gated access to the cell tower*

*Although some of the project details, including the interchange type and configurations and other construction and engineering details as identified above are being incorporated into the preferred alternative, the alignment of the proposed roadway has not changed from what was presented in the Final Supplemental Environmental Impact Statement (FSEIS). As a result of the proposed cost saving measures, the roadway will not function as efficiently as the original Preferred Alternative (Alternative D-Avoidance/Minimization), although the volume of cars that are predicted to use the Alternative D-VE (new Preferred Alternative) and the volume of cars diverted from the existing US 41/SR 20 corridor are still at levels that the proposed investment is considered a reasonable expenditure of funds. In comparison, the northern alignments still do not divert enough traffic off of the US 41/SR 20 corridor and still do not have predicted traffic volumes that would make them a reasonable expenditure of funds.*

**9. You note a concern that the decision on the project is being rushed.**

*The US 411 project has been under consideration for over 20 years. In 1985, the Department completed a feasibility study to determine if there was a need to extend US 411 eastward from its junction with US 41 to I-75. The results of the study clearly demonstrated the need for a more direct connection to I-75 as traffic volumes were predicted to worsen congestion on the existing US 41/SR 20 corridor to I-75. Based on recommendations from the feasibility study, development of a project to construct a US 411 connection to I-75 was initiated in 1986. The concept for the US 411 project was later incorporated into a proposed recommendation for an outer perimeter highway around Atlanta, conceived as part of the Economic Development System, (EDS). This facility, later known as the Outer Perimeter, was included in legislation designating it as part of the Governor's Road Improvement Program.*

*The US 411 project continued to be developed as an individual project; an Environmental Impact Statement (EIS) was completed and approved by the Federal Highway Administration (FHWA) in 1989. The concept used for the EIS was based on alternatives conceived as part of the larger Outer Perimeter Highway. The location of the US 411 project's interchange with I-75 was located to accommodate future extension of the Outer Perimeter.*

*A complaint was filed (by the Rollins family) in the United States District Court, Northern District of Georgia on July 5, 1991, seeking a declaratory judgment that the GDOT and FHWA had failed to comply with the National Environmental Policy Act (NEPA) and other requirements in the development of the EIS for the US 411 extension. A hearing was conducted in January 1992; in January 1993, when the court ruled that the EIS had not adequately followed the NEPA requirements, it prevented the GDOT and FHWA from approving or expending any federal funds on the US 411 project until an adequate and proper EIS was prepared. More specifically, it was noted that the EIS did not adequately compare and evaluate project alternatives, and it also failed to provide the information needed by the public and the decision makers to compare environmental, social, and economic impacts of potential alternatives. The court noted that the US 411 project had independent utility since it could be built separately from the Outer Perimeter project. The Court determined that, because the US 411 project was not a mere segment of the Outer Perimeter, it may be considered independently of the Outer Perimeter.*

*In order to address the court's ruling, the US 411 project was incorporated into the proposed Northern Arc project, a portion of the former Outer Perimeter project. The Northern Arc was to extend from the US 411/US 41 interchange in Bartow County to SR 316 in Gwinnett County. An EIS was completed and approved for the eastern portion of the Northern Arc from SR 400 to I-85. Beginning in 1997, a series of studies, including a Major Investment Study (MIS), Funding Feasibility Study, and Draft EIS, were begun on the portion of the Northern Arc from the US 411/US 41 interchange to SR 400.*

*The MIS was completed in December 2000. In July 2002, detailed studies and preparation of the Draft EIS for the Northern Arc were underway when GDOT was then directed to stop work. The Northern Arc project was subsequently removed from the Regional Transportation Plan. The Department initiated development of the US 411 Connector in July 2003, at the request of Governor Sonny Perdue. In November 2003, FHWA issued a Notice of Intent (NOI) to advise the public that a Draft Supplemental Environmental Impact Statement (DSEIS) would be*

*prepared for the proposed extension of US 411 from US 41 to I-75. Because the original EIS failed to adequately study the full range of alternatives, FHWA determined that a SEIS that evaluated the original and potential new alternatives would be the most appropriate method to fully comply with NEPA.*

*In October 2005, the Department presented the Preferred Alternative and its associated benefits and impacts to the public at a Public Hearing Open House (PHOH). Over the past year, GDOT has been continuing with preliminary design work and more refined construction cost estimates of the preferred alternative. Currently, GDOT follows a policy that requires all projects with a cost of \$25 million or more to go through a Value Engineering (VE) study process. Therefore, the Department was required to complete a VE study for the US 411 Connector project, which was completed in October 2007. The Department then met with the project Citizens Advisory Committee in January 2008 and with the public in February 2008 to present the results of the VE study.*

*In summary, the Department has been working on the US 411 project for over twenty (20) years, a preferred alternative alignment has been defined for over two years and the recent VE study is refining this preferred alternative further. Even after the decision is finalized, minor details of the project are likely to change as a result of the ongoing design phase of the project.*

Thank you for your comments and your continued participation in the development of this project. If you have any additional questions or comments, please do not hesitate to contact me directly.

Sincerely,



Glenn Bowman, P.E.  
State Environment/Location Engineer

GB/jm/gth (JJG)

Cc: Gena L. Abraham, Ph.D., Commissioner  
Albert Shelby, GDOT Urban Design  
Larry Cook, JB Trimble

## Appendix B

FSEIS Comments  
Responses to FSEIS Comments



**EPA Comment**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
81 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

October 15, 2007

Glenn Bowman  
State Environment/Location Engineer  
Georgia Department of Transportation  
3993 Aviation Circle  
Atlanta, Georgia 30336

SUBJECT: Final Supplemental Environmental Impact Statement for U.S. 411 Connector  
from U.S. 411/U.S. 41 Interchange to U.S. 411/I-75 Interchange in Bartow County,  
Georgia; CEQ Number 20070384

Dear Mr. Bowman:

The U.S. Environmental Protection Agency (EPA) has reviewed the referenced Final Supplemental Environmental Impact Statement (EIS) in accordance with its responsibilities under Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The Georgia Department of Transportation (GDOT) and the Federal Highway Administration (FHWA) propose to complete the U.S. 411 Connector project to improve the connection of the U.S. 411/S.R. 20 corridor to the interstate system by providing a more direct link between I-75 and U.S. 411 at its interchange with U.S. 41/S.R. 3 west of Cartersville in Bartow County, Georgia.

Seven alternatives were considered in detail, including five build alternatives, a transportation system management alternative, and the No Action alternative. Alternative D-Avoidance/Minimization was determined to be the preferred alternative. This alternative consists of a four-lane divided, limited access facility on primarily new alignment approximately 9.5 miles in length, with three interchanges.

During review of the Draft Supplemental EIS, EPA expressed concerns related to the potential for negative direct and indirect impacts to water quality and sensitive aquatic species in the Etowah River watershed. EPA promoted stormwater design and construction methods that incorporated elements of the Etowah Habitat Conservation Plan (HCP) into this project. A number of mitigation measures are described in the Final Supplemental EIS, including a commitment to meet the Etowah HCP stormwater run-off standards. In general, EPA supports this approach as well as many of the other measures proposed to mitigate for adverse project impacts to wetlands, streams, and water quality. These other measures include bridging of the majority of streams in the project area; removal of existing culverts at two locations and replacement with bottomless culverts; and extensive post-construction stormwater management. These roadway best management practices will include design of bridges to keep stormwater runoff from entering streams directly, and use of enhanced swales, stormwater ponds, and

sediment basins to capture and treat post-construction stormwater runoff. With regard to stream and wetland impacts, EPA continues to promote appropriate functional replacement for those wetland and stream functions impacted by the project. This could involve on-site mitigation as close to the impact site as possible, off-site mitigation within the watershed, or a combination of both. Mitigation should include restoration, enhancement or preservation of wetlands and stream reaches that have been degraded or other watershed improvements.

EPA appreciates inclusion of the updated noise modeling and mitigation information in the Final Supplemental EIS in response to our comments. EPA supports GDOT's decision to construct two noise barriers that would serve to mitigate noise impacts to 47 out of the 64 noise-impacted receptors in the project area. EPA recommends that GDOT coordinate with the affected communities where these noise walls are planned during final design to discuss additional potential visual and aesthetic mitigation measures, as appropriate.

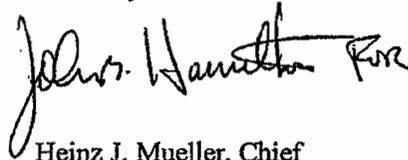
EPA appreciates inclusion of the additional information related to regional and project-level air quality conformity requirements in the Final Supplemental EIS in response to our comments. The Atlanta Regional Commission has recently adopted an updated long-range transportation plan (Envision 6) for the Atlanta metropolitan region. EPA recommends that GDOT and FHWA confirm prior to the approval of the Record of Decision (ROD) that the preferred alternative, as described in the Final Supplemental EIS, is included in the most recent ozone and PM 2.5 conformity determinations for this plan.

The Final Supplemental EIS also included a basic analysis of the likely mobile source air toxics (MSAT) emission impacts of the project. This analysis generally follows the February 2006 FHWA MSAT interim guidance which describes how to assess MSAT impacts for transportation projects during the NEPA process. While there are positive elements to this guidance, especially the willingness to acknowledge potential MSAT concerns, EPA continues to disagree with major elements of this approach nationally. EPA does not agree with the statement that, "...available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this Final Supplemental EIS." There are a number of available technical tools that allow for comparisons among alternatives of the location-specific project-level risk estimates of mobile source air toxics. In addition, there are several references in this section that are out of date. For example, the Final Supplemental EIS does not accurately cite and summarize EPA's latest MSAT rule, published on February 26, 2007. EPA recommends that GDOT and FHWA coordinate with EPA on future projects of this magnitude to ensure appropriate technical tools and assessment methodologies are utilized in the analysis of MSATs.

EPA continues to have concerns that the preferred alternative has the greatest impacts to jurisdictional wetlands, regulatory floodplains, loss of upland forest habitat, and is predicted to add the most acres of impervious surfaces due to induced future growth. However, EPA supports the mitigation measures and monitoring programs as described in the Final Supplemental EIS. EPA recommends strict adherence to these best management practices to protect water quality and aquatic habitat. EPA also recommends inclusion of these mitigation commitments in the ROD for the project.

We appreciate the opportunity to review the proposed action. Please contact Ben West at (404) 562-9643 if you want to discuss our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Heinz J. Mueller". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Heinz J. Mueller, Chief  
NEPA Program Office  
Office of Policy and Management

cc: Federal Highway Administration - Georgia Division



**Rollins Comment**

# KING & SPALDING

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RECEIVED  
OCT 23 2007

Gordon A. Smith  
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October 15, 2007

VIA COURIER

Mr. Glenn S. Bowman, P.E.  
State Environmental/Location Engineer  
Georgia Department of Transportation  
Office of Environment/Location  
3993 Aviation Circle  
Atlanta, Georgia 30336

RECEIVED  
OCT 15 2007  
BY: *Glenn Bowman*

Re: US 411 Connector, Project No. EDS-500(5), PI No. 661950, Bartow County

Dear Mr. Bowman:

Attached please find the Rollins Comments on the Final Supplemental Environmental Impact Statement for the US 411 Connector Project.

Thank you for your attention.

Sincerely,



Gordon A. Smith

GAS:drs

Enclosures

cc: Commissioner Harold E. Linnenkohl (via courier)  
Ms. Jennifer Giersch (via courier)

## COMMENTS OF ROLLINS FAMILY

### FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE U.S. 411 CONNECTOR, PROJECT 500(5), P.I. NO. 661950, BARTOW COUNTY

(EIS No. 20070384)

October 15, 2007

#### A. INTRODUCTION

These comments on the Final Supplemental Environmental Impact Statement ("FSEIS") for the above-referenced project are submitted on behalf of the Rollins family interests, including those of Gary W. Rollins and R. Randall Rollins ("the Rollins"), who own approximately 1,800 acres of contiguous property within the study area for the project. We incorporate by reference all other comments the Rollins previously submitted on the U.S. 411 Connector.

The purpose behind the National Environmental Policy Act ("NEPA") – and of Environmental Impact Statements in particular – is to ensure that public agencies' decision-making process is open and transparent to the public. The Act does not require that the agency planning a project with a significant impact take any particular course of action. It does not mandate, for example, that a new dam cause no harm to the ecosystem of the river, or that a widened highway not worsen air quality in the surrounding region.

What NEPA does require, however, is that the agency publicly consider all potential impacts of the project. Explicit in this mandate is that the agency give fair and full considerations to alternatives to its chosen approach, including the alternative of taking no action at all. Indeed, federal regulations state that the full and fair consideration of all reasonable alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14.

Moreover, the agency must disclose those impacts so that all interested parties can understand how and why the agency chose to proceed. This transparency is critical to the process: The public must be able to understand *why* the agency eliminated certain alternatives and settled on a particular course of action. See *Davis v. Mineta*, 302 F.3d 1104; 1122 (10th Cir. 2002) (without supporting data, conclusory statements that the alternatives did not meet the need and purpose of the project are insufficient to justify the elimination of alternatives).

With the FSEIS for the U.S. 411 Connector project, GDOT has not met its legal obligations to the public. The most fundamental decision it has made with this project – the selection of a preferred route – has been marred with errors that call into question the agency's early elimination of most of the routes originally under consideration. The selection of GDOT's "preferred alternative" – and the consequential elimination of a number of alternative routes – were based on data that were unreliable at best and nonexistent at worst.

In addition, GDOT hid from the public the basic information it used in deciding to eliminate a number of possible routes. Every published document that discussed forecasted

travel times, including the draft and the final SEIS, reported a travel time for the existing route that apparently does not match the one used in the traffic model. The results of that traffic model formed the basis of GDOT's decision to remove from consideration a number of potential routes for the project, including some that would require significantly less new construction than GDOT's preferred alternative.

Those estimated travel times also became part of another key measure GDOT used to eliminate certain routes from consideration. GDOT's calculation of "economic viability," derived by dividing the expected travel time savings by the estimated cost of the project, now shows that *no* highway – let alone GDOT's preferred alternative – will provide a benefit exceeding its costs. But GDOT failed to include any mention of current comparative cost estimates in the FSEIS, limiting the discussion of costs to a single reference to the most recent estimate – \$399 million – at the end of the executive summary.<sup>1</sup>

Indeed, the FSEIS itself creates perhaps the greatest barrier to GDOT's fulfilling its obligation to inform the public about its consideration of alternatives to the proposed route. The FSEIS is far too voluminous for the general public to digest in the allotted review period. The main document is approximately 400 pages long, exclusive of two enormous appendices that bring the total to more than a thousand pages. In accordance with Council on Environmental Quality regulations for implementing the procedural provisions of NEPA, the text of an EIS "shall normally be less than 150 pages and for proposals of unusual scope or complexity shall normally be less than 300 pages."<sup>2</sup>

In short, the Final Supplemental Environmental Impact Statement ("FSEIS") suffers from three potentially fatal errors:

1. The data underlying the traffic model used to eliminate a number of routes from consideration were inadequate, unreliable, and improperly applied.

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<sup>1</sup> The Rollins are not the only entity to criticize GDOT for its failure to be upfront about the estimated cost of the project. In its comments on the Interchange Justification Report ("IJR"), which was prepared close in time to the FSEIS, the Federal Highway Administration ("FHWA") noted that the cost estimate included in the IJR was only \$70 million, which approximates a three-year old estimate of construction costs only. In a similar document, the Project Concept Report, GDOT estimated the cost at \$350 million – closer but still nearly \$50 million short of what it estimated in March 2007 for construction and land acquisition. FHWA asked GDOT to be certain to include "an accurate and complete estimate" in its next submission. (FHWA Comments to Concept Report and Interchange Justification Report ("FHWA Comments"), Sept. 6, 2007, at 3 [Tab 1].)

<sup>2</sup> Specifically, 40 C.F.R. § 1500.2 (b) states that:  
"Federal agencies shall to the fullest extent possible:  
(b) Implement procedures to make the NEPA process more useful to decisionmakers and the public; to reduce paperwork and the accumulation of extraneous background data; and to emphasize real environmental issues and alternatives. Environmental impact statements shall be concise, clear, and to the point, and shall be supported by evidence that agencies have made the necessary environmental analyses."

2. Neither the FSEIS or prior public documents disclosed the actual forecast travel time for the existing route, preventing interested parties from recognizing a fundamental problem with the traffic model.
3. Despite drastically limited funding for transportation projects in Georgia, the FSEIS does not discuss the estimated cost of GDOT's preferred alternative, which also hid the fact that *using GDOT's own formula, the highway it plans to build is not economically feasible.*

These three issues cast serious doubt on the selection of GDOT's preferred alternative as the route for the U.S. 411 Connector, and on whether GDOT should build the project at all. All are discussed in more detail below.

**B. THE DATA UNDERLYING THE TRAFFIC MODEL ARE INSUFFICIENT AND INAPPROPRIATE.**

Early in the process, GDOT identified a number of "concepts" – possible routes for the link between U.S. 411 and I-75. GDOT used a traffic model to forecast the traffic counts on each concept in 2030, the project's design year, then relied on those forecasts as the primary (and perhaps sole) basis for its decision to carry some concepts forward for further evaluation while eliminating others from consideration.<sup>3</sup> But those forecasted travel times are unreliable and inaccurate, for a number of reasons:

**1. The traffic model does not consider induced travel.**

Neither the traffic model or any subsequent traffic analysis considered induced travel. (*See* Draft Record of Decision ("DROD") at 56 [Tab 2].) Induced travel is not just traffic "diverted" from slower routes, but additional traffic created by improved accessibility and the growth it attracts. In practice it is accounted for by "feeding back" congested speeds into the model's distribution, or by increasing development as a function of accessibility changes, or changing peak hour and day-of-week factors.

GDOT defends this omission by stating that "[i]nduced growth, and the induced traffic associated with it, is not appropriate for use in an Environmental Impact Statement or Alternatives Analysis." (DROD at 56 [Tab 2].) But EIS regulations *specifically mandate* consideration of indirect effects of the project. 40 C.F.R. § 1508.8(b). Induced growth – and the traffic associated with that growth – is a primary example. *Id.* ("Indirect effects may include growth inducing effects.")

In the DROD, GDOT suggests that projects like the U.S. 411 Connector are a zero-sum game – that new growth evens out when applied to the entire region. However, in this case the model studied only the sub-region consisting of a portion of Bartow County. The whole purpose of sub-regional modeling is to evaluate the impact of the proposed facility on the *sub-region*, not the region as a whole. And it seems foolish to simply assume that a new highway linking an

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<sup>3</sup> As discussed later, GDOT also used the model's results to calculate the Economic Viability Index for each concept, determining that the costs of the routes it eventually eliminated outweighed the forecasted benefits.

urban area to a major interstate for the first time would have no effect on growth. Part of the justification for this project is better access to Rome, Georgia and surrounding Floyd County. Although outside the study area, Rome's economic development is expected to benefit substantially from the project, leading to greater growth and increased traffic to I-75. Failing to consider this anticipated growth – particularly when it is not a mere collateral effect of the project but part of its stated need and purpose<sup>4</sup> – is inappropriate.

Thus, it is not sufficient to assert that such analyses are “not well understood,” or that the impact of the U.S. 411 Connector is likely to “rarely have significance.” There are straightforward ways to evaluate induced travel for road projects. These include:

- a. The modeling effort could have re-distributed trips (internal trips) within the sub-region, using revised (faster) travel times, without changing trip ends or regional totals, to get at location shifts;
- b. The distribution of external trip ends (trips entering the sub-region from outside) could have been changed, without changing regional totals, to get at shifts in longer-distance travel not covered by route shifts;
- c. Changes in the amount and location of local traffic could have been modeled.

While such modeling does involve additional assumptions, it is neither “not well understood” nor “not yet universally accepted.” The failure of the modeling effort to consider induced travel, even in its simplified terms, is a significant shortcoming that may risk the entire modeling analysis and the corridor evaluation.

## **2. The traffic model was not properly calibrated.**

In the DROD, GDOT agrees that model calibration is intended to “ensure a good fit between model results and observed traffic in the base year.” (DROD at 55 [Tab 2].) The Rollins agree that calibration is essential: If a traffic model is not tested to ensure that the base year “forecasts” match observed conditions, there is no reason to believe that the model’s actual forecasts will be accurate or even reasonable.

That is why it is so disconcerting that there is no model calibration reported in any of the thousands of documents associated with the U.S. 411 Connector project. Neither the Concept Screening Report nor any of the memos submitted to GDOT by its traffic consultant, Jordan, Jones & Goulding, indicate any re-calibration results. In fact, the documentation for the modeling positively indicates that re-calibration of the sub-regional model was not conducted.

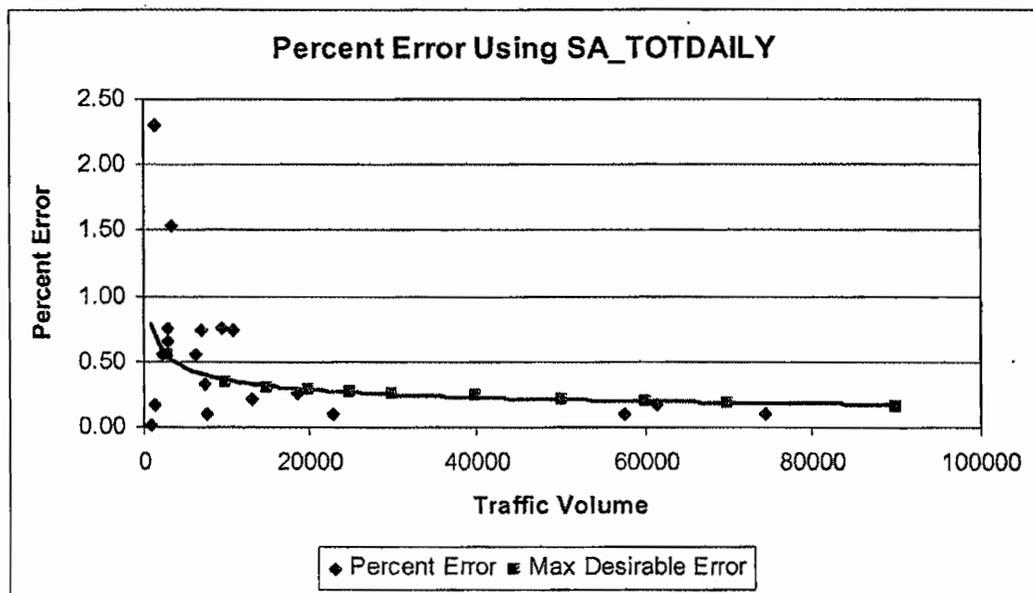
Accordingly, as explained in the memo of June 26, 2007, prepared by Dr. David Hartgen to Michael Weiss, there is considerable discrepancy between observed base year traffic counts

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<sup>4</sup> “The continued growth and economic viability of the City of Rome and Floyd County would be supported by the implementation of the US 411 Connector by providing good access to the interstate system for commercial traffic, in particular trucks.” (FSEIS at 1-26.)

and model estimates. (Memo from Dr. Hartgen to Michael Weiss, "Notes on Model Calibration and Speed Wells," June 26, 2007 [Tab 3].) In that memo, it is noted that only 21 locations in the study area have base year traffic counts, and that:

- Eight of the 21 locations, all under about 15,000 ADT, have errors greater than the allowable maximum (see the following chart).
- Mid-volume locations have calibration errors upwards of 25 percent, probably higher than the federal criteria for minor arterials and collectors.
- Freeway locations (60-80,000 ADT), are within the maximum allowable error, but all have errors higher than the guideline of less than 7 percent.



- *"In short, the ARC model may have been calibrated adequately for the region but there is considerable information suggesting that the Bartow model is not within acceptable calibration parameters."* (Memo, D. Hartgen to M. Weiss, "Notes on Model Calibration and Speed Wells," June 26, 2007 [Tab 3]).

Therefore it is likely that the sub-regional model is not adequately calibrated. If this is the case, it cannot be used reliably in forecasting, and its results cannot justify the selection of GDOT's preferred alternative.

**3. The use of 'speed wells' on I-75 links in the model remains unexplained.**

In his memo of April 26, 2007, Dr. Hartgen questioned the apparent introduction of two-minute time penalties into eight links on I-75 in several of the tests. (Memo from Dr. Hartgen to Michael Weiss, "Preliminary Review of US 411 Connector Traffic Forecasts," April 26, 2007

[Tab 4].) The DROD fails to explain these time penalties, and this matter is not discussed in the FSEIS. If the penalties were in some of the networks used to prepare the Concepts Screening Report, then it is likely that the conclusions of that report would be biased against the northern alternatives, which would have had travel times longer than other alternatives.

**4. The expansion factor used to expand peak-hour capacities to 24-hour capacities is too low.**

Forecasting models studying peak-hour traffic require a formula to convert that peak-hour data into a full 24-hour period, and vice versa. Because, by definition, the peak hour attracts more vehicles than any other hour, it is not as simple as multiplying the peak hour traffic counts by 24. In fact, studies nationally have concluded that absent unusual circumstances, peak hour traffic is traditionally 9.5 percent of daily traffic on any given travel link. Accordingly, modelers multiply peak-hour traffic counts by 10.5 (1/0.095, the proportion of trips in the peak hour) to determine daily traffic or capacity.

A review of traffic modeling data and documents, however, indicates that GDOT and its consultant used the factor 8.33, rather than 10.5, to calculate 24-hour traffic counts. The DROD confirms this figure. (DROD at 56 [Tab 2].) There is no explanation, in the DSEIS, the DROD, or any other documents reviewed by the Rollins, as to why GDOT used a lower factor.

Absent justification, using the lower factor (8.33) produces a 26 percent underestimate in the carrying capacity of the future alternatives. This means that traffic forecasts inappropriately increased the daily traffic counts of the build alternatives, including GDOT's preferred alternative, without similarly increasing the traffic counts on the no-build alternative. This is especially crucial where, as here, the traffic forecasts for GDOT's preferred alternative barely exceed GDOT's minimum for a four-lane freeway. If the correct expansion factor (10.5) were used, the no-build alternative would have appeared to be a more attractive option. In short, the use, without explanation, of an unusually low expansion factor deprived both GDOT and the public from fair consideration of the no-build alternative.

**5. The FSEIS failed to include intermediate access in the study of alternatives.**

As the Rollins have pointed out in prior comments directed to GDOT, the failure to consider concepts with intermediate connections between the western end of the project and its terminus at I-75<sup>5</sup> led to a key problem: The absence of an intermediate interchange both led to lower numbers on the northern routes, particularly suggesting that they would not adequately reduce traffic on the existing route. Because GDOT intended from the start to have the U.S. 411 Connector to include an intermediate interchange, its evaluation did not accurately reflect the actual project.

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<sup>5</sup> GDOT did compare Concept D (which later became GDOT's preferred alternative) and Concept F-Modified with intermediate interchanges after F-Modified was submitted by the Rollins for consideration. At the concepts screening stage, however, the model never incorporated intermediate interchanges, and GDOT never studied them for any other route.

Prior comments (DROD at 29 [Tab 2].) pointed out that intermediate access was not included in the study of alternatives. GDOT's response (DROD at 29 [Tab 2].) indicates that intermediate access was "deliberately omitted" from all the corridors, and notes that only access to state roads was included. But the DROD then notes that "*It was recognized that intermediate access....could significantly increase traffic volumes by introducing local traffic, making it difficult to determine the volume of traffic on SR20/US411 to/from I-75.*" That was precisely the point of the earlier comment: failure to include local traffic growth (which is likely to be greater on the northern alternatives) biases the results in favor the southern alternatives, and therefore constitutes a technical error in the forecasting.

The DROD again references this issue (DROD at 57 [Tab 2].), suggesting that such a detailed tie-in to local traffic is not needed because "*the purpose of the concept screening analysis was not to establish the overall volume of traffic for the purpose of design and environmental analysis.*" If that is the case, then where is the forecast of traffic "for design and environmental analysis" done? The FSEIS uses the traffic forecasts from the Concept Screening Report, and design typically begins with traffic forecasts from the same document.

**6. The "re-calibrated model" tests incorrectly applied universal modifications throughout the model network.**

The "re-calibration" tests described in the DROD (DROD at 49 [Tab 2].) were actually not that at all, but rather uniform sensitivity tests that slowed down the entire network. The consultant's justification for that is contained in a footnote from the earlier documentation, (DROD at 49 n.6 [Tab 2].), that, "*...applying modifications only to specific links of interest – i.e. the links on the travel path from I-75/SR20 to US 411/US 41 – in order to achieve a certain result (e.g., to reduce speeds and increase travel times) is an inappropriate forecasting technique.*" The predictable result was very little change in traffic forecasts. The "re-calibration" tests should have been performed by slowing down just one alternative, the No Build Alternative, since it is specifically that alternative for which the travel times were in question. Contrary to being an "inappropriate technique," such a test would have used more accurate travel time data and determined the true sensitivity of the traffic forecasts to assumptions about travel time. If this had been done the result would probably have been an increase in the traffic forecasts for all alternatives relative to the No-Build Alternative.

**7. The set of alternatives should have considered alternatives appropriate for two-lane roads.**

The Concepts Screening Report served as the basis for GDOT's decision to consider only "location" alternatives, but good EIS practice also means that in addition to location alternatives, other alternatives should also be considered, and indeed they were here. For instance, a "TSM" alternative was also considered. When it became apparent that all of the northern alternatives would probably not meet the 18,900 design threshold for LOS C two-lane (presumably this means, the threshold for going to four lanes from a two-lane road), the review should have been expanded to consider, at the least, cost-effective alternatives such as super-2 designs (wide shoulder two-lane road with turning lanes on an at-grade alignment), staged construction (two lanes first, then four when traffic reaches 18,900), and possible parkway designs which have

lower environmental impacts. In short, the action should have been *not* to delete the alternatives, but instead to look at lower level designs on the various alternatives.<sup>6</sup>

**C. GDOT CONTINUES TO MISLEAD THE PUBLIC ABOUT THE ACTUAL TRAVEL TIMES AT ISSUE IN THIS CASE.**

**1. The travel time data included in the FSEIS do not match those used in the traffic predictive model.**

As explained in the FSEIS, the “US411 to I-75 Travel Time” (hereinafter, “through-trip” time) for the existing route was the base condition for comparing concepts and thus the key factor in concept evaluation (Figure 2.1.1.A-2). The FSEIS states without reservation that the estimated 2030 travel time on the no-build alternative is 16.3 minutes. (FSEIS 2-8, Table 2.1.1.A-2.) But GDOT has stated repeatedly that the figure reported in the DSEIS was *not* used in the traffic model GDOT used to eliminate five concepts, including all four northern routes, from further consideration. All of the findings used in concepts evaluation were based on another, significantly different and contradictory travel time, not reported in the FSEIS. Although GDOT has provided no documentation of the *actual* 2030 travel time forecast in the model, it appears – through meetings with GDOT officials and an exhaustive review of thousands of project documents – that the model’s estimated 2030 travel time on the no-build alternative is between 9.9 and 10.2 minutes. While the two times were culled from different sources, they measure the exact same thing.

- a. The *reported* travel time (16.1 minutes) was derived from an “engineer’s estimate,” based on the character of the existing route as a mainly multilane arterial highway experiencing an increase in strip commercial development. This engineer’s estimate reflects North Georgia’s reality, conforms closely with guidelines in wide use in urban transportation planning, and is reasonably related to the existing travel times as observed by field studies by the U.S. 411 Connector project.
- b. The *unreported* travel time (9.9 to 10.2 minutes) reflects “default” (i.e., unadjusted) inputs for the regional traffic model (developed by the Atlanta Regional Commission) used in the project. No attempt was made to adjust the unreported travel times to more closely conform to either the observed or “engineer’s estimate” times.

The FSEIS reports detailed crucial evaluation factors (Year 2030 traffic volumes and Economic Viability Index) based on the traffic model and its travel time inputs. However, the FSEIS does not reveal the travel time inputs used, or the discrepancy between the travel time used in the model and that reported in the FSEIS. In fact, the FSEIS does not report that any discrepancy exists.

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<sup>6</sup> In fact, there are other alternatives GDOT apparently never considered. For example, the traffic model concluded that a substantial number of vehicles traveling to points south on I-75 would use arterial roads south of the study area instead of either the northern concepts or the existing route. This suggests that improvements to those roads may provide considerable relief to traffic on the existing route at a much lower cost.

## 2. Use of the Unreasonable and Unreported Travel Time Led to GDOT Improperly Eliminating Many Concepts.

The reported travel time – which closely mirrors the observed real-world time – supports the common-sense conclusion that the northern concepts, having a shorter through-trip travel time that is two-thirds that of the existing route, will attract most or all of the through traffic (around 11,000 vehicles daily) as well as some local traffic (i.e., trips with either origin, destination or both within the study area). The unreported travel time that was used in the model, on the other hand, yields the anomalous conclusion that the existing route will be significantly faster in the year 2030 than at present, and that not a single through trip would choose to use a northern route.<sup>7</sup> In short, the FSEIS reports that no through-trip travel would use a highway with travel times considerably less than the 16.3 minutes that would be required in year 2030 on the existing route if no improvements (other than those already in the planning stages) were made. The travel times reported in the FSEIS for the eliminated concepts are also significantly less than the 15.4 minutes for Concept A, which follows the existing route but incorporates major improvements to the highway.<sup>8</sup>

The evaluation of the Concepts rested “first on the extent to which each Concept is expected to attract traffic to the new US 411 Connector and the extent to which each Concept reduces traffic on the existing connection (US 41 and SR 20).” (FSEIS at 2-4.) Thus, the first-stated reason for eliminating Concepts C, E, F, G, and H from further consideration was that they “would attract little traffic and would provide no relief for the existing US 411 to I-75 connection.” (FSEIS at 2-12.) Notably, Year 2030 daily traffic volumes of less than 1,000 was projected for Concept E, 2,500 for Concept F, and 3,700 for Concept F (Modified) (collectively, “Concepts E-F”) (FSEIS, Figure 2.1.1.A-1).

The eliminated routes’ purported poor performance on three derivative measures was given as an additional reason for their elimination from further consideration. These three evaluation measures were derived from the projected traffic counts for each concept, which in turn were derived from the travel times discussed above. These measures are: (1) total volume on S.R. 3/U.S. 41 (FSEIS Figure 2.1.1.A-1), (2) reduction in total vehicle hours of travel (FSEIS, Figure 2.1.1.A-3), and (3) the Economic Viability Index (“EVI”) (FSEIS, Figure 2.1.1.A-3).

The magnitude of the underestimating of projected traffic in the eliminated concepts, particularly Concepts E-F, is illustrated by further examining the southerly movements through the corridor, between the U.S. 41/U.S. 411 interchange at the western end of the corridor, to the I-75/S.R. 20 interchange at the eastern terminus, and then southward on I-75. This movement accounts for some 40 percent of all traffic now on U.S. 411 immediately to the west of the

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<sup>7</sup> The FSEIS reports that building the eliminated concepts would substantially decrease travel time through the study corridor. This corridor travel time is defined in the FSEIS as travel time between the end points common to all concepts, specifically, from the U.S. 41/U.S. 411 interchange at the western end of the corridor to the I-75/S.R. 20 interchange at the eastern end. For all concepts except Concept A, the corridor travel time includes a component of time spent on a new segment of freeway, plus a component on I-75, terminating at the I-75/S.R. 20 interchange.

<sup>8</sup> Of course, this odd result suggests that the existing route would be faster *without* the improvements than it would be *with* them.

western end of the study area. For the year 2030, a daily traffic volume of 28,900 is projected for this segment of U.S. 411 (i.e. immediately to the west of the study area). From data given in the FSEIS, therefore, we can estimate the U.S. 411 to I-75 south movement in the year 2030 to be some 11,560 daily vehicles (daily volume of 28,900 on U.S. 411 times 40 percent traversing the entire study corridor to I-75).

For *all* of these 11,560 daily trips, Concepts E-F offer a far more attractive routing than even a greatly improved routing on U.S. 441-SR 20, as evidenced by the reported year 2030 travel times for such trips. (FSEIS at 2-8, Table 2.1.1.A-2.) Thus, Concepts E-F should carry a *minimum* of 11,560 trips, not the (less than) 1,000 to 3,700 daily trips reported. (FSEIS at 2-7, Figure 2.1.1.A-1.) In all likelihood, Concepts E-F could be expected to carry significantly more traffic than the 11,560 daily vehicles southbound volume noted above. Two likely sources of such additional traffic are the U.S. 411/I-75 north movement (5 percent of 28,900 daily vehicles, or 1,445 daily vehicles) and traffic to/from the study area entering or exiting Concepts E-F at intermediate interchanges, whether at Peoples Valley Road or a similar location.

The selection of alternatives and the exclusion of some concepts from further consideration, therefore, is based on a questionable and apparently deliberately unreported model input. Whenever this discrepancy has been raised, GDOT dismissed concerns by citing to purported differences between the two travel time estimates. Indeed, GDOT representatives have stated that the two numbers “cannot/should not be compared.” (“Draft Meeting Summary – March 7, 2006,” forwarded to W. Kulash by letter from H. Keeper, April 26, 2006 [Tab 5].) GDOT “explains” this anomaly by suggesting that the numbers in the Concepts Screening Report were “estimated using travel distance and an engineer’s preliminary estimate of a typical average speed,” and that they “were simply used to compare estimated travel times.” The travel times in the model, GDOT explains, were “computed by the model for the sole purpose of comparing travel times on all the thousands of paths through the network.” Of course, this response is nonsensical. The two numbers certainly are comparable, quantifying the *exact same thing*: the estimated 2030 travel time on the no-build alternative. Even GDOT describes them as used for identical purposes. At best, they are purportedly the same measure reached at by different methodologies. But there is absolutely no reason for the discrepancy between these two numbers.

Even if it were appropriate to provide an inaccurate estimate to the public while using another figure in its traffic model, GDOT’s decision to eliminate most routes based on the traffic model would still be problematic because the estimated travel times inputted do not appear to be correct. The Rollins have expressed this position to GDOT a number of times, including in their formal comments concerning the DSEIS, but GDOT has dismissed these concerns. GDOT has suggested that the Rollins are only concerned because the model’s determination that no traffic traveling south from the study area will use any northern route is admittedly “counterintuitive.” But in fact there are a number of objective reasons that suggest that GDOT’s traffic model – and its conclusions – are wrong.<sup>9</sup>

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<sup>9</sup> The FSEIS offers no satisfactory explanation for why Concepts E-F travelers are assumed to choose a longer (in terms of travel times) and non-freeway route of existing U.S. 411-S.R. 20 over a shorter freeway route. Two attempts at such explanation (FSEIS at 2-6) are not convincing.

**3. By Failing to Report Travel Times as Modeled, the FSEIS is Deficient and Misleading.**

Moreover, any suggestion by GDOT that it is somehow improper to question its decision to eliminate northern routes using the travel time in the Concepts Screening Report is disingenuous. That figure is the *only* estimated travel time GDOT has made public. It is entirely reasonable for any person reading the FSEIS to expect that GDOT used that figure in its calculations, particularly when, as here, the published figure appears more reasonable and reliable than the figure used in the traffic model.

In fact, by repeatedly asserting that the 16.3-minute figure is only an “initial assessment” not to be considered in evaluating concepts, GDOT is acknowledging that it is including in its FSEIS information it believed to be inaccurate, despite the fact that the Rollins pointed this out to GDOT in its comments on the Draft SEIS. This is antithetical to the purpose of an Environmental Impact Statement. See 40 C.F.R. § 1500.2(b). GDOT calls its decision to publish the figure it now disavows a “judgment call.” (See “Draft Meeting Summary – March 7, 2006,” forwarded to W. Kulash by letter from H. Keepler, April 26, 2006 [Tab 5].) But there should be no “judgment” necessary in determining whether to include information in an FSEIS that GDOT believes is wrong.

**a. The travel time data used in the traffic model are hidden from the public.**

It is one thing that GDOT appeared to choose the wrong number for use in the traffic model. More egregious is its continued insistence on reporting a figure it never incorporated in the traffic model throughout the FSEIS, *including in discussion of comparisons between*

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The FSEIS first states that “most of the traffic in the existing corridor is traveling to or from southerly destinations,” thereby implying that Concepts E-F are not attractive to such southerly travel. However, the projected travel times for Concepts E-F as reported (FSEIS page 2-8, Figure 2.1.1.A-2) show that for a large segment of southerly travel (the southbound movement of at least 11,560 daily trips), Concepts E-F would be chosen over even a greatly improved U.S. 411/S.R. 20. The FSEIS then cites “the programmed improvements on the existing corridor and ... congestion on I-75.” Both of these points are contrary to findings reported in the FSEIS. The “programmed improvements to the existing corridor” are fully accounted for in the travel time of 15.4 minutes reported for Concept A. Further, the 2030 peak-hour travel times (FSEIS Figure 2.1.1.A-2) accounts for congestion and resultant slowing of travel speeds on I-75.

Moreover, the assertion that “future traffic volumes and congestion on I-75” (FSEIS, page 2-6) could render Concepts E-F unattractive for U.S. 411 to I-75 south travel is particularly questionable. Most obviously, the reported year 2030 travel times suggest no such degradation. To the contrary, the travel times of 10.0 to 10.2 minutes for the approximately 9.5-miles of Concepts E-F yield an average travel speed of 56 to 58 miles per hour. This is by no means a degraded speed and certainly not one likely to induce drivers to prefer a signalized arterial highway with stop-and-go traffic and an average travel speed of 23 miles per hour (Concept A, 5.9 miles in 15.4 minutes (FSEIS, Figure 2.1.1.A-2) yielding 23 miles per hour). Simple arithmetic further refutes the notion that travel speeds on I-75 could be degraded to the point where drivers would prefer even in improved U.S. 411-S.R. 20 route (Concept A) to travel on Concepts E-F. The FSEIS reports (2.1.1.A-2) that the U.S. 411 to I-75 travel time is 15.4 minutes on Concept A. For Concept A to be faster than Concepts E-F, the travel speeds on I-75 would have to degrade to 26 miles per hour, for not only the peak traffic hours but for the entire day.

*concepts that relied entirely on the results of the model.* In the FSEIS, the only way a member of the public (or a reviewing agency) could even estimate – let alone learn – the travel times GDOT used to eliminate routes from consideration was by calculating it himself or herself. Without completing those calculations, the audience for the FSEIS is presented with the anomalous conclusion that a slower route (the existing route) will attract *all* of the through trips, while faster routes will attract none of them. An important reason for this anomaly – the modeled travel time that is drastically less than the reported “engineer’s estimate” – is concealed from the FSEIS reader.

**b. The travel time data used in the traffic model is unreasonable on its face.**

In its formal responses in the DROD, GDOT suggests that the estimated 2030 no-build travel time included in the FSEIS was developed using a “‘sketch-planning’ methodology based on limited current data.” But it is our understanding that GDOT or JJ&G in fact based this figure on a measure of actual travel on the current route. The travel times used in the model, however, appear to be taken from general Atlanta Regional Commission figures for roads with similar characteristics in counties considered to be analogous to Bartow County, rather than from any data specific to the current U.S. 411.

The wide disparity in the two figures begs reexamination. The “initial assessment” no-build travel time contained in the FSEIS is 16.3 minutes; while GDOT has not revealed the estimated travel times used in the model, for the model to determine that no southbound traffic would use a northern route, the no-build travel time would have to be quicker than those estimated for the northern routes – that is, less than 10 minutes.<sup>10</sup> (FSEIS, Figure 2.1.1.A-2.) That suggests that GDOT’s reported time – its “initial assessment” based on observation – was off by more than 60 percent. Put another way, a figure based only on broad regional data differed by more than 60 percent from the estimate of GDOT and JJ&G personnel intimately familiar with the study area – but GDOT selected the first number.

**c. GDOT has failed to address this discrepancy despite repeated entreaties that it do so.**

GDOT chose to report only its “initial assessment” of 2030 travel times – the 16.3 minutes figure – in the FSEIS, despite concerns raised about identical issues in the Draft SEIS.<sup>11</sup> Its engineers called choosing to use the significantly longer times rather than the much shorter times incorporated in the model a “judgment call.” But given that GDOT already knew that

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<sup>10</sup> GDOT has never suggested that the estimated 2030 travel times for any of the concepts were incorrect. Indeed, although they routinely point to alleged degradation of travel on southbound I-75 as a reason for the “counterintuitive” result that no southbound traffic would use a northern route, any degradation was already incorporated into the estimated concept travel times included in the FSEIS.

<sup>11</sup> The discrepancy between reported (but not used) and unreported (but adopted) travel times has been vigorously brought to the attention of GDOT and its consultant, beginning with correspondence well before the issuance of the DSEIS, in formally conveyed comments on the DSEIS, in meetings with GDOT and GDOT consultant staff, and with further correspondence following these meetings.

members of the public might find the estimate in the model “counterintuitive” – perhaps because it estimates that traffic will flow considerably better in 2030 along the existing route than it does now – it is possible that publicly reporting the more believable figure rather than the actual estimate used by GDOT was a deliberate decision.

In response to requests to resolve the anomalous traffic forecasts, GDOT ran the traffic model again, this time substituting a figure close to the 16-minute “engineer’s estimate” travel time on the existing route for the much shorter time used in the model. As described above, however, GDOT also adjusted *all* other routes in the model by the same proportion, using a procedure it never disclosed to the public. By using this method, GDOT did not live up to its promise to test the accuracy of the model under the conditions suggested by the Rollins. (See “Draft Meeting Summary – March 7, 2006,” forwarded to W. Kulash by letter from H. Keepler, April 26, 2006 [Tab 5].) Predictably, this resulted in no change to the model’s results. It failed to test the question at issue – whether a different travel time for the existing route would alter the model’s outputs. The results of this modeling exercise, therefore, are meaningless, and a good-faith testing of the model still remains to be done.

**D. UNDER PRESENT CONDITIONS, THE U.S. 411 CONNECTOR IS NOT AN EFFICIENT USE OF LIMITED TRANSPORTATION FUNDS.**

GDOT has planned construction of the U.S. 411 Connector project, in one form or another, for approximately 20 years. While a freeway-only connection between Rome and I-75 may be desirable, it is clear that in the current climate, with transportation funding more scarce than ever, GDOT should consider whether to proceed with the project at all. In the FSEIS, GDOT estimates construction and land acquisition costs for the preferred alternative will approach \$400 million, well above the \$124.5 estimated in the Concepts Screening Report.<sup>12</sup> Yet the forecasted number of vehicles remains constant at just under 25,000. (FSEIS at 2-7.) Applying the new cost estimate to the original formula, it is clear that GDOT’s preferred alternative simply is not viable.

**1. Under GDOT’s own formula for evaluating the economic viability of a project, the U.S. 411 Connector falls far short.**

When it considered which of the various concepts to carry over for further evaluation as alternatives, GDOT relied heavily – perhaps even exclusively – on a figure called the Economic Viability Index (“EVI”). This number, a ratio between the time savings achieved by construction of the U.S. 411 project and the cost of the project, purported to determine whether the perceived benefits of the project outweighed its costs.

At the concepts screening stage, the three concepts considered for further evaluation – Concepts A, B, and D – were the only concepts with EVIs over 1.0; that is, they were the only concepts for which it was forecast that the savings achieved through faster travel times through

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<sup>12</sup> Even this \$399 million figure may be too small. In its comments on a pair of reports recently submitted for its approval, FHWA noted that GDOT’s cost estimates failed to include utilities costs. (FHWA Comments at 3 [Tab 1].)

the corridor would exceed the costs of building the highway. The remaining concepts, including each northern route, were found to have EVIs lower than 1.0 and thus, “costs exceed benefits.” (FSEIS at 2-5.)

Since GDOT published its Concepts Screening Report, however, costs for every proposed route, including GDOT’s preferred alternative, have skyrocketed. While GDOT has made the revised estimated cost of only their preferred alternative public in the FSEIS,<sup>13</sup> it recently determined updated cost estimates of each of the concepts – with some increasing more than 300 percent. (GDOT Memo from Ken Anderson to David Ashley, “Updated and Refined Concept Cost Estimates,” March 26, 2007 [Tab 6].) If these revised costs were used to re-calculate the EVIs, as we have done in the last column of Table 1 below, the resulting EVIs would *all* be less than 1.0, meaning that *the entire project is of questionable economic viability*.

Table 1, below, calculates the EVIs for each concept using the *exact same formula* GDOT used in the Concepts Screening Report. The only change was replacing the 2004 cost estimates with the cost estimates *generated by GDOT itself* in March 2007.

**Table 1: Calculation of Revised EVIs for U.S. 411 Alternatives Using GDOT Data**

Concept	Total Travel Time Savings, 2010-2030 <sup>a</sup>	Estimated Project Cost <sup>b</sup>	EVI <sup>c</sup>	Estimated Project Cost, Revised <sup>d</sup>	EVI, Revised
	(M veh-hrs)	(\$M)		(\$M)	
Concept A	4.77	76.3	1.20	118.7	0.77
Concept B	7.80	130.0	1.15	316.0	0.47
Concept C	3.60	133.8	0.52	159.5	0.43
Concept D	8.70	124.5	1.34	399.6	0.42
Concept E	1.05	102.3	0.20	351.3	0.06
Concept F	1.50	120.8	0.24	387.1	0.07
Concept G	1.35	93.9	0.28	394.3	0.07
Concept H	1.65	120.0	0.26	402.9	0.08

a) Average weekday travel time savings estimated by traffic forecasting model; Total travel time savings = avg. weekday travel time savings x 300 weekday-equivalent days per year x 20 years. Source: Concepts Screening Report, p. 20.

b) Generalized estimates based on typical per-mile costs for various facility types, typical total cost for interchange construction/reconstruction, and typical per-acre right-of-way acquisition costs for various property types (i.e., residential and commercial). Estimates used for purposes of EVI computation ONLY. Source: Concepts Screening Report, p. 20.

c) EVI = total vehicle-hours of travel time savings x \$19.14 per vehicle-hour / project cost; EVI > 1.00 indicates economic viability (project benefits exceed project costs)

d) New cost figures, Memo from Ken Anderson to David Ashley, JJG, March 26, 2007.

**vehicle-hour costs = \$19.14**

<sup>13</sup> The estimated \$399 million cost of the project appears in only one place in the FSEIS, it, the final sentence of the executive summary. (FSEIS at xiv.) It does not appear in the body of the document. Indeed, costs are not discussed anywhere in the FSEIS; thus, a person interested in this key information about the project would not be able to locate it without reading the entire document. Leaving this crucial detail out of the main portion of the FSEIS makes it difficult for a citizen to determine whether GDOT properly considered the no-build alternative.

The FSEIS refers to the EVI in several places. On page 2-5, the FSEIS explains that “[a]n EVI value of 1.00 indicates that benefits equal costs; for EVIs greater than 1.00, benefits exceed costs, and for EVIs less than 1.00 costs exceed benefits.” Therefore, by the above calculations, costs exceed benefits for *all* alternatives. This is crucial: New highway projects should benefit not only local traffic but should provide value to all taxpayers of the state of Georgia. With resources for new road construction as limited as at any time in history, the state cannot afford to commit those scarce dollars to a project GDOT’s own data shows is not economically viable. If GDOT is committed to improving access to I-75 from Rome and Floyd County, it appears that Alternative A is significantly more viable than GDOT’s preferred alternative, with an (admittedly low) EVI of 0.77 – nearly twice that of GDOT’s preferred alternative. Alternative D, GDOT’s preferred alternative, rates just fourth in economic viability. Its EVI of 0.42 means that, over the life of the facility, *less than half of its construction costs would be returned to the people of Georgia in the form of traveler benefits*. Further, at an estimated construction cost of \$118.7 million, less than 30 percent the cost of Alternative D, Alternative A would cost considerably less in real dollars.

**2. Even the recalculated EVIs are probably incorrect, providing further evidence that the project is not viable.**

Furthermore, the assumptions GDOT used in calculating EVIs have made the data – like all other data the GDOT used to evaluate and eliminate concepts – biased and unreliable. The original analysis (Concept Screening Report at 20), reproduced in Table 1, included two erroneous assumptions that made it appear that cost savings associated with each concept would be greater than would actually be achieved if the project were built. Those assumptions are:

- a. The value of time assumed (\$19.14/hour saved) appears to be a weighted average of individual employee and truck driver hourly wage rates. Most benefit-cost assessments of roads have traditionally used half the wage rate, rather than the full wage rate, to calculate the value of time savings. This is because only about 30 to 40 percent of trips are work-related, and non-work travel is typically valued at a lower rate. If GDOT instead assumed half the wage rate rather than the full rate, the above time savings estimates would be cut in half.
- b. The calculation of the number of hours saved (see Table 1 above, column 2) assumed that the end-year traffic volume applied for the entire 20-year period. That is, GDOT used traffic counts for 2030 – after the road would have been in operation for 20 years – as the forecasted counts for every year. In fact, a starting-year traffic volume should have been assumed for half the period. If this correction were made, the resulting EVIs would be approximately 20 percent lower than published.

3. **The failure to include revised cost estimates and EVIs in the FSEIS improperly hid key information from the public.**

The GDOT's decision to not determine a new EVI for the preferred alternative once the estimated cost of the alternative tripled, and further to keep that information out of the FSEIS, improperly prevented the public from evaluating GDOT's consideration of alternatives – a requirement of any EIS. 42 U.S.C. § 4332(2)(C)(iii). That means the public is permitted not only to evaluate any alternative plans considered by the relevant agency – *the public must also be permitted to consider the alternative of taking no action at all*. In addition, the public must be permitted to evaluate its direct share of the costs necessary to complete the project, which it is unable to do without full disclosure of key project cost information that is missing from the FSEIS. By failing to provide easily generated data that would allow the public to consider the viability of the project– and indeed, by leaving the issue of project cost almost entirely out of the FSEIS<sup>14</sup> – GDOT has denied the citizens of Georgia the information needed to evaluate whether any new U.S. 411 Connector project is a prudent use of their limited resources.

As always, the Rollins hope these comments are helpful in determining the course of action that will best serve the people of Bartow County and all of Georgia. The Rollins urge GDOT to work with us and other interested parties in this common endeavor.

  
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<sup>14</sup> See n.13, *supra*.

## Responses to FSEIS Comments

# Responses to Comments on FSEIS

The following section identifies the responses to comments received on the FSEIS. Comments were received from King and Spalding on behalf of the Rollins family, and from EPA. The comments are in bold font and are followed by the response(s) in italics:

## 1.1 Rollins Comments

### A. Comment-

**The data underlying the traffic model are insufficient and inappropriate.**

#### 1. **The traffic model does not consider induced travel.**

- *Individual capacity improvement projects – even projects the scale of the US 411 Connector – rarely have significant or even noticeable impact on regional or even county-wide trip distribution.<sup>1</sup>*
- *Induced growth, and the induced traffic associated with it, is not appropriate for use in an Environmental Impact Statement or Alternatives Analysis. The concept of induced growth is based on the hypothesis that the transportation facility inducing the growth – in this case US 411 Connector – will be so attractive that more population and employment (residents and businesses) than forecasted will locate in the area and use the facility simply because it is there. Induced growth is not a well-understood phenomenon, and analysis methodologies are not yet universally accepted. As a result there is much room for manipulating the numbers/results to support a specific outcome, and there is no way to ensure that regional total population and employment distribution remains the zero-sum game it should. That is, regional population and employment totals are based on the economic capacity of the region, and should not change with different transportation system improvement alternatives. If every transportation agency or project proponent could incorporate induced growth in the analysis of their projects, the resulting regional population and employment sums would likely exceed the forecasted totals by substantial margins.*

#### 2. **The traffic model was not properly calibrated.**

*Traffic models used for this project have been thoroughly and properly calibrated. The subarea traffic assignment models used to conduct the Concept analyses were derived directly from GDOT's Year 2000 and Year 2030, 21-county traffic forecasting model, which is used for all projects in the region, per State and Federal requirements. The model was developed and*

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<sup>1</sup> Theoretically, for a given population/employment distribution, one might expect that the advent of a major highway linkage like the US 411 Connector would result in some trips shifting to origin-destination patterns served by the corridor (e.g., for the fixed number of work trips generated in Rome, the trip distribution model might show more of those work trips traveling to jobs south of Cartersville in the I-75 Corridor with the US 411 Connector than without it). However, the several minutes' travel time savings provided by such a facility – as compared to other nearby routes – would not by itself significantly affect regional or localized trip distribution.

*calibrated by Day Wilburn Associates and Cambridge Systematics, recognized experts in the field.*

**3. The use of ‘speed wells’ on I-75 links in the model remains unexplained.**

*This discussion asserts that specific link times were adjusted in the Year 2000 model to “slow down” I-75 relative to other links and that the adjustments were not made consistently. This assertion is baseless, because it is derived from an erroneous interpretation of the contents of the traffic model database. In the traffic model, several fields in the network database concern time and speed, and the analysis from which this comment is derived was based on an incorrect speed field.*

**4. The expansion factor used to expand peak-hour capacities to 24-hour capacities is too low.**

*The “expansion factor” referenced in the comment converts the one-hour link capacities coded in the networks to daily values in order to match the daily trip tables being assigned. This expansion factor is an integral element of the calibrated model, and because the expansion factor used in the subarea traffic model comes directly from the regional 21-county model from which the subarea models were created, it is by definition the appropriate factor to use.*

**5. The FSEIS failed to include intermediate access in the study alternatives.**

*As identified in the Concept Screening Report, the Corridor Concepts all specifically excluded intermediate connections because the purpose of the analysis was to determine each Concept’s relative attractiveness to corridor traffic (or lack thereof), and its ability to relieve the existing route (inclusion of local access points and local traffic would obscure this information). The purpose of the concept screening analysis was not to establish the overall volume of traffic for the purposes of design and environmental analysis. However, as previously requested by the Rollins, a Modified Concept F was evaluated with an intermediate interchange, which also included analysis of an Alternative D with an intermediate interchange. This analysis is clearly documented in Section 2 of the FSEIS.*

*The intermediate access points were incorporated in the Project Alternatives, which were developed for the Concepts that were found suitable for further development via the concept screening process.*

**6. The “re-calibrated model” tests incorrectly applied universal modifications throughout the model network.**

*As described above, the model was re-calibrated strictly to respond to King & Spalding’s questions about the traffic assignments for the northerly concepts by showing what the traffic forecasts for those northerly concepts would be if the model were ‘calibrated’ (substitute the term “adjusted”) to produce a no-build congested travel time deemed reasonable by King & Spalding (i.e., 18 minutes from I-75 to US 411 via SR 20 and US 41 in the peak hour). In other words, the “re-calibrated model tests” were sensitivity tests developed solely to respond to the*

*Rollins' specific questions, and were not used for any other purpose in the US 411 Connector alternatives development or environmental analysis processes.*

*We continue to assert that the original Concept Screening Analysis (as reported in the US 411 Concept Screening Report) is complete, accurate, and applicable, and that the results of the Sensitivity Analysis reported in the re-calibration memo do not warrant any revision or reconsideration of the original Concept Screening Analysis, or of the conclusions and decisions derived from them.*

**7. The set of alternatives should have considered alternatives appropriate for two-lane roads.**

*SR 20 and SR 3/US 41 currently provide the main connection from US 411 to I-75. These facilities carry the burden of both through traffic from US 411 to I-75 and local traffic that travel to and from the commercial and government centers in and around the City of Cartersville. The combination of these two different types of traffic is creating congestion and safety problems along this corridor with traffic volumes in the corridor predicted to be over 40,000 vehicles per day in the project design year (2030).*

*There are two primary needs for this project: one is to provide a more direct connection to I-75, and the second is to improve the congestion on the arterial roadways that presently connect US 411 to I-75, which in turn will improve the safety in the corridor.*

*Based on the in-depth traffic analysis completed for the project, it was determined that the volume of traffic that would need to be diverted from the existing corridor combined with the traffic that would use the new connector would exceed the capacity of a two-lane roadway. Put another way, a two-lane alternative would not provide sufficient roadway capacity to adequately reduce traffic volumes on the existing roadway network and would not provide an improved connection to I-75. A two-lane alternative would not meet the project need and purpose and was, therefore, not considered to be a reasonable alternative.*

**B. Comment-**

**Concerned that GDOT is misleading the public regarding the travel time data in the traffic model.**

**1. The travel time data included in the FSEIS do not match those used in the traffic predictive model.**

*The comments continue to imply that GDOT is using travel times as an input to the model, when they are actually outputs of the model. Travel times have been reported accurately throughout the DSEIS and FSEIS. Travel time data has been derived by progressively more detailed and accurate methods as the concepts and alternatives evaluation process evolved. Evaluations were completed differently, depending upon what data was available at the time of reporting; moreover, the methodologies for all calculations have been referenced appropriately.*

**2. Use of unreasonable and unreported travel time led to GDOT improperly eliminating many concepts.**

*The definition of the term “reasonable” as it applies to travel times is subjective. However, the definition of “reasonable” is irrelevant in that the results of both the initial traffic forecasts and the subsequent, much more sophisticated, sub-area traffic modeling all are quite consistent and clearly point to the same conclusions regarding the viability and impact of the various corridor concepts. While the specific model output data may vary – as they can be expected to when going from an initial estimate to a complex network analysis – the results consistently lead directly to the finding that the northern concepts (E-H) fail to meet the basic project Need and Purpose (that is, they would not attract enough traffic away from the no-action US 411 scenario to justify an expenditure of public funds), while Concepts B and D would improve network travel times in the study corridor and thus constitute a more viable public investment. As a result (and completely consistent with good NEPA practice), the northern concepts were not carried forward, and the more southerly concepts were more fully developed as the “range of reasonable alternatives.”*

**3. By failing to report travel times as modeled, the FSEIS is deficient and misleading.**

*Travel time data has been reported appropriately throughout the entire project development process beginning with the Concepts Screening Report, in the DSEIS, in the FSEIS, and as part of the most recent project outreach to the CAC, and PIOH held on February 12, 2008. For example, in Section 2 of the DSEIS, Figure 2.1.1.A-2, the travel time between US 411 at US 41 and I-75 South at SR 20 for the No Build (No Action) scenario is reported as 16.3 minutes; and the source of this information was clearly identified as the Concepts Screening Report (CSR). The methodology used to determine this travel time estimate, which is described in detail in Appendix C of the CSR, used actual travel distances and assumed average travel speeds along the routes of the proposed concepts. At this initial point in the NEPA process, the concept travel times were estimated because the regional travel model was not yet available for the consultant team to use. Subsequently, traffic forecasts were prepared for all concepts using a Bartow County sub-area traffic model, as is very clearly stated in pages 6-8 of the CSR.*

*Also in Section 2 of the DSEIS and FSEIS, Table 2.4-1, travel times are identified for the alternatives (not to be confused with concepts). In this table the travel time for the No Action scenario is identified as 15.8 minutes and the methodology used to calculate this (which is different from that used in the CSR), is referenced as a footnote in the table.*

**C. Comment-**

**Concerned that the Preferred Alternative is not an efficient use of limited transportation funds, question the accuracy and correctness of project cost and benefit analysis, and concerned that the project cost information has not been presented to the public.**

*All cost estimates have been prepared following accepted standard methodologies using the unit prices as approved by GDOT at the time of the cost estimate preparation. As the project development process has proceeded, there have been several rounds of cost estimates completed. For example, during the development of the concepts, estimates based on a more general scale using factors including Cost per freeway mile, Cost per arterial mile, Cost per minor interchange, or Cost per major interchange were used. As the concepts were developed into alternatives, more specific detail for each alternative was developed, thus allowing for a more refined estimate. During the most recent cost estimates, even greater project details have been determined as the preliminary engineering for the Preferred Alternative has advanced. What is important to note is that at each level of cost estimating, the concepts or alternatives were evaluated consistently across the board based upon the detail available and the unit prices at the time of estimation.*

*Over the past several months GDOT has been continuing with preliminary design work and more refined construction cost estimates of the preferred alternative. Currently, GDOT follows a policy that requires all projects with a cost of \$25 million or more to go through a value engineering process. Because it was estimated during the FSEIS process that the preferred alternative would cost approximately \$399 million (later reduced to approx. \$341 million after further design, using more refined quantities and unit prices), a Value Engineering (VE) study was completed on the US 411 Connector project. The results of the study recommended a series of modifications to the project in order to reduce the construction cost. The project modifications suggested by the VE study and combined with other related modifications from the preliminary design process were presented to the project CAC (January 29, 2008), to the regulatory agencies involved throughout the project planning process (February 7, 2008), and to the public (February 12, 2008). Each of the proposed modifications have been evaluated by GDOT and its consultants to determine the feasibility of implementing the modifications from an operational, environmental, and cost perspective.*

*Project cost has become an important factor in the overall project evaluation especially in light of increased construction materials costs and more limited transportation funding budgets. Various cost benefit analyses have been completed, beginning at the concept development stage on through determination of a Preferred Alternative. The results of these cost benefit analyses is that the Alternative D-VE, which is the Selected Alternative, is a viable project from a cost perspective. The construction of the US 411 Connector would provide a more direct connection to I-75 for through traffic from western Bartow and Floyd counties. Through traffic would no longer be combined with locally generated traffic along these existing facilities, reducing congestion in the corridor. The diversion of through truck traffic away from the existing system would enhance the safety and operation of SR 20 and SR 3/US 41. The continued growth and economic vitality of the City of Rome and Floyd County would be supported by the implementation of the US 411 Connector by providing improved access to the interstate system for commercial traffic, in particular trucks. The Department believes that construction of the US 411 Connector would be a reasonable expenditure of public funds.*

## 1.2 EPA Comments

### A. Comment-

**It is recommended that GDOT coordinate with affected communities (during final design) where noise walls are proposed to discuss visual and aesthetic mitigation measures, as appropriate.**

*GDOT is committed to meeting with these affected communities as recommended.*

### B. Comment-

**It is recommended that GDOT/FHWA confirm that the project Preferred Alternative is included in the updated ARC long range transportation plan (Envision 6).**

*The US 411 Connector is in the current (2008-2013) TIP as project BT-042, which was included in the most recent ozone and PM 2.5 conformity determinations for the TIP.*

### C. Comment-

**Concerns that the Preferred Alternative has the greatest impacts to jurisdictional wetlands, regulatory floodplains, loss of upland forest habitat, and is predicted to add the most acres of impervious surfaces due to induced future growth is noted. However, support for the proposed mitigation and monitoring measures proposed to offset these impacts is also noted. It is recommended that the mitigation commitments be included in the ROD.**

*As a result of a recent Value Engineering (VE) study and ongoing design evaluations, there are several modifications that are being proposed in order to reduce the overall cost of the US 411 Connector project. These evaluations have reduced potential project cost estimates from approximately \$399 million for the original preferred alternative (later reduced to approx. \$341 million after further design, using more refined quantities and unit prices) to less than \$200 million for the modified preferred alternative. The following list represents the modifications determined to be feasible from an engineering perspective while not causing an additional adverse environmental impact; they have therefore been recommended for implementation:*

- *Reduce median width from 68-feet to 44-feet*
- *Reduce right-of-way (ROW) from 400-feet to 250-feet*
- *Use folded diamond interchange rather than full diamond interchange at SR 61*
- *Related reductions in bridges, retaining walls, drainage systems, paving, erosion control, traffic control, signing/ marking/signals, guardrail, and miscellaneous items*
- *Use a split diamond connection of US 411 to I-75, which retains a diamond ramp to SR 20 from the south*
- *More compact interchange at US 41*
- *Raise design profile, allow 7% grade to accommodate mountainous terrain*
- *Terminate Clifton Way south of US 411, and connect it to US 411 on north side with an at-grade intersection for gated access to the cell tower*

*Although some of the project details, including the interchange type and configurations and other construction and engineering details as identified above are being incorporated into the preferred alternative, the alignment of the proposed roadway has not changed from what was presented in the FSEIS. The modified Preferred Alternative is being referred to as Alternative D-VE.*

*The project team has evaluated the proposed modifications that define Alternative D-VE, and in most cases, the impacts to the environment are less than what was reported for Alternative D - Avoidance/Minimization Variation. Other modifications include the more compact interchange configurations at US 41, SR 61, and at I-75. This condensed footprint reduces direct impacts to environmental resource areas. For example, the more compact interchanges have reduced the limits of transition required to connect to the existing roadway network, which has eliminated impacts to both streams and wetlands that would no longer be crossed or filled. In addition, the narrower roadway section would require a smaller area of fill to cross existing streams, wetlands, and floodplains, which effectively reduces the overall impact to these protected environmental resources.*

*Although the overall impacts have been reduced, GDOT is still proposing to implement the mitigation plan as originally proposed. The commitments to complete this mitigation are described in Section 4 – Measures to Minimize Harm of this ROD.*