

**Application for Funding under the
Operational Tests to Mitigate Congestion Program**

By

Florida Department of Transportation



May 11, 2007



Part I: Background, Problem and Technical Approach

Introduction

This submittal is in response to the U.S. Department of Transportation Request for Application (RFA) for the “Operational Tests to Mitigate Congestion.” Florida DOT is submitting this application on behalf of the I-10 Freight Corridor. The I-10 National Freight Corridor Study is a multi-state Group, which is in an excellent position to effectively participate in this federal effort. The states of the I-10 Freight Corridor are currently working towards similar goals, and are well positioned to quickly implement this project.

As a freight-focused Corridor, we are keenly aware of the value of a secured and robust communication infrastructure that interconnects regional Traffic Management Centers (TMCs) and supports the communication requirements of deployed ITS field equipment (i.e. dynamic message signs (DMS), vehicle detection, closed circuit television (CCTV), etc. This project will emphasize the former, providing vital communications between TMCs for both daily congestion management, and use in emergency management.

This proposal *represents the common interest of the three state DOTs (Florida, Mississippi and Alabama, that are participating in the study. **The I-10 National Freight Corridor Study has proven itself to be a model of cooperation and initiative**, and — through its continued ‘best practices’ approach — is currently developing a template ITS architecture that will be available ‘off the shelf’ to stakeholders throughout the Corridor and beyond.*

I-10 Corridor Description and Background

In 2002 and 2003 the Departments of Transportation in the eight states traversed by I-10 came together as partners to conduct a comprehensive evaluation of the entire Corridor system, with particular emphasis on the impact of goods movement on the Corridor. The National I-10 Freight Corridor Study addressed the need to facilitate goods movement along the Corridor, as well as the feasibility of transportation improvements across a broad range of options. During a Phase 2 study undertaken in 2005, the I-10 Corridor Partnership created a Concept of Operations for Intelligent Transportation Systems (ITS) integration across the Corridor and today the Corridor is working toward a Corridor-wide ITS architecture.

This grant application represents just one of the many projects on which I-10 is moving forward. The states along the Corridor are committed to advancing projects which help address congestion and improve safety along the entire length. This project will provide vital communications between four of the eight states along the Corridor.



1. The name, title, email address and phone number of the person who will act as the point of contact on behalf of the applicant.

The point of contract for this application is Mr. Trey Tillander, ITS Software, Architecture, and Standards Administrator, with Florida DOT. His contact information is as follows:

V. Y. "Trey" Tillander III, P.E.
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Florida Department of Transportation
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Tallahassee, FL 32399-0450
(850) 410-5617
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2. A description of the partner agency, authority, or authorities requesting funding.

Florida DOT is submitting this application as the lead agency for several states along the I-10 Freight Corridor. The I-10 Corridor as defined by four states, which includes the following and is shown on the map below:

- The I-10 Corridor exceeds for this study exceeds 550 miles;
- Three (3) states (FL, AL, MS, and LA.);
- The I-10 Corridor passes through 5 major urban areas; and
- The Interstate-10 facility network, for this project is defined as including:
 - Relevant portions of major NHS facilities connecting to I-10.
 - Relevant portions of urban freeways connecting to the I-10.
 - All intermodal facilities that influence I-10 operations (ports, airports, rail, etc.).

Exhibit 1: The National I-10 Freight Corridor





Florida, Alabama and Mississippi DOTs are the agencies providing funding for this project.

3. The Congressional District or Districts in which the project will be implemented.

The Congressional Districts include all districts along the I-10 Corridor for the three states. The Congressional District at which this project is being led is 2.

4. Identification of the lead agency and a description of the roles for each public agency or agencies that will be responsible for operating, maintaining, and enforcing the operational testing project, if applicable.

Florida DOT is the lead agency. The state DOTs from Alabama and Mississippi will serve as “task managers” for the portions of the projects that will be accomplished in their state. This will include detailed design, construction management, and continuing maintenance and operations of the infrastructure.

5. A management and staffing plan for all partner agencies to include resumes for proposed key personnel (Note: Resumes do NOT count against the page limit).

Mr. Trey Tillander will be the lead on this project. Mr. Tillander will be aided by Mr. Chad Williams from Florida DOT District 3. Mr. Williams will provide oversight of construction and ongoing operations. Mr. Tillander will provide overall project management. For Mississippi, Mr. Mike Stokes will serve as the manager of design and implementation while in Alabama, Mr. Garry Moore will assume this role.

Detailed design and construction management will be accomplished using existing staff within the design and construction bureaus in the various state DOTs. Depending on the actual work involved, state staff may be supplemented by consultant staff.

6. A description of the ITS congestion mitigation technologies to be operationally tested.

The communications network (i.e. physical plant) is the most critical component in the design, deployment and operations of ITS facilities. Fiber optics is the primary communication technology used for ITS facilities. Specifications for the design and implementation of fiber optic communications plant technology are well developed within the state DOT community. For example Florida DOT Specification Section 783 thoroughly describes the requirements for fiber optic cable plant components, their installation and performance parameters. Fiber can be used to transmit information over 30 miles in distance, with minimal signal loss. Because photons of light are used to transmit the information the technology is impervious to electrical interference and is considered one of the most secure types of communication technologies. The practical operational life of fiber optic cable plan is 15 to 20 years.



In addition to ITS field infrastructure, another important component of ITS facilities traffic mitigation importance is the interoperability between regional TMCs. Connectivity is the ability to transmit and receive information (video, voice, data, etc.) seamlessly between TMCs that operate along the I-10 Corridor. This interoperability is achieved by use of similar (and/or compatible) center-2-center communication standard protocol. For example Florida and Texas operate with NTCIP TMDD using XML/SOAP standards.

This project is a first step in a Gulf Coast Regional Incident Management System. The plan is to develop a Gulfport/Biloxi Regional TMC that would be integrated with centers in New Orleans, Mobile, and Pensacola. All four centers are on the I-10 Freight Corridor. Besides using the system for congestion Mitigation on I-10, the system would also be invaluable for regional hurricane evacuations and emergency operations. The Gulfport/Biloxi TMC would co-locate with the new Harrison County Emergency Management Center. MEMA, Dept. of Public Safety, 911, and local law & emergency operations would be co-located in the same center. The project would integrate the centers along the Corridor in two distinct areas: Telecommunications & ATMS software. All it would take is approximately 75 miles of fiber to integrate centers in 4 states and create a truly regional system for the Gulf States.

Software integration would follow in subsequent projects. However, by providing the infrastructure to create secure and robust communications between these centers, it will greatly aid in the eventual integration of centers. Florida and Texas already are both using the same center to center standard: NTCIP TMDD using XML/SOAP.

7. Identification of the facilities that will be covered by the operational test.

Facilities include all DOT fiber plant (existing and proposed) along the I-10 Corridor within the three identified states. This will include connections to the various TMCs throughout the length of this effort.

8. A plan, including timeline broken down by phases, for implementing ITS congestion mitigation technologies.

The work is expected to be accomplished within two years. A preliminary study will be conducted along the entire length of the four states. Critical needs will be addressed as well as identifying required capacity and any potential conflicts with deployment. As this task is nearing completion, each state will begin its detailed design work. As the design work is completed, each state will procure the construction services to install all of the fiber.

Integration of systems will be conducted as a separate phase at a later date.

Task/Quarter	1	2	3	4	5	6	7	8
Develop Corridor – Wide Concept								
Mississippi Design								
Alabama Design								



Florida Design								
Mississippi Construction								
Alabama Construction								
Florida Construction								

9. A description of the anticipated effects of the ITS congestion mitigation technologies on reducing congestion, altering travel behavior, and encouraging the use of multiple transportation modes.

The effects anticipated for the technologies include:

- Instantaneous detection of incidents;
- More detailed evaluation of incidents prior to on-sight evaluation, thus reducing response action to mitigate incidents;
- Simultaneous transmission of information to multiple incident responders thus improving incident management coordination;
- A secure and robust ITS network that minimizes system failure and operational disruption;
- More efficient use of manpower responding to incidents; and
- Quicker clearing time for incidents, thus reducing traffic congestion and reducing the likelihood of secondary accidents;
- Improved and secure communications that will allow for multiple TMCs to cooperate during times of emergencies or crisis including hurricane evacuation.

10. Plans for monitoring and evaluating operational testing projects, including plans for collection and analysis, before and after assessment, and long term monitoring and documenting of project effects (Note: The Department will be selecting an independent evaluator for all projects selected. The Recipient shall agree to support the independent evaluator in collecting and providing access to the necessary data.).

Florida DOT and the participating states will be pleased to work with any federal evaluation studies of this effort. The primary criteria for assessment will be in the enhanced coordination between the TMCs. This could be viewed as either the number of incidents for which they share communications. It may be possible to get to a more detailed level and compare measures such as the number of times the agencies share resources or information. It should be possible to look at historical records and find similar information for past years.

11. Plans for meeting all Federal, State and local legal and administrative requirements for project implementation, including relevant Federal-aid planning and environmental requirements.

The Florida DOT, Alabama DOT and Mississippi DOT continually work with the FHWA to ensure that all legal and administrative requirements will be met. As the primary work is more utility related and does not directly address capacity, it is expected that the



environmental impact is not applicable. However, all three states will comply with existing federal requirements with the design and implementation of these systems.

12. A discussion of previous public involvement, including public meetings, in the demonstration of the proposed ITS operational test to mitigate congestion. Any expressions or declarations of support from public officials, industry or the public. Future plans for involving key affected parties, coalition building, and media relations, and more broadly for ensuring adequate public and private sector involvement prior to implementation (Applicants are encouraged to provide more than just letters of support, but instead reference any implemented policies and/or legislation that will enable successful implementation).

The I-10 Freight Corridor has existed as a formal pooled fund study for approximately five years. The eight states have formally committed to work with each other and continue to provide ongoing support for many efforts along the Corridor.

There has been considerable public outreach already accomplished. In the current phase, there is ongoing outreach to the shipper and carrier industry concerning ITS goals and needs. This study is ongoing at the moment with detailed results expected the summer of 2007.

The initial planning effort and the designs will include public outreach as appropriate. This may include outreach to the communications industry to determine if there are potential public private partnership opportunities. Again, since this is primarily a utility project, it is expected that the public outreach requirements are minimal. However, each state will commit to following current requirements for public outreach as they apply.

13. A description of private entities, if any, involved in the project and the applicants arrangements therewith, including any cost sharing or debt retirement arrangements associated with revenues.

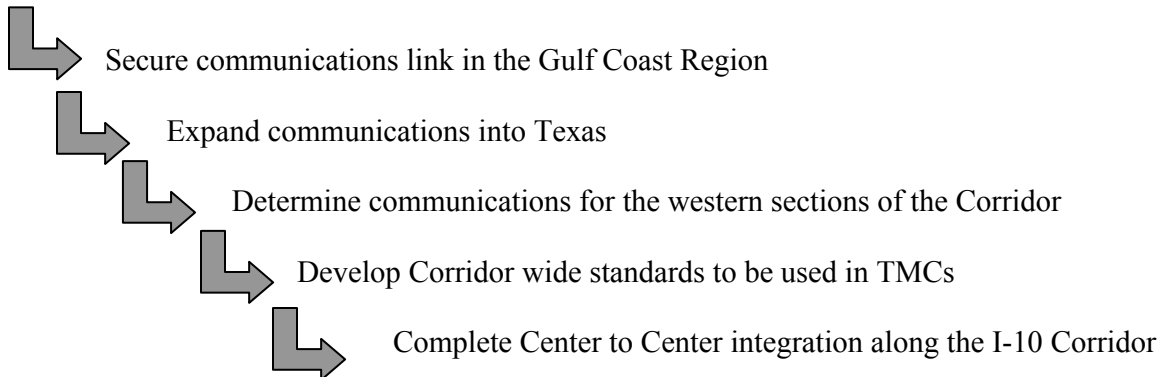
The involvement of private entities is not anticipated. The one exception is if in the initial planning study, there is the potential to use a private sector vendor to install the infrastructure.



Part II: Operational Testing Value

The operational testing value is very significant. It is the long term goal of all eight states to develop a secure means of communicating between the various TMCs across the entire Corridor. Some other agencies that may benefit in the short term are toll authorities and metropolitan transportation agencies. As they see the benefit of the Corridor-wide communications, it is expected that additional local and regional agencies will also participate. The second group to benefit from this test is other corridors. By demonstrating the value of secure communications, it is anticipated that other corridors throughout the country can benefit by applying a similar project to their corridor.

This effort is viewed as one of the first steps in a long journey to have all TMCs along the I-10 Corridor integrated together. The long term vision is to provide physical connectivity between all TMCs throughout the Corridor, as well as evolving each to be able to seamlessly share data and potentially control of field equipment. Other ongoing efforts include identifying standards to be applied to TMCs throughout the Corridor. Many of these will continue parallel to this effort.





Part III: Budget

A spreadsheet with the detailed cost information is attached. Many of the questions asked in this section are addressed in the spreadsheet.

1. A budget itemized by task, phase and funding year.

All design tasks are expected to be completed within the first quarter of the second funding year. Construction will be completed within the second funding year. The following summarizes the anticipated costs by task.

Task/Quarter	Consultant Hours	Consultant Costs	Construction Costs
Develop Corridor – Wide Concept	0	0	0
Mississippi Design	8101	\$759,809	0
Alabama Design	6361	\$95,045	0
Florida Design	1005	\$600,054	0
Mississippi Construction	0	0	\$12,700,000
Alabama Construction	0	0	\$10,000,000
Florida Construction	0	0	\$1,584,000

The Corridor-wide concept will be developed by an existing consultant. No costs are included in this application.

2. A finance and revenue plan, including a budget for capital and operating costs; a description of all funding sources, planned expenditures, and proposed uses of revenues; and a clear tabulation of Federal funds requested and proposed match.

No revenue is expected to be generated by this effort. As stated previously, the reduction in congestion along the Corridor is viewed by the participants as sufficient to justify this public expense.

The capital costs are detailed in the spreadsheet. Each state DOT will take ownership of the infrastructure and will be responsible for its maintenance and operations.

The cost is assumed to be 80% federal through this OTMC grant program. The local match of 20% will either be through cash.

The attached spreadsheet details the costs including the split between federal funds and proposed match.

3. Detailed spreadsheet and supporting information clearly delineating and supporting all estimated costs by cost element for each of the following periods: (1) Year 1 (12 months); (2) Year 2 (12 months); (3) Year 3 (12 months); and (4) summary of all years. Clearly delineate Federal share versus non-Federal share.

All information is on the attached spreadsheet.



4. If sub-recipients (lower-tiered organizations and/or individual consultants) will be used in carrying out this project, the following minimum information concerning such should be furnished.

At this moment, no sub-recipient has been selected. It is expected that design will be accomplished by consultants and construction will be by local contractors. Each DOT will determine the proper method of procuring those services upon award.

5. The use of a Dun and Bradstreet (D&B) Data Universal Numbering System (DUNS) number is required on all applications for Federal grants or cooperative agreements. Please provide your organization's DUNS number in your budget application.

The DUNS number for Florida DOT is as follows: 8093971020000.

6. A statement to indicate whether your organization has previously completed an A-133 Single Audit and, if so, the date the last audit was completed.

An A-133 Single Audit has been conducted with Florida DOT on January 31, 2007.