

# South Florida Interstate 95 Express Project: Lessons Learned

## Acknowledgements

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## 1.0 Introduction

### Purpose and Audience

The purpose of this document is to share best practices and lessons learned to date in the implementation of the I-95 Express managed lanes project in South Florida. These lessons have been assembled based on interviews conducted in person or by phone, with project team members. The interviews were conducted prior to the toll implementation of Phase 1A. Therefore, the lessons and best practices summarized in this report focus on the processes prior to toll implementation and operations.

The anticipated audience for this document includes staff of FHWA and state or regional Department of Transportation (DOT) officials in other areas interested in implementing managed lanes projects. It is intended that readers will be able to take some of the information and lessons presented here and apply them to projects in their communities to add to the value and outcomes of those efforts.

### Background

Traffic congestion in the Miami area is a severe problem. According to the Texas Transportation Institute's 2007 Urban Mobility Report, the Miami area is among the most congested urban areas in the United States and is currently 6<sup>th</sup> nationally in travel time measures related to excessive delay. According to the study, peak period travel times in Miami take 38 percent longer when compared to free-flow conditions.

Interstate 95 is the most highly traveled corridor in South Florida with over 300,000 vehicles traveling through parts of the corridor daily. With significant long-term population growth projected in the region, volumes on this corridor are expected to increase by over 20 percent over the next 20 years. Prior to the 95 Express project, the corridor's typical cross section provided

four (4) general use lanes and one (1) high occupancy vehicle (HOV) lane in each direction. The HOV lanes were restricted to vehicles with two (2) or more occupants and were enforced from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. During peak conditions, peak direction travel speeds along the corridor are less than 17 miles per hour in the general use lanes and 31 miles per hour in the HOV lanes.

Express bus service operates along a portion of the corridor providing connections from a commuter rail station/park-n-ride lot to Downtown Miami. According to recent data, 18 percent of all person trips within this portion of the HOV lanes are associated with the existing bus service.

Geometric expansion along the corridor is limited as little/no additional right-of-way is available and existing bridge structures cannot accommodate roadway expansion. Furthermore, established developments/residential neighborhoods exist immediately adjacent to the corridor making right-of-way acquisition infeasible. Therefore, it was determined that improvements along the corridor would be confined to the existing roadway envelope.

## **Project Description**

The “Miami-Area Urban Partner” applied for and was awarded an Urban Partnership Agreement (UPA) grant in 2007 to implement a managed lanes project on Interstate 95. The Miami-Area Urban Partnership consists of the Florida Department of Transportation, Miami-Dade/Broward County Metropolitan Planning Organizations (MPOs), Broward/Miami-Dade County Transit, Miami-Dade County Expressway Authority, and Florida’s Turnpike Enterprise. The project focus was primarily to address congestion in the Interstate 95 corridor. The project consisted of components commonly referred to as the four (4) “T’s”: tolling, transit, technology, and transportation demand management.

Utilizing the existing roadway cross section, the project creates an additional travel lane in each direction by narrowing the inside median width and reducing some travel lanes from 12 feet to 11 feet. Additionally, the existing HOV lane buffer was reduced to one foot of separation between the general use lanes and the proposed managed lanes. The resulting cross section allows for two (2) managed lanes, a one foot buffer, and four (4) general use lanes in both the northbound and southbound direction. Flexible delineators installed within the one foot buffer were included in the design concept.

In the northbound direction, the managed lane network entry is located near the State Road 112/Interstate 195 interchange and interim terminus is located at State Road 826/Florida’s Turnpike interchange, also known as the Golden Glades Interchange. Once all project phases are complete, the final terminus for the northbound managed lanes will be south of the Interstate 595 interchange in Broward County. The interim southbound entry into the managed lane system will be located north of the Golden Glades Interchange with the terminus located at the State Road 112/Interstate 195 interchange. Upon project completion, the southbound entry will be located north of Interstate 595 in Broward County while the southbound terminus will be south of State Road 112/Interstate 195.

Two (2) tolled managed lanes separated from general use lanes will be provided in each direction along the corridor. Tolls will be variable priced based upon network demand to maintain a

managed lane free flow speed of 50 miles per hour. Tolls will be electronically collected via “SunPass” transponders. “Sunpass” transponder technology accounts for a majority of toll transactions in South Florida. Changeable message signs will notify motorists of the current toll rate, as toll rates may change as often as every three (3) minutes. Registered vanpools, carpools with 3+ occupants, and hybrid vehicles can use the lanes toll free. Transit, school, and intercity buses along with motorcycles can travel in the managed lanes for free without registration.

Several other corridor enhancements will be introduced as part of this project including ramp metering in Miami-Dade County, additional traffic management cameras, additional “Road Ranger” full-service patrols/incident response teams, and transit signal priority at 50 signalized intersections near the corridor. Transit improvements will include improved express bus service both within Miami-Dade County and from Broward County to Miami-Dade County with associated pedestrian access accommodations.

Transportation Demand Management strategies will also be encouraged in concert with the proposed improvements including telecommuting, flextime, and employer-sponsored ride-sharing.

### **Project Phasing and Schedule**

As part of the Urban Partnership Agreement, a schedule was developed to fast-track this project. Phase 1A includes the northbound managed lane improvements from State Road 112/Interstate 195 to the Golden Glades Interchange. The UPA outlined a completion date for Phase 1A of March 2008. Phase 1B, consisting of the corresponding southbound managed lane improvements and the extension of the network south to Interstate 395, had an anticipated UPA completion date of January 2009. Phase 2 consists of the extension of the managed lane system from the Golden Glades Interchange to north of Interstate 595 in Broward County. However, the implementation of Phase 2 was predicated upon the Urban Partner realizing toll revenues from Phase 1A/1B to adequately fund the Phase 2 operations.

Toll operations started for Phase 1A of the project on December 5, 2008. The completion date for Phase 1B is currently planned for late 2009, as extensive bridge structure modifications are required at the State Road 112/Interstate 195 interchange to accommodate the lane geometry along Interstate 95. A completion date in 2010 is currently planned for Phase 2.

## **2.0 Summary of Findings**

### **Data Collection**

This document was prepared from interviews conducted with over thirty (30) project team members from various agencies within the Miami-Area Urban Partnership, project consultants, and construction personnel. Agencies included FHWA, FDOT, Florida’s Turnpike Enterprise, Broward County Transit, and Miami-Dade County Transit. The majority of the interviews were conducted prior to the toll implementation of Phase 1A. Therefore, the lessons and best practices summarized in this report focus on the processes prior to toll implementation and operations.

Lessons and best practices were categorized into five (5) areas: Overall Project, Institutional and Organizational Approach, Project Management, Technical Data/Information Sharing, and Outreach/Media Aspects.

## **Best Practices**

To date, the I-95 Express project has demonstrated successful implementation of a new and complex concept. It is the first example for Florida of a multidisciplinary fast-tracked project being developed in a physically constrained corridor by implementing a new congestion pricing management concept in a previously toll-free corridor. The project has successfully met the UPA goals of implementing the project rapidly to manage congestion. The following aspects of the project were identified as best practices for future managed lane projects.

### **Overall Project**

- **Define a strong project vision.** Expect the concept and design to be challenged and influenced throughout the project. Having a clear understanding of the project's purpose and goals will provide for consistent decision-making throughout. As part of the vision, identify your target market. The regional long distance commuter is the target market for the 95 Express lanes.
- **Establish a comprehensive schedule.** The UPA Application schedule and resultant project schedule has been very aggressive. In response, aspects of planning, design criteria development, and operations were performed simultaneously rather than in an iterative manner. As a result, reviews of and analyses of specific issues/concepts were less thorough than desired by some team members. Specifically, more extensive planning and traffic operational analyses performed prior to design criteria development may have reduced design changes in later stages of the project. A longer schedule would have provided more time for other aspects of the project including additional public outreach, more detailed construction documents including intelligent transportation systems (ITS) criteria, and better estimating of project construction and operating costs and construction schedules. However, the UPA project selection criteria itself demanded an expedited implementation schedule. The successful implementation of the project within the prescribed schedule is a testament to the drive of all involved to realize the established goal.

Interviews revealed that the overall effect of the accelerated schedule was positive. While the schedule required typically sequential phases of project development to be conducted simultaneously, team members were inspired and energized to work together closely to meet deadlines. The schedule resulted in excellent relationships among all agencies including FHWA and garnered trust and commitment. The level of coordination was deemed unparalleled in past projects.

- **Build upon prior efforts and support.** Prior studies, letters of support and detailed knowledge of system assets positioned the project for success in the UPA program. FDOT was prepared to embark in this pilot program before the UPA program. A 2005 alternative analysis study on congestion pricing on Interstate 95 demonstrated to FHWA that FDOT was

prepared to manage existing capacity without physically expanding the corridor. In addition, FDOT diligently worked to get the support of the community, elected officials, agencies, and made sure the MPOs included the project in their LRTPs in order to better position the project to compete nationally in the UPA Program.

- **Focus on Transit.** The project's emphasis on transit service improvements proved integral to approval of the UPA application. The commitment to improving transit infrastructure and service via regional BRT helped gain local MPO support, and demonstrated that the team had a comprehensive and multi-modal vision of the corridor, paving the way for the future success of the project.
- **Manage project expectations.** Given the innovative nature of the project both nationally and locally, it was deemed essential to manage the expectations for both stakeholders and team members. Understand that a distinctive project such as the introduction of managed lanes will generate unique issues and challenges that may affect project design, costs, and schedule.
- **Balance project development with funding status.** At the onset of the project, the accelerated project schedule was established, yet due to the competitive nature of the UPA grant application process, it was unknown whether or not the 95 Express project would actually be implemented. Therefore, it was important to balance the level of effort expended in planning with the likelihood of the grant being awarded to the Miami-Area Urban Partner.
- **Plan for the future.** Look for opportunities for integration of future corridor enhancements including electronic enforcement, vehicle occupancy detection technologies, and designing facilities to accommodate articulated buses. These and other options should be explored to ensure the infrastructure investment is viable in the long term.

## **Institutional and Organizational Approach**

- **Develop a concept of operations early.** A concept of operations for the corridor provided direction and guidance for the planning, design, and implementation of the managed lane system. Understanding the goals of the facility and identifying how those goals will be achieved technically is beneficial. Identifying operational challenges early and engineering solutions as early as possible provides for more seamless transition into implementation. Issues specific to this project included incident management, toll collection, and transit operations.
- **Involve design/operations professionals in planning process.** Given the project schedule and need for quick implementation, it was imperative that design/operations/construction professionals had opportunity for input in the planning process. This cooperation helped to identify challenges or flaws within the given alternatives and reduced the planning effort expended on alternatives that were not feasible. In concert with the planning process, consider initiating efforts in developing signing and pavement marking plans as well as performing operational analyses. Performing these tasks in tandem may identify challenges that will alter the planning process.

- **Determine organizational structure from the onset.** Identification of the project team's roles and responsibilities early in the process provided clarity. Specifically, responsibilities were assigned to issue-specific teams that proved extremely beneficial in the project's completion.
- **Coordinate with approval agencies in the initial stages.** Over the course of the project, coordination with FHWA offices and FDOT Central Office early in the process was imperative. A critical aspect of this coordination is to verify that consistent direction is provided by all approval agency offices. It was important that guidance from both national and local offices of FHWA to the project team were harmonious. Specific areas of concern for the 95 Express project were submittal requirements for traffic forecasting and modeling and design exceptions. Face-to-face coordination proved to be essential to persevering through these challenges. Once these initial challenges were overcome, a true partnership developed between stakeholders.
- **Plan for future phases of project.** If future phases are planned, consider involving staff and/or agencies likely to be in lead roles for those phases in the implementation and construction process. As a result of this cooperation during Phase 1, contract documents for Phase 2 are expected to be more thorough and reduce the number of construction issues such as change orders. Furthermore, the refinement of contract documents in future phases is expected to provide better project cost control.

## **Project Management**

- **Appoint a strong project manager.** Strong project management skills are essential in orchestrating a complex project team. The project manager needs to be an effective communicator, have availability to dedicate significant time to the project, and have the ability to make decisions efficiently. Depending on the nature of the managed lane project, technical knowledge of the critical aspects of the project is beneficial.
- **Delegate responsibility to team members.** The implementation of a managed lane project requires expertise in numerous areas within planning, design, and operations. With a fast-tracked project, it is not feasible for all decisions in each of these areas be handled by an overall project manager. Therefore, it is strongly recommended that responsibilities for each of these areas be delegated to appropriate subcommittees and these subcommittees be held directly accountable.
- **Provide project manager with direct authority.** The Interstate 95 Express project involved professionals from numerous disciplines and agencies. In order to fast-track the project, it is important that team members are able to take direction directly from the project manager regardless of the decision making protocol of a particular agency. This authority will assure that assignments are completed in a timely manner consistent with the goals of the overall project.
- **Identify the need for consultant project management.** Consider the need for consultant project management and the appropriate timing for their involvement. Identify when different aspects of the project in planning, design, and operations overlap or begin to affect

one another and assure that each team is collaborating appropriately. A consultant project manager may be beneficial in managing this collaboration.

- **Communicate effectively with team on regular basis.** Bi-weekly meetings of project teams ensured steady progress and accountability to work products. Given the numerous facets of the project, it was important to communicate regularly. Direct interaction with the agencies involved proved to be invaluable in obtaining concurrence on specific issues. Team meetings rather than agency or District specific meetings were critical to the project's progress. Effective communication requires a certain level of awareness from project management. It is vital that communication occur at the right time with the right person at the right partner agency. Project management was proactive in keeping all partners involved on a continuing basis.
- **Consider using current contract consultants.** The managed lane project took advantage of current FDOT general engineering/general planning contracts to perform a majority of the efforts for this project. The use of these contracts reduced/eliminated time for specific scope development, advertising, and consultant contract selection/execution. Furthermore, the specific managed lane concept was evolving over time and defining a scope of services from the onset was difficult. The use of existing contracts was consistent with the fast-track schedule and provided FDOT the flexibility to develop and refine the concept as the project was being developed. The ability and availability on consultants currently under contract is important in this determination.

### **Technical Data/Information Sharing**

- **Prepare for limited national or state standards for managed lane networks.** No national or state standards are available for planning and design of managed lanes. Therefore, the design of the network will be based upon a combination of information from USDOT guidelines for both HOT and HOV facilities, federal/state roadway design criteria, other pilot projects, and professional engineering judgment. The lack of standards allowed design professional to develop creative solutions to complex challenges.
- **Anticipate Transit Technical Challenges.** The incorporation of transit added significant value to the project from a local and national perspective. However, this aspect of the project proved challenging for local transit agency staff as lack of in-house support limited the ability to address unique design issues. Technical issues included terminal facility access and circulation, on-site bus operations, and the procurement of new transit vehicles. FDOT partnered with the local agencies by establishing task teams and roles early in the process.
- **Expect design exceptions.** When planning for a managed lane facility within an existing roadway envelope, expect the need for design exceptions. Right-of-way constraints may result in exceptions for lane widths, shoulder widths, and traffic separation. Coordinate these design exceptions with FHWA early in the project to receive input early and address any unforeseen concerns.
- **Utilize microsimulation tools for evaluating all alternatives.** Microsimulation provided an accurate and complete systems level analysis of this facility that was essential for the design. It

helped identify the extent of the influence area of the access points to the managed lanes on operations in the general purpose lanes. The analysis also provided insight into the potential flaws of mid-point access operations. Coordinate with FHWA early in the process on the requirements for microsimulation and perform the analysis early in the planning process.

- **Collaborate with partners on a signage plan.** As previously stated, little/no standards exist for managed lane facilities including signage standards. A collaborative effort between FHWA and FDOT was necessary to develop a signage plan acceptable to all parties. Focus groups are recommended to review the signs design/information instead of changing them constantly. As a result of this project, limited signage standards have been developed and incorporated into the Manual on Uniform Traffic Control Devices (MUTCD). It is also recommended that preliminary signage concepts/design be prepared during the project's planning stages.
- **Account for time to develop dynamic tolling software.** The implementation of dynamic tolling was new to all partners. Dynamic tolls have proven to be more difficult to implement given the short timeframe available to develop the algorithms. Software for dynamic tolling is necessary to have real-time variable tolling fees but cannot be shared among similar projects around the nation due to proprietary information making it harder to implement in a compressed schedule. Partnering with local agencies with tolling operation experience is critical to the success of the project.
- **Perform environmental screening early in the process.** Identifying environmental issues that may affect the planning and design of the managed lane facility is critical in meeting a challenging schedule. Implementing FDOT's Efficient Transportation Decision Making (EDTM) process was an ideal tool in determining what critical environmental, economic, and social issues, if any, needed to be addressed.
- **Plan additional resources for project opening.** When traffic patterns change significantly as a result of the opening of a managed lane project, have additional resources available for the transition. Regardless of the level and intensity of public outreach campaigns, motorists may not fully comprehend the changes until the facilities are open to traffic. As a result, consider the need for increased enforcement, emergency response, and incident management resources during the opening of the project as motorists adjust to the new operation plan.

## **Outreach/Media**

- **Keep public officials informed of project changes.** The fast-track schedule of this project made keeping public officials up to date difficult. Changes in design and operational plans occurred quickly in the process. Keeping officials informed is critical in maintaining political support for the project. Consider routine communication methods such as email newsletters or email alerts on website updates.
- **Be prepared for a shift in marketing approach to that of selling a product.** Transportation agencies developing a new facility of this type may need to make a paradigm shift from their typical approach of informing the public of a construction project – which often is defensive -



to that of a corporation selling a product that the public will value highly and want to purchase.

- **Implement innovative public outreach efforts.** Some of the efforts in marketing and public outreach that have been effectively used in the Miami project have included the use of highway advisory radio, requiring carpool registration (to market the high-occupancy aspect), and using the internet as well as the Miami Herald newspaper including its online edition to target the driving community.
- **Conduct more public outreach related to construction milestones.** Consider all changes to the corridor that the motorist will experience beyond variable toll implementation and account for those changes in the public outreach program. Unexpected changes in the corridor may cause driver confusion and create safety issues. Specific to this project, construction maintenance of traffic and the installation of the delineators were noted areas for improvement regarding public outreach. Improved coordination between the contractor and the public outreach team may be necessary. Understand that local driver behavior is often unpredictable.
- **Consider implementing corridor enhancements gradually.** The public's ability to adapt to significant changes in operations will take time. As a result, consider a gradual implementation schedule. Specific to the 95 Express project, the implementation of ramp metering was delayed until after the tolling operations for Phase 1A were initiated. Additionally, consider the phasing in specific traffic control devices such as delineators.
- **Manage the media effectively.** Managed lane projects are often unfamiliar to both the public and the media. Therefore, it is critical to proactively educate the media and respond quickly to negative publicity or misinformation. Monitor the press coverage and be sure to channel all requests through your public information officer or team.
- **Utilize all available methods and tools.** The project's website and video presentations were highly effective in explaining the concept. Utilizing information developed from other managed lane projects was effective and efficient. Commitment to promoting the project through the project's website, conferences and presentations using videos of the project has been effective for both the State and the managed lanes community and should pay healthy dividends.

### 3.0 Conclusions

This memorandum attempts to summarize lessons learned on the I-95 Express project implementation from comments made by over 30 participants interviewed for this purpose. The lessons identified are intended to represent the combined opinions of these project participants rather than the interviewers or the FDOT.

From these interviews, the implementation of the I-95 Express managed lanes project to date has been an apparent success, made possible by the coordinated hard work of a large group of professionals. Key elements to this success appear to include a clear project vision, a strong project manager supported by a qualified and knowledgeable team with an innovative and flexible approach, and a commitment to proactive outreach to the community.