



## EXECUTIVE SUMMARY

### Tolled Managed Highways with Rapid/ Enhanced Bus Routes and Ridesharing Study

General Planning Consultant (GPC) Services

Work Order # GPC IV-26

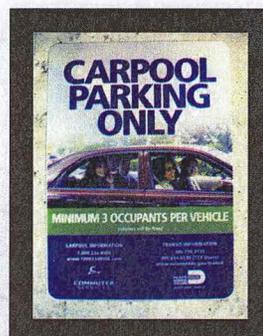
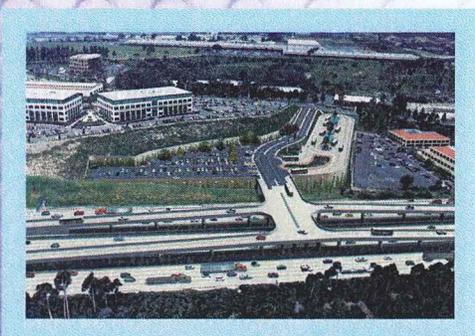
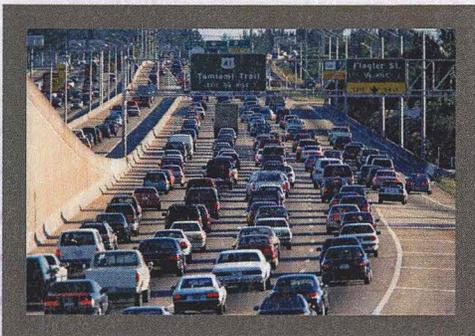
Submitted by:



## Gannett Fleming

*Excellence Delivered As Promised*

June, 2013



# **Executive Summary**

## **Tolled Managed Highways with Rapid/Enhanced Bus Routes and Ridesharing Study**

**General Planning Consultant (GPC) Services**

**Work Order #GPC IV-26**

**Miami-Dade County, Florida**

**Prepared for:**

**MIAMI-DADE County Metropolitan Planning Organization**



**Prepared by:**

**Gannett Fleming, Inc.**



**June 2013**



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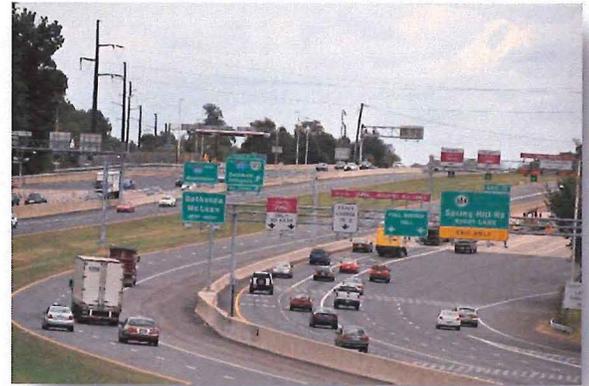
### 1. Literature Search

The study initially included a literature search of existing managed lanes on non toll facilities, toll roads with all-lane time of day tolling, toll roads with rideshare facilities or toll discounts, and toll roads with transit-supportive actions. The following are the key findings:

- Managed lanes support rideshare and transit in different ways including dedicated infrastructure (ramps), transit and rideshare vehicle purchase (e.g., Washington State DOT uses funds from SR-167 for purchase of new buses), and transit operations and maintenance. In some instances (e.g., MnPass), a specific dollar amount of the toll revenues is dedicated to transit operations. In other cases, a fixed percent of toll revenues, regardless of actual amount, is allocated to transit operations. In some cases (e.g., Metro/CALTRANS), all toll revenues over roadway operating and maintenance costs are reinvested in transit and carpool improvements. The 95 Express project in Florida added 500 spaces to a major park-and-ride lot while in Minnesota, the managed lane project constructed or expanded six park-and-ride lots and installed transit ITS technology. In Los Angeles, the managed lane projects installed transit signal priority equipment at 15 intersections within the corridor.



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Commuter Bus Service**



**Dulles Access Road Uses Multiple Strategies to  
Move People through the Corridor**

- Toll roads with all-lane time-of-day tolling is implemented by ten agencies along 24 toll roads that were identified in this study. The Washington DOT Route 520 floating bridge and two public-private partnership toll roads rely on all-lane time-of-day tolling. The Port of Authority of New York and New Jersey, Illinois State Toll Highway Authority, and Leeway rely on this form of tolling on all of their facilities. Other agencies like the Bay Area Toll Authority use all-lane time-of-day tolling on some facilities and a fixed rate tolling on others.
- Toll roads with rideshare facilities include three agencies for which a separate rideshare toll is offered and eleven managed lane facilities, all but one offering a rideshare discount throughout the day. The toll roads with rideshare discounts typically offered an approximately 50 percent discount while the managed lanes were almost always free to those meeting the occupancy requirements (generally HOV 2+).
- Toll roads with transit-supporting actions included express bus service in Maine and New York's Metropolitan Transportation Authority that operates a number of toll roads, bridges, and tunnels but also bus and rail transit operates throughout the metropolitan area.

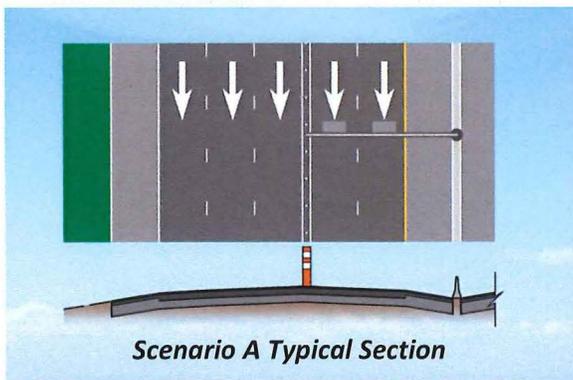
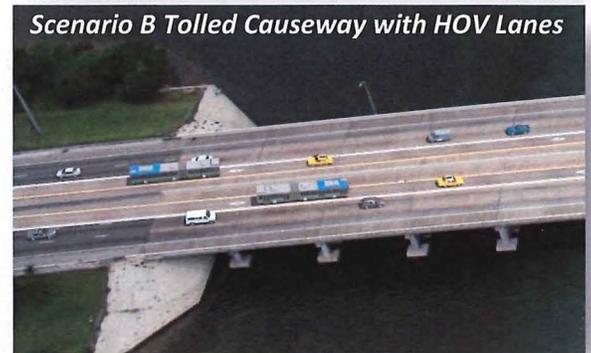
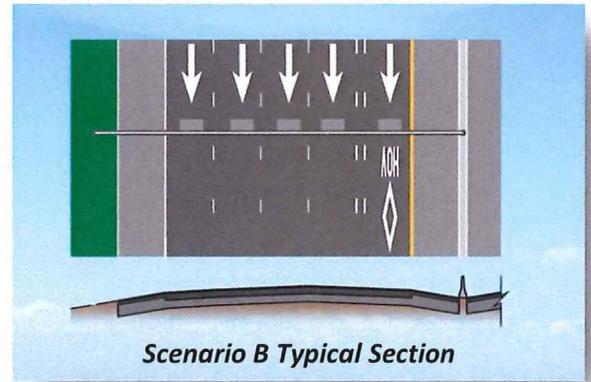
- Many transit operations make use of toll facilities, typically at no cost (e.g., toll-exempt) to travel through the regions that they serve.

## 2. Study Scenarios

Two countywide managed lane/highway network scenarios were developed and analyzed and are referred to as Scenarios A and B. The primary difference between the two options is that Scenario A assumed segregated median express lanes (two lanes typically per direction) on existing toll roads (aka: toll-within-toll) while Scenario B assumed all-lane time-of-day tolling (with a single contiguous HOV lane) on existing toll roads. Scenario B also included two new tolled causeways (MacArthur and Julia Tuttle).

Following are the other differences between the two scenarios:

- Toll rates for Scenario A were based primarily on exiting peak and off-peak period toll rates on *95Express* while for Scenario B the existing mainline tolls were doubled for peak periods and maintained as is for off-peak periods.



- Scenarios A and B both included a new highway express bus service (HEBS) network with 18 routes operating in the managed lanes network. However, Scenario B also included a new arterial enhanced bus service (AEBS) network with 26 routes operating on the adjacent arterial streets.

## 3. Modeling Results

Based on SERPM 6.5.2 model runs, key results were obtained and include the following:

- Scenario B had approximately 2% less VMT and 3% less VHT than Scenario A.
- Scenario A had a 4.4% overall increase in transit ridership and Scenario B had a 13.3 % increase in transit ridership.
- Overall HEBS ridership was approximately 10,000 to 12,000 riders per day while AEBS ridership was approximately 91,000 riders per day.
- Scenario B had shorter average trip lengths than Scenario A.
- Scenario B had an overall decrease in causeway traffic but had an increase in traffic on the Kennedy Causeway that remained un-tolled.
- Scenario B with an HOV 2 requirement in a preferential (HOV only) lane had higher auto occupancies than Scenario A with an HOV 3 requirement in a shared (HOV and SOV) express lane.



Based on an analysis of recent cost information from FDOT and MDX the following are worth noting:

- The dual express lanes per direction for Scenario A cost approximately 5 times more to implement than the single HOV lane per direction for Scenario B.
- Highway O&M costs are also more for Scenario A due to the additional lane and the need to maintain the physical separation.
- Transit capital and O&M costs are significantly more for Scenario B due to the additional amount of bus service with 26 new AEBS routes.

In terms of toll revenues the following are worth noting:

- Scenario B has the potential to generate additional revenues from all lanes from all users during peak and shoulder periods. Under high travel demand conditions this can produce more revenues than Scenario A with the express toll lanes.
- The two new causeway tolls produce enough revenue to potentially cover all of their costs including new transit service.

Based on an overall assessment of Scenario A versus Scenario B the following are worth noting:

- Scenario B results in reduced congestion in all lanes most of the time for all users. Scenario A can better regulate congestion in the express lanes but not in the adjacent general use lanes and not along adjacent arterial streets.
- The greater amount of movement of peak period travel to other time periods, to rideshare and/or to transit with Scenario B reduces or delays the need to widen/add general use lanes.
- Scenario B is lower in cost to build and can be implemented in a shorter time frame thus resulting in more widespread improvements sooner in time.
- Scenario B can result in more net revenues being produced and made available for use in the corridor.

- Scenario B can provide more rideshare and transit incentives/services (preferential lanes, infrastructure, operations, etc.).
- Scenario B can serve more travel markets for all modes due to greater access to/from managed lanes and the buffer separated HOV lane.
- Scenario B can increase overall person throughput, reduce trip lengths, increase transit usage, and reduce overall VMT and VHT throughout the transportation network.
- Scenario B has some challenges to implement including existing toll bond indentures, public opinion, potential diversion of traffic, and toll revenues being applied to non SOV modes. All can be overcome as evidenced by similar existing systems currently in operation.

#### 4. Study Recommendations

Based on the results of the study the following are the primary recommendations:

- The two toll agencies (Turnpike Enterprise and Miami-Dade Expressway Authority) should perform a more detailed system-wide comparative analysis of all-lane time-of-day tolling with HOV lanes versus toll-within-toll express lanes on all future projects.
- FDOT and Miami-Dade County should perform a more detailed analysis of all-lane time-of-day tolling with HOV lanes on the southern causeways to/from Miami Beach (Kennedy Causeway, Julia Tuttle Causeway/I-195, Venetian Causeway, and MacArthur Causeway).
- FDOT should perform a detailed analysis of all-lane time-of-day tolling with HOV lanes along SR 826/Palmetto Expressway.
- All future transportation planning (such as the LRTP) should include the consideration of all-lane time-of-day tolling projects.



***Gannett Fleming***

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**7300 Corporate Center Drive, Suite 701**

**Miami, FL 33126**

**Phone: (786) 845-9540**

**Fax: (786) 845-6802**

**[www.gannettfleming.com](http://www.gannettfleming.com)**