The I-85 Express Lanes Project

2012 NASCIO Recognition Award Nomination

**Submitting Agency:** State Road and Tollway Authority

**Nomination Category:** Enterprise IT Management Initiatives

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**State:** Georgia

**Project Initiation Date:** October 1, 2010

**Project Completion Date:** September 30, 2011
EXECUTIVE SUMMARY

According to Forbes Magazine, Atlanta was the number one worst city for commuters in 2008. Mobility in the metro-Atlanta area has been a challenge for the region for many years. The need for a new mobility choice was evident on the Interstate 85 (I-85) corridor, north of Atlanta. High Occupancy Vehicle (HOV) lanes were consistently over or under capacity leading to unreliable travel times for motorists. In addition, the corridor had limited transit options. Shoulder width constraints made it unrealistic to add new capacity to the corridor.

About the Situation:
In November 2008, the United States Department of Transportation (USDOT) awarded a $110 million Congestion Reduction Demonstration (CRD) Program grant to Atlanta. This grant allowed for implementation of an integrated mobility solution for congestion-priced High Occupancy Toll (HOT) lanes, enhanced transit service and innovative technology. The State Road and Tollway Authority (SRTA), Georgia Department of Transportation (GDOT) and the Georgia Regional Transportation Authority (GRTA) led the implementation of the CRD project.

Innovative Solution:
The CRD I-85 Express Lanes project converted approximately 15.5 miles of existing HOV lanes to HOT lanes (north and south bound). GDOT managed the construction of the lanes and SRTA managed and installed the tolling technology and equipment.

The I-85 Express Lanes Project is the first in the country to simultaneously raise the occupancy requirement from 2+ persons to 3+ persons for toll-free passage, while introducing pricing to allow single-occupant vehicles to buy access.

The all-electronic toll lanes on I-85 include a host of innovative technology and equipment which work in tandem at lightning speed.
DESCRIPTION

The CRD I-85 Express Lanes project included innovative elements and technology that made it unique from any other HOT lane conversion project in the country.

These elements included:

- Patented Gantry Controlled Access (GCA- #8,044,824) electronic enforcement is used to eliminate the need for physical barriers.

- Mobile Automatic License Plate Readers (ALPR) aid with enforcement of occupancy requirements for vehicles using the HOT lanes.

- Motorists are required to pre-register before using the roadway.

- Demand for the lanes is managed through dynamic pricing that changes based on traffic conditions.

- SRTA utilized Georgia Technology Authority’s (GTA) Enterprise Critical Projects Review (ECPR) Panel to oversee this process and conducted monthly Stage-Gate reviews. The dashboard was also used to assess the project’s overall health and risk. The Stage-Gate reviews were an integral part of successfully managing the I-85 Express Lanes Project.

The SRTA professionals worked together to ensure registered vehicle detection when entering and exiting the lane, properly posted toll rates on overhead signage and appropriate toll posting to the customer’s account.

The price to use the I-85 Express Lanes ranges from .01 cent to .90 cents per mile and is continuously adjusted to keep traffic moving. As demand for use of the Express Lanes increases, the toll amount rises to ensure the optimal number of cars can continue moving through the lanes. Motorists see the posted toll amount before they enter the Express Lanes and are able to decide whether they want to use them. Tolls on the I-85 Express Lanes are collected electronically, meaning no toll booths are needed and drivers do not have to slow down or stop. This allows traffic in the Express Lanes to maintain highway speeds.
Construction components of I-85 Express Lanes. Project included a wide range of physical and logical components from rumble stripes covering double white lines to cameras.

Each tolling location includes a violation camera, laser profiler, Remote Traffic Microwave Sensor (RTMS) traffic counter, toll gantry, Automatic Vehicle Identification (AVI) antenna and roadside civil and tolling cabinets.

**Toll Mode and Enforcement Technologies**

The fiber optic network was designed and built to transport data from roadside tolling equipment to the hosted back office. For in-lane patrol, dedicated law enforcement officers were trained and equipped with new vehicles which included 13 new mobile Automated License Plate Readers (ALPR). ALPRs audibly alert officers when a vehicle passes by and its account has been declared as a non-toll status. Exempt vehicles include transit vehicles, carpools with three or more occupants, motorcycles, emergency vehicles and alternative fuel vehicles. However, an account must still be set up for these vehicles to use the HOT lane.

- Three-person carpool mode, no toll will be collected, can be self-declared by changing the vehicles’ toll mode via phone, website interfaces or mobile application.

- Occupancy is enforced by law enforcement, but aided by the tolling system and Automatic License Plate Recognition (ALPR).

- Gantry Controlled Access (GCA) creates an electronic barrier to deter improper use of the HOT lane.
To remotely monitor performance of the roadway, an SRTA Toll Operations Center (TOC) was created for support of dynamic pricing and management of toll rates as related to incidents or accidents on the roadway. Through GDOT’s TMC NaviGAtor tolling system the TOC continuously monitors the roadway streaming real-time online information about traffic flow conditions throughout Georgia to EarthCam Stations. Through the use of this state-of-the-art operation, important functions were seamlessly managed, including:

1. Dynamic toll rates
2. Monitoring for traffic incidents and coordinating with GDOT’s Traffic Management Center (TMC)
3. Monitoring tolling equipment

**SIGNIFICANCE**

Mobility in the metro-Atlanta area has been a challenge for the region for many years. The need for a new mobility choice was evident on the I-85 corridor as the previous HOV lanes were either over or under capacity consistently and not providing reliable travel times for motorists. In addition, the corridor had limited transit options as well as physical constraints that made it unrealistic to add new capacity to the corridor due to the shoulder width. An extensive quantitative survey of transit riders, carpoolers, and single drivers was conducted in order to develop a solution that would be adopted by commuters. The following survey results show previous use of the HOV lane by I-85 carpoolers:

- 63% were in two-person carpools
- 45% used the HOV lane three or more times per week
- 40% never or only occasionally used the HOV lane
- 64% indicated they would continue to carpool if the HOV lane did not exist

Prior to the launch of the Express Lanes, Georgia had one optional toll road, GA 400, with a static rate of $0.50 for most motorists that had been in effect for nearly 20 years. Unlike other cities that implemented Express Lanes, a key challenge is that I-85 Express Lanes require motorists to pre-register for a Peach Pass account and install the Peach Pass transponder in their vehicle in order to access the Express Lanes.

In addition, motor fuel tax funds for transportation improvement projects continue to dwindle as the Atlanta region grows and traffic management becomes more complex.
These challenges posed a real concern for the region in terms of how traffic impacts quality of life and mobility. The primary goal of the I-85 Express Lanes is to provide reliable travel times for motorists that chose to use them. By managing the demand for the lanes and keeping traffic free-flowing through dynamic pricing, thousands of Peach Pass customers are experiencing time savings, including single occupant motorists who were not able to access the HOV lanes in the past.

**BENEFITS**

The goal of the I-85 Express Lanes Project was to provide more reliable travel times for registered motorists that choose to use the lanes. Prior to the conversion, nearly 90% of motorists in that stretch of the I-85 corridor were single-occupant motorists who could not access the HOV lane. Now with the opening of the Express Lanes, all registered motorists have the choice to access the lanes, a choice that was not available in the past.

Aggressive education and outreach for the Express Lanes began in March 2011. The transponder issuance goals included approximately 13,000 transponders issued by the end of the first month of operation and 35,000 transponders issued within the first year. The marketing and communications efforts yielded an unprecedented return on investment. Before the opening of the Express Lanes, approximately 75,000 transponders had been issued. By the end of the first month of operations, more than 100,000 Peach Pass transponders were issued.

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<tr>
<th>Peach Pass Transponders</th>
<th>I-85 Express Lane Project</th>
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<tbody>
<tr>
<td>GOAL</td>
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<tr>
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<td>Year One</td>
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To date, more than **150,000 new Peach Passes** have been issued to motorists and approximately **71,000 different customers have used the Express Lanes** since opening. In addition, usage in the lanes has more than quadrupled, increasing from 3,200 registered trips on the first day of operation to 16,000 trips per day on average. Also, transit ridership has increased since the opening of the Express Lanes. Overall, motorists who use the Express Lanes are experiencing significant time savings in their commutes.
The following survey results show benefit themes and feedback regarding HOT lanes:

**Perceived Benefits**
- Provide drivers with a sense of control over traffic
- Are easy and convenient to use
- Get you where you need to be in a timely manner
- Make for a more enjoyable commute by reducing travel times
- Provide a choice and are optional – “You do NOT have to use it”

**Increased Trip Time Reliability:** Traffic volumes on HOT lanes are assessed to ensure consistent and reliable travel times, particularly during peak travel periods.

**More Commuter Choices:** In congested corridors with HOV facilities and transit service, HOT lanes provide Single Occupancy Vehicle (SOV) motorists with an additional travel choice: the option of paying for a dependable, congestion-free trip.

**Transit Enhancements:** Transit riders are still able to use HOT lanes for free since transit vehicles are among those vehicles that are exempt from paying tolls. In addition, transit users can depend on reliable trip times for their commute.