

### Atlanta Regional MANAGED LANES Implementation Plan

Executive Summary | December 2015



### OVERVIEW

The Atlanta Regional Managed Lane Implementation Plan (MLIP) reflects the funding constraints and knowledge gained by GDOT from managed lane projects recently implemented around the country since the Atlanta Regional Managed Lane System Plan (MLSP) was adopted in 2009. The funding constraints were based on the uncertainty of federal authorizations along with the 2012 failure at the local level to pass the regional sales tax referendum for transportation allowed for in the Transportation Investment Act of 2010. The constraints were applied prior to the passage of Georgia's Transportation Funding Act of 2015. The intent is to have

a cost-conscience focused, prioritized list of managed lane projects that avoid the need to rely on long-term private financing agreements. Lower-cost solutions that maximize the delivery of travel-time reliability across the region and that could be more quickly and efficiently implemented were considered.

Figure 1 shows the MLIP study corridors that were evaluated for potential managed lanes. I-75 north of I-285 and I-575 were not part of the study area due to the recent letting of the reversible managed lanes known as the Norwest Corridor project. I-285 North from I-75 North to I-85 North

> was not part of the study because of the current Environmental Impact Statement (EIS) underway along the corridor. Additionally, corridors such as the southern portion of I-285, I-85 South of I-285, I-675 and I-985 were screened out early in the process due to their lower levels of congestion compared to other corridors in the Atlanta region.



Northwest Corridor Construction at Barrett Parkway





#### Figure 1: Study Area





### GOALS

All effective transportation projects should align with and seek to accomplish the wider transportation goals of the region, state, and nation. The MLIP incorporated the current (as of 2013) federal (MAP-21), state (Governor's Strategic Goals), and regional (ARC Plan2040 and GDOT's MLSP) goals, as summarized in Figure 2.

Figure 2: Managed Lane Goals

Regardless of their source, all goals have some level of commonality, and therefore were integrated into a more robust set of final study goals and are summarized as follows:

- Improve mobility options available to people and for freight
- Provide a financially feasible system
- Enhance the inter-regional connectivity and reliability of the transportation system for people and freight, and facilitate economic growth
- Emphasize the efficiency, operation, and preservation of the existing transportation system while promoting environmental sustainability
- Reduce project delivery delays

#### 1 Safety

2 Infrastructure condition

NATIONAL MAP-21

- **3** Congestion reduction
- **4** System reliability
- 5 Freight movement & economic vitality
- 6 Environmental stability
- 7 Reduced project delivery delays

#### STATE GOVERNOR'S STRATEGIC GOALS

- 1 MOBILE Improving the transporation of people and goods across the state. Expand Georgia's role as a major logistics hub for global commerce. Leverage public-private partnerships. Improve intergovernmental cooperation for successful infrastructure development.
- **2** GROWING Creating jobs and growing businesses
- 3 HEALTHY Accessible care and active lifestyles
- 4 SAFE Protecting the public's safety and security by reducing injury and loss of life on Georgia's roads

### LOCAL/ REGIONAL GOALS

- 1 Protect mobility
- 2 Maximize person/vehicle throughput
- **3** Minimize environmental impacts
- 4 Provide a financially feasible system
- 5 Design and maintain a flexible infrastucture for varying lane management





### **EVALUATION CRITERIA**



Both qualitative and quantitative evaluation criteria were established to evaluate potential projects. Figure 3 highlights the prioritization framework which closely ties the evaluation criteria to the overarching goals from Figure 2.

I-85 Express Lanes

Figure 3: Evaluation Criteria Aligned with Goals





transit options

### **ALTERNATIVES**

While priced managed lanes are becoming an effective means of delivering travel-time reliability to congested cities across the country, they are still a relatively new concept. The MLIP evaluated concepts that relied on maximizing existing infrastructure. These concepts included:

- New Lanes adding an additional lane via traditional means along with reducing shoulder and lane widths where possible to reduce costs
- Dynamic Flex Lanes opening the outside shoulder for general-purpose use while pricing the inside lane during peak periods
- Reversible Lanes Utilizing Moveable Barriers – using a moveable barrier system to convert and price an off-peak lane for peak-direction usage

Figure 4 shows the no-build typical section, while Figures 5 and 6 display the generalized typical sections for new lanes and dynamic flex lanes, respectively.

As part of the evaluation of the study alternatives, case studies reflecting lessons learned from across the country were developed and a detailed planning, preliminary conceptual engineering, and project financing analysis was conducted.

It was found that along the study corridors, the use of moveable barriers was not a cost-effective strategy compared to adding new lanes or providing dynamic flex lanes. This was primarily due to the fact that two off-peak lanes were required to accommodate the moveable barrier, appropriate



*I-85 Express Lanes* December 2015 | MLIP Executive Summary



#### Figure 4: No Build Typical Section





Figure 5: New Lanes Alternative



Figure 6: Dynamic Flex Lanes Alternative

gia Department of Trans Office of Planning



## Dynamic Signs for Lane



### **ANALYSIS OUTCOMES**

As indicated in Figure 7, the MLIP found that managed lanes were an appropriate solution along I-20 East and West, I-285 East and Northwest, I-85 North, SR 316, SR 400 North, and I-75 South. All of these corridors were deemed feasible for new lanes. Furthermore, a subset of these corridors was also deemed feasible for further engineering for the potential use of dynamic flex lanes, including I-20 East and West, I-285 Northwest, and I-75 South. How the managed lane will be delivered (new lane versus dynamic flex lane) will be determined during the project development process as part of an independent study or preliminary engineering, as well as the planning process, as part of the Atlanta MPO's Regional Transportation Plan.







#### Figure 7: MLIP Findings<sup>1</sup>



<sup>1</sup> Corridors in gray were removed from the MLIP study area, as these corridors are currently let or have an environmental document underway for managed lanes projects.



As listed in Figure 3, a variety of project evaluation and prioritization criteria were used to determine the feasibility of each managed lane treatment. Table 1 (New Lanes) and Table 2 (Dynamic Flex Lanes) provides a summary of the financial criteria, including the 30-year revenue, project capital costs, and 30-year operations and maintenance (O&M) costs for each of the managed lane strategies that could move forward for further analysis and consideration. An additional criterion, Project Financeability Index (PFI), was also used to determine the project's likelihood of success. Specifically, the PFI is calculated as seen in the formula below.

For example, a PFI of 2.0 indicates the 30year net revenue (gross revenue minus all O&M costs) is twice that of the up-front capital cost.



Northwest Corridor Construction at Canton Road Connector



#### Table 1: New Lanes Costs and Revenues

			New I	New Lanes - Revenue and Costs (\$ in Millions, 2013)			
Corridor	Termini	Length (miles)	30-Year Gross Revenue	Capital Cost	30-Year O&M Cost	PFI	
I-20 E	I-285 E to SR 124	9.8	\$730	\$268	\$240	1.8	
I-20 W	I-285 W to SR 92	11.0	\$690	\$366	\$300	1.1	
I-285 E	I-20 E to I-85 N	13.4	\$1,246	\$274	\$419	3.0	
I-285 NW	I-75 N to I-20 W	8.9	\$660	\$311	\$297	1.2	
I-75 S	I-285 S to SR 138	10.6	\$338	\$313	\$194	0.5	
I-85 N	I-285 N to Old Peachtree Rd	17.0	\$1,053	\$333	\$302	2.3	
SR 316	I-85 to SR 120	6.5	\$256	\$151	\$172	0.6	
SR 400	I-285 N to SR 20	21.9	\$1,235	\$497	\$412	1.7	
Total		99.1	\$6,208	\$2,513	\$2,336	1.5	

Notes

1) Total capital cost includes roadway capital cost and tolling capital cost.

2) Total 30-year 0&M cost includes roadway 0&M, tolling 0&M, and transaction cost.

3) I-85 N involves adding an additional managed lane in each direction.

#### Table 2: Dynamic Flex Lanes Costs and Revenues

			Dynamic	Dynamic Flex Lanes - Revenue & Costs (\$ in Millions, 2013)				
Corridor	Termini	Length (miles)	30-Year Gross Pevenue	Capital Cost	30-Year	PFI		
I-20 E	I-285 E to SR 124	9.8	\$695	\$80	\$225	5.9		
I-20 W	I-285 W to SR 92	11.0	\$568	\$190	\$302	1.4		
I-285 E	I-20 E to I-85 N	-	-	-	-	-		
I-285 NW	I-75 N to I-20 W	8.9	\$841	\$137	\$321	3.8		
I-75 S	I-285 S to SR 138	10.6	\$332	\$148	\$181	1.0		
I-85 N	I-285 N to Old Peachtree Rd	-	-	-	-	-		
SR 316	I-85 to SR 120	-	-	-	-	-		
SR 400	I-285 N to SR 20	-	-	-	-	-		
Total		40.3	\$2,436	\$555	\$1,029	2.5		

Notes

1) Total capital cost includes roadway capital cost and tolling capital cost.

2) Total 30-year 0&M cost includes roadway 0&M, tolling 0&M, and transaction cost.

3) Dynamic flex lanes were deemed unfeasible for some corridors based on limited available shoulders and other physical constraints.





# Atlanta Regional MANAGED LANES Implementation Plan Georgia Department of Transportation Office of Planning

