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.
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.

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

Figure 2: Managed Lane Goals
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.
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 shoulders, and the priced lane. To mitigate the use of two off-peak direction lanes, the outside shoulder in the off-peak direction was open to general-purpose use. In most cases, this still resulted in a reduced level of service for the off-peak direction.
Figure 4: No Build Typical Section

Figure 5: New Lanes Alternative

- Priced Managed Lanes in Operation 24/7
- Delineators to enhance enforcement

Figure 6: Dynamic Flex Lanes Alternative

- General Purpose Lane Converted to Priced Managed Lane During Peak Periods
- Shoulder Lane Usage During Peak Periods
- Dynamic Signs for Lane Designations
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

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.

Legend
- HOV2+ In Operation
- Existing, Let or Environmental / Programmed
- New Lanes
- Dynamic Flex Lanes

1 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 Finance-ability 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 30-year net revenue (gross revenue minus all O&M costs) is twice that of the up-front capital cost.

\[
PFI = \frac{(30 \text{ Yr Gross Revenue} - 30 \text{ Yr Roadway O&M Cost} - 30 \text{ Yr Tolling O&M Cost})}{\text{Capital Costs}}
\]
**Table 1: New Lanes Costs and Revenues**

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

Notes
1) Total capital cost includes roadway capital cost and tolling capital cost.
2) Total 30-year O&M cost includes roadway O&M, tolling O&M, and transaction cost.
3) Total 30-year O&M cost includes roadway O&M, tolling O&M, and transaction cost.

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

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Termini</th>
<th>Length (miles)</th>
<th>30-Year Gross Revenue ($ in Millions, 2013)</th>
<th>Capital Cost</th>
<th>30-Year O&amp;M Cost</th>
<th>PFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-20 E</td>
<td>I-285 E to SR 124</td>
<td>9.8</td>
<td>$695</td>
<td>$80</td>
<td>$225</td>
<td>5.9</td>
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<tr>
<td>I-20 W</td>
<td>I-285 W to SR 92</td>
<td>11.0</td>
<td>$568</td>
<td>$190</td>
<td>$302</td>
<td>1.4</td>
</tr>
<tr>
<td>I-285 E</td>
<td>I-20 E to I-85 N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I-285 NW</td>
<td>I-75 N to I-20 W</td>
<td>8.9</td>
<td>$841</td>
<td>$137</td>
<td>$321</td>
<td>3.8</td>
</tr>
<tr>
<td>I-75 S</td>
<td>I-285 S to SR 138</td>
<td>10.6</td>
<td>$332</td>
<td>$148</td>
<td>$181</td>
<td>1.0</td>
</tr>
<tr>
<td>I-85 N</td>
<td>I-285 N to Old Peachtree Rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SR 316</td>
<td>I-85 to SR 120</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SR 400</td>
<td>I-285 N to SR 20</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>40.3</strong></td>
<td><strong>$2,436</strong></td>
<td><strong>$555</strong></td>
<td><strong>$1,029</strong></td>
<td><strong>2.5</strong></td>
</tr>
</tbody>
</table>

Notes
1) Total capital cost includes roadway capital cost and tolling capital cost.
2) Total 30-year O&M cost includes roadway O&M, tolling O&M, and transaction cost.
3) Dynamic flex lanes were deemed unfeasible for some corridors based on limited available shoulders and other physical constraints.