Planning for MassDOT’s Capital Investment Plan (CIP)

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The pyramid of planning

- MassDOT/MBTA strategic plans & regional planning
- Policy goals & strategies
- Modal plans & studies
- Performance based planning
- Bond cap & federal authorizations
- CIP

- Program sizing, investments
- Financial constraints
- Tools, requirements
Back to the future: Performance based planning

- YouMove Massachusetts (2008)
- MassDOT (2009)
- Moving Ahead for Progress in the 21st c. (MAP-21, 2012)
- WeMove Massachusetts (2014)
  - Planning for Performance (PfP) tool
- Fixing America’s Surface Transportation Act (FAST Act, 2015)
  - Priorities, programs, projects
  - PfP iteration #2
- MassDOT Performance Tracker (2016)
  - PfP iteration #3
- FHWA/FTA performance measures (2018)
WeMove Massachusetts (2014)
Planning for Performance (PfP) Tool

Select a Plan Year 2022

User sets values in outlined cells

Your Plan Total ($M) $2,667

Performance

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Target established in Tracker (link)</th>
<th>2018-2022 CIP Avg.</th>
<th>2022 Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGHWAY NON-TOLLED INTERSTATE PAVEMENT % Good or Excellent</td>
<td>82%</td>
<td>2%</td>
<td>$78</td>
</tr>
<tr>
<td>HIGHWAY DOT-OWNED NON-INTERSTATE PAVEMENT % Good or Excellent</td>
<td>62%</td>
<td>13%</td>
<td>62%</td>
</tr>
<tr>
<td>HIGHWAY BRIDGE Number of Bridges SD</td>
<td>444</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>AERONAUTICS AIRPORT PAVEMENT MANAGEMENT Average PCI for Airport Pavement</td>
<td>68</td>
<td>75</td>
<td>$17</td>
</tr>
<tr>
<td>TRANSIT T/R VEHICLE REPLACEMENT Average Fleet Age in Years</td>
<td>4.9</td>
<td>TBD</td>
<td>N/A</td>
</tr>
<tr>
<td>RAIL GRADE CROSSINGS % of Grade Crossings in Desired State</td>
<td>42%</td>
<td>TBD</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Reliability Subtotal $1,662

* Rail Track and ROW Reliability program includes spending on: tie replacement (30%); rail replacement (10%); and brush cleaning; ditching/drainage, ballast, surfacing/alignment, switch timbers; tie/timber disposal, tie plates, rail anchors; track bolts, joint bars, and geometry/ultrasonic testing (40% together)
MassDOT’s Performance Tracker (2016)

- **Customer Experience**: Provide reliable and accessible services to MassDOT and MBTA customers.

- **System Condition**: Ensure that the transportation system is well maintained and follows best practices.

- **Safety**: Provide and support a multi-modal transportation network that is safe for our workers and all users.

- **Capital & Budget Performance**: Maximize capital investment effectively and efficiently by delivering programs and projects that produce the greatest benefits.

- **Healthy & Sustainable Transportation**: Invest in and support a transportation system that promotes and protects the health of all users and the natural environment.
Federal performance based planning & programming (PBPP) - FHWA

- In 2016, FHWA passed a rule establishing three performance measures (PM1, PM2, and PM3) that State DOTs must report and MPOs must track as required by MAP-21 and FAST Act.

<table>
<thead>
<tr>
<th>FHWA Performance Measures</th>
<th>Targets</th>
<th>Target Setting Deadline (MassDOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety (PM1)</td>
<td>-Serious Injuries/Fatalities by Calendar Year, (five year rolling averages and rates per 100m VMT)</td>
<td>Established August 30, 2017 Interval: Each Calendar Year</td>
</tr>
<tr>
<td>NHS Bridge and Pavement Condition (PM2)*</td>
<td>-% pavement lane miles, % bridge deck in good and poor condition</td>
<td>May 30, 2018 Interval: 2 and 4 yrs.</td>
</tr>
</tbody>
</table>
| CMAQ and Freight (PM3)                     | -truck travel time reliability (TTTR) and level of travel time reliability (LOTTR)  
-peak hour excessive delay (PHED) by Urbanized Zone Area (UZA)  
-% non SOV travel by UZA  
-air pollutant emissions                                                                                                      | May 30, 2018 Interval: 2 and 4 years.                                 |

*PM2 targets are incorporated into the TAMP, to be finalized in June 2018
Federal performance based planning & programming (PBPP) - FTA

- MAP-21 also established new Transit Asset Management (TAM)* data-reporting requirements which were finalized in 2016.

<table>
<thead>
<tr>
<th>FTA Asset Categories</th>
<th>Performance Measures</th>
<th>Measure Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling Stock</td>
<td>The percentage of revenue vehicles (by type) that exceed the useful life benchmark (ULB)</td>
<td>Age-based</td>
</tr>
<tr>
<td>Equipment</td>
<td>The percentage of non-revenue service vehicles (by type) that exceed the ULB</td>
<td>Age-based</td>
</tr>
<tr>
<td>Facilities</td>
<td>The percentage of facilities (by group) that are rated less than 3.0 on the Transit Economic Requirements Model (TERM) Scale.</td>
<td>Condition-based</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>The percentage of track segments (by mode) that have performance restrictions. Track segments are measured to the nearest 0.01 of a mile</td>
<td>Performance-based</td>
</tr>
</tbody>
</table>

*These targets are incorporated into the MBTA, MassDOT Transit (and each RTA’s) TAM plans.*
PBPP and the CIP: How it should work

- Federally required performance measures
- Strategic Plans
- Modal plans
- MassDOT Performance Tracker
- Planning for Performance (PfP) tool
- CIP Program & Projects
How MassDOT & MBTA planning inform the CIP

**Capital Investment Plan**
- FAA priorities
- Asset Management
- Internal estimates of needs
- Regulations
- Transit Asset Management Plan
- Plan for Accessible Transportation Improvements
- Transportation Asset Management Plan

- **Aeronautics Division**
- Asset Management

- **RMV Division**
- Internal estimates of needs
- Regulations

- **Transit Group**
- Transit Asset Management (TAM) Plan

- **Rail Group**
- Statewide Rail Plan
- Statewide Freight Plan
- Asset Management

- **Highway Division**
- Statewide Bike Plan
- Statewide Pedestrian Plan
- Statewide Freight Plan
- TAM***

- **MBTA Division**
- Focus40
- TAM Plan
- Fleet & Facilities Plan
- Better Bus Project
- PATI**

- **Other Studies**
- Corridor studies
- Transit Action Plans

**Planning for Performance (PfP) Tool**
Tracks progress on various performance metrics across all Divisions to inform investments