Construction Coordination & Management Planning
MassDOT-Highway/MBTA

Arizona State University Special Summit:
Building a Shared Map of the Nation’s Infrastructure

May 1, 2018
Purpose
Challenges
Approach
Results
• Data & Mapping 2018 only
• 2018 Focus Hot Spot Analysis
• Metro North Sample Area
• 2018 Mitigation & Communication Strategy
• Planning for 2019 and beyond
• Next Steps
**Project Purpose**

**Investment in Infrastructure:**

MassDOT / MBTA expects to invest billions in capital over the next few years to improve safety and the state-of-good repair in the Commonwealth.

It includes the design and construction of projects that will upgrade roadways, bridges, sidewalks, multi-use paths, subways, commuter rail, bus operations and transit systems.

In 2018 alone, the investment is in excess of $2.5 billion in transportation infrastructure -- the largest amount ever invested in capital improvements to modernize and improve the reliability of transportation infrastructure.
Project Purpose

Maintenance and Growth:

With over 1,000 public and private projects are planned and/or programmed for construction in MA, particularly in Metro-Boston area with an initial focus on 2018-2022.

The Goal: Plan Ahead

Minimize impacts to communities and the traveling public with effective construction coordination, clear communication, and detailed outreach and mitigation planning.
Organizations

• MassDOT Highway and MBTA/Rail have own methods and techniques to manage, construct, mitigate and communicate projects
• Municipalities have varying capacity and resources
• Utilities are emergency focused and independent entities
• Development has its own process and requirements

Data

• Highway has mature project data intake system
• MBTA is developing ebuilder – projects are not geo-coded.

Types of Project

• Linear (signal upgrades) vs Location Specific (bridge/station)
• Regional vs Local projects
• Construction Periods – peak vs non-peak for planning and contracting
Data Collected & Analyzed: As of February 13th collected and analyzed transit and highway project data: **1,045 projects for 2018-2022** and **246 projects for 2018**.

Geo-coded available MBTA and Commuter Rail projects. Modeled project data: profiles, schedules and resources

Joint Teams Identified Impacts:
Reviewed projects by peak, non-peak, diversion and/or capacity impacted projects, impacts on bus network, resources constraints and opportunities to combine project resources
Re-Sequenced Project Schedules:
Coordinated and re-sequenced projects. Adjusted linear projects to maximize resources, minimize impacts and reduce conflicts and costs.

Communications and Outreach Plan: Implement lessons learned and best practices from past projects.
Operationalize a dashboard on our GeoDOT site with a website resource to communicate and plan current and future construction activity.
Projects in the database can be filtered based on:

- Anticipated construction year(s)
- Anticipated impacts (capacity reductions, diversions, service interruptions, parking impacts)
- Geographic proximity of projects
- Owner/Proponent & City/Town
- Highway, MBTA and Commuter Rail Projects
- Ad Date, Bid Open Date, Contract Start Date, Completion Date
- Total Construction Cost
- Peak, Non-Peak, Saturday and Sunday time periods
- Resiliency, and more….

Based on evolving project database using available information from MassDOT, MBTA, DCR, Massport, municipalities, utilities and/or private developments as of February 13, 2018. Database shall continue to be refined and expanded as information is available.

Preliminary project data collected for 1,090 planned projects with an initial focus on 2018-2022:

- 530 MassDOT Highway
- 225 MBTA / Commuter Rail
- 345 Other

### Project Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway</td>
<td>400</td>
<td>36%</td>
</tr>
<tr>
<td>Bridge</td>
<td>130</td>
<td>12%</td>
</tr>
<tr>
<td>Transit *</td>
<td>225</td>
<td>21%</td>
</tr>
<tr>
<td>Ped/Bike</td>
<td>30</td>
<td>3%</td>
</tr>
<tr>
<td>Utilities</td>
<td>65</td>
<td>6%</td>
</tr>
<tr>
<td>Development</td>
<td>190</td>
<td>17%</td>
</tr>
<tr>
<td>Other</td>
<td>60</td>
<td>5%</td>
</tr>
</tbody>
</table>

*Transit includes 58% Subway, 22% Commuter Rail, 4% Bus, 9% Other and 7% TOD projects.*
Metro Boston Projects – 2018 Only

As of February 13, 2018

246 Total Projects Reviewed

<table>
<thead>
<tr>
<th>Owner/Proponent</th>
<th>Number</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MassDOT Highway</td>
<td>74</td>
<td>30%</td>
</tr>
<tr>
<td>MBTA</td>
<td>146</td>
<td>59%</td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
<td>11%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Number</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway</td>
<td>49</td>
<td>20%</td>
</tr>
<tr>
<td>Bridge</td>
<td>27</td>
<td>11%</td>
</tr>
<tr>
<td>Transit</td>
<td>146</td>
<td>59%</td>
</tr>
<tr>
<td>Ped/Bike</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Utilities</td>
<td>11</td>
<td>5%</td>
</tr>
<tr>
<td>Development</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Transit includes 75% Subway, 6% Commuter Rail, 3% Bus, 9% Transit TOD, and 7% Other projects.
Of the 246 projects in the 2018 data based only 115 projects had joint impacts.

Three Hot Spot Areas Selected for Focused Analysis and Mitigation Planning

• #1 – Mystic River – Metro North
• #2 - Fenway/Weston – Metro West
• #3 – Quincy Bay – Metro South

Preliminary Overview

• Hot Spot location with Project lists
• Draft schedule of 2018 construction
• Joint - capacity Impacts
• High Level Traffic/Diversion analysis – constraints/opportunities
2018 Metro Boston Projects with Impacts
Hot Spots

As of February 13, 2018

Highway & transit projects with roadway lane closures, transit service disruptions/diversions, and/or parking impacts during all time periods.

**Owner/Proponent** | **Number** | **Percent of Total**
--- | --- | ---
MassDOT Highway | 74 | 30%
MBTA | 146 | 59%
Other | 26 | 11%

**Project Type** | **Number** | **Percent of Total**
--- | --- | ---
Roadway | 49 | 20%
Bridge | 27 | 11%
Transit * | 146 | 59%
Ped/Bike | 3 | 1%
Utilities | 11 | 5%
Development | 3 | 1%
Other | 7 | 3%

**Legend**
- MassDOT Highway Districts
- Municipal Boundary

**Value**
- High Density of Active/Planned Construction Projects
- Low Density of Active/Planned Construction Projects

115 Projects with Impacts Reviewed

PRELIMINARY DATA: SUBJECT TO CHANGE

Draft for Discussion Purposes ONLY

5/7/2018
Projects in grey have schedule flexibility.
## 2018 Hot Spot #1: Mystic River
### Anticipated Schedule

Active Construction with Track/Lane Impacts - 24 hours
Active Construction with Track/Lane Impacts - Off-Peak Hours Only

<table>
<thead>
<tr>
<th>MBTA</th>
<th>11 Projects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service Starts April 2018</strong></td>
<td>3-Mar</td>
<td>10-Mar</td>
</tr>
<tr>
<td><strong>Pending Resolution</strong></td>
<td>17-Mar</td>
<td>24-Mar</td>
</tr>
<tr>
<td><strong>As of February 13, 2018</strong></td>
<td>31-Mar</td>
<td>7-Apr</td>
</tr>
<tr>
<td><strong>11 Projects</strong></td>
<td>14-Apr</td>
<td>21-Apr</td>
</tr>
<tr>
<td>28-Apr</td>
<td>5-May</td>
<td>12-May</td>
</tr>
<tr>
<td>19-May</td>
<td>26-May</td>
<td>3-Jun</td>
</tr>
<tr>
<td>30-Jun</td>
<td>7-Jul</td>
<td>14-Jul</td>
</tr>
<tr>
<td>21-Jul</td>
<td>28-Jul</td>
<td>4-Aug</td>
</tr>
<tr>
<td>11-Aug</td>
<td>18-Aug</td>
<td>25-Aug</td>
</tr>
<tr>
<td>5-Sep</td>
<td>12-Sep</td>
<td>19-Sep</td>
</tr>
<tr>
<td>26-Sep</td>
<td>3-Oct</td>
<td>10-Oct</td>
</tr>
<tr>
<td>17-Oct</td>
<td>24-Oct</td>
<td>1-Nov</td>
</tr>
<tr>
<td>8-Nov</td>
<td>15-Nov</td>
<td>22-Nov</td>
</tr>
<tr>
<td>29-Nov</td>
<td>6-Dec</td>
<td>13-Dec</td>
</tr>
<tr>
<td>20-Dec</td>
<td>27-Dec</td>
<td>4-Jan</td>
</tr>
</tbody>
</table>

### MBTA

1. Silver Line Gateway Phase I
2. Sullivan Station Lower Busway

### Commtuer Rail

3. Positive Trail Control

### MassDOT Highway

4. North Washington Street Bridge Replacement
5. Revere Beach Parkway Bridge Replacement (Woods Memorial Bridge)
6. Tobin Bridge Painting & Repairs - Northbound Lane
7. Tobin Bridge Deck Rehabilitation - Northbound Lane
   - Everett Ave SB On-Ramp
   - Beacon Street NB Off-Ramp
   - 4th Street NB Off-Ramp
8. Demolition of Legacy Toll Plaza 30 Along I-90 (Sumner Tunnel)
9. Alford Street (Route 99) Bridge
10. Route 1 Resurfacing and Related Work
11. Wynn Casino Improvements
12. North Point - Route 28 Improvements (Phase 1)

*Dates subject to change based on available resources, weather, emergencies, etc.*
2018 Hot Spot #1: Mystic River
Transportation Schedule Impacts

- Alford Street Bridge will impact the Charlestown Bus Yard
- Tobin Bridge Closures will have operational impacts to the MBTA Bus Route #111
- Additional MBTA Bus operational/routing impacts related to North Washington Street, Alford Street and North Point Mitigation

Northbound from Boston
Southbound to Boston

Numbers refer to project descriptions on previous slide
<table>
<thead>
<tr>
<th>Project ID</th>
<th>Project Name</th>
<th>Owner/Proponent</th>
<th>Type of Project</th>
<th>Peak Weekday Impacts¹</th>
<th>Off-Peak Weekday Impacts</th>
<th>Weekend Impacts²</th>
<th>Bus Routes Impacted</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>100022</td>
<td>Silverline Gateway Phase 1</td>
<td>MBTA</td>
<td>Transit Bus</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>86, 89, 90, 91, 92, 93, 95, 101, 104, 105, 109, 194, 747</td>
<td>Opening April 2018</td>
</tr>
<tr>
<td>100523</td>
<td>Sullivan Square Lower Busway</td>
<td>MBTA</td>
<td>Transit Bus</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>82, 93, 111, 194, 426, 428</td>
<td></td>
</tr>
<tr>
<td>604173</td>
<td>North Washington Street Bridge</td>
<td>MassDOT</td>
<td>Bridge</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>97, 99, 106, 110, 112</td>
<td>15 mo ahead of schedule. Full beneficial use by summer 2018.</td>
</tr>
<tr>
<td>604660</td>
<td>Woods Memorial Bridge (Revere Beach Parkway Bridge Replacement)</td>
<td>MassDOT</td>
<td>Bridge</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>97, 99, 106, 110, 112</td>
<td>Only off-peak lane closures in 2018.</td>
</tr>
<tr>
<td>605957</td>
<td>Tobin Bridge Deck Rehabilitation</td>
<td>MassDOT</td>
<td>Bridge</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>111, 426, 428</td>
<td></td>
</tr>
<tr>
<td>605960</td>
<td>Tobin Bridge Painting &amp; Repairs</td>
<td>MassDOT</td>
<td>Bridge</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>111, 426, 428</td>
<td>Tobin Night / Off-Peak lane closures only</td>
</tr>
<tr>
<td>608656</td>
<td>Demolition of Legacy Toll Plaza 30</td>
<td>MassDOT</td>
<td>Roadway</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>117, 434, 450</td>
<td>Sumner Tunnel and Ramps have Night / Off-Peak lane restrictions</td>
</tr>
<tr>
<td>100012</td>
<td>Alford Street (Route 99) Bridge</td>
<td>MassDOT</td>
<td>Bridge</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>104, 105, 109</td>
<td>1 lane closed in each direction from 10/1/18 to 3/30/19.</td>
</tr>
<tr>
<td>607174</td>
<td>Route 1 Resurfacing and Related Work</td>
<td>MassDOT</td>
<td>Roadway</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>111, 426, 428</td>
<td>Night / Off-Peak lane closures only</td>
</tr>
<tr>
<td>100011</td>
<td>Wynn Casino Mitigation</td>
<td>Wynn</td>
<td>Development</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>92, 93, 97, 99, 100, 104, 105, 106, 108, 109, 110, 112, 134, 194, 346</td>
<td>Improvements to Wellington Circle, Santilli Circle, Sweetser Circle, Lower Broadway and Sullivan Square</td>
</tr>
<tr>
<td>100035</td>
<td>NorthPoint - Route 28 Improvements (Phase 1)</td>
<td>NorthPoint</td>
<td>Development</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>69, 80, 87, 88</td>
<td>Reduced vehicular capacity in final condition.</td>
</tr>
</tbody>
</table>

¹ Peak Periods are 6:00 - 10:00 AM and 3:00 - 7:00 PM.
² Weekend capacity constraints provided were not broken down for Saturday and Sunday.
Communications Public Outreach: Engage communities early and often

Transitioning from single project to multi-project/program planning and messaging.

- **Coordinated Social Media:** Expand and coordinate use of alerts for both highway and transit
- **Expansion of Project Impact Data Exchange** with Apple, Google, WAZE, etc. Exchange of data to monitor results.
- **Expand use of Branded notifications:** banners, signage, VMS boards, media outlets
- **Expand use of Wayfinding Signage:** Safely direct and channel modal options, bike, walking, transit, parking, etc.
- **Ongoing coordination** between Highway and MBTA on impacted bus routes (111, 92, 93, etc.)
• Develop **joint inter-agency communication** strategies for local and regional impacted areas

• Identify opportunities to **incentivize alternative modes** or fee/pricing strategies to decrease demand use of highways / transit facilities

• Investigate **methods to capture costs of mitigation** to guide decision making: contracts, buses, signage, communication tools, details and flaggers, real-time traffic monitoring, etc.
Next Steps

- Go Live with “PlanAhead” web site with links to agency websites.
- Develop Playbook to institutionalize process
- Prepare for June (post CIP/SIP) data refresh.
- Conduct workshop to analyze and mitigate 2019 project impacts (June)
- Drill down into each 2019 hot spot area to identify local and regional project impacts on traffic and transit capacity
Plan Ahead Portal

Plan Ahead

The actual address is: http://mass.gov/massdot/planahead

Please Notice:

This is site is still under development and therefore not accessible at this time.
How to Access the other critical data

Engage Project Impact Review

Actual address: http://gis.massdot.state.ma.us/engage/projectimpact/
Questions, Comments, ideas
2018 Hot Spot #2: Fenway/Weston Interchange
Project Owner

MBTA (38)
- Green Line Track Infrastructure Restoration
  - B Line (4 locations)
  - D Line (6 locations) – (flexible on locations)
- Green Line (Non-GLX) Grade Crossings (25 locations)
  (flexible on locations)
- Reservoir and Riverside Signal Imp. (flexible on locations)
- Fenway Portal Flood Protection
- Direct Fixation - Orange Line Southwest Corridor (On-Call)
  (flexible on locations)

MassDOT (5)
- Commonwealth Avenue over I-90 Deck Replacement (Phase 2)
- Mass Ave (Route 2A) over Comm Ave Bridge Replacement
- I-95/Route 128 Add-a-Lane (6 Bridges)
- I-95 Pavement Resurfacing
- Route 9 Resurfacing

Commuter Rail (2)
- Positive Train Control (Worcester Line)
- Worcester Line CP6

Utility (1)
- MWRA Water Main Rehabilitation
  (Boston: Brighton, Newton, Watertown)

Projects in grey have schedule flexibility.
2018 Hot Spot #3: Quincy Bay
Project Owner

7 Projects
As of February 13, 2018

MBTA (4)
South Shore Garages (Braintree & Quincy Adams)
Wollaston Station / Quincy Center Garage Demolition
Green Line (Non-GLX) Grade Crossings (Mattapan Trolley)
(flexible on locations)
North Quincy TOD Redevelopment

Commuter Rail (1)
Positive Train Control

MassDOT (2)
Route 18 Reconstruction
I-93 Highway Lighting System Replacement

Regional View
Projects in grey have schedule flexibility.