Welcome & Introductions

- Ethan Britland – Project Manager (MassDOT)
- Michael Clark – Transportation Planner (MassDOT)
- Mark Arigoni, L.A. – Principal-in-Charge (MMI)
- Van Kacoyannakis, P.E. – Traffic (MMI)
- Sarah Paritsky – Public Involvement (Regina Villa)
Welcome & Introductions

Overview Working Group Meeting #6 and additional Alternative Assessment Effort

Refinement of 3 Alternatives

Refinement of Short- & Mid-Term Alternatives

Next Steps
Impacts & Benefits of (4) Remaining Alternatives

- Sunken, Tunnel, or Combination(s) following current I-91 Alignment
- Sunken, Tunnel, or Combination(s) following modified I-91 Alignment (section of combined rail and highway corridor)
- Reconstructed Elevated Structure (Modern Viaduct)
- Relocated Rail Line & Relocated Highway (West Side)
More detailed look into Impacts & Benefits associated with relocated Rail and Highway to West Side of Connecticut River Alternative

Impacts determined to be unacceptable and not in balance with benefits of proposed alternative

Impacts mapping & technical memorandum provided to working group

June 23, 2016
Refinement of 3 Alternatives

Based upon feedback from MassDOT and Working Group, the following three Alternatives were refined to allow for Evaluation and Modeling.

- Sunken, Tunnel, or Combination(s) following current I-91 Alignment
- Sunken, Tunnel, or Combination(s) following modified I-91 Alignment
- Reconstructed Elevated Structure (Modern Viaduct)
Alternative No.1

Sunken alternative following current I-91 Alignment

**POTENTIAL BENEFITS**
- Removes overhead visual / physical impediment of I-91 viaduct structure
- Relieves South End Bridge / I-91 congestion
- Maintains 3 lanes on I-91 corridor
- At-grade connection over depressed I-91
- Creates green development corridor along city river frontage

**POTENTIAL IMPACTS**
- Significant excavation & structural retaining walls
- Reconstruct I-91 exits & on-ramps
- Reconstruct I-291 & I-91 interchange
- Loss of parking garages (I-91 N & I-91 S)
- Existing Army Corp levee system on both sides of river
- Railroad in a constraint to Riverfront access
- Extensive utility relocation
- Road-taking
- Neighborhood disruption / property acquisitions
- Designated park land effects

**LEGEND**
- Current I-91 alignment with modifications to maintain 3 lanes in each direction & taper grade to proposed condition
- I-91 depressed section
- Modify / construct highway or roadway infrastructure
- Designated park land

June 23, 2016
Alternative No.1

Similar Project Examples
Alternative No.1

Refined sunken alternative following current I-91 Alignment
Alternative No.1

Illustrative Section Existing Conditions

ILLUSTRATIVE ELEVATION OF EXISTING CONDITIONS I-91 VIADUCT CORRIDOR

I-91 Viaduct Study

MassDOT

Massachusetts Department of Transportation

June 23, 2016
Alternative No.1

Illustrative Section Proposed Conditions
**Alternative No.1**

<table>
<thead>
<tr>
<th>POTENTIAL BENEFITS</th>
<th>POTENTIAL IMPACTS</th>
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<tr>
<td>• REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE</td>
<td>• SIGNIFICANT EXCAVATION &amp; STRUCTURAL RETAINING WALLS</td>
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Alternative No.2

Sunken following modified I-91 Alignment
Alternative No.2

Illustrative Section – 2A
Alternative No.2

Illustrative Section – 2B
Alternative No.2

Rosalie Island Potomac River Bridge
Washington, DC
**Alternative No.2**

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June 23, 2016
Alternative No.3

Reconstructed Elevated Structure (Modern Viaduct)
Longitudinal view along the viaduct, highlighting a potential increased spacing between piers and an increased viaduct height through the downtown.
Elevated section of new viaduct may also potentially include a bridge section to emulate the City’s surrounding architecture.
## POTENTIAL BENEFITS

- Modern design & construction techniques to (viaduct/bridge) increase light under, vision under, and through to river side
- Maintains street level infrastructure
- Signature structure
- Keep I-91 North & South garages in same locations
- Relieves South End bridge / I-91 congestion (with 3 lanes)
- Reduce maintenance cost with new construction techniques

## POTENTIAL IMPACTS

- Significant structure(s)
- Construction duration
- Maintainance of viaduct = continued costs
- Railroad is constraint to riverfront access
- Reconstruct I-291 & I-91 interchange
- Existing army corps levee system on both sides of river
- Utility relocation
- Temporary and permanent row takings
- Neighborhood disruptions
- Designated park land effects
Reconstructed Elevated Section

Existing Viaduct with parking garages under
Reconstructed Elevated Viaduct Example

Opportunities with a reconstructed Elevated Viaduct

Relevant examples of Pedestrian & Redevelopment options for under viaduct areas
Elevated Section Example

Opportunities with a reconstructed Elevated Viaduct

Relevant examples of Pedestrian & lighting options for under viaduct areas

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No Build – Enhance Existing

### POTENTIAL BENEFITS
- Limited / No construction impacts
- Recent deck replacement (20+ years)
- Relieves south end bridge / I-91 congestion
- Maintain 3 lanes on I-91 corridor
- No new ROW impacts
- No major utility impacts

### POTENTIAL IMPACTS
- Maintains overhead visual / physical impediment of I-91 viaduct structure
- Continual viaduct maintenance
- Connection from I-291 westbound & Memorial bridge not-existent
- Railroad is a constraint to riverfront access

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**Legend**
- Current I-91 alignment with modifications to maintain 3 lanes in each direction & taper grade to proposed condition
- Modify / Construct highway or roadway infrastructure
- Designated park land

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**MassDOT**
- Massachusetts Department of Transportation
Document proposed improvements to be implemented as part of MGM project

Construct accessible ramps/elevator in lieu of stairs on east & west end of the south end bridge (Springfield & Agawam)

Bike lanes, bike accommodations across the South End Bridge.
Short-Term Alternatives

Morrison Bridge Ramp
Portland, Oregon

Pfluger Bridge Ramp
Austin, Texas

Sunset Avenue Ramp
San Jose, California

Relevant examples of pedestrian & Bikeway access off of an elevated bridge or highway structure.
Short-Term Alternatives

- Under Viaduct Health, Safety, and Aesthetic Improvements
- Create or Enhance Neighborhood connections to Downtown Core & the River.

Relevant examples of pedestrian & Bikeway improvements under an elevated bridge or highway structure.
Short-Term Alternatives

Potential Important Connectivity

Ink Block’s builder has big plans for park beneath I-91.

Donna Goodison Saturday, June 11, 2016

Lot 5 Amenities – Rendering of Proposed Recreation Area

Credit: COURTESY RENDERING

Lot 5 Amenities – Rendering of Proposed Waterfront Event Area

June 23, 2016
Short-Term Alternatives

Under Viaduct Health, Safety, Lighting, and Aesthetic Improvements

Relevant examples of pedestrian & bikeway improvements under an elevated bridge or highway structure.
Short-Term Alternatives

- Provide better, safer, and more visible access to pedestrian bridge behind old basketball Hall of Fame or relocate structure
- Improve and enhance existing walkway underneath the railroad into Riverfront Park
- Upgrade at-grade crossing in riverfront park to an active crossing
Short-Term Alternatives

- Provide sidewalk in Springfield on the west side of Route 5 to connect Forest Park to Longmeadow
- Revise timing and coordinate (Signals in Longmeadow)
  - Route 5 and Forest Glen
  - Route 5 and Converse Street
- Provide right-turn lane on Forest Glen (WB) at the intersection of Route 5
Short-Term Alternatives

- Provide interstate symbols on I-91 in the vicinity of the viaduct to improve routing for motor vehicles
- Additional spot ADA improvements including sidewalk repair, ADA ramps, countdown heads, and minor timing changes throughout the primary study area.

Relevant examples of pedestrian crossing countdown heads and on pavement signage/lane marking
Longmeadow Curves, Lane Drop & Merging (Previous)

Previous concepts for improvement to Longmeadow curve area (shown above) were further assessed and refined to maximize potential benefits and limits potential impacts.
Mid-Term Alternatives

Improvements to the Longmeadow curve infrastructure and traffic flow
Longmeadow Curves, Lane Drop & Merging
Mid-Term Alternatives

Illustrative Section
Longmeadow Curves, Lane Drop & Merging

ILLUSTRATIVE ELEVATION OF "LONGMEADOW CURVE" SECTION
SOUTH SOUTH END BRIDGE
I-91 VIADUCT CORRIDOR

Connecticut River
Railroad
Frontage Road Southbound
I-91 (Approx. 126')
Frontage Road Northbound
Forest Park
Mid-Term Alternatives
I-91 & I-291 Connection

Improvements to the I-291 to I-91 South on-ramp infrastructure and connection to the Memorial Bridge
Project Schedule

Task 1: Study Area, Goals & Objectives, Evaluation Criteria, and Public Involvement Plan

Task 2: Existing Conditions, Future No Build Conditions and Issues Evaluation

Task 3: Alternatives Development

Task 4: Alternatives Analysis

Task 5: Recommendations

Task 6: Final Report

Working Group Meeting

Public Meeting
Next Steps

- TransCad Regional Modeling

- Local Modeling utilizing Synchro and VISSIM

- Refine Planning of Connectivity of Neighborhoods, Downtown, Businesses, Open Spaces, and the Riverfront

- Apply Evaluation Criteria

- Working Group Meeting & Public Informational Meeting
Questions & Comments

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Study Website Link:
www.massdot.state.ma.us/i91viaductstudy