I-91 Viaduct Study

Springfield, Massachusetts

Working Group Meeting #7

Sheraton Springfield
Springfield, Massachusetts

June 23, 2016

Milone & MacBroom

massDOT
Massachusetts Department of Transportation

Welcome & Introductions

I-91 Viaduct Study

- 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)

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Agenda

- Welcome & Introductions
- Overview Working Group Meeting #6 and additional Alternative Assessment Effort
- Refinement of 3 Alternatives
- Refinement of Short- & Mid-Term Alternatives
- Next Steps

Review of Working Group Meeting #6

- 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)

Review of Additional Assessment Effort

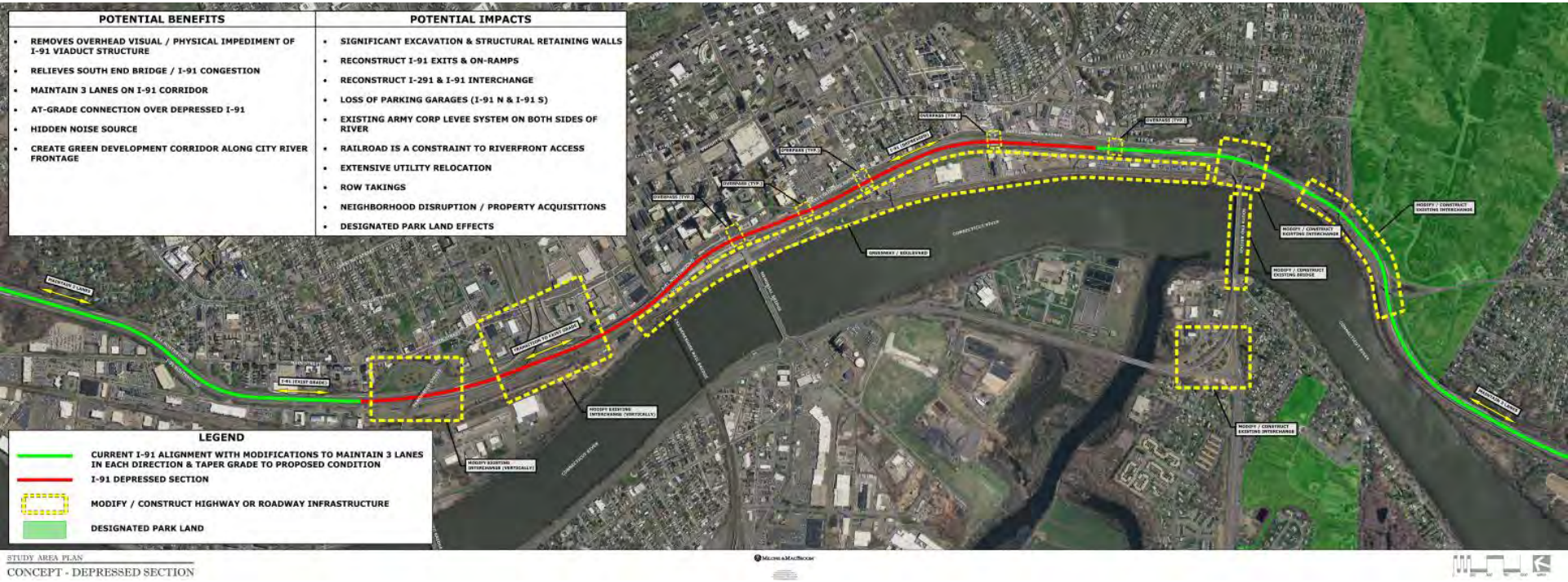
- More detailed look into Impacts & Benefits associated with relocated Rail and Highway to West Side of Connecticut River Alternative
- Impacts determined to be unacceptable and not in balance with benefits of proposed alternative
- Impacts mapping & technical memorandum provided to working group

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



STUDY AREA PLAN
CONCEPT - DEPRESSED SECTION

Alternative No.1

I-91 Viaduct Study

Similar Project Examples

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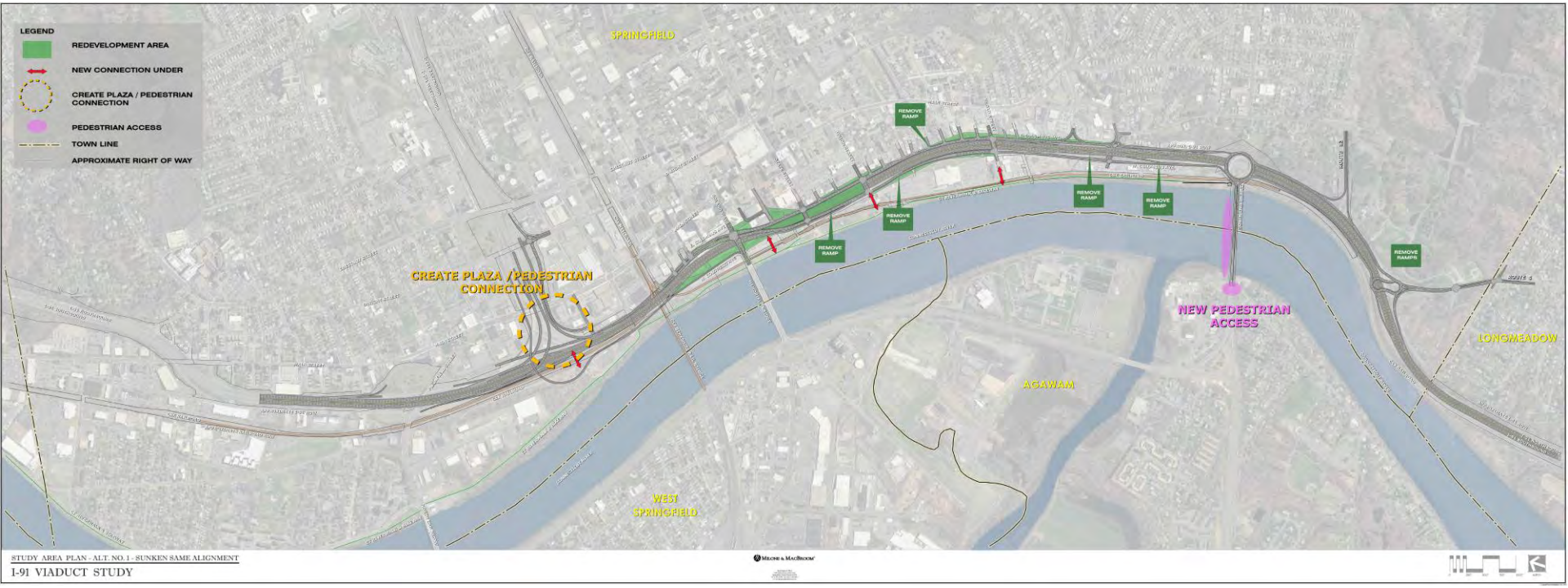
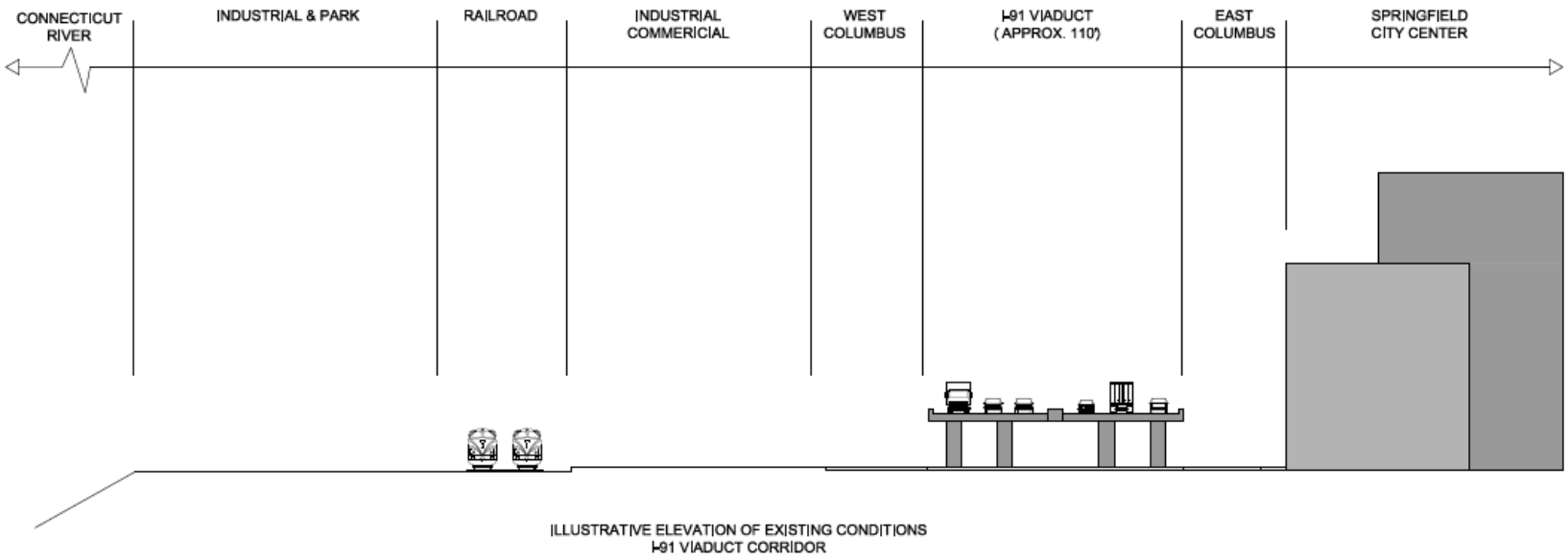
Alternative No.1

Refined sunken alternative following ***current*** I-91 Alignment



Alternative No.1

Illustrative Section Existing Conditions

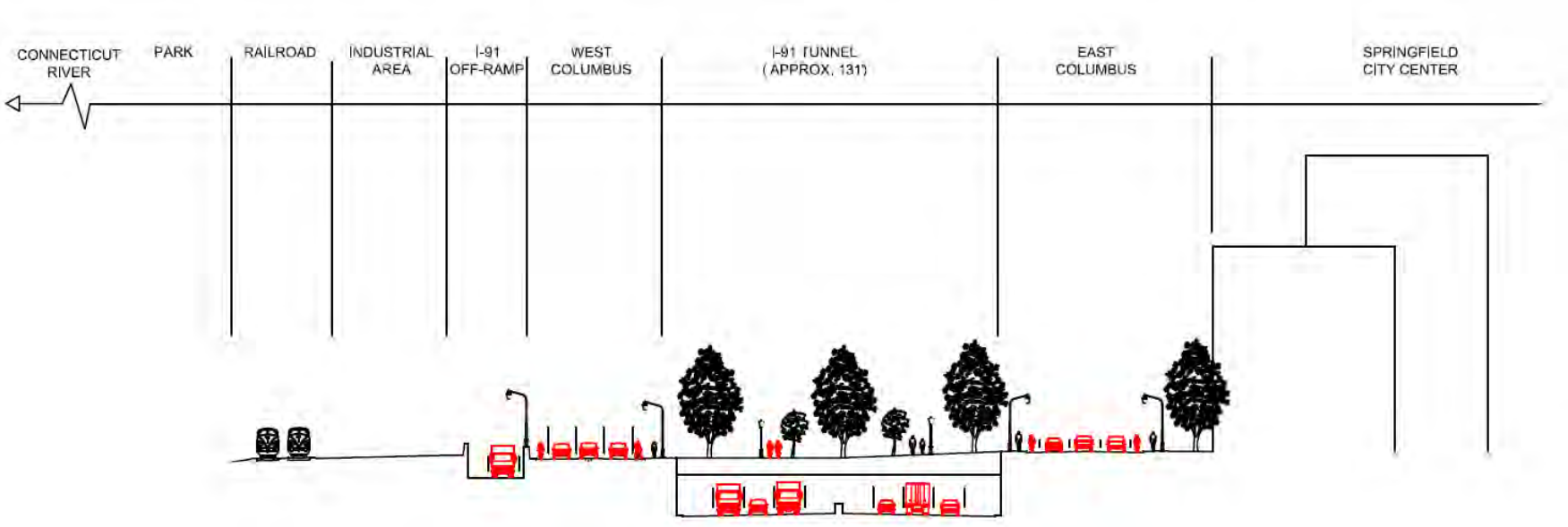


ILLUSTRATIVE ELEVATION OF EXISTING CONDITIONS
I-91 VIADUCT CORRIDOR

Alternative No.1

I-91 Viaduct Study

Illustrative Section Proposed Conditions



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Alternative No.1

I-91 Viaduct Study

POTENTIAL BENEFITS

- REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE
- RELIEVES SOUTH END BRIDGE / I-91 CONGESTION
- MAINTAIN 3 LANES ON I-91 CORRIDOR
- AT-GRADE CONNECTION OVER DEPRESSED I-91
- HIDDEN NOISE SOURCE
- CREATE GREEN DEVELOPMENT CORRIDOR ALONG CITY RIVER FRONTAGE
- IMPROVE PEDESTRIAN CONNECTIONS TO THE RIVERFRONT

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 CORPS LEVEE SYSTEM
- RAILROAD IS A CONSTRAINT TO RIVERFRONT ACCESS
- EXTENSIVE UTILITY RELOCATION
- ROW/EASEMENT TAKINGS
- NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISTIONS
- DESIGNATED PARK LAND EFFECTS

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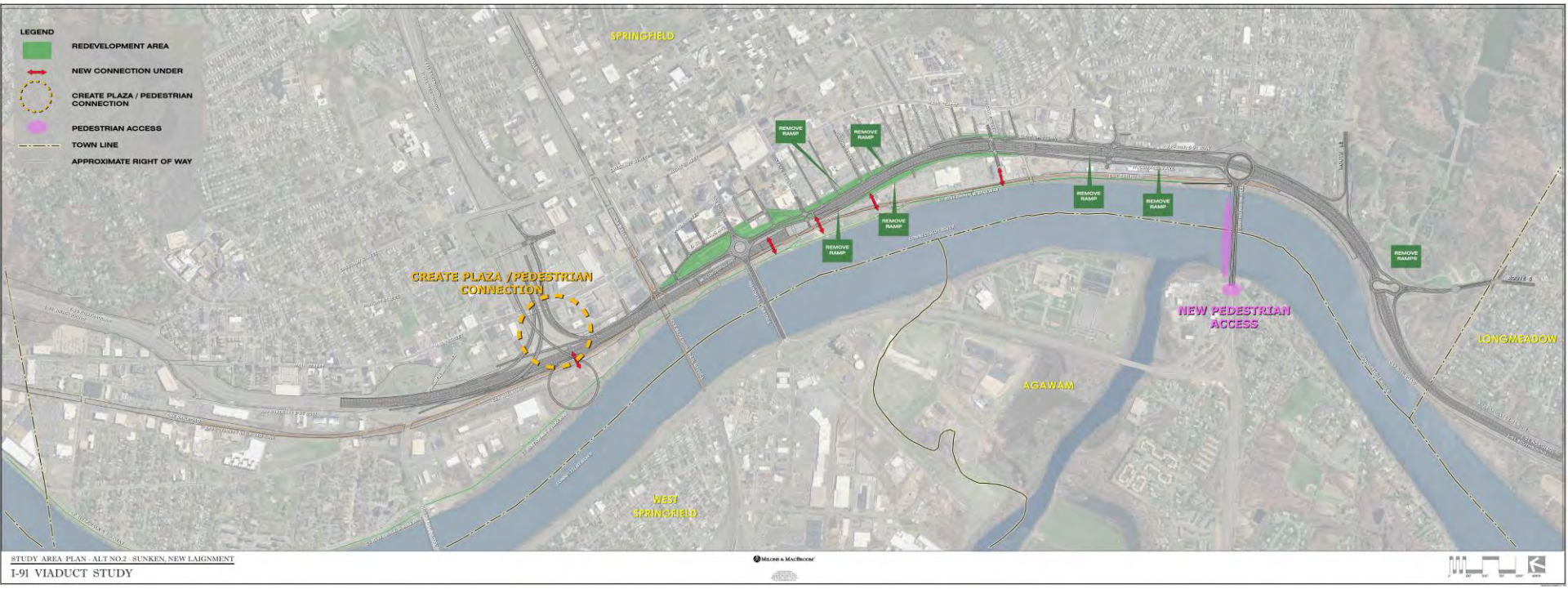
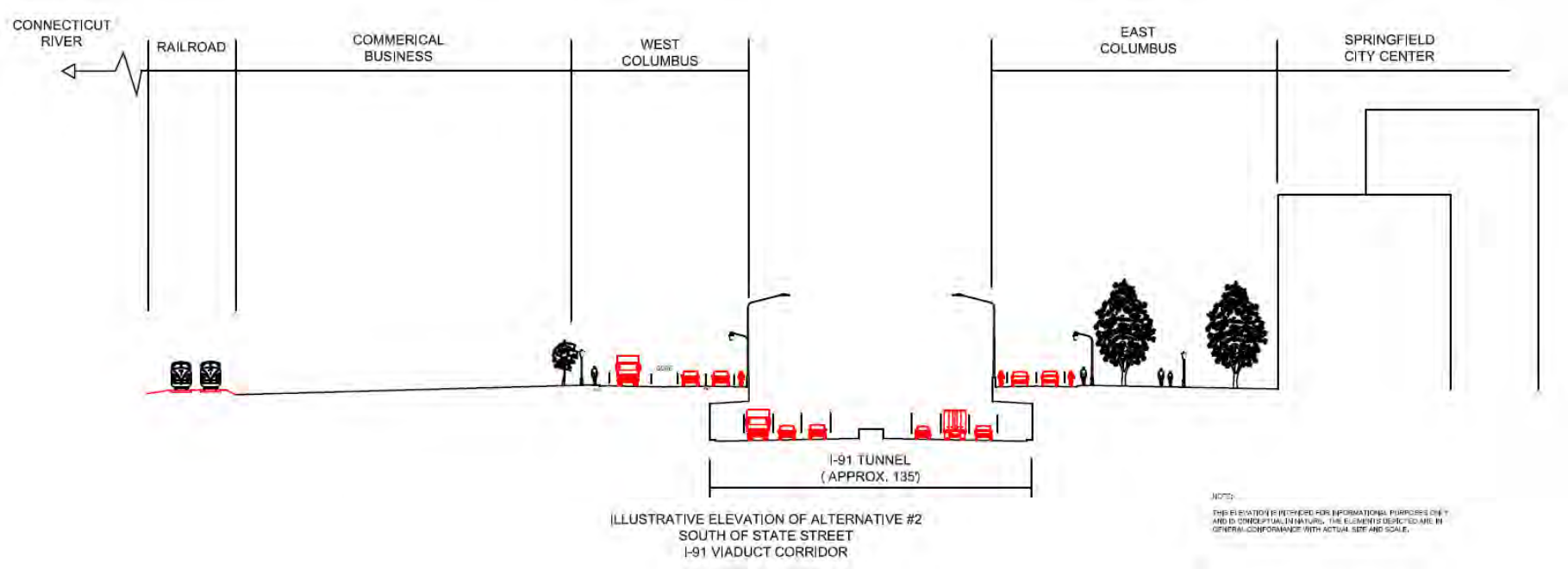
Alternative No.2

Sunken following modified I-91 Alignment



Alternative No.2

Illustrative Section – 2A

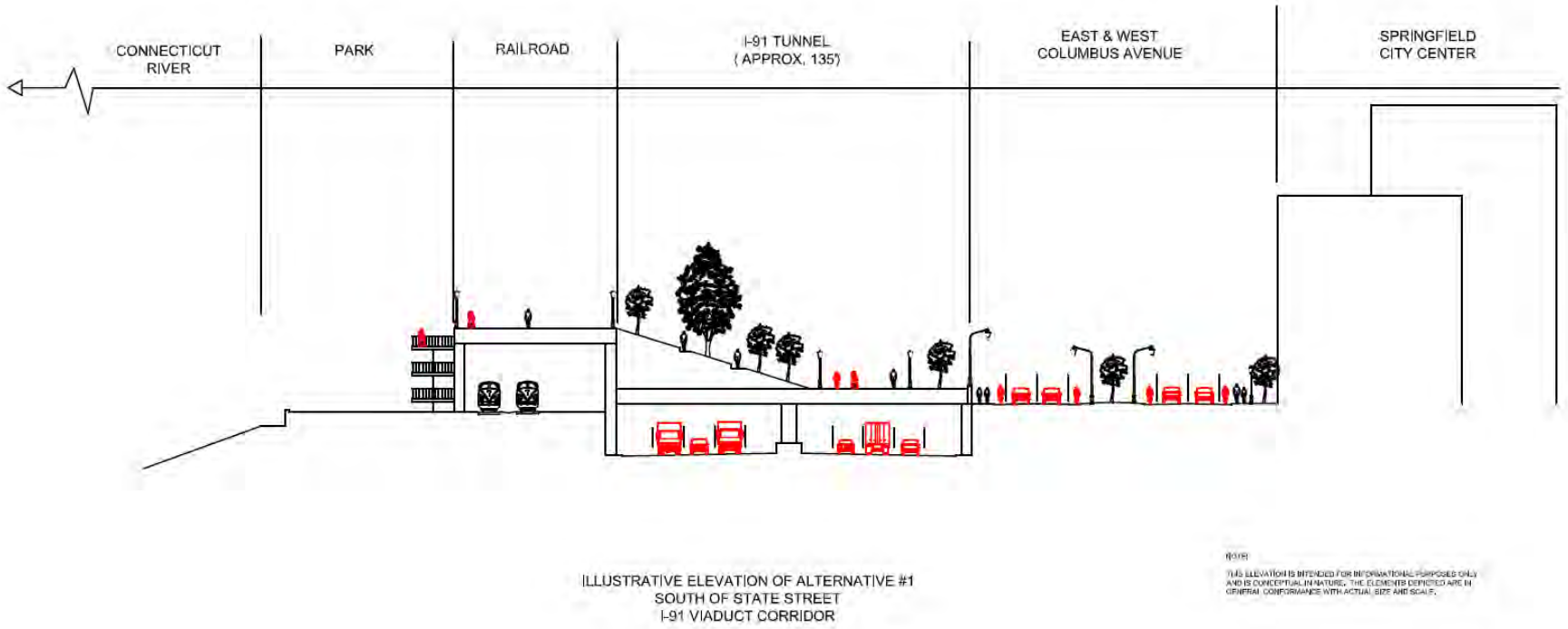


ILLUSTRATIVE ELEVATION OF ALTERNATIVE #2
SOUTH OF STATE STREET
I-91 VIADUCT CORRIDOR

NOTE:
THIS ELEVATION IS INTENDED FOR INFORMATIONAL PURPOSES ONLY AND IS CONCEPTUAL IN NATURE. THE ELEMENTS DEPICTED ARE IN GENERAL CONFORMANCE WITH ACTUAL SIZE AND SCALE.

Alternative No.2

Illustrative Section – 2B



ILLUSTRATIVE ELEVATION OF ALTERNATIVE #1
SOUTH OF STATE STREET
I-91 VIADUCT CORRIDOR

NOTE
THIS ELEVATION IS INTENDED FOR INFORMATIONAL PURPOSES ONLY AND IS CONCEPTUAL IN NATURE. THE ELEMENTS DEPICTED ARE IN GENERAL CONFORMANCE WITH ACTUAL SIZE AND SCALE.

Alternative No.2

ROSALIE ISLAND POTOMAC RIVER BRIDGE

Washington, DC

June 23, 2016

Alternative No.2

I-91 Viaduct Study

POTENTIAL BENEFITS

- REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE
- RELIEVES SOUTH END BRIDGE / I-91 CONGESTION
- MAINTAIN 3 LANES ON I-91 CORRIDOR
- AT-GRADE CONNECTION OVER DEPRESSED I-91
- HIDDEN NOISE SOURCE
- CREATE GREEN DEVELOPMENT CORRIDOR ALONG CITY RIVER FRONTAGE
- IMPROVE PEDESTRAIN CONNECTIONS TO THE RIVERFRONT

POTENTIAL IMPACTS

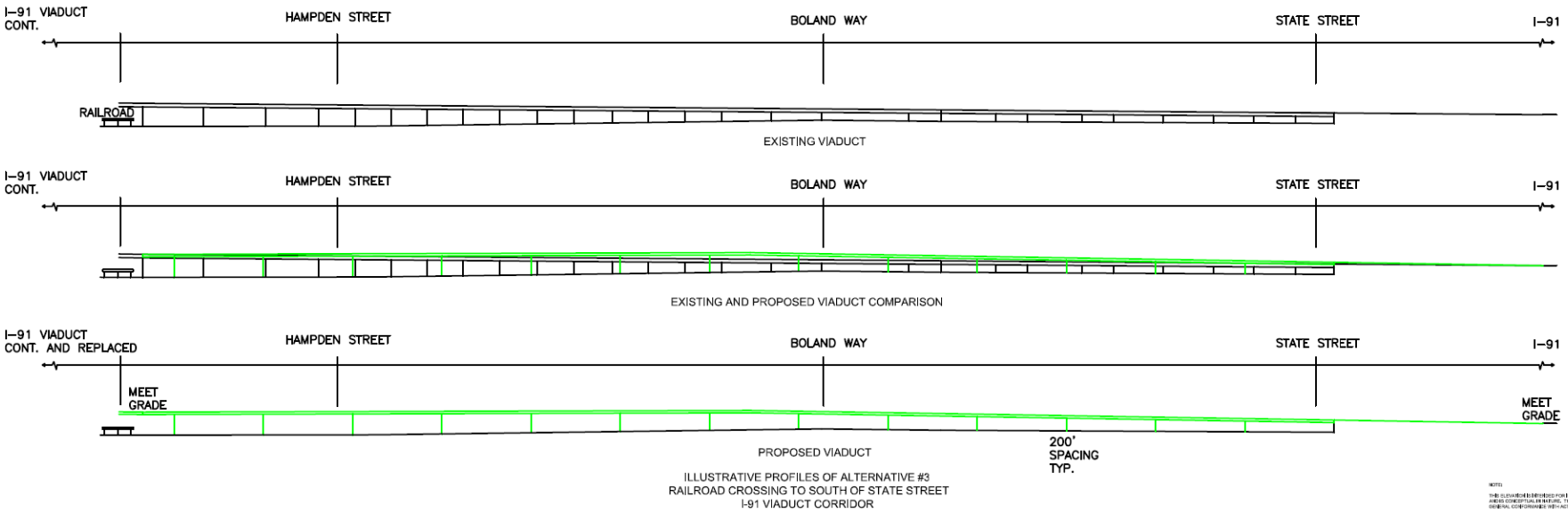
- SIGNIFICANT EXCAVATION & STRUCTURAL RETAINING WALLS
- RECONSTRUCT I-91 EXITS & ON-RAMPS
- RECONSTRUCT I-291 & I-91 INTERCHANGE
- LOSS OF PARKING GARAGES (I-91 N & I-91 S)
- EXISTING ARMY CORPS LEVEE SYSTEM
- RAILROAD IS A CONSTRAINT TO RIVERFRONT ACCESS
- EXTENSIVE UTILITY RELOCATION
- ROW/EASEMENT TAKINGS
- NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISTIONS
- DESIGNATED PARK LAND EFFECTS

Alternative No.3

Reconstructed Elevated Structure (Modern Viaduct)

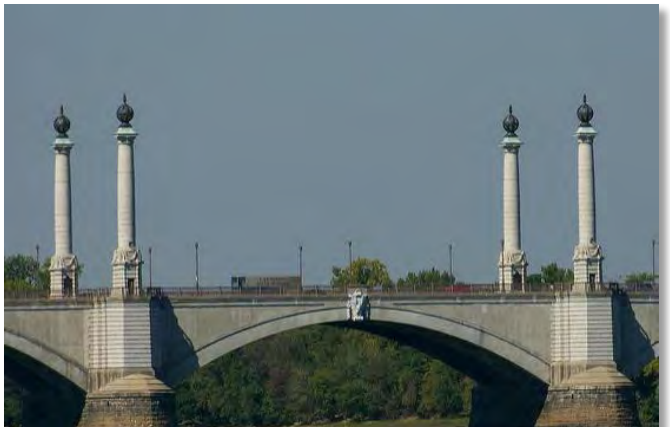
Alternative No.3

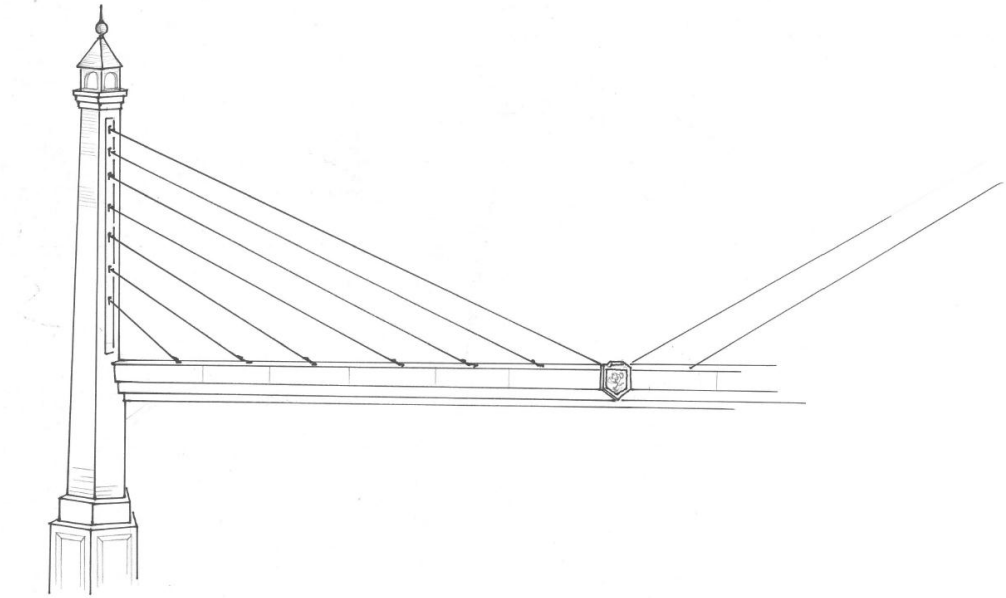
Illustrative Viaduct Profile



Longitudinal view along the viaduct, highlighting a potential increased spacing between piers and an increased viaduct height through the downtown

Elevated Section Example





Elevated section of new viaduct may also potentially include a bridge section to emulate the City's surrounding architecture

Alternative No.3

I-91 Viaduct Study

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

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Reconstructed Elevated Section

Existing Viaduct with parking garages under

Reconstructed Elevated
Viaduct Example

Opportunities with a reconstructed Elevated Viaduct

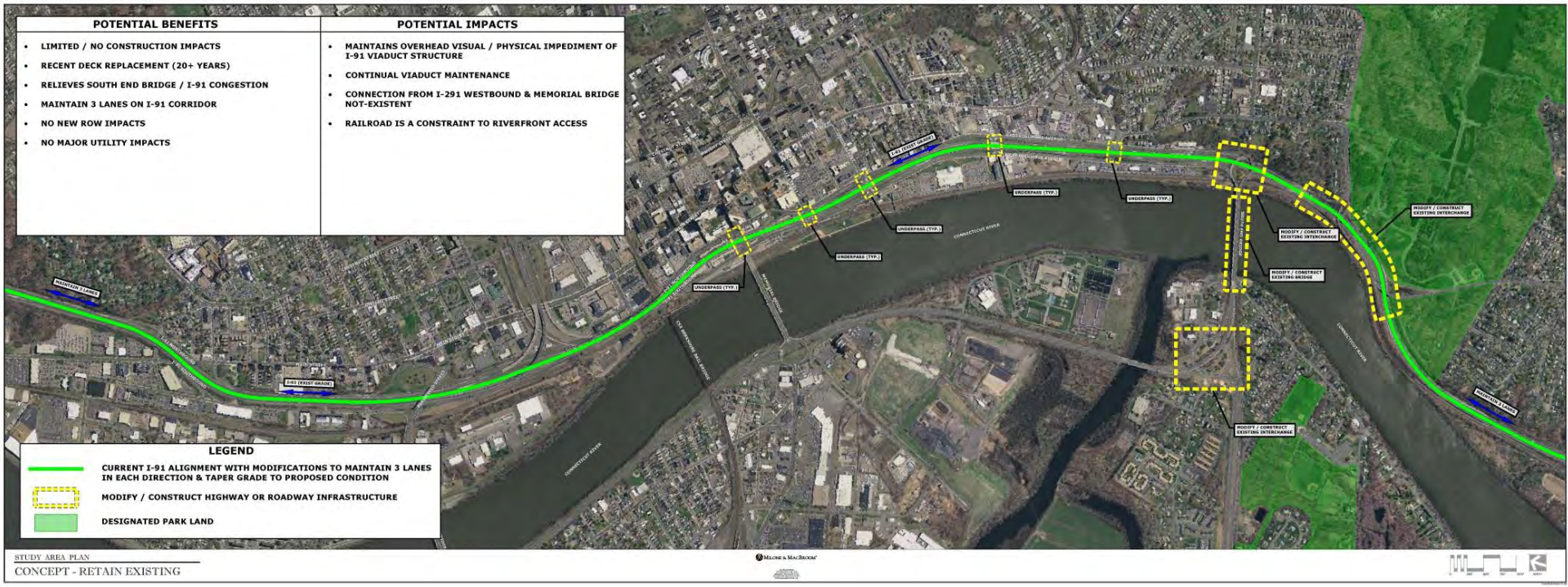
Relevant examples of Pedestrian & Redevelopment options for under viaduct areas

Elevated Section Example

Opportunities with a reconstructed Elevated Viaduct

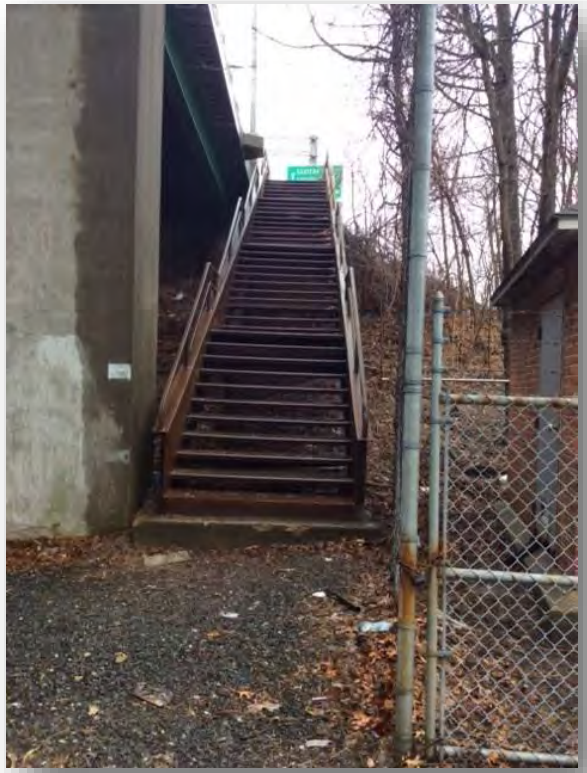
Relevant examples of Pedestrian & lighting options for under viaduct areas

No Build – Enhance Existing



Short-Term Alternatives

- 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

I-91 Viaduct Study

Relevant examples of pedestrian & Bikeway access off of an elevated bridge or highway structure.

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Short-Term Alternatives

I-91 Viaduct Study

- 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.

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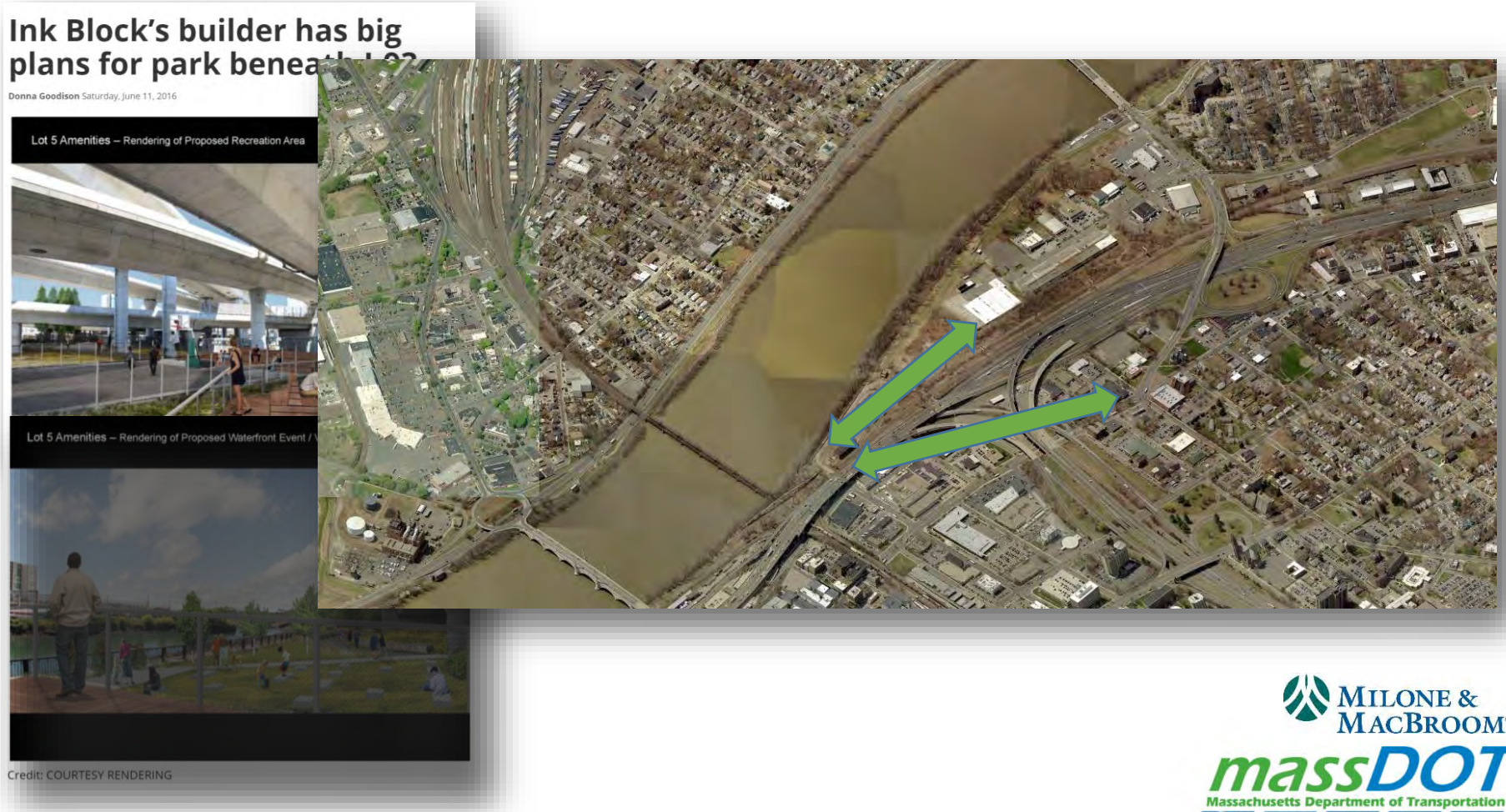
Short-Term Alternatives

I-91 Viaduct Study

Potential Important Connectivity



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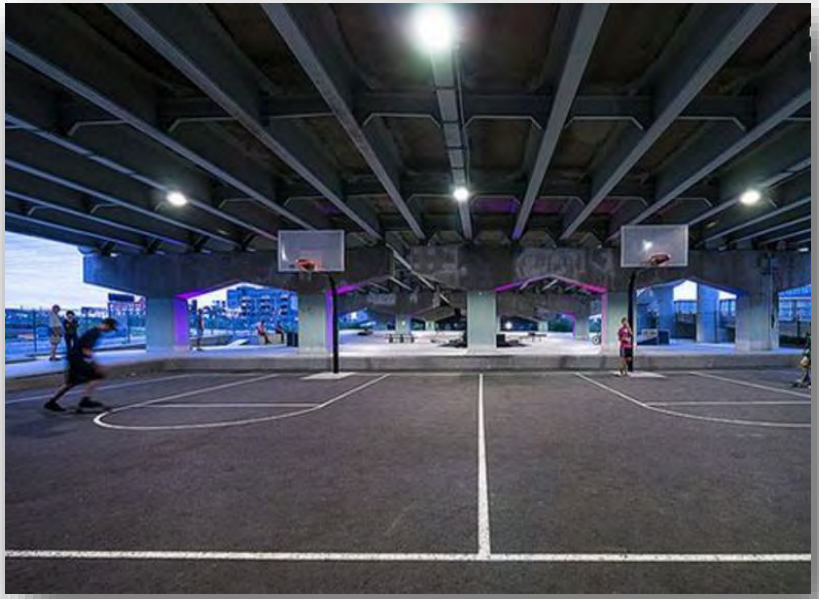
Short-Term Alternatives

I-91 Viaduct Study

Under Viaduct Health, Safety, Lighting, and Aesthetic Improvements



Relevant examples of pedestrian & bikeway improvements under an elevated bridge or highway structure.

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Short-Term Alternatives

I-91 Viaduct Study

- 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 river front park to an active crossing

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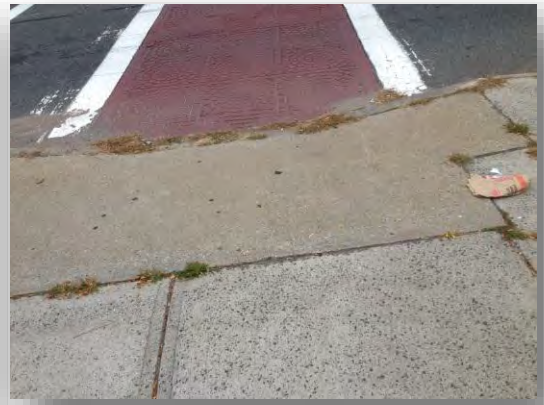
Short-Term Alternatives

- 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

Mid-Term Alternatives

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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.

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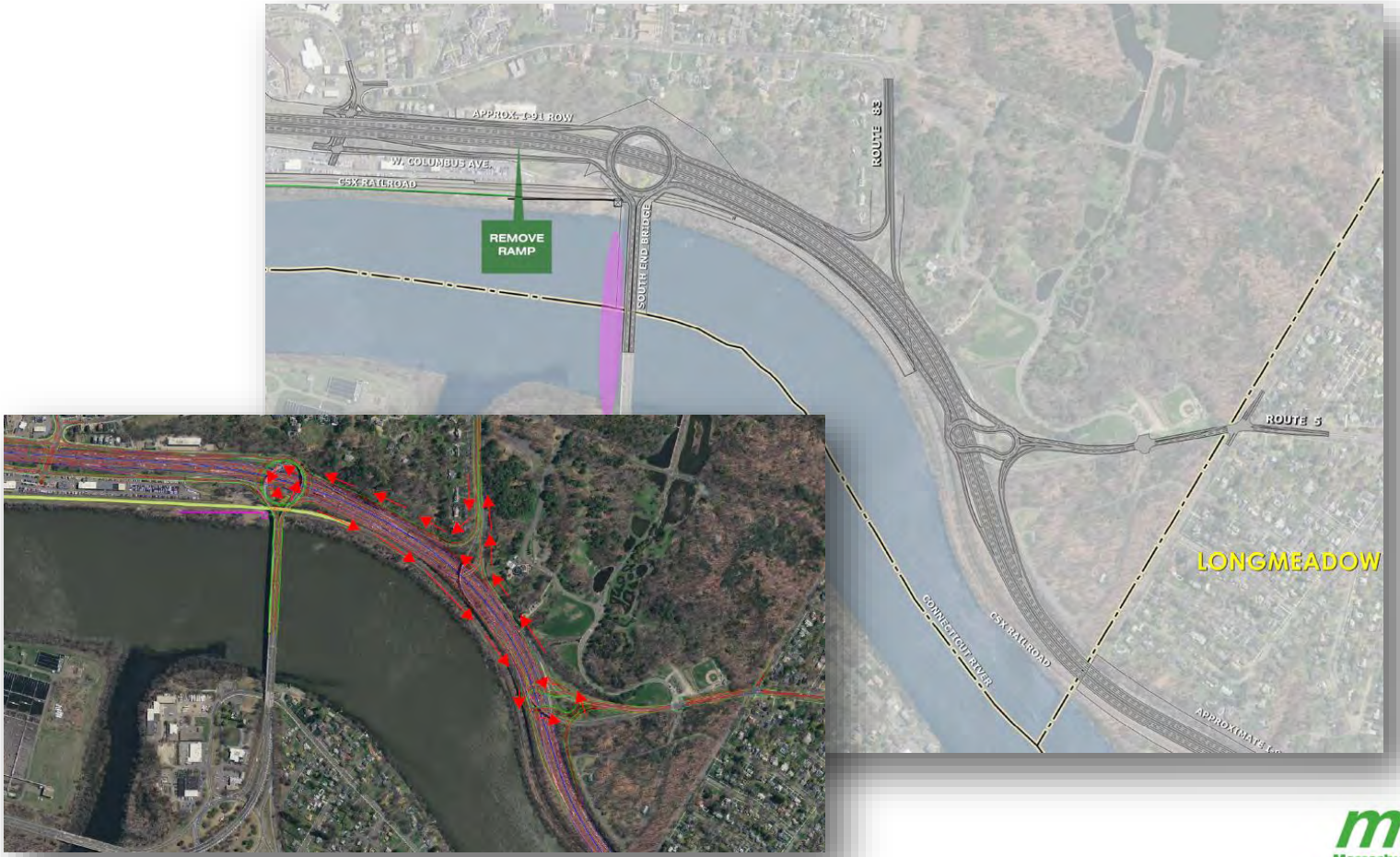
Mid-Term Alternatives

Improvements to the Longmeadow curve infrastructure and traffic flow

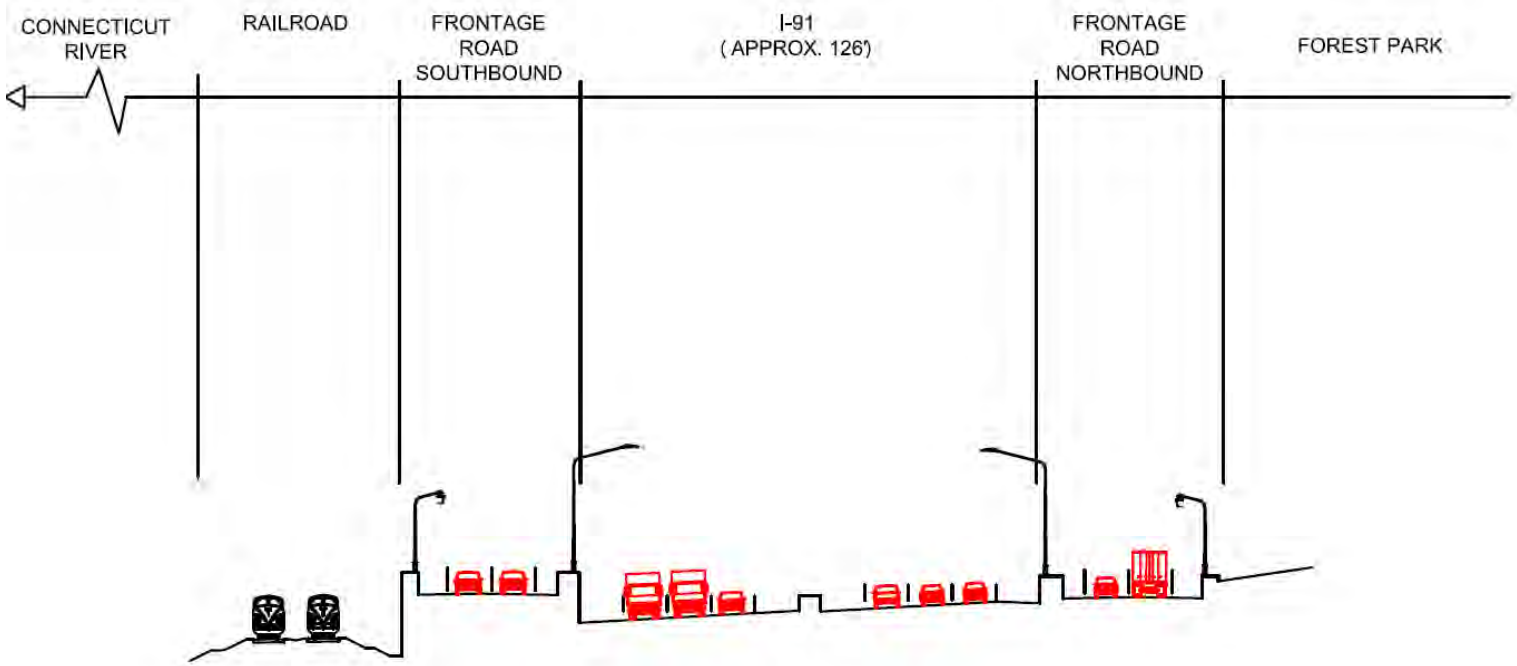
Longmeadow Curves, Lane Drop & Merging



Mid-Term Alternatives

Illustrative Section

Longmeadow Curves, Lane Drop & Merging



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

NOTE:
THIS ELEVATION IS FOR INFORMATIONAL PURPOSES ONLY
AND IS CONCEP
GENERAL CONF

Mid-Term Alternatives
I-91 & I-291 Connection

I-91 Viaduct Study

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

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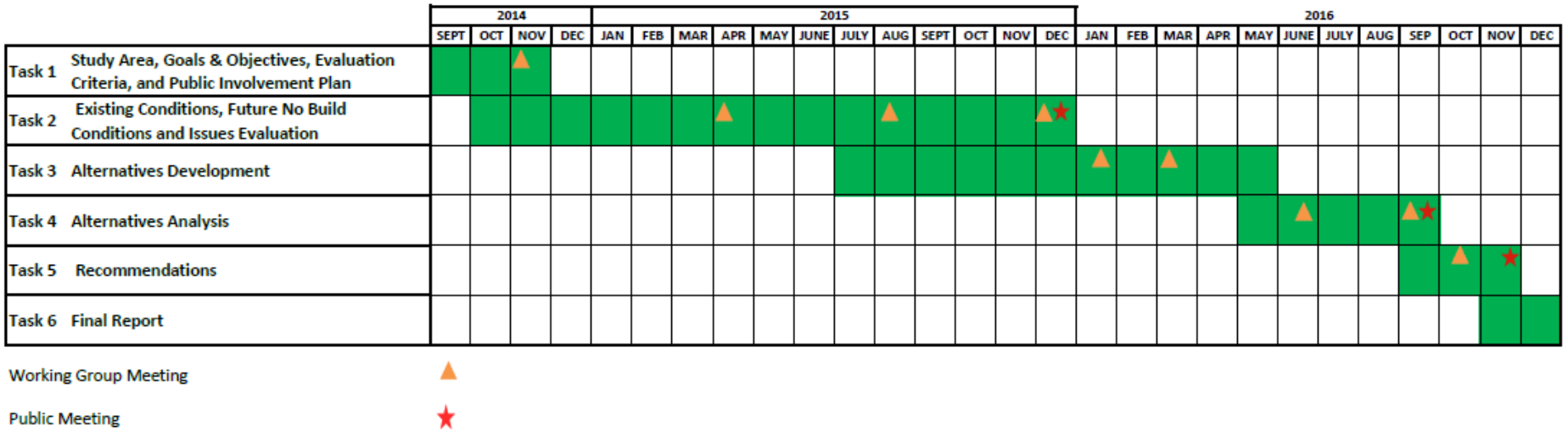
Project Schedule



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

I-91 Viaduct Study

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Email: michael.clark@state.ma.us

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

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