## I-91 VIADUCT STUDY

Springfield, Massachusetts





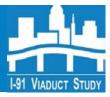
## Working Group Meeting #6

UMASS Springfield Tower Square Springfield, Massachusetts





#### 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)



### Agenda



- Welcome & Introductions
- Overview Working Group Meeting #5
- Continued Refinement of Alternatives
- Next Steps



### Review of Working Group Meeting #5



- Elimination & Regrouping of Alternatives Developed
- Alternatives removed for further consideration
  - I-91 North & Southbound Split (East & West Side)
  - New Route 5 Bridge Connection (East & West Side)
  - I-91 relocated to Route 5 Corridor, connection to MassPike (West Side)
  - Tunnel Only Option
  - At-Grade Option





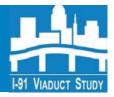








#### Alternatives Refinement



- Working Group Meeting #5 Regrouping of Alternatives
  - Relocated Rail Line & Relocated Highway (West Side)
  - Reconstructed Elevated Structure (Modern Viaduct)
  - Sunken, Tunnel, or Combination(s) & Various Alignments & Configurations.
  - No-Build (Short, Mid-term, Long-term)



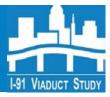
### I-91 & Rail Relocated to West Side

(3 to 7 New Bridges Option)



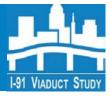


### I-91 & Rail Relocated to West Side



PC	OTENTIAL BENEFITS	POTENTIAL IMPACTS									
•	REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE & RAIL	MERGER OF I-91 & ROUTE 5 TRAFFIC									
•	REMOVES TRAFFIC / NOISE FROM CITY OF SPRINGFIELD SIDE OF RIVER	INCREASED TRAFFIC NOISE WEST SIDE/BARRIERS REQUIRED									
•	GREEN CORRIDOR REDEVELOPMENT OPPORTUNITIES ALONG EAST BANK	RECONSTRUCT I-291 & I-91 INTERCHANGE									
•	RELIEVES I-91 SOUTHERN SECTION (LONGMEADOW CURVE) TRAFFIC CONGESTION	STORMWATER / GROUNDWATER CONTROL									
•	MAINTAIN 3 LANES ON I-91 CORRIDOR	• WATER TABLES									
•		EXISTING ARMY CORPS LEVEE SYSTEM ON BOTH SIDES OF LEVEE									
		EXTENSIVE UTILITY RELOCATION									
		ROW / PROPERTY ACQUISTIONS AND TAKINGS									
		NEIGHBORHOOD DISRUPTIONS									
		DESIGNATED PARK LAND IMPACTS									
		MILONE									

#### I-91 & Rail Relocated to West Side



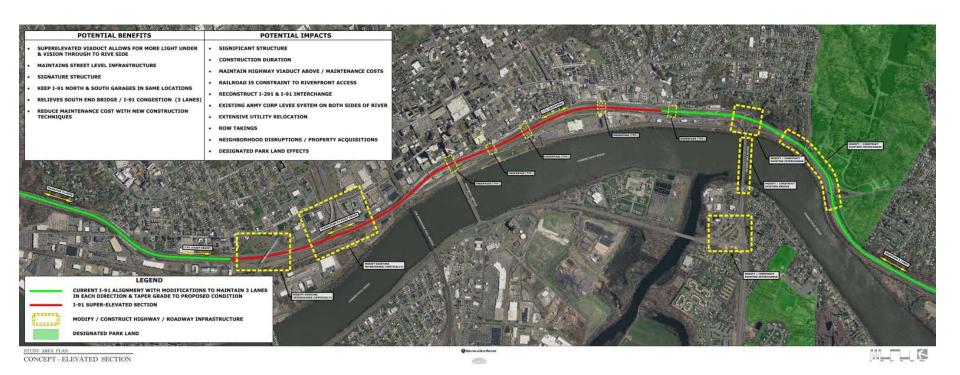
#### MORE DETAILED POTENTIAL IMPACTS (CONTINUED)

- "FLIP FLOP" RAIL & INTERSTATE IN LONGMEADOW
- SKEWED RIVER CROSSING FOR INTERSTATE AND RAIL, INCRREASED IMPACTS
- RAIL RELOCATED DESIGN BASED ON INTERSTATE DESIGN COMPONENTS, MAY NOT BE PERMITTABLE
- VERTICAL GRADE CHALLENGES AT EVERY INTERCHANGE (RAIL CLEARANCE)
- UPWARDS OF 50+ TAKINGS OF HOMES AND BUSINESSES IN AGAWAM
- MAJOR ENVIRONMENTAL IMPACTS (RIVER, WETLANDS, LANDFILL, AND PARKLANDS)
- NOT ALLOWED TO PROVIDE AN EXIT OFF AN INTERSTATE FOR A PRIVATE ENTITY
  - ISOLATE BONDI'S ISLAND, SPRINGFIELD WATER & SEWER COMMISSION, LANDFILL
- REPLACE MEMORIAL BRIDGE, HISTORIC STRUCTURE
- UPWARDS OF 50+ TAKINGS OF BUSINESSES AND HOMES IN WEST SPRINGFIELD
- AT LEAST 7 NEW/RECONSTRUCTED BRIDGES FOR NEW INTERSTATE AND RAIL
- MAJOR IMPACTS TO MEMORIAL AVENUE, ENTRANCE TO WEST SPRINGFIELD
- KEEP THE CONTROLLING GRADES OF UNION STATION AND RAIL YARD IN WEST SPRINGFIELD



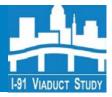
### Reconstructed Elevated Section





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### Reconstructed Elevated Section





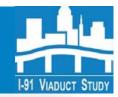


Existing Viaduct with parking garages under



10 March 16, 2016

# Reconstructed Elevated Viaduct Example







Opportunities with a reconstructed Elevated Viaduct





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### Elevated Section Example



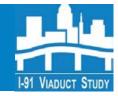


Opportunities with a reconstructed Elevated Viaduct





### Elevated Section Example

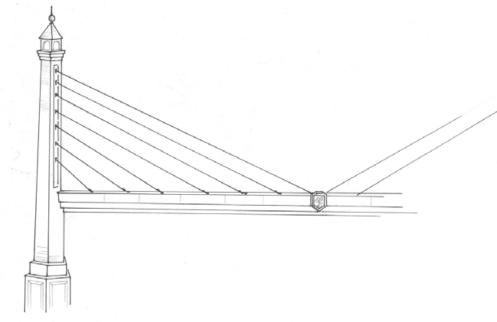








Opportunities with a new bridge section to blend with Memorial Bridge and the City architecture, not attempt mimic.





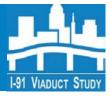
### Reconstructed Elevated Section

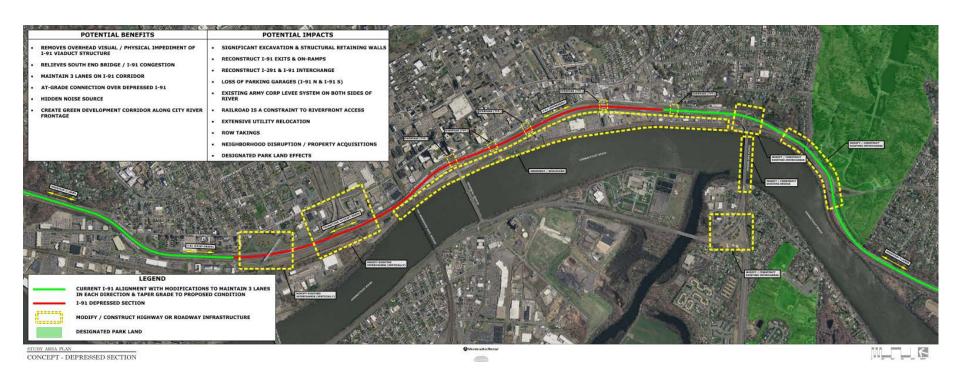


POTENTIAL BENEFITS			TENTIAL IMPACTS
•	MODERN DESIGN & CONSTRUCTION TECHNIQUES TO (VIADUCT/BRIDGE) INCREASE LIGHT UNDER, VISION UNDER, AND THROUGH TO RIVER SIDE	•	SIGNIFICANT STRUCTURE(S)
•	MAINTAINS STREET LEVEL INFRASTRUCTURE	•	CONSTRUCTION DURATION
•	SIGNATURE STRUCTURE	•	MAINTAINANCE OF VIADUCT = MAINTENANCE COSTS
•	KEEP I-91 NORTH & SOUTH GARAGES IN SAME LOCATIONS	•	RAILROAD IS CONSTRAINT TO RIVERFRONT ACCESS
•	RELIEVES SOUTH END BRIDGE / I-91 CONGESTION (with 3 LANES)	•	RECONSTRUCT I-291 & I-91 INTERCHANGE
•	REDUCE MAINTENANCE COST WITH NEW CONSTRUCTION TECHNIQUES	•	EXISTING ARMY CORPS LEVEE SYSTEM ON BOTH SIDES OF RIVER
		•	UTILITY RELOCATION
		•	TEMPORARY VS. PERMANENT ROW TAKINGS
		•	NEIGHBORHOOD DISRUPTIONS
		•	DESIGNATED PARK LAND EFFECTS
			MILON



### Sunken, Depressed, or Tunnel





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### Sunken/Tunnel Section Example



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### Sunken/Tunnel Section Example









After



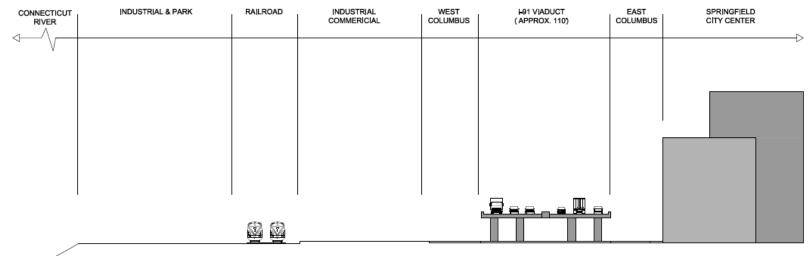
### Sunken/Tunnel Section Example



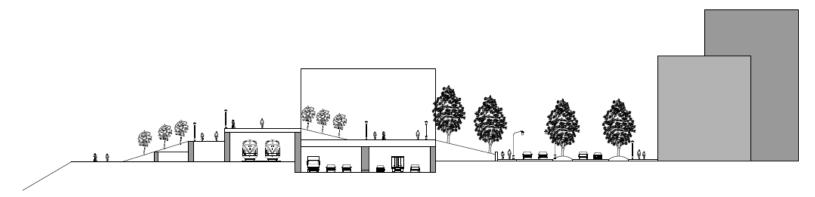


### Sunken/Tunnel Example





ILLUSTRATIVE ELEVATION OF EXISTING CONDITIONS H91 VIADUCT CORRIDOR



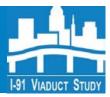
NOTE
THE SERVITION IS INTERDED FOR INFORMATIONAL PURPOSES ONLY
WAS IN CONCEPTUAL IN WATURE, THE SERVICES SERVICED ARE IN
GENERAL CONFORMANCE WITH ACTUAL SIZE AND SOLLE,

ILLUSTRATIVE ELEVATION OF PROPOSED PARTIALLY DEPRESSED 1-91 VIADUCT CORRIDOR





### Sunken/Tunnel Alternative

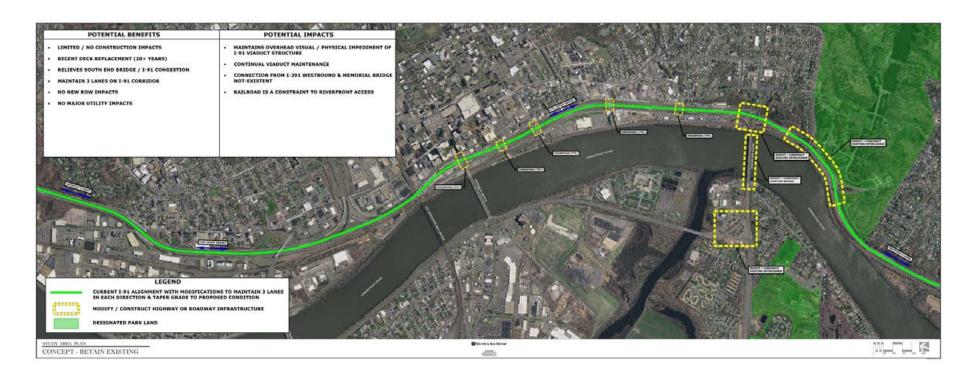


POTENTIAL BENEFITS		PC	OTENTIAL IMPACTS
•	REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE	•	SIGNIFICANT EXCAVATION & STRUCTURAL RETAINING WALLS
•	RELIEVES SOUTH END BRIDGE / I-91 CONGESTION	•	RECONSTRUCT I-91 EXITS & ON-RAMPS
•	MAINTAIN 3 LANES ON I-91 CORRIDOR	•	RECONSTRUCT I-291 & I-91 INTERCHANGE
•	AT-GRADE CONNECTION OVER DEPRESSED I-91	•	LOSS OF PARKING GARAGES (I-91 N & I-91 S)
•	HIDDEN NOISE SOURCE	•	EXISTING ARMY CORPS LEVEE SYSTEM
•	CREATE GREEN DEVELOPMENT CORRIDOR ALONG CITY RIVER FRONTAGE	•	RAILROAD IS A CONSTRAINT TO RIVERFRONT ACCESS
		•	EXTENSIVE UTILITY RELOCATION
		•	ROW/EASEMENT TAKINGS
		•	NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISTIONS
		•	DESIGNATED PARK LAND EFFECTS
			MILO



### No Build - Enhance Existing







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## No-Build (Enhance Existing)



POTENTIAL BENEFITS	POTENTIAL IMPACTS
LIMITED CONSTRUCTION IMPACTS	MAINTAINS OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE
RELIEVES SOUTH END BRIDGE / I-91 CONGESTION	REQUIRES DECK REPLACEMENT (20+ YEARS)
MAINTAIN 3 LANES ON I-91 CORRIDOR	CONTINUAL VIADUCT MAINTENANCE
NO NEW ROW IMPACTS	CONNECTION FROM I-291 WESTBOUND & MEMORIAL BRIDGE NOT-EXISTENT
NO MAJOR UTILITY IMPACTS	RAILROAD IS A CONSTRAINT TO RIVERFRONT ACCESS
<ul> <li>MAINTAINS EXISTING INFRASTRUCTURE (RAMPS, BRIDGES, UTILITIES, ETC.)</li> </ul>	





- Document proposed improvements to be implemented as part of MGM project
- Renovate stairway, investigate ADA accommodations on west end of the south end bridge (Agawam)
- Bike lanes, bike accommodations across the south end bridge, connect the bike path in Agawam to Springfield
- Pedestrian connection to CT River bikeway/walk needed near south end bridge - need to cross tracks





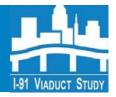


Under Viaduct Health, Safety, and Aesthetic, Improvements





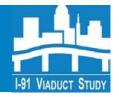




Enhancing & Creating Important Connectivity

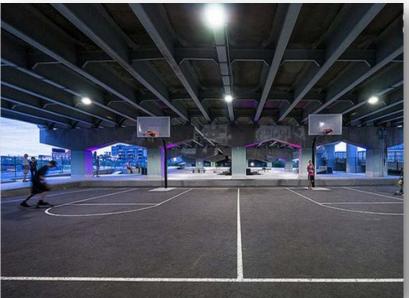






Under Viaduct Health, Safety, Lighting, and Aesthetic, Improvements









- 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













- 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









- 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.





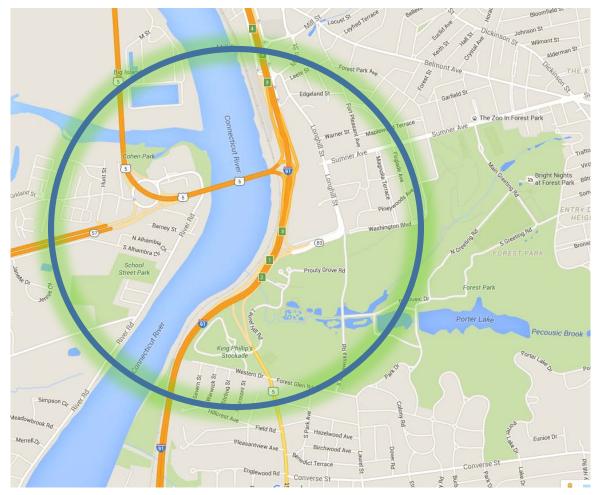






### Mid-Term Alternatives



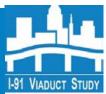






### Mid-Term Alternatives









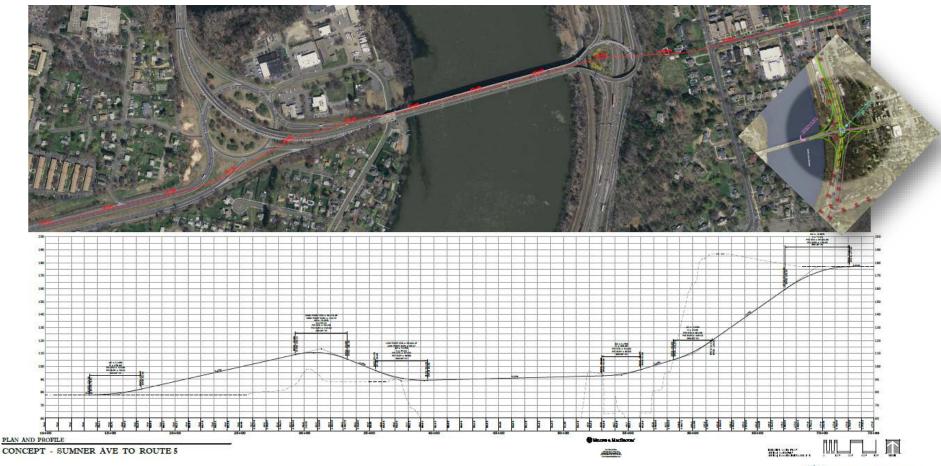




### Mid-Term Alternatives









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





- Over the top from I-291 toI-91 south (right side)
- Split exit to serve Memorial Bridge (right side)
- Over railroad tracks



### Long-Term Alternatives

#### **Three Preferred Alternatives**



- Reconstructed Elevated
  - Increase Spans, Reduce Piers in Urban Core
  - Pedestrian Connections thru Embankments (Arches)
- Sunken, Depressed, and/or Tunnel
  - Along Current I-91 Alignment
- Sunken, Depressed, and/or Tunnel
  - Modified I-91 Alignment(s)



#### Long-Term Alternatives Reconstructed Elevated



- Increase Spans, Reduce Piers in Urban Core
- Pedestrian Connections thru Embankments (Arches)



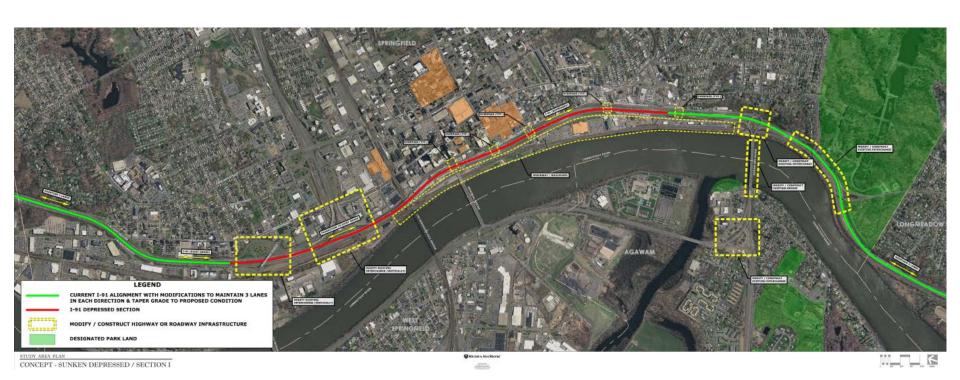




# Long-Term Alternatives Sunken/Tunnel Alternatives



Along Current I-91 Alignment

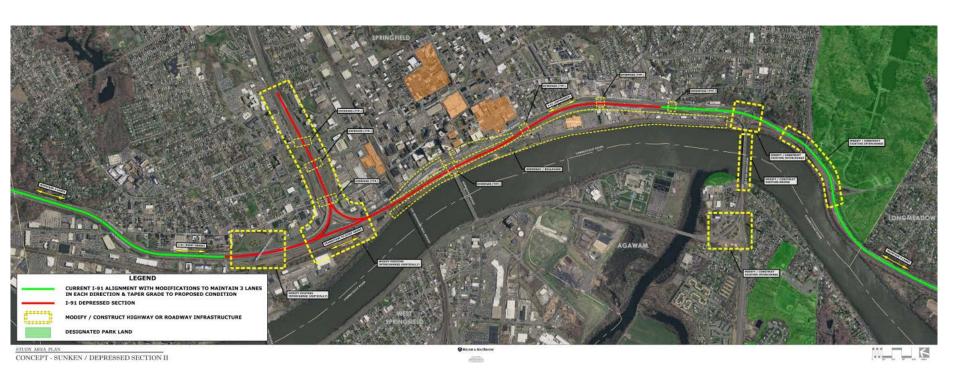




# Long-Term Alternatives Sunken/Tunnel Alternative



Modified I-91 Alignment(s)





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## Project Schedule



	1		20	14		2015												2016							
		SEPT	ОСТ	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	ост	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG
Task 1	Study Area, Goals & Objectives, Evaluation Criteria, and Public Involvement Plan			<b>A</b>																					
Task 2	Existing Conditions, Future No Build Conditions and Issues Evaluation								<b>A</b>				<b>A</b>				<b>A</b>								
Task 3	Alternatives Development																	<b>A</b>		<b>A</b>					
Task 4	Alternatives Analysis																					<b>A</b> *			
Task 5	Recommendations																						<b>A</b> *		
Task 6	Final Report																								

Working Group Meeting

Public Meeting





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#### **Questions & Comments**



#### **Contacts:**

Ethan Britland, Project Manager

Phone: 857-368-8840

Email: ethan.britland@state.ma.us

Michael Clark, Transportation Planner

Phone: 857-368-9800

Email: michael.clark@state.ma.us

**Study Website Link:** 

www.massdot.state.ma.us/i91viaductstudy

