

I-91 VIADUCT STUDY

Springfield, Massachusetts



Working Group Meeting #4

UMass Center at Springfield
Tower Square
1500 Main Street
Springfield, Massachusetts

 MILONE & MACBROOM

 massDOT
Massachusetts Department of Transportation

December 3, 2015

Agenda



- Welcome & Introductions
- Overview of Working Group Meeting #3
- Summary of Work Completed
- Initial Preliminary Alternatives
 - Impacts & Benefits
- Next Steps

Welcome & Introductions



- Michael Clark – Transportation Planner (MassDOT)
- Ethan Britland – Project Manager (MassDOT)
- Ben Wood – MassDPH
- Mark Arigoni, L.A. – Principal-in-Charge (MMI)
- Van Kacoyannakis, P.E. – Traffic (MMI)
- John Hoey – Facilitator (MMI)
- Nancy Farrell – Public Involvement (Regina Villa)
- Sarah Paritsky – Public Involvement (Regina Villa)



Combined Study Areas



Opportunities



- Reconfiguration of the I-91 Viaduct and Longmeadow curve may facilitate safety and circulation improvements for all modes
- Link Riverwalks in Agawam and Springfield
- Link Forest Park to the Riverwalk
- Create Stronger Link to the New Union Station
- Create a Regional Draw to an expanded Riverfront
- Transit Oriented Developments
- Economic Development Areas

Issues & Constraints



Transportation

- Five Pedestrian Fatalities between 2010 – 2014
- Lack of Designated Provisions for Bicycles
- Number of On & Off Ramps in a Short Distance
- No connection to Memorial Bridge from I-291
- Location of N-S Rail Line, Riverfront Barrier
 - Only three connections between the Riverfront & the Bikeway with Downtown Core
 - At-grade crossing at Riverfront Park is a Passive Crossing

Issues & Constraints



- Economic & Land Use
- Natural Resources
- Cultural Resources
- Public Health

Summary of Work Completed



- Study Area
- Goals & Objectives
- Fine Tuning the Evaluation Criteria
- Public Involvement Plan
- Existing Conditions
 - Transportation
 - Economic Development & Land Use
 - Environmental
- Future No-Build Conditions 2040 – Transportation Demand Model (TransCAD)
 - Beginning Stages of Implementing the Future No Build to traffic micro simulations
 - Process of defining short and mid-term solutions to improve safety, traffic flow and health
 - Preliminary Alternatives Development – Potential Impacts & Benefits

Alternatives Development



■ Preliminary Concepts (Line Drawings)

■ Potential Impacts & Benefits of Each

■ Alternative Themes

- Elevated
- Relocated
- At-Grade
- Railroad
- Depression
- Tunnel

■ Working Group Member Comments/Questions are
Encouraged. But orderly thank you.

Retain Existing



Retain Existing

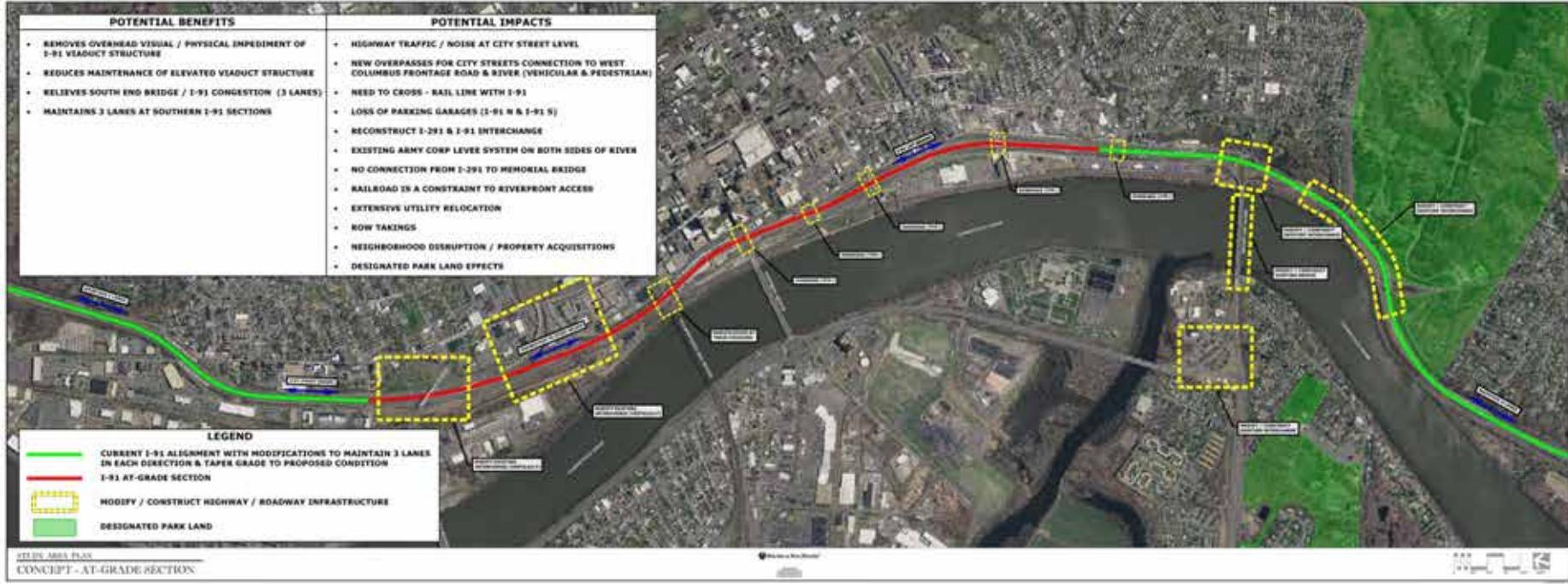


POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• LIMITED / NO CONSTRUCTION IMPACTS• RECENT DECK REPLACEMENT (20+ YEARS)• RELIEVES SOUTH END BRIDGE / I-91 CONGESTION• MAINTAIN 3 LANES ON I-91 CORRIDOR• NO NEW ROW IMPACTS• NO MAJOR UTILITY IMPACTS	<ul style="list-style-type: none">• 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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At-Grade Section



At-Grade Section



POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE• REDUCES MAINTENANCE OF ELEVATED VIADUCT STRUCTURE• RELIEVES SOUTH END BRIDGE / I-91 CONGESTION (3 LANES)• MAINTAINS 3 LANES AT SOUTHERN I-91 SECTIONS	<ul style="list-style-type: none">• HIGHWAY TRAFFIC / NOISE AT CITY STREET LEVEL• NEW OVERPASSES FOR CITY STREETS CONNECTION TO WEST COLUMBUS FRONTAGE ROAD & RIVER (VEHICULAR & PEDESTRIAN)• NEED TO CROSS - RAIL LINE WITH I-91• LOSS OF PARKING GARAGES (I-91 N & I-91 S)• RECONSTRUCT I-291 & I-91 INTERCHANGE• EXISTING ARMY CORP LEVEE SYSTEM ON BOTH SIDES OF RIVER• NO CONNECTION FROM I-291 TO MEMORIAL BRIDGE• RAILROAD IS A CONSTRAINT TO RIVERFRONT ACCESS• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS

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At-Grade Section Example



At-Grade Section Example



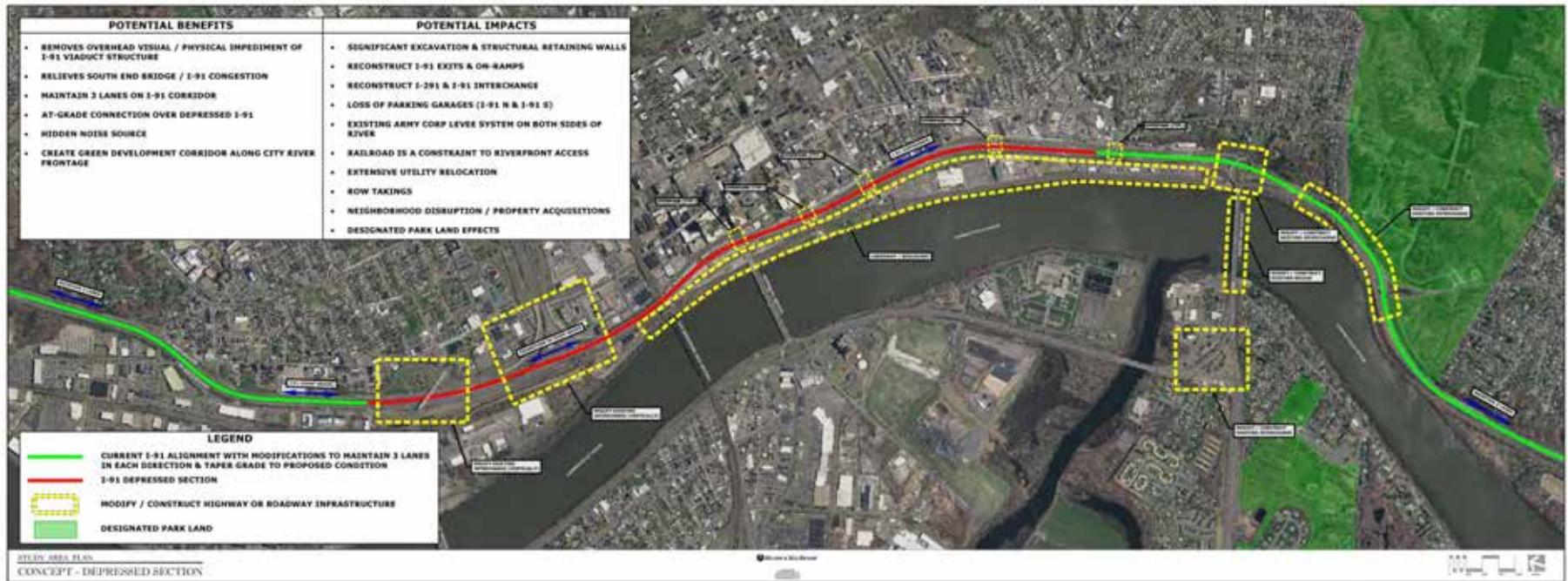
Pedestrian Bridge



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Depressed Section



Depressed Section



POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• 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 FRONTRAGE	<ul style="list-style-type: none">• 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 IS A CONSTRAINT TO RIVERFRONT ACCESS• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS

Depressed Section Example



Depressed Section Example



Before

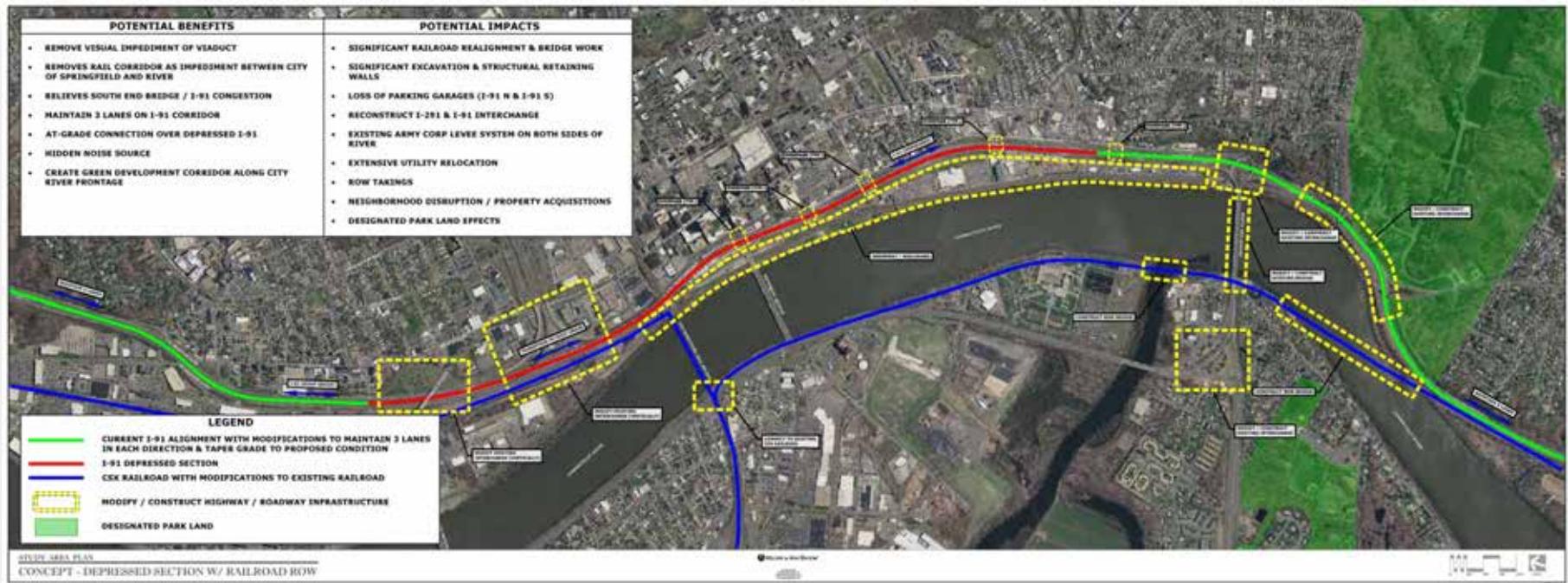


After

Depressed Section Example



Depressed Section with Railroad



Depressed Section with Railroad



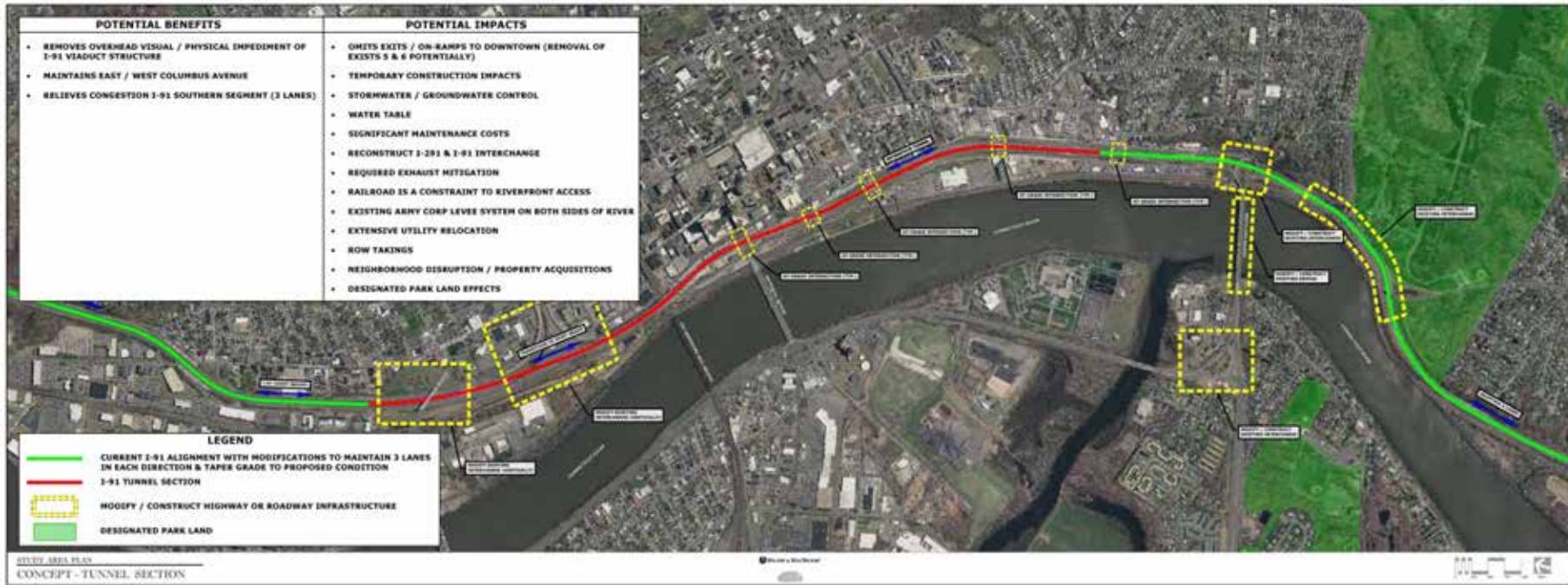
POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• REMOVE VISUAL IMPEDIMENT OF VIADUCT• REMOVES RAIL CORRIDOR AS IMPEDIMENT BETWEEN CITY OF SPRINGFIELD AND RIVER• RELIEVES SOUTH END BRIDGE / I-91 CONGESTION• MAINTAIN 3 LANES ON I-91 CORRIDOR• AT-GRADE CONNECTION OVER DEPRESSED I-91• HIDDEN NOISE SOURCE• CREATE GREEN DEVELOPMENT CORRIDOR ALONG CITY RIVER FRONTRAGE	<ul style="list-style-type: none">• SIGNIFICANT RAILROAD REALIGNMENT & BRIDGE WORK• SIGNIFICANT EXCAVATION & STRUCTURAL RETAINING WALLS• LOSS OF PARKING GARAGES (I-91 N & I-91 S)• RECONSTRUCT I-291 & I-91 INTERCHANGE• EXISTING ARMY CORP LEVEE SYSTEM ON BOTH SIDES OF RIVER• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS

Depressed Section with Railroad Examples



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Tunnel Section



Tunnel Section



POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE• MAINTAINS EAST / WEST COLUMBUS AVENUE• RELIEVES CONGESTION I-91 SOUTHERN SEGMENT (3 LANES)	<ul style="list-style-type: none">• OMITS EXITS / ON-RAMPS TO DOWNTOWN (REMOVAL OF EXISTS 5 & 6 POTENTIALLY)• TEMPORARY CONSTRUCTION IMPACTS• STORMWATER / GROUNDWATER CONTROL• WATER TABLE• SIGNIFICANT MAINTENANCE COSTS• RECONSTRUCT I-291 & I-91 INTERCHANGE• REQUIRED EXHAUST MITIGATION• RAILROAD IS A CONSTRAINT TO RIVERFRONT ACCESS• EXISTING ARMY CORP LEVEE SYSTEM ON BOTH SIDES OF RIVER• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS

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Tunnel Section Example



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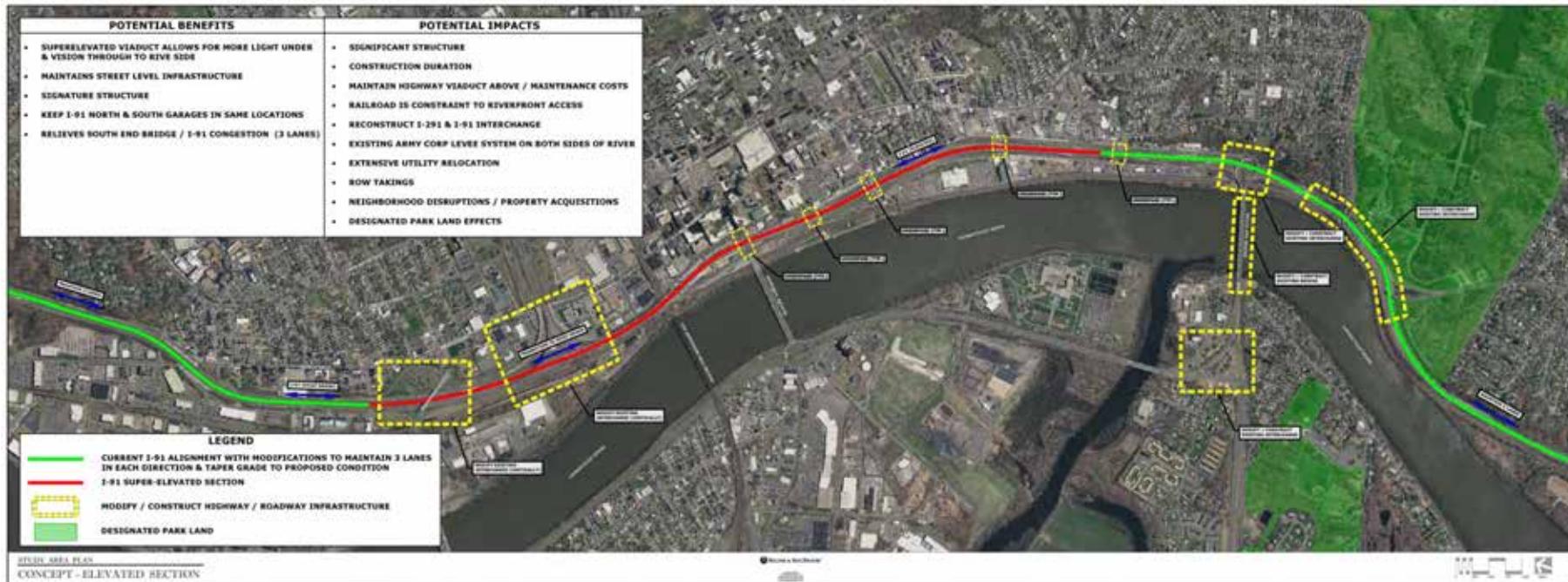
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Tunnel Section Example



Elevated Section



Elevated Section

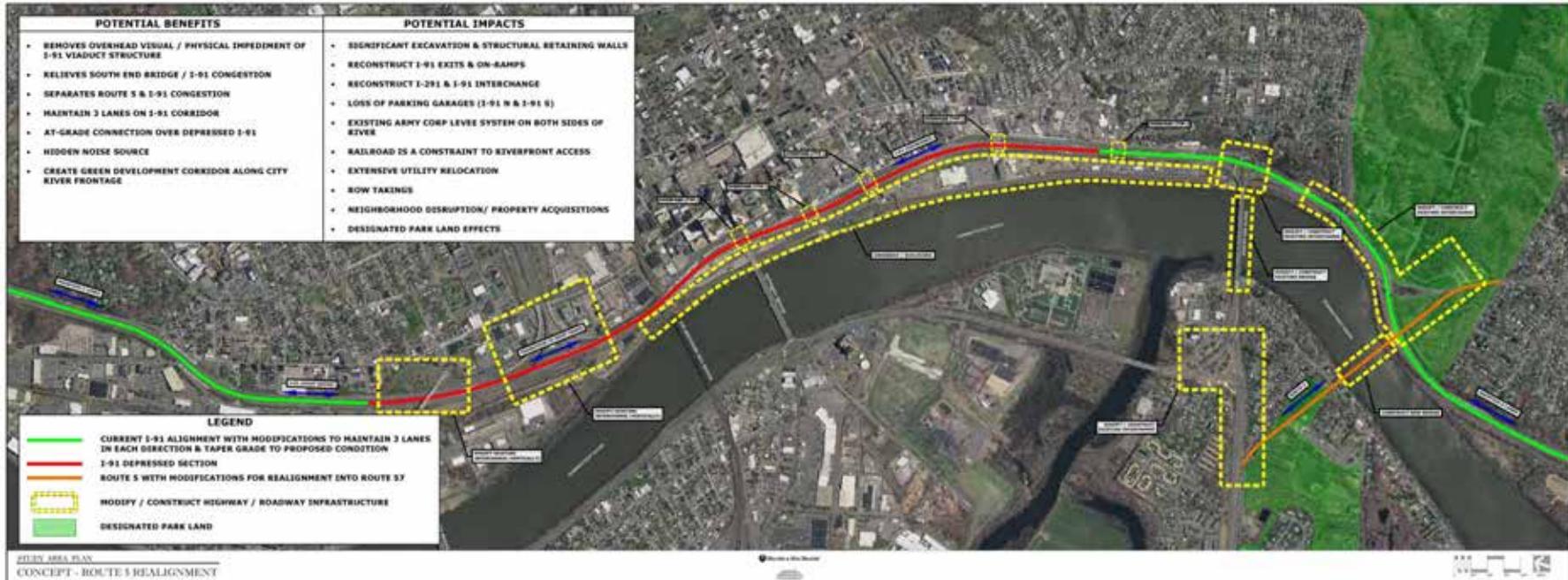


POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">SUPERELEVATED VIADUCT ALLOWS FOR MORE LIGHT UNDER & VISION THROUGH TO RIVER SIDEMAINTAINS STREET LEVEL INFRASTRUCTURESIGNATURE STRUCTUREKEEP I-91 NORTH & SOUTH GARAGES IN SAME LOCATIONSRELIEVES SOUTH END BRIDGE / I-91 CONGESTION (3 LANES)	<ul style="list-style-type: none">SIGNIFICANT STRUCTURECONSTRUCTION DURATIONMAINTAIN HIGHWAY VIADUCT ABOVE / MAINTENANCE COSTSRAILROAD IS CONSTRAINT TO RIVERFRONT ACCESSRECONSTRUCT I-291 & I-91 INTERCHANGEEXISTING ARMY CORP LEVEE SYSTEM ON BOTH SIDES OF RIVEREXTENSIVE UTILITY RELOCATIONROW TAKINGSNEIGHBORHOOD DISRUPTIONS / PROPERTY ACQUISITIONSDESIGNATED PARK LAND EFFECTS

Elevated Section Example



Route 5 Realignment



Route 5 Realignment



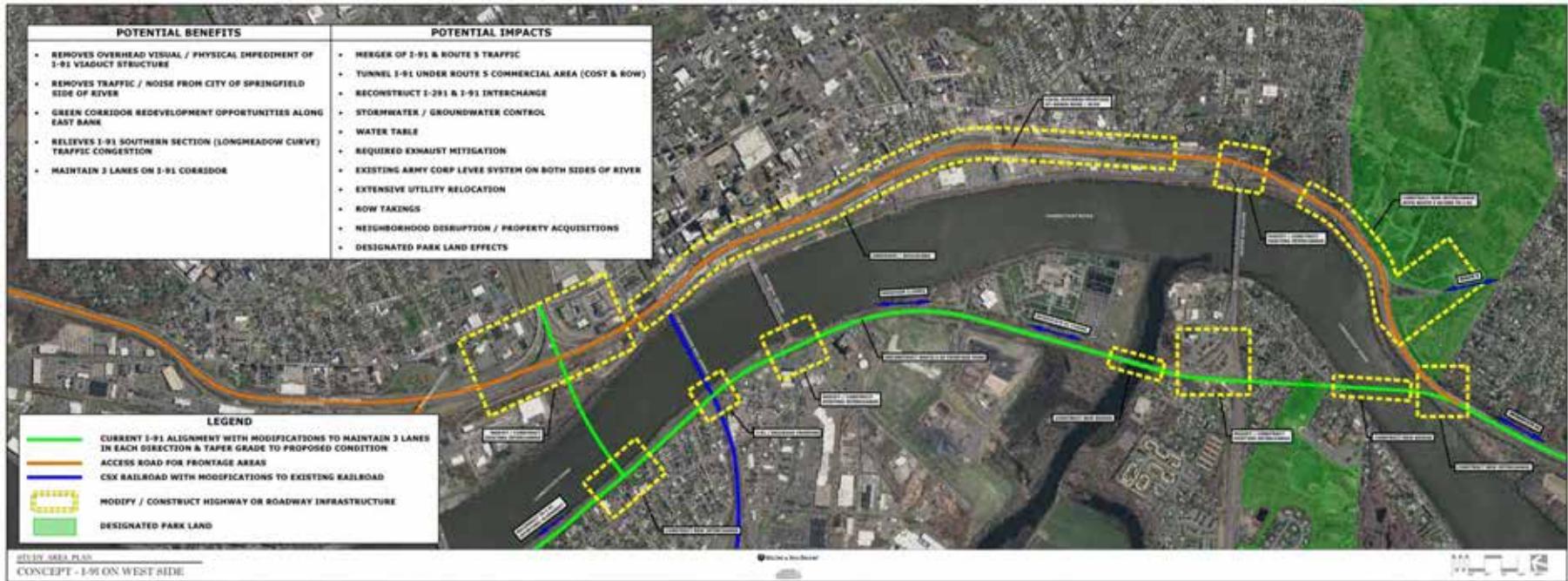
POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE• RELIEVES SOUTH END BRIDGE / I-91 CONGESTION• SEPARATES ROUTE 5 & I-91 CONGESTION• MAINTAIN 3 LANES ON I-91 CORRIDOR• AT-GRADE CONNECTION OVER DEPRESSED I-91• HIDDEN NOISE SOURCE• CREATE GREEN DEVELOPMENT CORRIDOR ALONG CITY RIVER FRONTRAGE	<ul style="list-style-type: none">• 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 IS A CONSTRAINT TO RIVERFRONT ACCESS• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION/ PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS

Route 5 Realignment Example



Signature Bridge

I-91 on West Side

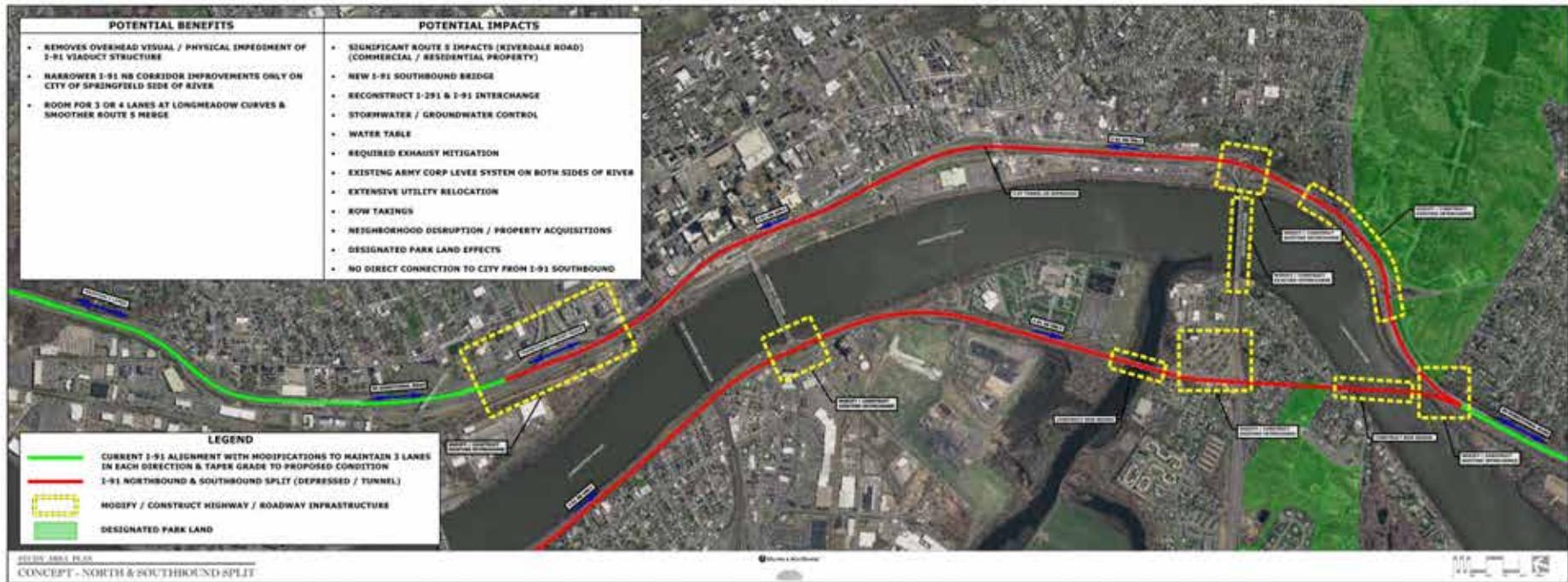


I-91 on West Side



POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE• REMOVES TRAFFIC / NOISE FROM CITY OF SPRINGFIELD SIDE OF RIVER• GREEN CORRIDOR REDEVELOPMENT OPPORTUNITIES ALONG EAST BANK• RELIEVES I-91 SOUTHERN SECTION (LONGMEADOW CURVE) TRAFFIC CONGESTION• MAINTAIN 3 LANES ON I-91 CORRIDOR	<ul style="list-style-type: none">• MERGER OF I-91 & ROUTE 5 TRAFFIC• TUNNEL I-91 UNDER ROUTE 5 COMMERCIAL AREA (COST & ROW)• RECONSTRUCT I-291 & I-91 INTERCHANGE• STORMWATER / GROUNDWATER CONTROL• WATER TABLE• REQUIRED EXHAUST MITIGATION• EXISTING ARMY CORP LEVEE SYSTEM ON BOTH SIDES OF RIVER• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS

North & Southbound Split

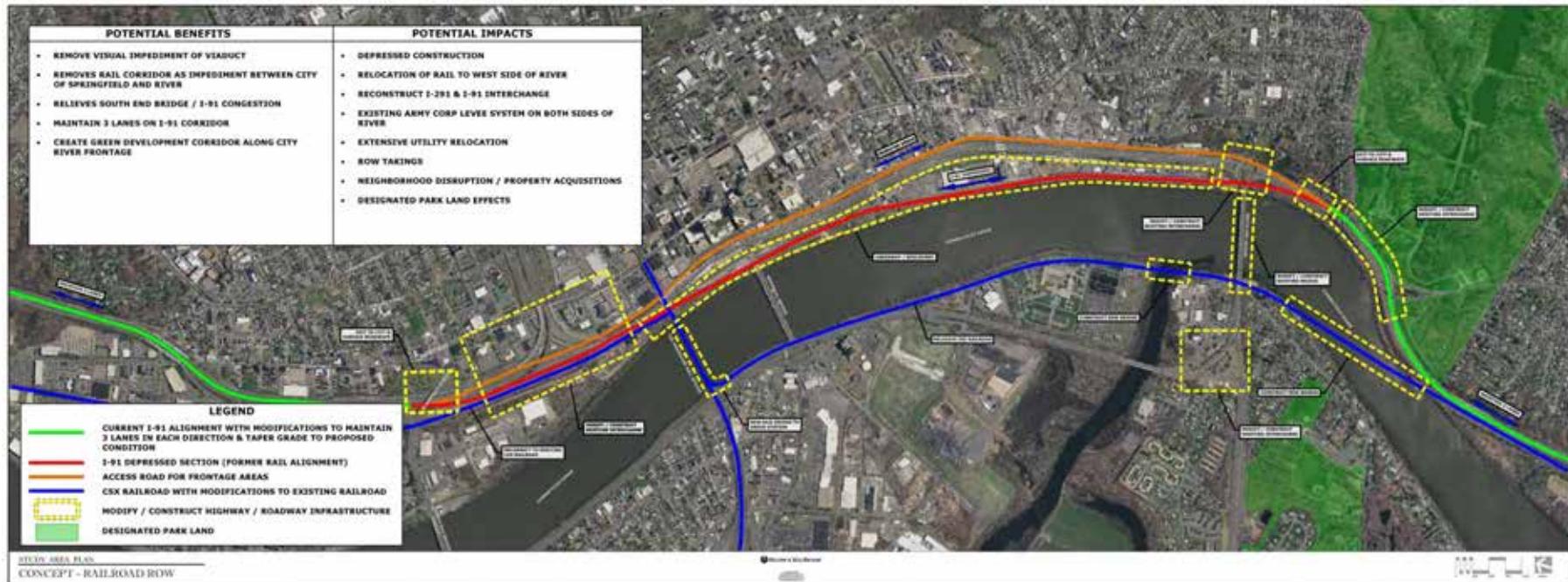


North & Southbound Split



POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• REMOVES OVERHEAD VISUAL / PHYSICAL IMPEDIMENT OF I-91 VIADUCT STRUCTURE• NARROWER I-91 NB CORRIDOR IMPROVEMENTS ONLY ON CITY OF SPRINGFIELD SIDE OF RIVER• ROOM FOR 3 OR 4 LANES AT LONGMEADOW CURVES & SMOOTHER ROUTE 5 MERGE	<ul style="list-style-type: none">• SIGNIFICANT ROUTE 5 IMPACTS (RIVERDALE ROAD) (COMMERCIAL / RESIDENTIAL PROPERTY)• NEW I-91 SOUTHBOUND BRIDGE• RECONSTRUCT I-291 & I-91 INTERCHANGE• STORMWATER / GROUNDWATER CONTROL• WATER TABLE• REQUIRED EXHAUST MITIGATION• EXISTING ARMY CORP LEVEE SYSTEM ON BOTH SIDES OF RIVER• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS• NO DIRECT CONNECTION TO CITY FROM I-91 SOUTHBOUND

Railroad Right-of-Way



Railroad Right-of-Way



POTENTIAL BENEFITS	POTENTIAL IMPACTS
<ul style="list-style-type: none">• REMOVE VISUAL IMPEDIMENT OF VIADUCT• REMOVES RAIL CORRIDOR AS IMPEDIMENT BETWEEN CITY OF SPRINGFIELD AND RIVER• RELIEVES SOUTH END BRIDGE / I-91 CONGESTION• MAINTAIN 3 LANES ON I-91 CORRIDOR• CREATE GREEN DEVELOPMENT CORRIDOR ALONG CITY RIVER FRONTAGE	<ul style="list-style-type: none">• DEPRESSED CONSTRUCTION• RELOCATION OF RAIL TO WEST SIDE OF RIVER• RECONSTRUCT I-291 & I-91 INTERCHANGE• EXISTING ARMY CORP LEVEE SYSTEM ON BOTH SIDES OF RIVER• EXTENSIVE UTILITY RELOCATION• ROW TAKINGS• NEIGHBORHOOD DISRUPTION / PROPERTY ACQUISITIONS• DESIGNATED PARK LAND EFFECTS

Railroad Right-of-Way Example



Short-Term & Medium-Term Recommendations



- Pavement Marking and Signing Improvements
- Guide Signs for Walkability
- Improved Wheelchair Ramps and ADA Accessibility at Intersections
- Provide Bike Lanes and/or Shared Bike Routes
- Signal Optimization, timing changes
- Minor Geometric Improvements, Auxiliary Lanes, Improved Radii at Intersection Corners
- Improvements to Crossings with Railroad at Riverfront Park

Revised Schedule



	2014				2015												2016								
	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	
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



- Complete Future No-Build Traffic Micro-Simulations
- Finalize Evaluation Criteria
- Define Short-term and Medium-term Alternatives to Improve Safety, Traffic Flow and Health-based on 2040 No-Build Micro-Simulations
- Narrow Down Long-Term Alternatives for Further Development
- Conduct First Public Meeting on December 15, 2015
- Next Working Group Meeting January 2016

Long-Term Alternatives Example



Questions & Comments



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Study Website Link:

www.massdot.state.ma.us/i91viaductstudy