



# I-90 ALLSTON INTERCHANGE A MULTIMODAL TRANSPORTATION PROJECT

Public Information Meeting  
October 20, 2020



# Tonight's Meeting

The purpose of tonight's meeting is two-fold:

- To present an overview of the Allston Multimodal Project's status, including, information in a matrix now posted online that compares available information about key aspects of the alternatives under consideration for the "throat" area of the Allston Multimodal Project:  
<https://www.mass.gov/doc/allston-multimodal-project-summary-analysis-of-throat-area-options-within-the-31-re-alignment/download>.
- To receive feedback from the public. No response to public feedback will be given tonight, as feedback is being received through October 30. At any time before the end of the month, the public is encouraged to send feedback to: [I-90Allston@state.ma.us](mailto:I-90Allston@state.ma.us).

MassDOT will share this feedback with FHWA and the cooperating agencies.

# Tonight's Agenda

- **Current Status of I-90 Multimodal Project**
  - **Where We Are in NEPA Process**
  - **Modified At Grade Alternative**
- **Range of Alternatives**
- **Choosing a Preferred Alternative**
- **Summary Analysis Matrix**
- **Next Steps**



## Current Status: Where We Are in NEPA Process

- **NEPA Scoping:** Purpose of scoping is to collaborate with the public to determine the scope of analysis and range of alternatives to be analyzed in the NEPA EIS
  - A Scoping Report for the project was published on November 6, 2019 and described the proposed purpose and need, alternatives, environmental analyses and public coordination for the project. MassDOT and FHWA accepted public comments on the Scoping Report until December 12, 2019.
  - Additional stakeholder engagement since publication of the Scoping Summary Report has led to further refinement of the Modified At-Grade Throat Area option within the 3L Re-alignment Alternative.
- The NEPA Draft Environmental Impact Statement will include a full evaluation of all reasonable alternatives identified during scoping as well as a draft set of proposed mitigation measures to mitigate the project's environmental and traffic impacts
- MassDOT and FHWA are pursuing the identification of a recommended preferred alternative in preparation for One Federal Decision Concurrence Point #3



# NEPA & MEPA: Next Steps



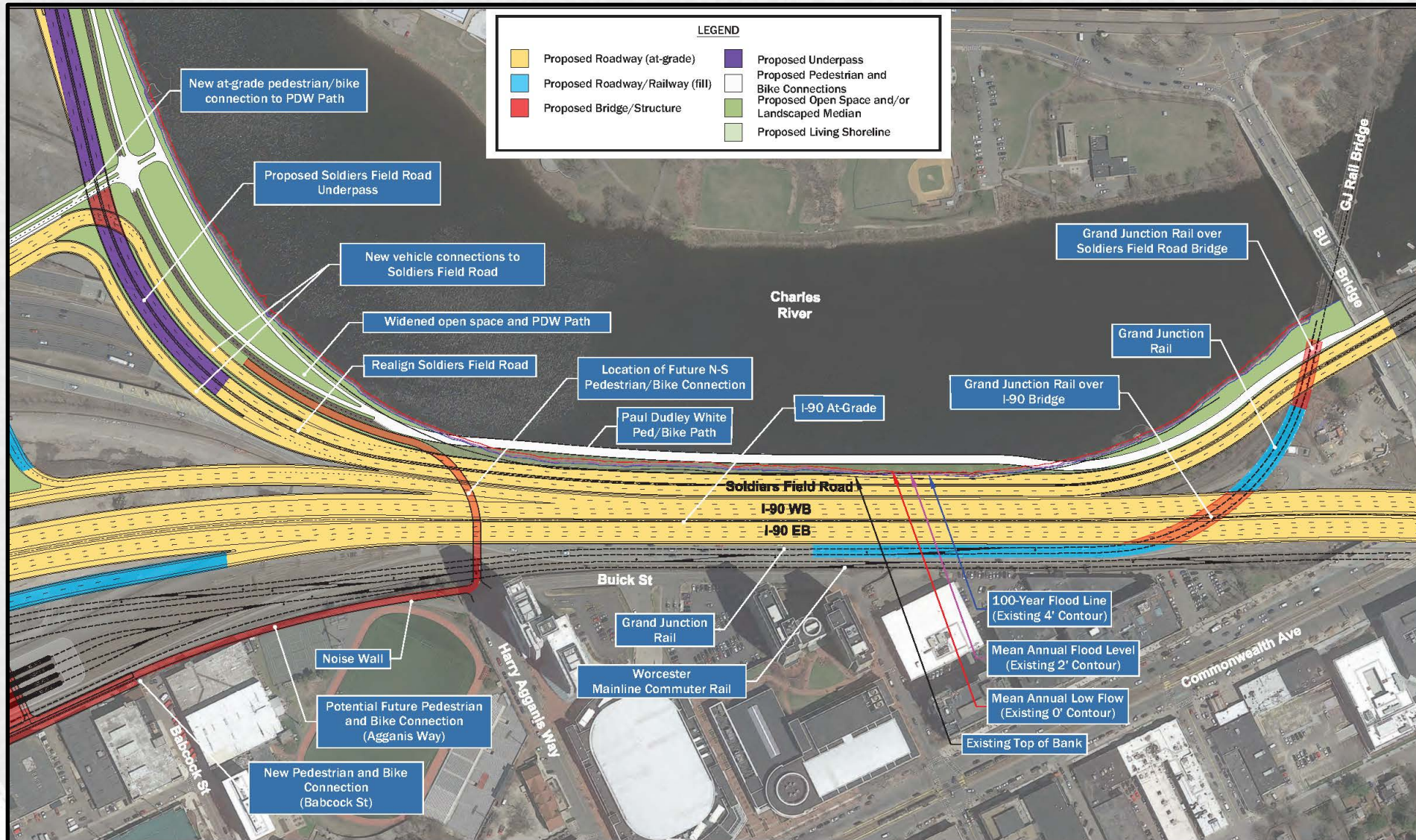
- **MEPA NPC**
  - Update purpose and need
  - Update design of alternatives
  - Select a preferred alternative in the state environmental review process
  - Will result in updated Secretary's Certificate to support preparation of FEIR
- **NEPA DEIS**
  - Full evaluation of all reasonable alternatives identified during scoping
  - Draft mitigation measures
- **MEPA FEIR**
- **NEPA FEIS/ROD**
- **Permits**

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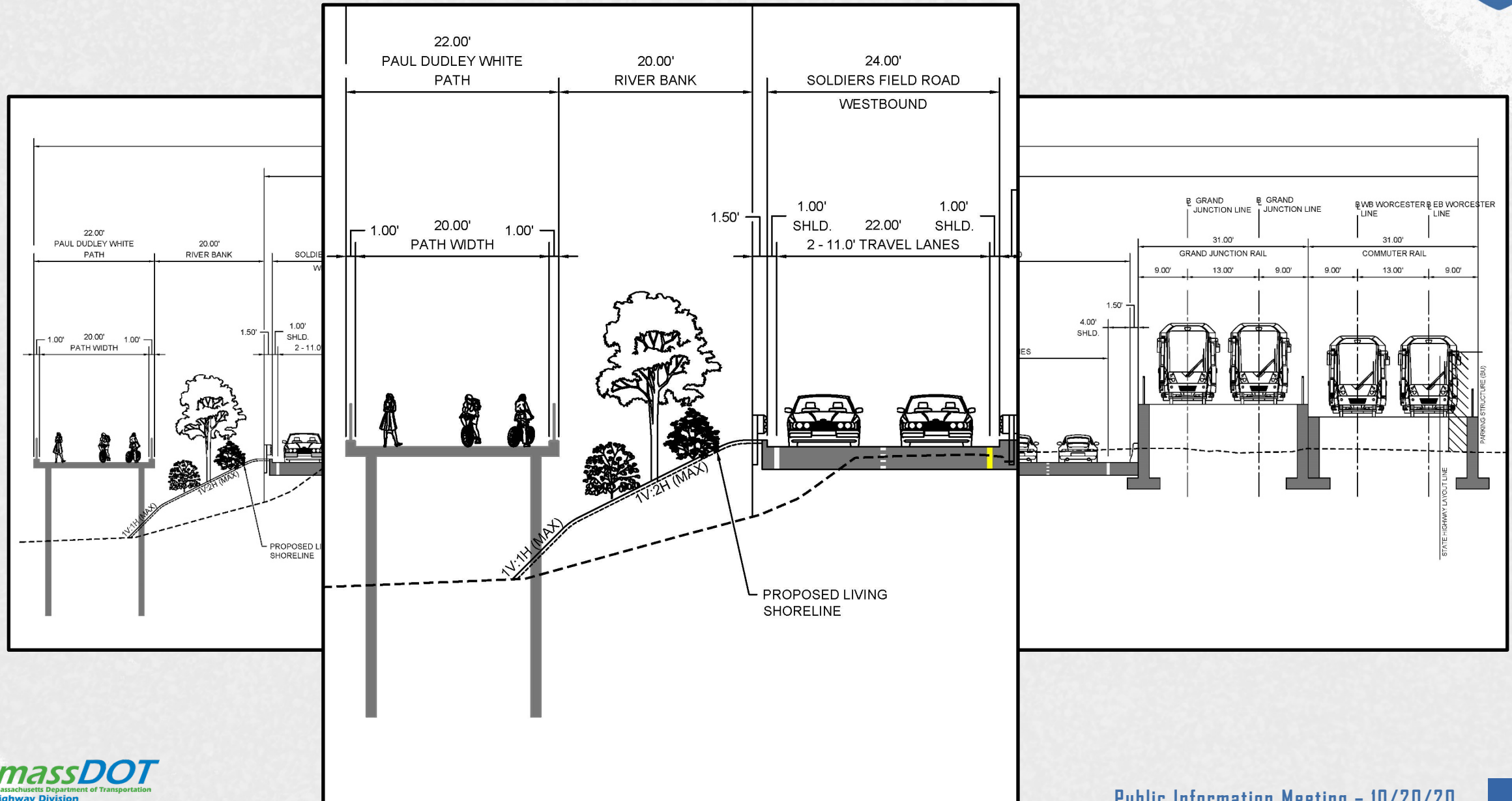
# Throat Area Options: Modified At-Grade – Plan View



- Interstate 90 at- or partially below existing ground elevation
- Worcester Mainline on retained fill for portion of throat to allow track connections to Grand Junction rail
- Grand Junction rail profile rises from west to east on retained fill to go over Interstate 90 and Soldiers Field Road
- Soldiers Field Road shifted slightly north to provide width for rail and at-grade highway
- PDW Path shifted north onto boardwalk over the Charles River



# Throat Area Options: Modified At-Grade – Cross Section

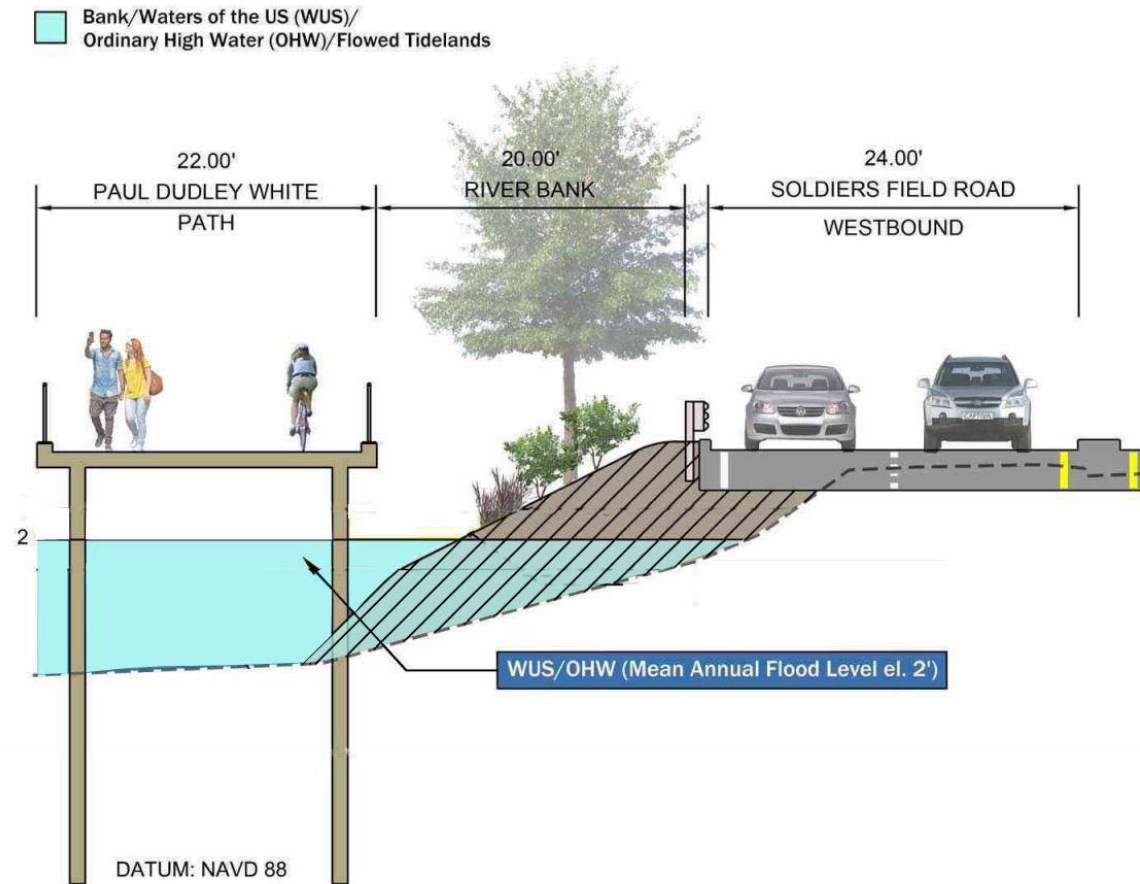




## Further Refinement of the Modified At-Grade

- The Modified At-Grade Option contains a wider version of the Paul Dudley White Path on a boardwalk, as well as a wider “living shoreline” at the edge of the Charles River. With these changes, the Modified At-Grade creates more significant intrusion into the Charles River, but MassDOT believes that, on balance, the benefits of the variant in terms of bicycle and pedestrian accommodations delivered by the rethinking of the Paul Dudley White Path and the aesthetic and potential environmental benefits of the restored bank – both of which have received significant stakeholder support – make it a more desirable version of the At-Grade.
- Both the benefits of the Modified At-Grade and impacts, including impacts on the Charles River, will be considered when this throat option is compared to the other two throat options for purposes of selecting a Preferred Alternative.

# Environmental: Federal Wetlands/State Waterways Impacts of the Modified At-Grade

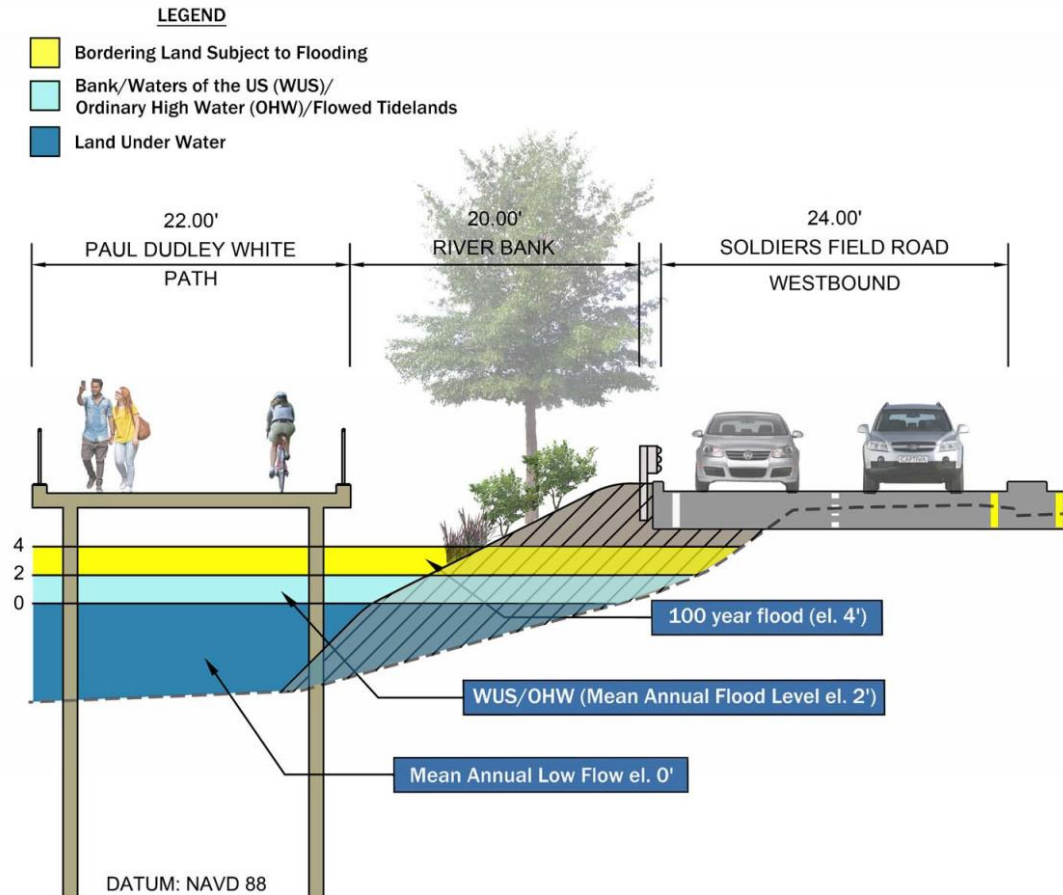


## Waters of the United States/Tidelands

- Shading from PDW Pile Supported Walkway - 29,000 sf
- Piles for Walkway- 500 sf (250 Piles)
- Bank Restoration 20,000 sf
- SFR Solid Fill – 600 sf



# Environmental: State Wetland Impacts of the Modified At-Grade



- **Impact to Land Under Water (LUW)**
  - Shading from PDW Pile Supported Walkway - 28,000 sf
  - Piles - 500 sf (250 Piles)
  - Bank Restoration- 13,000 sf
- **Impacts to Inland Bank**
  - PDW Pile Supported Walkway - 200 lf
  - Bank Restoration- 1,000 lf
- **Impacts to Bordering Land Subject to Flooding (BLSF)**
  - PDW Pile Supported Walkway - 620 sf/620 cf
  - SFR Solid Fill - 1,000 sf/1,000 cf
  - Bank Restoration- 3,100 sf/3,100 cf

# Environmental: Riverbank enhancement



## SELECTED PLANTS



**ASTER**  
*Symphyotrichum novae-angliae*



**VIBURNUM**  
*Viburnum 'Compacta'*



**RUSH**  
*Juncus Inflexus*



**SHEEP LAUREL**  
*Kalmia Angustifolia*



**JOE PYE WEED**  
*Eutrochium purpureum*



**SOFT RUSH**  
*Juncus effusus*



**STEEPLE BUSH**  
*Spirea tomentosa*



**BLUE JOINT GRASS**  
*calamagrostis canadensis*



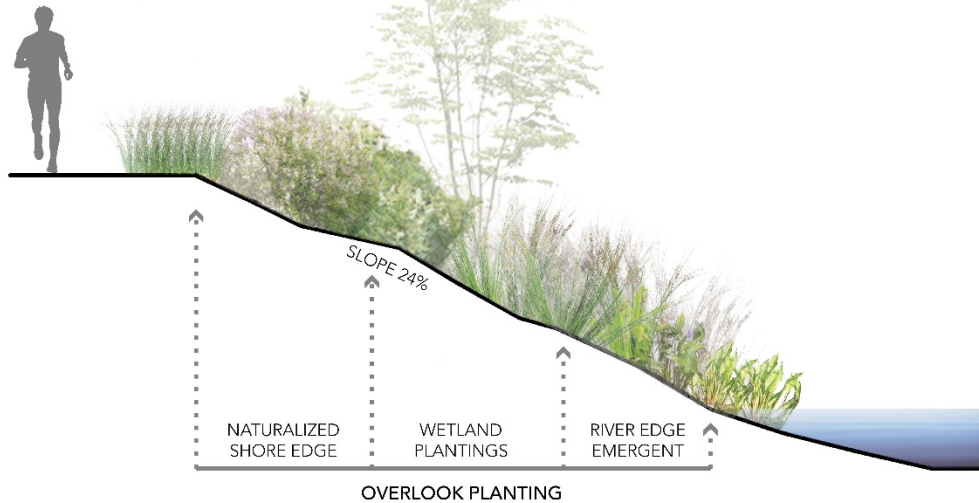
**BLUE FLAG IRIS**  
*Iris versicolor*



**PICKERELWEED**  
*Pontederia cordata*



**SPIKE RUSH**  
*Eleocharis palustris*



DETAIL SECTION - OVERLOOK

## Allston River Park

Grassy Overlooks- Naturalized riparian edge species and wetland species

- All throat options allow for bank restoration / enhancement in throat area at end of Project
- Modified Highway Viaduct and Soldiers Field Road hybrid allow for bank restoration / enhancement with no additional fill in the River
- Modified At-Grade allows for bank restoration if fill is deemed permissible by regulatory agencies



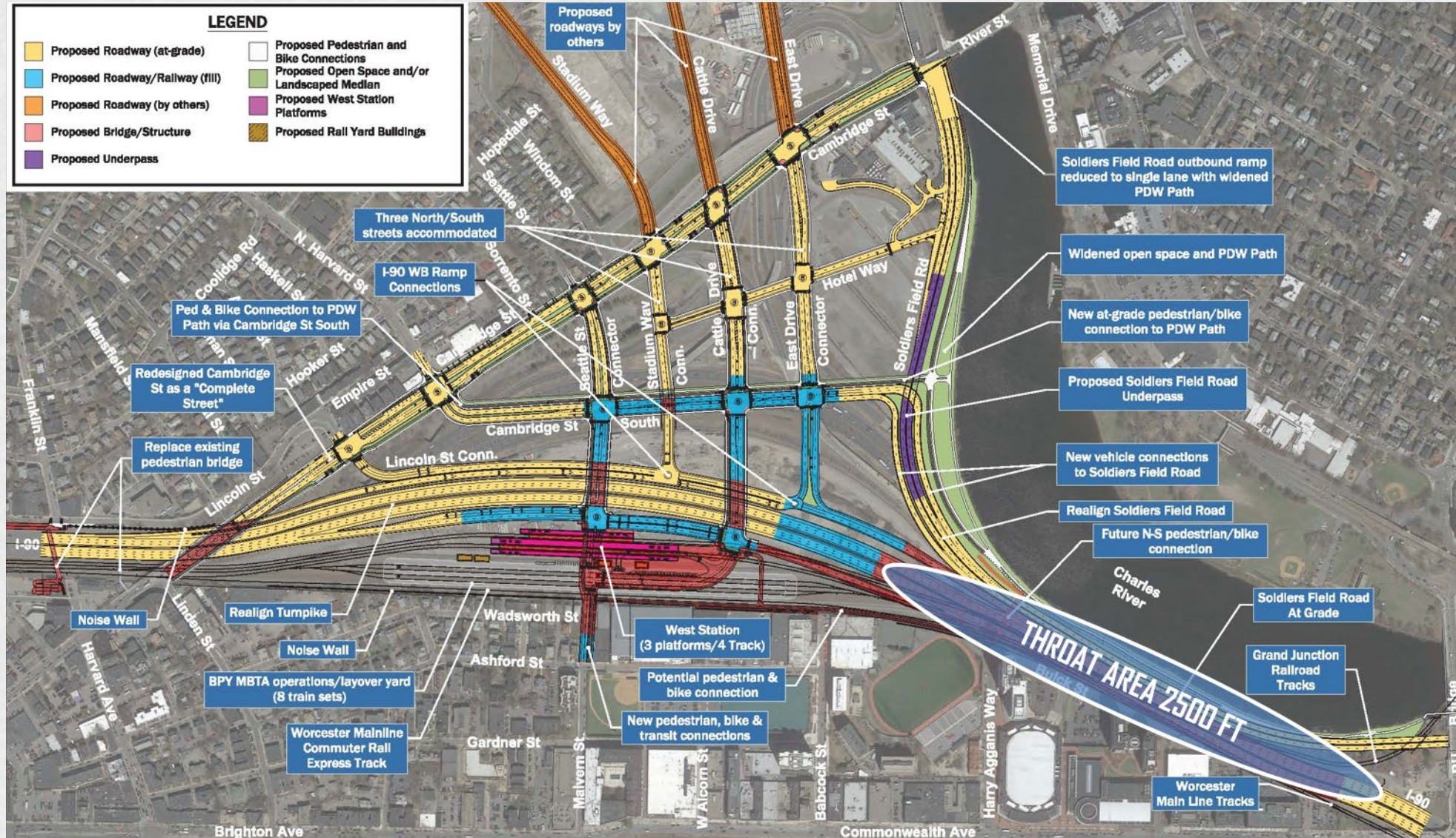


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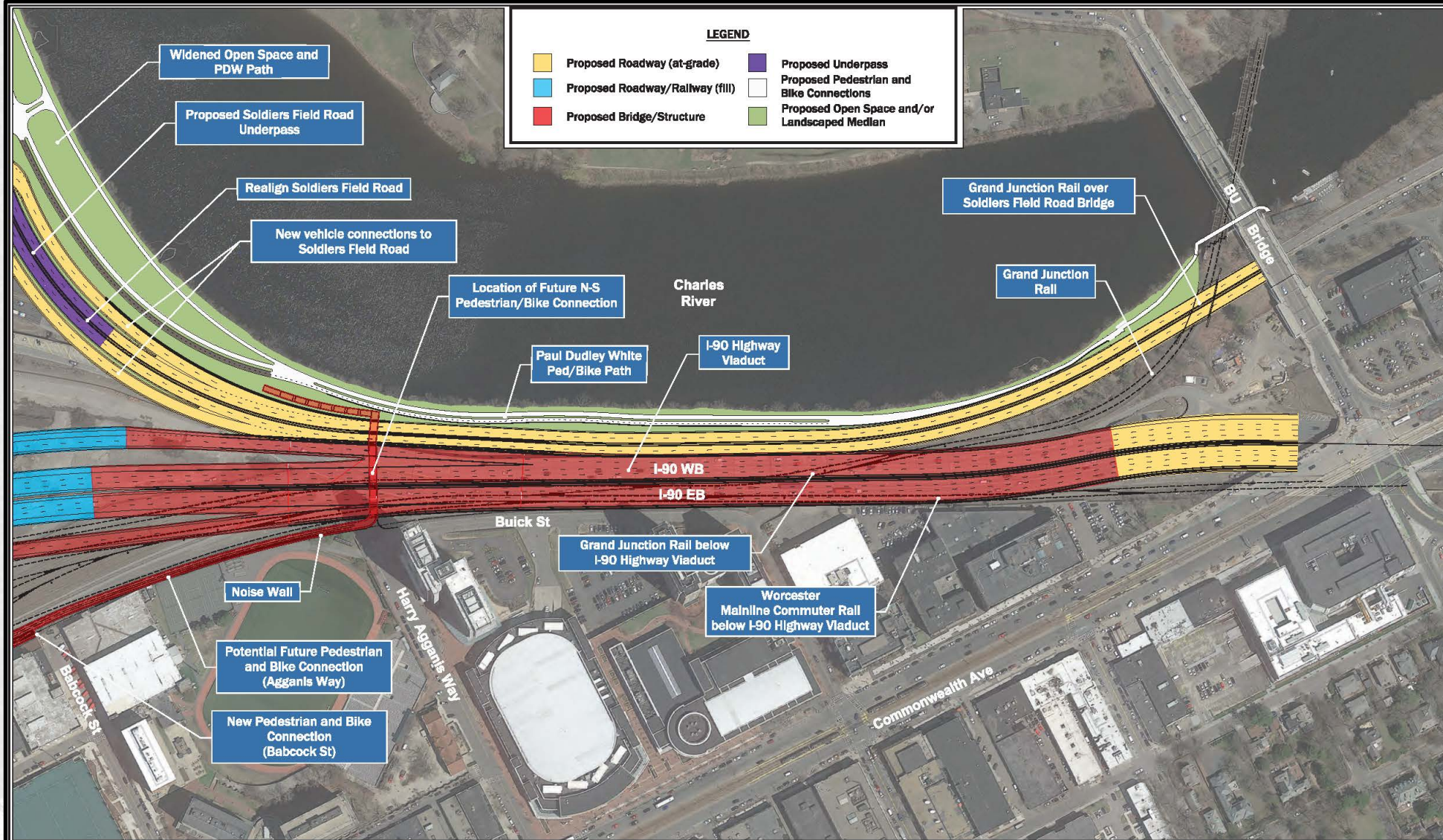


# 3L Re-alignment Alternative





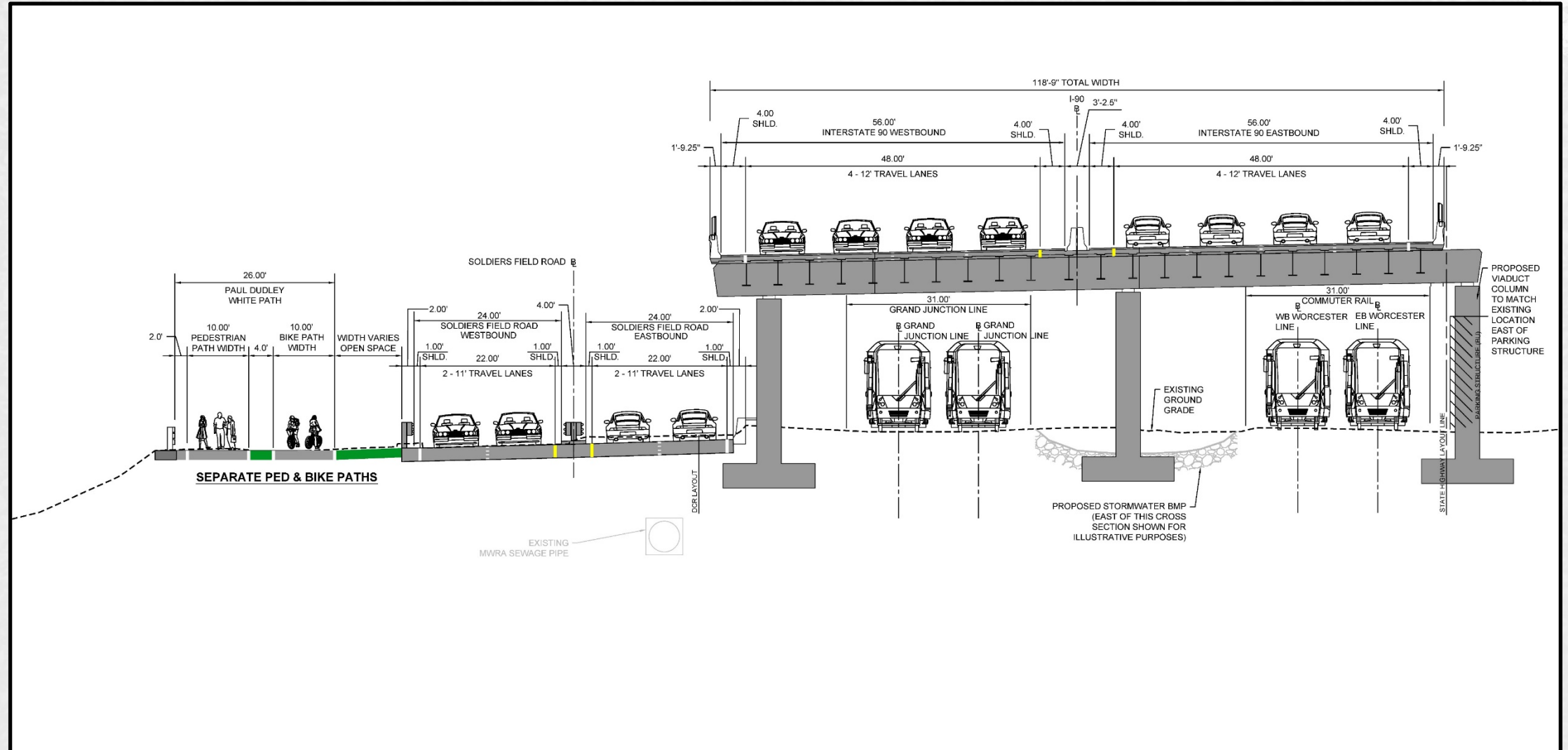
# Throat Area Options: Modified Highway Viaduct – Plan View



- Interstate 90, Worcester Mainline & Grand Junction rail, Soldiers Field Road and PDW Path in similar vertical and horizontal locations as existing infrastructure

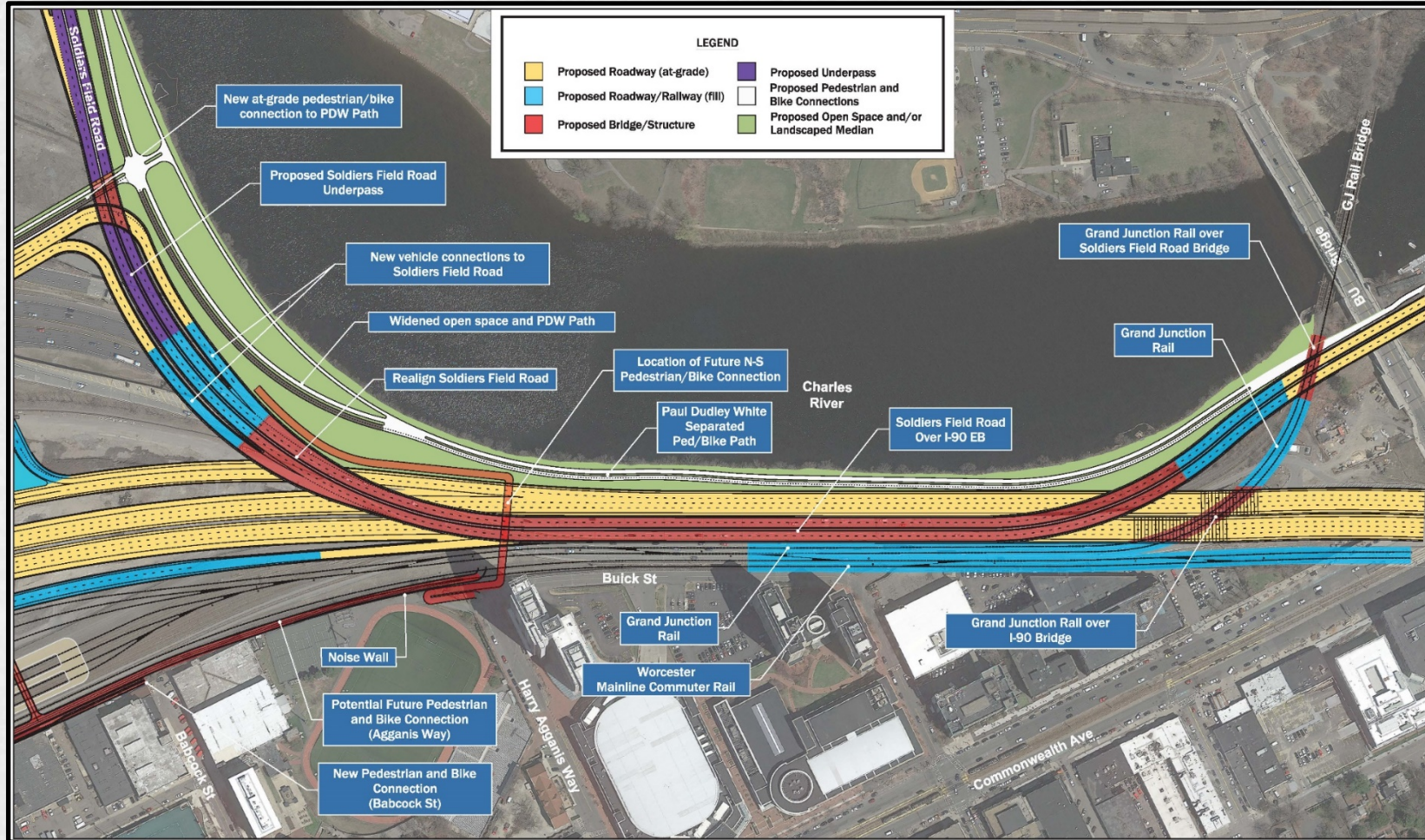


# Throat Area Options: Modified Highway Viaduct – Cross Section





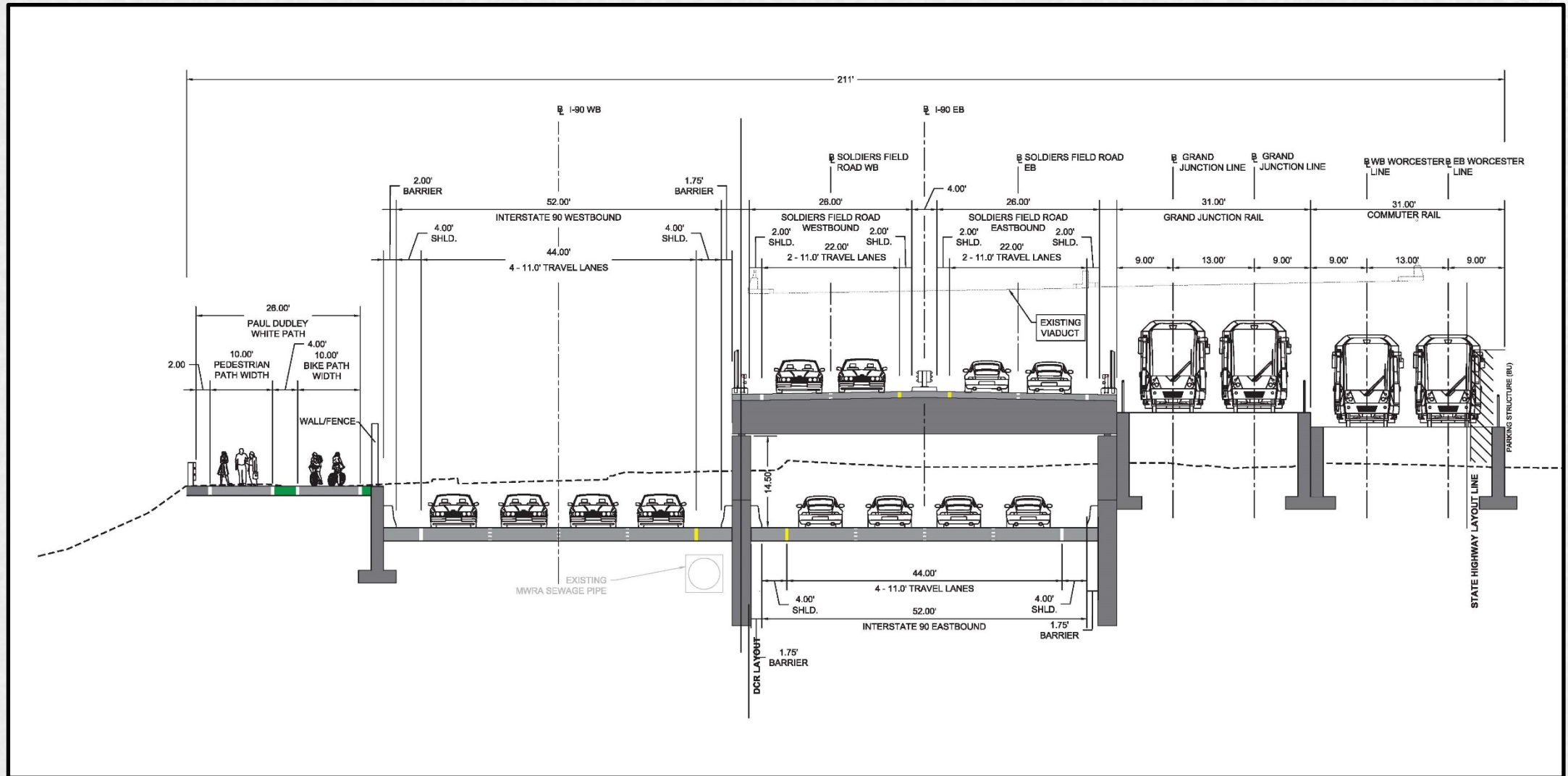
# Throat Area Options: SFR Hybrid – Plan View



- Interstate 90 at- or substantially below existing ground elevation
- Worcester Mainline on retained fill for portion of throat to allow track connections to Grand Junction rail
- Grand Junction rail profile rises from west to east on retained fill to go over Interstate 90 and Soldiers Field Road
- Soldiers Field Road on a viaduct over Interstate 90 eastbound
- PDW Path location similar as existing



# Throat Area Options: SFR Hybrid – Cross Section





# No Build Alternative



The No Build option in the Scoping Summary is a major preservation of the existing viaduct, including replacement of the bridge deck, deck joints and bridge railings and repair of the substructure.



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# Identifying a Recommended Preferred Alternative

- MassDOT has not identified a recommended preferred alternative but will need to do so soon to support a reasonable permitting timeline that can advance under the federal environmental review process.
- Cooperating Agencies are in the process of reviewing the Matrix to determine if they have sufficient information to undertake their federal actions and approvals on a preferred alternative
- The recommended preferred alternative will be determined to aid the NEPA process and the interagency coordination supporting the One Federal Decision process.
- All of the alternatives will be fully analyzed in the DEIS and the designation of a preferred alternative could be modified through the NEPA process.
- The public will have additional opportunities to comment on the preferred alternative upon publication of the MEPA NPC and NEPA DEIS.



# Why select a preferred alternative this fall? Condition of the viaduct



- The Allston Viaduct is a critical piece of infrastructure which carries approximately 150,000 vehicles a day into and out of Boston and is an evacuation route for the city.
- In 2014 MassDOT filed an Environmental Notification Form to begin the public process to replace the Allston Viaduct because the structure was deteriorated and the state was spending more than \$700 thousand a year just to maintain it so it could safely carry interstate vehicles.
  - Six years later we have yet to select a preferred alternative for the throat to advance the MEPA and NEPA permitting processes.
- This infrastructure has continued to degrade during the six years of planning and the cost of maintaining the viaduct has now grown to more than \$1 million a year.
- Even if a preferred alternative is selected this fall, there are two years of permitting/procurement and 6-8 years of construction ahead before the Allston Viaduct is safely replaced. Delay and further deterioration creates a risk of travel lane closures on I-90 until the viaduct is replaced.
- The time has come to either select a preferred alternative or instead move ahead with fixing the current Viaduct in its current location (the “No Build” alternative).



# Allston-Deck Conditions



These pictures are from a recent 2020 Inspection of the Allston Viaduct and depict advanced deterioration of concrete and steel structural members



Hole in Deck at Deck Joint Curb Line



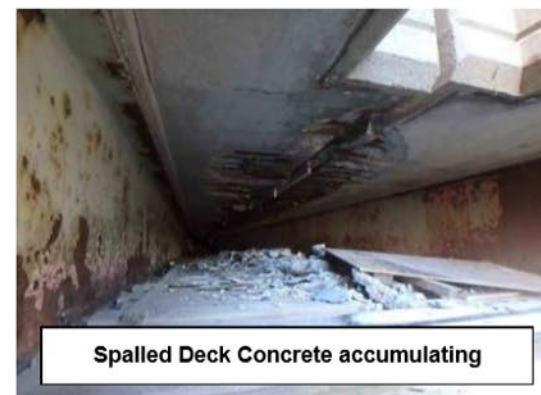
Corrosion of SIP Forms/Exposed Deck Rebar



Crack in Cross Girder with arresting holes



Corrosion/holes of stringer support bracket



Spalled Deck Concrete accumulating



Spalling / exposed rebar on median barrier



Hole in Steel Pier Cap Cross Girder lower web



Corrosion of Steel Pier Cap Cross Girder



# Why select a preferred alternative this fall? Advancing the project

- To meet the environmental review timeframe, MassDOT will need to begin the state permitting process prior to publication of the NEPA DEIS, requiring timely concurrence on the preferred alternative.
- Selection of a preferred alternative is necessary to inform the financial plan for the Allston I-90 project
- The selection of the preferred alternative will inform whether the MBTA needs to accelerate planning for and construction of a South Side Maintenance facility
- Selection of a preferred alternative allows for more detailed discussions of mitigation for the project by focusing on environmental and traffic mitigation for the preferred alternative



# Criteria for Evaluating Alternatives

- **Purpose & Need**
  - Does the alternative fully meet the Purpose & Need of the Project?
- **Environmental Impacts/Effects**
  - Does the alternative cause excessive permanent environmental impacts to natural resources when compared to other alternatives?
  - Does the alternative result in permanent or temporary intrusion into the Charles River?
- **Construction Logistics**
  - Is the alternative feasible to construct with existing technologies?
  - What are the anticipated construction period impacts and overall duration?
- **Highway Traffic Safety, Operations, and Maintenance**
  - Will the alternative improve safety?
  - Does the alternative adversely impact travel times within the Project Area due to congested conditions on existing or proposed roadways, or at existing or proposed intersections?
  - Does the alternative result in worse LOS at existing or proposed intersections, or long vehicular queues that impact operations at adjacent intersections?
  - Will the alternative improve maintenance operations?



# Criteria for Evaluating Alternatives (cont.)

- **Rail Operations**
  - Does the alternative support local and regional multi-modal (pedestrian, bicycle, bus, passenger vehicle, and transit) access to a future West Station?
  - Does the alternative support the rail operation needs of MBTA including providing operational flexibility between Worcester Main Line, layover, and Grand Junction Railroad?
  - Does the Alternative Require Construction of the South Side Maintenance Facility (MBTA) in advance of mobilization?
- **Cost and Schedule**
  - Does the alternative require an unreasonably high cost compared to other alternatives?
  - Does the alternative require an unreasonably complicated or lengthy project schedule?
  - Has cost/schedule of environmental performance commitments been considered?



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# Summary Analysis Matrix



- The purpose of this section is to guide you through the Summary Analysis Matrix for the Throat Area Options with a focus on those categories we've identified as differentiators
- Eight major categories are identified in the matrix:
  - Environmental
  - Land Use & Economic Development
  - Construction
  - Cost
  - Public Input
  - Mobility & Access
  - Safety
  - Operations & Maintenance

DRAFT Attachment 1 Throat Area Alternatives Analysis

PRE-DECISIONAL AND DELIBERATIVE

October 1, 2020

## Summary Analysis of Throat Area Options within the 3L Re-Alignment Alternative

Summary of Construction Impacts	Impact Categories	Modified Highway Viaduct	Modified At-Grade	Soldiers Field Road (SFR) Hybrid	No Build
	Charles River	<ul style="list-style-type: none"> <li><b>River Users:</b> No impacts to Charles River user groups during or after construction.</li> <li><b>Navigation/Encroachment:</b> Limited contractor impact (equipment) for construction of outfalls in the Charles River.</li> <li><b>Resource Area Impacts (Temporary):</b> Limited impacts to the Charles River associated with outfalls.</li> <li><b>Ecological Impacts:</b> No temporary impacts to fisheries, no disturbance of sediment or production of silt.</li> <li><b>Noise:</b> No temporary construction noise due to work in the Charles River.</li> <li>See Construction Section of this table for further detail</li> </ul>	<ul style="list-style-type: none"> <li>More study is required for the following categories.</li> <li><b>River Users:</b> Construction of PDW path on boardwalk will likely require use of a barge and the contractor to occupy the watershed, potentially impacting river users.</li> <li><b>Navigation/Encroachment:</b> Temporary encroachment of +/-40-ft plus barge and construction work zones in the Charles River.</li> <li><b>Resource Area Impacts (Temporary):</b> Temporary impacts and permanent impacts expected to have similar footprint. See Wetlands and Waterways sections of this table.</li> <li><b>Ecological Impacts:</b> Construction of living shoreline requires placement of unconsolidated fill along the banks and within flowed waters of the Charles River producing silt and disturbing river sediment. Pile driving in Charles River will disturb river sediment and produce silt and will be subject to fish run time of year restrictions.</li> <li><b>Noise:</b> Increased pile driving for PDW path may result in elevated construction noise.</li> <li>See Construction Section of this table for further detail</li> </ul>	<ul style="list-style-type: none"> <li><b>River Users:</b> Temporary trestle into Charles River required for SFR and PDW Path during construction. Impacts to river users during construction due to narrowing of the watershed by 110-ft. for trestle. Would temporarily take parkland from river users for maintenance of traffic on SFR and PDW Path via temporary trestle.</li> <li><b>Navigation/Encroachment:</b> Temporary impact on navigation due to the trestle in the Charles River, narrowing the watershed by 110-ft.</li> <li><b>Resource Area Impacts (Temporary):</b> <ul style="list-style-type: none"> <li>Requires dredge in the Charles River for the temporary trestle</li> <li>Impacts to Federal WOTUS/Ch. 91 Waterway for temporary I-90 and trestle</li> <li>Impacts to state land under water, inland bank, and bordering land subject to flooding for temporary I-90 and trestle</li> </ul> </li> <li><b>Ecological Impacts:</b> Temporary impact to fisheries during construction. Installation of trestle may disturb river sediment and produce silt.</li> <li><b>Noise:</b> Operation and installation of trestle may increase noise at receivers in Cambridge.</li> <li>See Construction Section of this table for further detail</li> </ul>	<ul style="list-style-type: none"> <li>No impacts anticipated</li> </ul>
	Commuter Users	<ul style="list-style-type: none"> <li><b>Worcester Mainline:</b> WML may either be shielded, shifted and a reduction to a single-track operation for certain periods of time.</li> <li><b>Grand Junction Rail:</b> Grand Junction RR remains open throughout most of the construction period. Does not necessitate construction of a South Side Maintenance Facility. Supports continuity of operations and a reliable fleet of well-maintained equipment using existing facilities.</li> <li><b>I-90:</b> Limited opportunity to maintain 4 lanes on I-90 for certain stages exists. Minimum 3 lanes of I-90 maintained in each direction throughout construction, approximately 6-7 years.</li> <li><b>Soldiers Field Road:</b> 2 lanes of SFR maintained in each direction throughout construction, approximately 6-7 years.</li> <li><b>Paul Dudley White Path:</b> PDW Path maintained throughout construction on existing alignment for majority of construction and relocated to temporary alignments for construction of final path alignment during the final stage of construction.</li> <li>See Construction Section of this table for further detail</li> </ul>	<ul style="list-style-type: none"> <li><b>Worcester Mainline:</b> Additional study is required. WML may either be shielded, shifted and a reduction to a single-track operation for certain periods of time.</li> <li><b>Grand Junction Rail:</b> Grand Junction RR must be closed early on during construction and remain closed throughout much of construction, necessitating construction of a South Side Maintenance Facility. A 100+ mile detour would be required to transfer equipment to the BET in Somerville for heavy maintenance.</li> <li><b>I-90:</b> Additional study is required. Greater opportunity to maintain 4 lanes on I-90 for certain stages exists. Minimum 3 lanes of I-90 maintained in each direction throughout construction, approximately 6-7 years, except for short durations to lower I-90 profile in the vicinity of the Comm. Ave. overpass.</li> <li><b>Soldiers Field Road:</b> Additional study is required. 2 lanes of SFR in each direction maintained throughout construction, approximately 6-7 years, except for short durations to lower SFR profile to accommodate new GJ Bridge</li> <li><b>Paul Dudley White Path:</b> PDW Path maintained on existing, temporary and permanent alignments.</li> <li>See Construction Section of this table for further detail</li> </ul>	<ul style="list-style-type: none"> <li><b>Worcester Mainline:</b> WML may either be shielded, shifted and a reduction to a single-track operation for certain periods of time.</li> <li><b>Grand Junction Rail:</b> Grand Junction RR must be closed early on during construction and remain closed throughout much of construction, necessitating construction of a South Side Maintenance Facility. A 100+ mile detour would be required to transfer equipment to the BET in Somerville for heavy maintenance.</li> <li><b>I-90:</b> Limited opportunity to maintain 4 lanes on I-90 for certain stages exists. Minimum 3 lanes of I-90 maintained in each direction throughout construction, approximately 8-10 years, except for short durations to lower I-90 profile in the vicinity of the Comm. Ave. overpass.</li> <li><b>Soldiers Field Road:</b> 2 lanes of SFR in each direction maintained throughout construction, approximately 8-10 years, except for short durations to switch over to trestle and then to new SFR Viaduct and to also lower SFR profile to accommodate new GJ Bridge</li> <li><b>Paul Dudley White Path:</b> PDW Path temporary intermittent closures for path relocation onto trestle</li> <li>See Construction Section of this table for further detail</li> </ul>	<ul style="list-style-type: none"> <li>More study is needed to determine level of impacts</li> </ul>

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## Environmental: Permitting Impacts to the Charles River

- Consistent with state and federal regulations that protect wetland resources, MassDOT's intention is to avoid and minimize impacts to the Charles River wherever practical.
- The Federal Clean Water Act, The State Wetland Protection Act , and the Massachusetts Public Waterfront Act all include provisions for the avoidance and minimization of wetlands and waterways impacts.
- Similar considerations exist for parklands and historic properties under 4(f) to select the alternative that minimizes harm.
- SFR Hybrid and Modified At-Grade result in more impacts to wetlands and waterways resources and therefore have greater potential to delay the implementation schedule of the Project in order to obtain needed permits.



# Environmental: Impacts to the Charles River

- Summary of permanent impacts to the Charles River:

	Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
Federal:	+/- 51,100 sq. ft. of total permanent impacts to the Charles River	1000 sq. ft. of total permanent impacts to the Charles River	1000 sq. ft. of total permanent impacts to the Charles River
State:	+/- 41,700 sq. ft. impacts to LUW +/- 1,480 lf impacts to bank +/- 4,720 sq. ft. impacts to BLSF	1000 sq. ft of total permanent impacts to the Charles River	1000 sq. ft of total permanent impacts to the Charles River

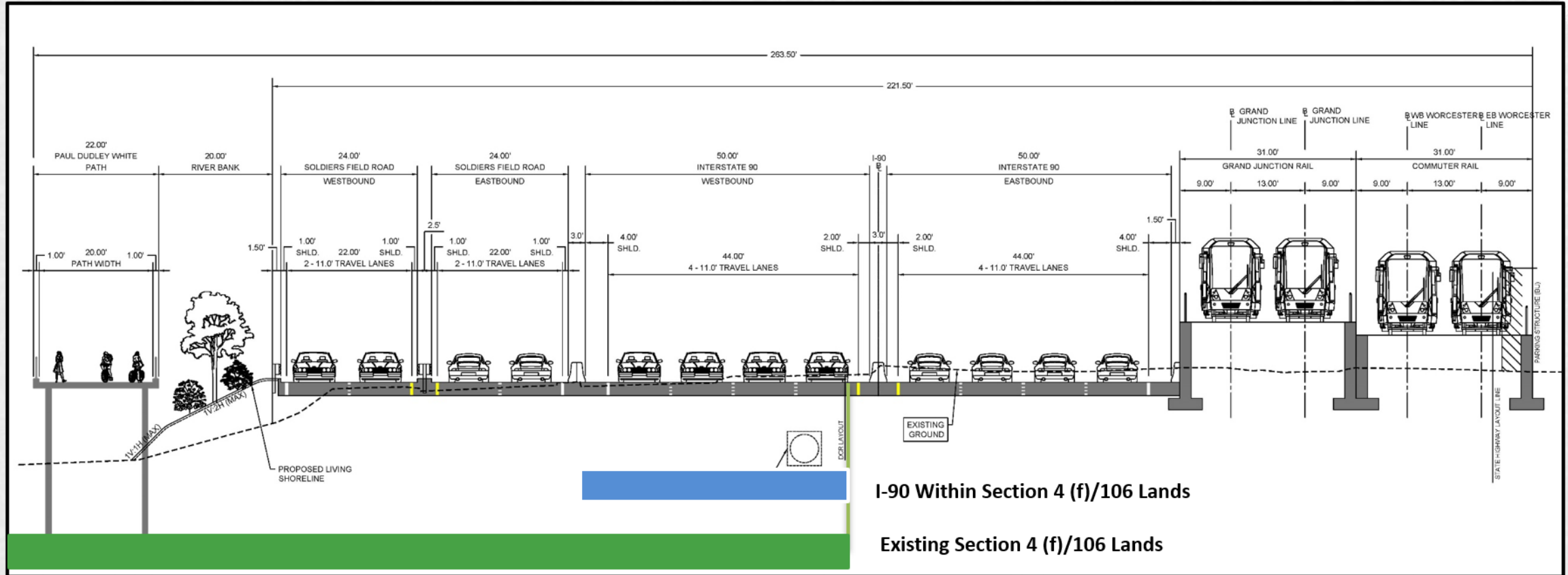
# Environmental: Resiliency & Floodplain



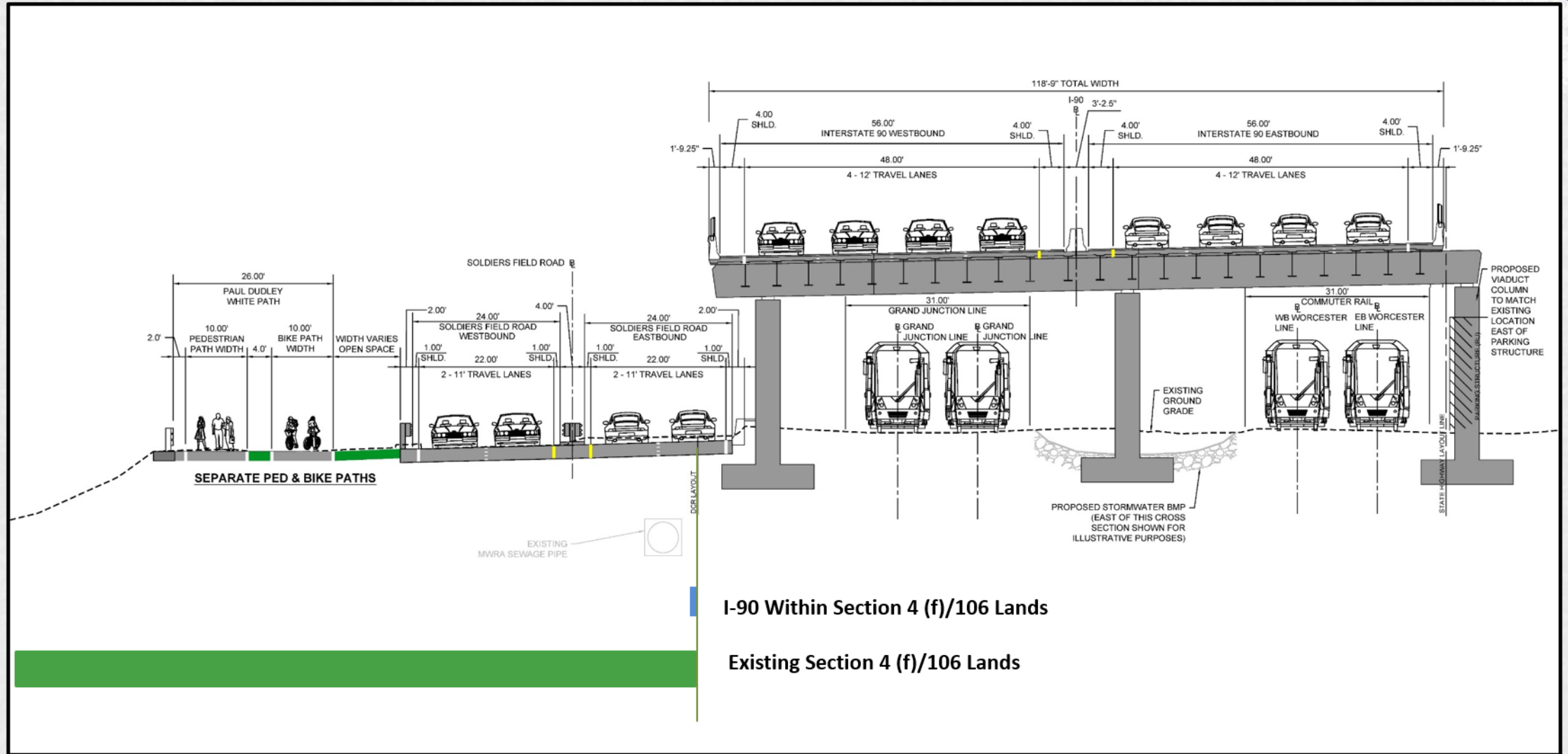
Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
Expected to be less resilient than the Modified Highway Viaduct due to sections of I-90 depressed below the water table and narrow shoulders on I-90.	Expected to be the most resilient option as I-90 would be elevated and resilient to storm surge associated with sea level rise.	While modeling results are not available for the SFR Hybrid Throat Area, it is expected to be the least resilient option due to I-90 depressed below water table.



# Environmental: Historic – Modified At-Grade

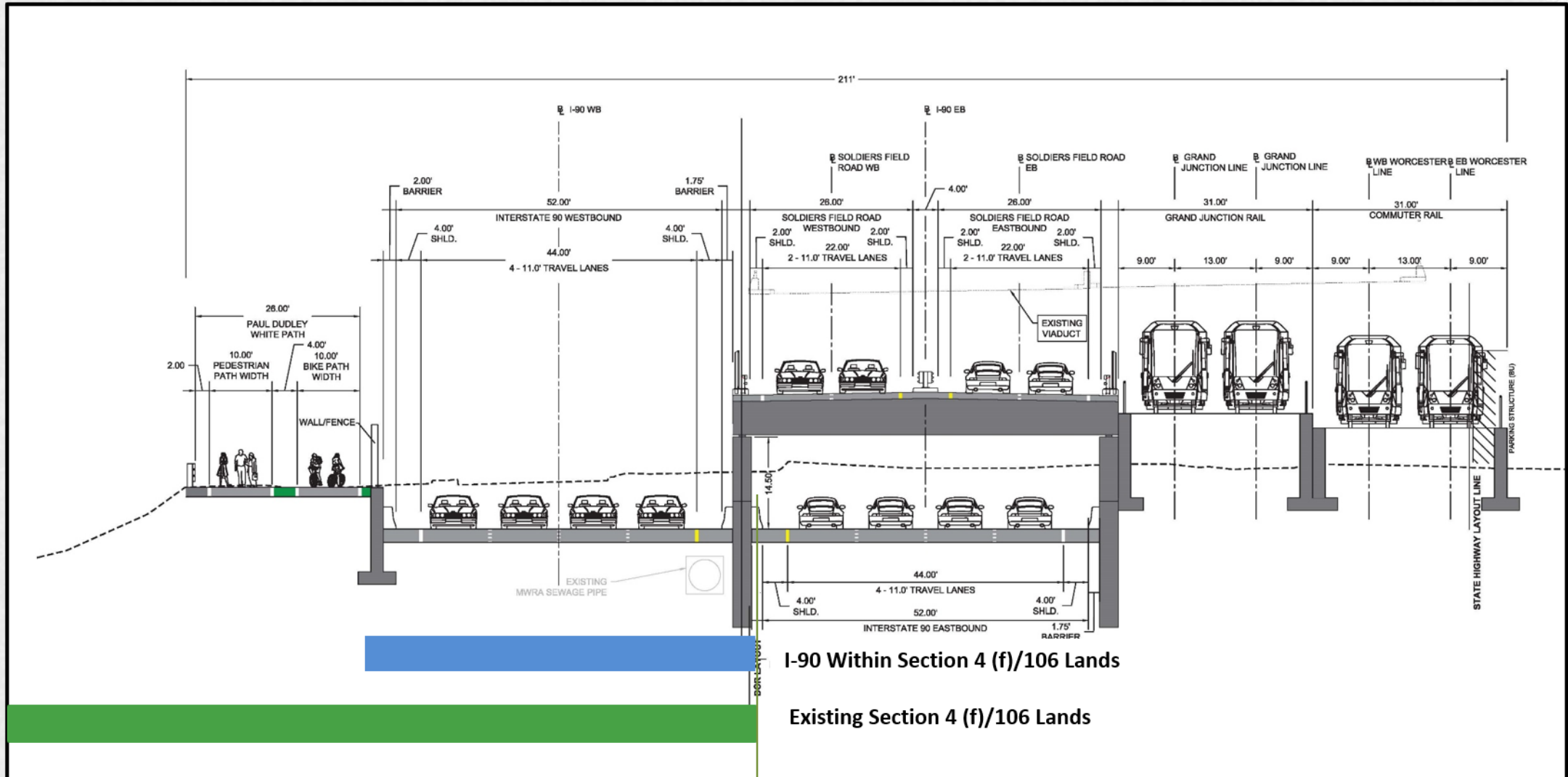


# Environmental: Historic – Modified Highway Viaduct





# Environmental: Historic – SFR Hybrid



# Environmental: Historic Resources



Historic Resource	Modified Highway Viaduct	Modified At-Grade	SFR Hybrid
Charles River	No change from existing	Permanent bank impacts and PDW on structure in river	Temporary SFR in the Charles River
Soldiers Field Road	Shifts onto isolated greenspace, toward I-90	Shifts onto useable greenspace, toward the river	Shifts onto viaduct away from the river and outside the historic district boundary
Parkland	Eliminates isolated inaccessible parkland greenspace; increases green space adjacent to PDW	Eliminates accessible greenspace adjacent to PDW; eliminates isolated green space; extends PDW under GJR & BU Bridges	Eliminates isolated green space; extends PDW path under GJR & BU Bridges
Grand Junction Bridge Over Soldiers Field Road	No change from existing	Replaced	Replaced
I-90 shifted into historic district	500 sq. ft. of I-90 columns/piers within historic district; overhang of 4,900 sq. ft.; Area of Grand Junction Rail shifted into historic district: 3,000 sq. ft.	Area of I-90 shifted into historic district: 57,000 sq. ft.	Area of I-90 shifted into historic district: 66,250 sq. ft.



# Environmental: Noise/Vibration



Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
<p>Similar to Modified At-Grade as described in Scoping Summary Report (SSR) with slight differences noted below: Without walls: (Modeling in progress)</p> <ul style="list-style-type: none"> <li>- PDW Path – likely low 60s to mid-70s dBA (increased setback distance from SFR, compared to SSR Modified At-Grade)</li> <li>- Magazine beach – likely 63 to 67 dBA or slightly higher (SFR EB lower than SSR Modified At-Grade)</li> <li>- Cambridgeport – likely 52 to 63 dBA or perhaps very slightly higher (SFR EB lower than SSR Modified At-Grade)</li> </ul>	<p>Highway Viaduct without walls:</p> <ul style="list-style-type: none"> <li>- PDW Path – 63 to 76 dBA</li> <li>- Magazine Beach – 62 to 65 dBA</li> <li>- Cambridgeport – 54 to 63 dBA</li> </ul>	<p>SFR without walls:</p> <ul style="list-style-type: none"> <li>- PDW Path – 61 to 76 dBA</li> <li>- Magazine Beach – 60 to 64 dBA</li> <li>- Cambridgeport – 50 to 62 dBA</li> </ul>

# Land Use: Parkland



	Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
Parkland Creation	Results in 7.3 acres of publicly accessible parkland which is a net increase of 3.9 acres in new useable greenspace; Would take 1.1 acres from river users and replace it with parkland for pedestrians	Results in 7.1 acres of (publicly accessible) parkland, of which 4.5 acres is new useable greenspace	Results in 8.7 acres of (publicly accessible) parkland, of which 6.1 acres is new useable greenspace
Impacts of I-90 & GJR	57,000 sq. ft. of parkland impacts from I-90 at grade	500 sq. ft. of parkland impacts from I-90 piers and 4,900 sq. ft. from I-90 overhang; 3,000 sq. ft. of parkland impacts from realignment of GJR	66,250 sq. ft. of parkland impacts from I-90 at grade
PDW Path	PDW Path widened from existing conditions. Separated bike/ped path along the PDW Path on boardwalk	PDW Path widened from existing conditions. Separated bike/ped path along the PDW Path for the majority (but not all) of the length of the Throat	PDW Path widened from existing conditions. Separated bike/ped path along the PDW Path for the entire length of the Throat



## Environmental: Anticipated Permits

- For a detailed list of potential environmental approvals see summary matrix (pg. 6)
- Ability to permit, level of complexity and types of permits required for each alternative have not been established by environmental agencies yet
- SFR Hybrid and Modified At-Grade result in significantly more impacts to wetlands and waterways resources and have greater potential to delay the implementation schedule of the Project

## Construction: Staging – Modified At-Grade

- 13 construction stages requiring I-90 and SFR alignment shifts (fewer alignment shifts are generally more favorable as drivers don't need to refamiliarize driving route)
- Challenging and/or substandard geometric alignments required during construction
- I-90 profile must be lowered into a partial boat section, requiring relocations of major utilities
- Relocation of BWSC 60" storm drain (crossing Throat north to south) by lowering it in elevation in order to cross the depressed I-90 section, requiring construction of syphon or new BWSC pump station
- The Massachusetts Water Resource Authority (MWRA) sewer line that runs longitudinally along the throat is also impacted and at a minimum will require partial relocation
- No impact to the MWRA waterline that is at the midpoint of the throat
- MassDOT pump station would need to be reconstructed in a different location
- Relocate private telecom fiber optics lines and Boston University utilities, including a steam utility, which may involve time-of-year restrictions



## Construction: Staging – Modified Highway Viaduct

- 5 construction stages requiring I-90 and SFR alignment shifts (fewer alignment shifts are generally more favorable as drivers don't need to refamiliarize driving route)
- Temporary widening of elevated structure may be required to maintain 3 travel lanes on I-90 in both directions
- No relocation of major utilities required
- Retains existing MassDOT pump station at viaduct's easterly abutment

## Construction: Staging – SFR Hybrid

- 10 construction stages requiring I-90 and SFR alignment shifts (fewer alignment shifts are generally more favorable as drivers don't need to refamiliarize driving route)
- Challenging and/or substandard geometric alignments required during construction
- I-90 profile must be lowered into a boat section, requiring extensive relocations of major utilities.
- Requires extensive relocations of major utilities, which will increase the duration of construction.
- 60" MWRA water main crossing the Throat from north-south will need to be relocated
- MWRA sewer line crossing the throat from east-west will need to be relocated
- 60" BWSC storm drain crossing the Throat from north-south will need to be relocated.
- MassDOT pump station would need to be reconstructed in a different location
- Relocate Boston University utilities, including a steam utility, which may involve time-of-year restrictions.
- Relocate private telecom fiber optic backbone that runs between the WML and the property line at BU
- Relocate telecom fiber optic lines from existing viaduct to below grade



# Construction: Impacts to the Charles River



	Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
<b>River Users</b>	Construction of PDW path on boardwalk will likely require use of a barge and the contractor to occupy the watersheet, potentially impacting river users	No impacts to Charles River user groups during or after construction	Temporary trestle into Charles River required for SFR and PDW Path during construction. Impacts to river users during construction due to narrowing of the watersheet and would temporarily take parkland from river users for maintenance of traffic on SFR and PDW Path via temporary trestle.
<b>Navigation/Encroachment</b>	Temporary encroachment of +/-40-ft plus barge and construction work zones in the Charles River	Limited contractor impact (equipment) for construction of outfalls in the Charles River	Temporary impact on navigation due to the trestle in the Charles River, narrowing the watersheet by 110-ft.
<b>Resource Area Impacts (Temporary)</b>	Temporary impacts and permanent impacts expected to have similar footprint	Limited impacts to the Charles River associated with outfalls	<ul style="list-style-type: none"> <li>Requires dredge in the Charles River for the temporary trestle</li> <li>Impacts to Federal WOTUS/Ch. 91 Waterway for temporary I-90 and trestle</li> <li>Impacts to state land under water, inland bank, and bordering land subject to flooding for temporary I-90 and trestle</li> </ul>

# Construction: Impacts to the Charles River (cont.)



	Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
<b>Ecological Impacts</b>	Construction of “living shoreline” requires placement of unconsolidated fill along the banks and within flowed waters of the Charles River producing silt and disturbing river sediment. Pile driving for installation of boardwalk in Charles River will disturb river sediment and produce silt and will be subject to fish run time of year restrictions.	No temporary impacts to fisheries, no disturbance of sediment or production of silt	Pile driving in Charles River for installation of the trestle will disturb river sediment and produce silt and will be subject to fish run time of year restrictions.
<b>Noise</b>	Increased pile driving for PDW path may result in elevated construction noise.	No temporary construction noise due to work in the Charles River	Operation and installation of trestle may increase noise at receivers in Cambridge



# Construction: Duration/Impacts to Commuters



	Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
<b>Construction Duration</b>	6-7 Years	6-7 Years	8-10 Years
<b>Interstate 90</b>	Potential for greater opportunity to maintain 4 lanes on I-90 for certain stages exists. Minimum 3 lanes of I-90 maintained in each direction throughout construction, except for short durations to lower I-90 profile in the vicinity of the Comm. Ave. overpass.	Limited opportunity to maintain 4 lanes on I-90 for certain stages exists. Minimum 3 lanes of I-90 maintained in each direction throughout construction	Limited opportunity to maintain 4 lanes on I-90 for certain stages exists. Minimum 3 lanes of I-90 maintained in each direction throughout construction except for short durations when further reduction of lanes will be required to lower I-90 profile in the vicinity of the Comm. Ave. overpass.
<b>Soldiers Field Road</b>	2 lanes of SFR in each direction maintained throughout construction	2 lanes maintained in each direction throughout construction	2 lanes of SFR in each direction maintained throughout construction except for short durations to switch over to trestle and then to new SFR Viaduct and to also lower SFR profile to accommodate new GJ Bridge.

# Construction: Duration/Impacts to Commuters (cont.)



	Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
<b>Paul Dudley White Path</b>	PDW Path maintained on existing, temporary and permanent alignments	Maintained throughout construction on existing alignment for majority of construction and relocated to temporary alignments for construction of final path alignment during the final stage of construction	Temporary intermittent closures for path relocation onto trestle
<b>Worcester Mainline</b>	May either be shielded, shifted and a reduction to a single-track operation for certain periods of time	May either be shielded, shifted and a reduction to a single-track operation for certain periods of time	May either be shielded, shifted and a reduction to a single-track operation for certain periods of time
<b>Grand Junction Rail</b>	Must be closed early on during construction and remain closed throughout much of construction, necessitating construction of a South Side Maintenance Facility. A 100+ mile detour would be required to transfer equipment to the BET in Somerville for heavy maintenance.	Remains open throughout most of the construction period. Does not necessitate construction of a South Side Maintenance Facility. Supports continuity of operations and a reliable fleet of well-maintained equipment using existing facilities.	Must be closed early on during construction and remain closed throughout much of construction, necessitating construction of a South Side Maintenance Facility. A 100+ mile detour would be required to transfer equipment to the BET in Somerville for heavy maintenance.



# Safety: Highway



Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
11-ft travel lanes on I-90, resulting in less width to accommodate larger vehicles, and 4-ft outside and 2-ft inside shoulders	12-ft travel lanes on I-90 with 4-ft shoulders, allowing for minor shifting of travel lanes during maintenance or vehicle breakdown or accidents	11-ft travel lanes on I-90, resulting in less width to accommodate larger vehicles, and 4-ft shoulders.
Improves I-90 geometry by providing a flatter straighter highway	Maintains existing I-90 restrictive geometry with reverse curves and steeper grades	Improves I-90 geometry by providing a flatter straighter highway
11-ft travel lanes on SFR with 1-ft shoulders	11-ft travel lanes on SFR with 1-ft shoulders	11-ft travels lanes on SFR with 1-ft shoulders
SFR alignment similar to existing	SFR alignment similar to existing	SFR realignment introduces steep reverse curves

# Operations and Maintenance: Highway



Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
More complicated and frequent stormwater inlet design for I-90 requiring drainage manholes in travel way of interstate	Traditional bridge scuppers for stormwater inlets for I-90 with no drainage structures in travel way of interstate	More complicated stormwater inlet design for I-90 requiring drainage manholes in travel way of interstate
Frequent maintenance of relocated utilities required	Replaces existing viaduct with a new viaduct that will require maintenance	Frequent maintenance of relocated utilities required



## Environmental: Visual – Modified At-Grade

- No viaducts, resulting in improved views of the Charles River from the south
- Improved views for users of the PDW Path





# Environmental: Visual – Modified Highway Viaduct



- I-90 remains on a viaduct – new viaduct will include architectural improvement





# Environmental: Visual – SFR Hybrid



- Removes I-90 viaduct – smaller SFR viaduct will include architectural treatments





# Mobility and Access: Bike and Pedestrian



Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
PDW Path is widened to 20-ft on a boardwalk and 26-ft on land and separated for bicycles and pedestrians	PDW Path is widened to 26-ft to the extent possible and separated for bicycles and pedestrians for most of the length of the Throat	PDW Path is widened to 26-ft and separated for bicycles and pedestrians for the entire length of the Throat
Based on analysis of the SSR Modified At-Grade, an Agganis Way connection is possible, but constraints require switchback configuration	Agganis Way connection possible with users walking/biking under a viaduct and over rail	Agganis Way connection possible but constraints require switchback configuration



# Cost: Interchange 3L with Throat Area Options

	Modified At-Grade	Modified Highway Viaduct	SFR Hybrid
Construction Cost	\$1.3 Billion	\$1.3 Billion	\$1.6 Billion

- Cost of Modified At-Grade and SFR Hybrid does not include the cost of a South Side Maintenance Facility, needed for these alternatives and estimated to be \$300M
- Life Cycle Cost Analysis: Estimates of life-cycle cost are not currently available. Life-cycle cost will be available for the DEIS.
- The cost of mitigation is not included in this analysis and is expected to be variable between Throat Area options
- Selection of a preferred alternative is necessary to inform the financial plan for the Allston I-90 project

# Tonight's Agenda

- **Current Status of I-90 Multimodal Project**
  - Where We Are in NEPA Process
  - Modified At Grade Alternative
- **Range of Alternatives**
- **Choosing a Preferred Alternative**
- **Summary Analysis Matrix**
- **Next Steps**



## Public Feedback through October 30

- Thank you for participating in tonight's meeting.
- Public feedback is being received through October 30. At any time before the end of the month, the members of the public are encouraged to send feedback to:

[I-90Allston@state.ma.us](mailto:I-90Allston@state.ma.us)

- MassDOT will share this feedback with FHWA and the cooperating agencies