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Massachusetts Department of Transportation
Highway Division

Viaduct Bridge Repairs and Related Work (including Painting)
Brg. No.'s C-09-007 & C-09-011 Route 1 over various streets and MBTA
Chelsea | Project File No. 605287

MassDOT Board of Directors

Oct. 15, 2018

Overview

- The rehabilitation of the Chelsea Viaduct is a critical step towards meeting MassDOT's bridge condition goals and improving safety.
  - When completed, will reduce our Deck Area rates as "poor" by 267,000 S.F., which is 35% of the amount needed to achieve MassDOT's condition goal.

- This project has been sequenced to minimize traffic impacts and to dovetail with construction on the Tobin Bridge.
  - Avoids the need to further impact the Chelsea community at a later date

- Travel impacts from construction are minimal and will not be felt until 2020
  - The Highway Division is working with the MBTA and impacted stakeholders now to further diminish impacts and establish communications protocols for the life of the project

Background

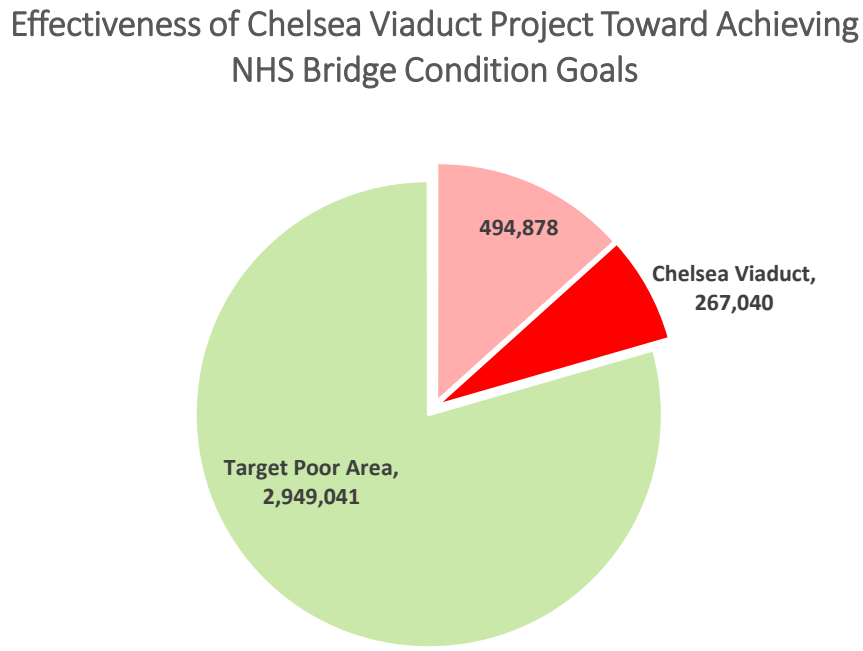
- Carries US Route 1 over Chelsea through the "Chelsea Curves" from the County Road Overpass to the Tobin Bridge.
- Constructed 1956 and 1957
- Southern Viaduct – 2,000 feet long
- Northern Viaduct – 1,000 feet long
- 75 spans
- Carries 63,000 vehicles per day

Project Benefits

- Current on-going maintenance activities (performed at night) will no longer be required.
- Improved under deck lighting will provide increased security.
- Construction of a solid snow fence on portions of the viaduct.
- Comprehensive mitigation plan developed with the City includes re-paving existing parking lots under the viaduct and constructing a new parking lot.

Project Benefits

- MassDOT's long term target is to limit the amount of NHS Bridges in poor condition to 10% of the inventory (in terms of bridge area)
- Chart at right depicts the current area (SF) of poor NHS bridges, which is a total of approx. 3.71 million SF of the 29.49 million SF NHS Inventory, or 12.58 %.
- The poor area is located on 205 bridges across the state
- The desired long term target (10%) is in green, and the contribution from Chelsea viaduct toward achieving this target is shown proportionally in dark red



Chelsea Viaduct Rehabilitation Project

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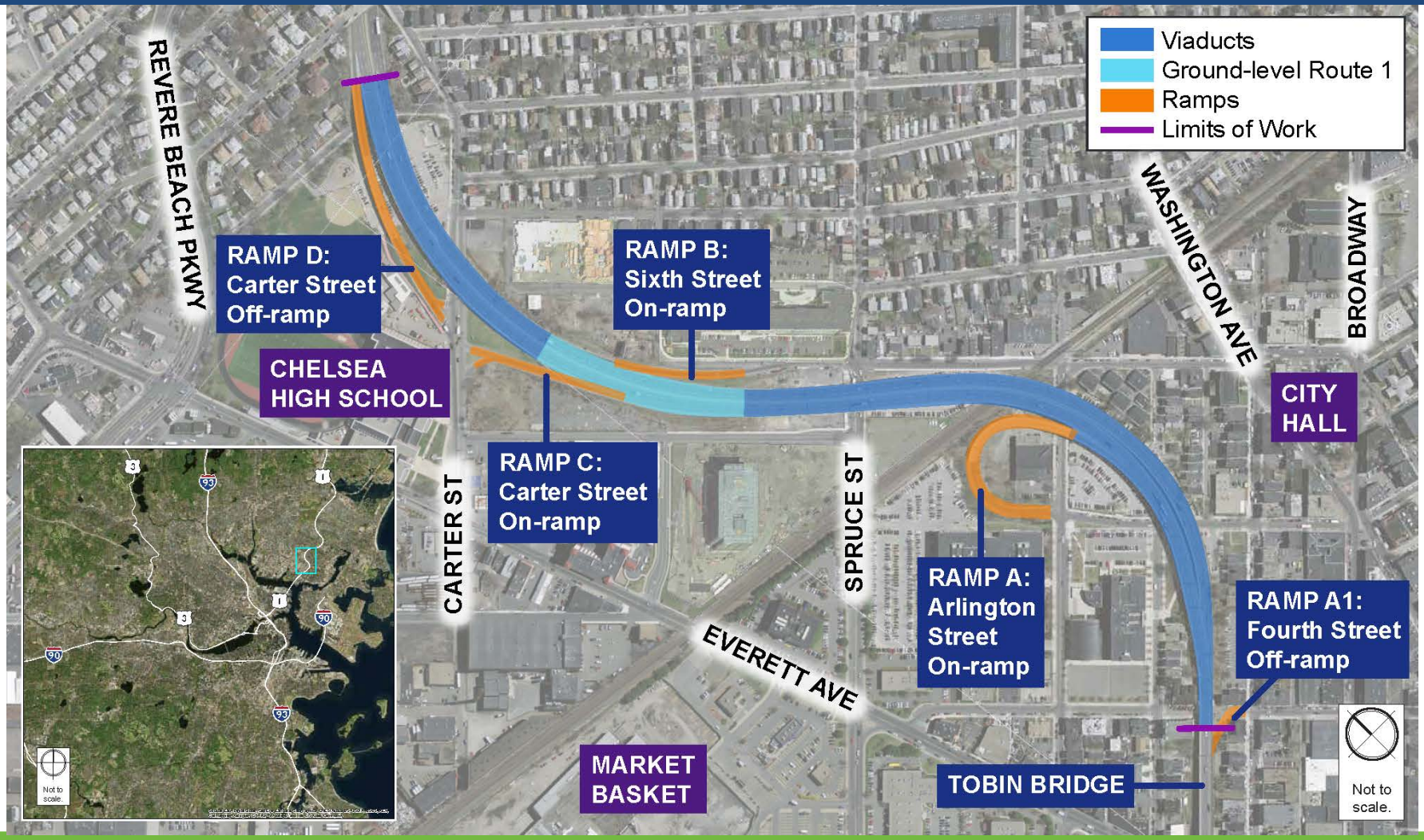
Project Limits of Work



Scope of Work

- Repair and Retrofit Substructure
- Pre-Fabricated Bridge Units (PBUs) throughout majority of project
- Conventional repair methods at 6 isolated spans
- Provide new crash tested bridge barriers
- Provide new solid snow fence where safe
- Replace Roadway Lighting and Bridge Drainage
- Rebuild existing parking lots under viaduct, and add new Carter Street lot
- Includes paving work on Tobin Bridge (SB) originally included in on-going Tobin Deck Rehab contract

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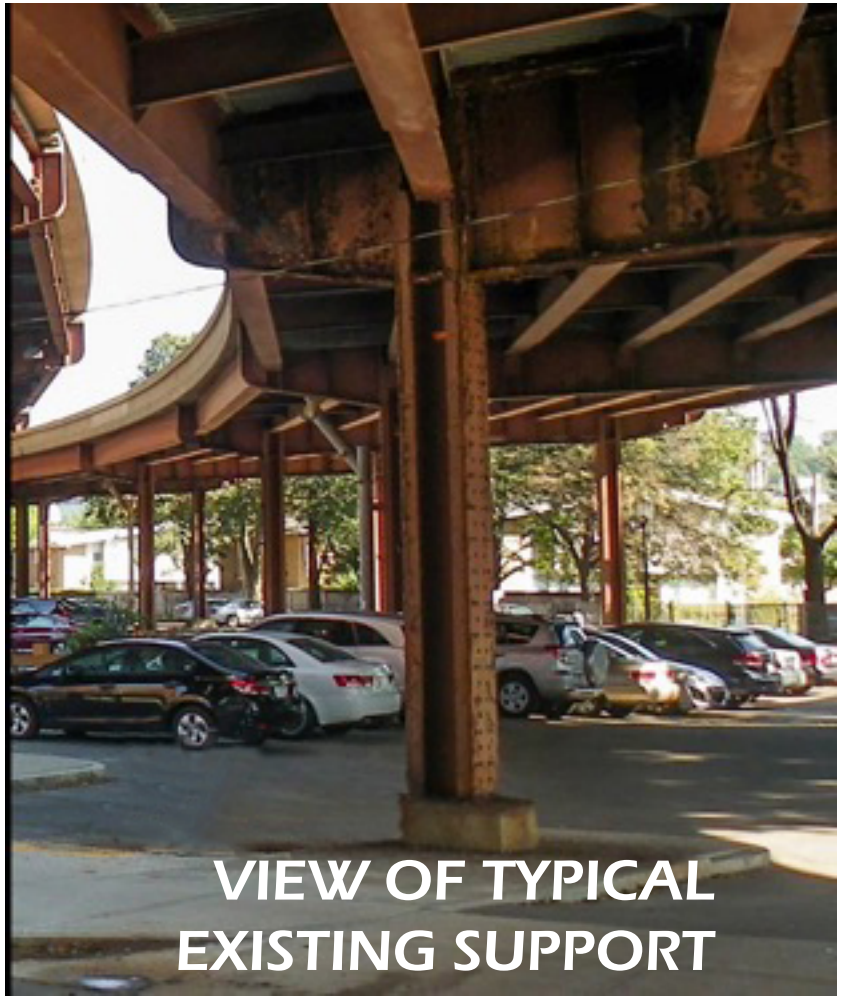
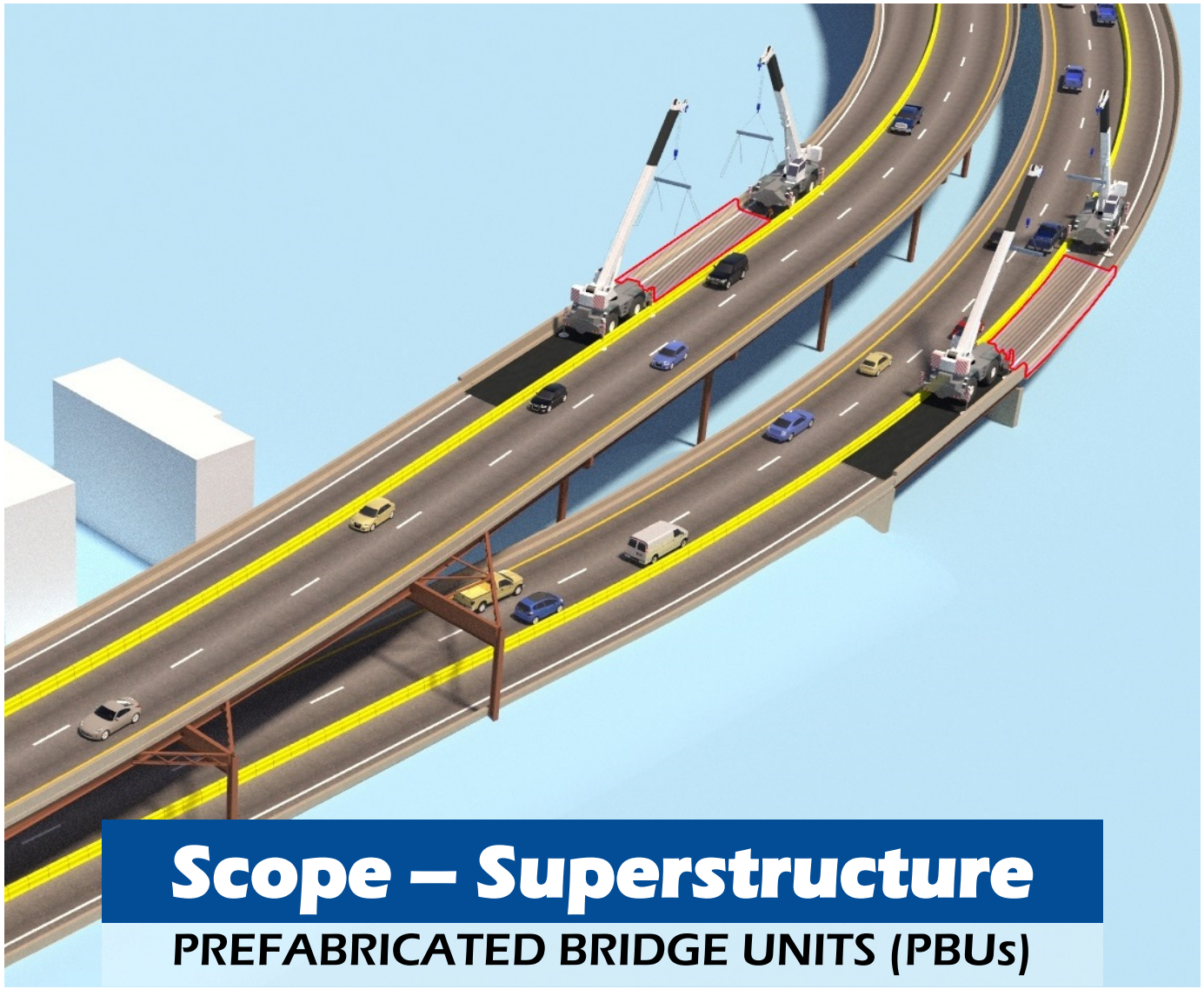
Scope – Substructure



VIEW OF TYPICAL EXISTING SUPPORT

VIEW OF PROPOSED SUPPORT



Scope – Superstructure

PREFABRICATED BRIDGE UNITS (PBUs)

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Scope - Superstructure

- Isolated Spans will require conventional repair:
  - Rte 1 SB over Rte 1 NB (at Southern limits of work near 4th Street)
  - Span over Railroad
  - Work includes the removal of the existing deck, cleaning, strengthening and painting of the existing steel, and utilizing steel grid deck elements.

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Construction Schedule

Advertisement
July 2018

NTP
Jan 2019

Substructure Rehabilitation
Winter 2019 – Spring 2020

Superstructure Replacement
Spring 2020 – Fall 2020

Final Restoration
Spring 2021

Completion
Spring 2021

Project schedule has been coordinated with Tobin Deck Rehabilitation and other regional projects

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Weekday Construction

- Winter 2019 - Spring 2020: Substructure rehabilitation
- *No traffic impacts on Route 1 during peak travel times.* Any work performed during this period will occur between 10 PM and 5 AM
- Spring to Fall 2020: NB/SB superstructure replacement
  - SB reduced from 3 lanes to 2 lanes
  - NB – Tobin work zone of 2 lanes to be extended within project limits
  - NB/SB reduced to 1 lane overnight for ABC construction
  - Interim ramp closures with local detours
  - Interim parking impacts
- Weekend lane reductions on Route 1 (12 weekends) for conventional construction
- Extensive public outreach to ensure motorists and residents understand traffic impacts

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Weekend Construction

- Route 1 will be reduced to 1 lane NB/SB for 12 weekends in 2020
- Lane reductions Friday 10pm through Monday 5am
- Extensive public outreach to ensure motorists and residents are aware of weekend work.

Work schedule & I/D

- Incentive / Disincentive provisions for Milestone 3 (Full Beneficial Use) and Milestone 4 (Grid Deck Replacement)
- Roadway User Costs (with no limits) will be assessed if traffic lanes not restored on the mainline by 5 AM every morning
- Roadway User Costs (with no limits) will be assessed if Ramp D traffic is not restored by the end of weekend shutdown

Construction Mitigation

- Noise monitoring and mitigation (especially near Kayem Park and Vietnam Veterans Memorial Pool)
- Pre and post construction monitoring of specified properties
- Dust and pollutant containment
- Lead Paint Containment & Regular Air Monitoring
- Mitigation of temporary loss of parking
- Contractor cannot utilize public parking
- Frequent coordination with New England Produce Center and Chelsea Chamber of Commerce
- 24-hour hotline in English and Spanish
- Extensive public outreach

Public Outreach

- Public Information Meeting- 11/8/17
- Project Open House – 12/5/17
- Chelsea Collaborative – 12/7/17
- GreenRoots Chelsea – 12/14/17
- Chelsea City Manager – 1/12/18
- GreenRoots Chelsea Follow-up – 1/18/18
- All-Spanish Public Information Meeting – 1/22/18
- 25% Design Public Hearing – 1/24/18
- Door-to-door abutter project notification – 1/16/18-1/21/18
- Chelsea Chamber of Commerce – 2/14/18

Public Outreach

- GreenRoots Chelsea Leadership – 2/22/18
- Chelsea City Council (Special Session) – 3/1/18
- Targeted Business Owners – 3/19/18
- Public Update Meeting – 4/5/18
- New England Produce – 5/9/18
- Chelsea Chamber of Commerce – 5/17/18
- Neighborhood Pop-up Meetings – November, December and January 2018
- Chelsea City Manager Follow-up – 5 Formal Meetings
- General, Businesses, and Non-Occupant Owners Notification Letters and Emails – November, December, and pre-Design Public Hearing

Project Costs

2018 - 2022 CIP	**$221,884,493.80**
Office Estimate (advertised)	**$174,731,985.10**
Low Bid	**$169,371,930.00**
Contingencies (10%)	$16,937,193.00
Constr. Engr.'g. (5%)	$8,468,596.50
Traffic Police	$850,000.00
Trainees	$10,000.00
Telephone	$15,000.00
I/D	$4,328,000.00
RR Flaggers	$250,000.00
RR Insurance	$10,000.00
Materials (zipper barrier)	$3,280,000.00
NFA Police OT	$364,500.00
TOTAL CONSTRUCTION COST	**$203,885,219.50**

Bid Estimate Comparison

Contractor/JV	Bid Amount	Difference from Office Estimate
Office Estimate	$174,731,985.10	
Skanska McCourt II JV	$169,371,930.00	-3.1%
Barletta - O&G Chelsea Viaduct JV	$184,719,350.00	5.7%
Walsh Construction Company II LLC	$189,063,669.50	8.2%
SPS-Judlau-DW White JV	$189,745,706.15	8.6%
The Middlesex Corp.	$189,888,524.00	8.7%
White - Kiewit III JV	$219,777,000.00	25.8%
Average Bid	$190,427,696.61	9.0%

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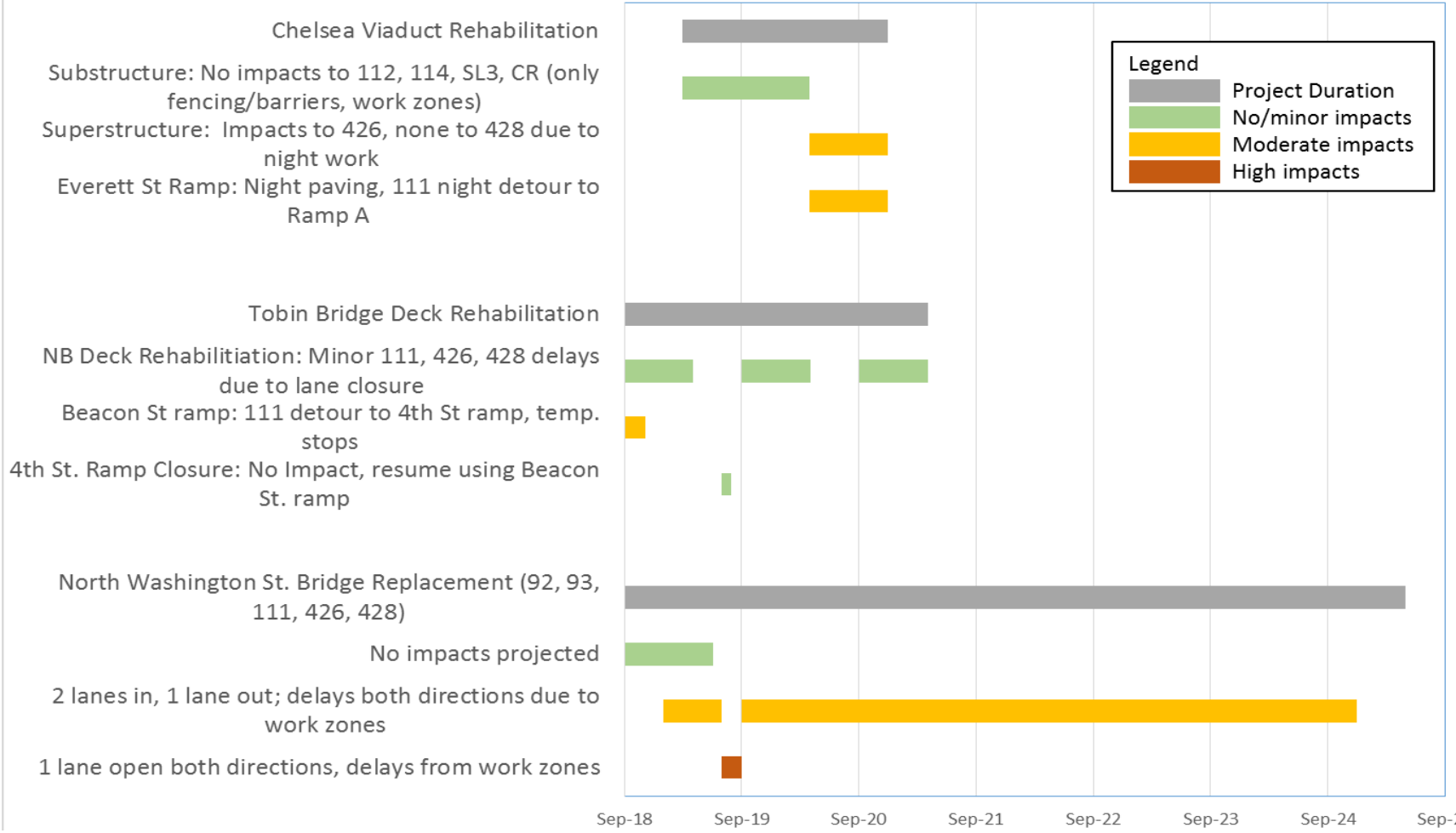
Anticipated Impact to MBTA Service



Anticipated impacts based on completed traffic assessments

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