



**Massachusetts Bay  
Transportation Authority**

# Repair/Rehabilitation of East Cambridge (Lechmere) Viaduct

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Fiscal and Management Control Board

Karl E. Eckstrom, P.E., Senior Project Manager, Capital Delivery

December 9, 2019

# Overview

Today's Board action will provide approval for strengthening of the historic 12-span concrete arch viaduct structure and updating the signals and power transmission systems. This 110-year old structure carries the Green Line across the Charles River. The viaduct rehabilitation project will utilize the existing 11-month closure window associated with GLX construction.

## Project Locus



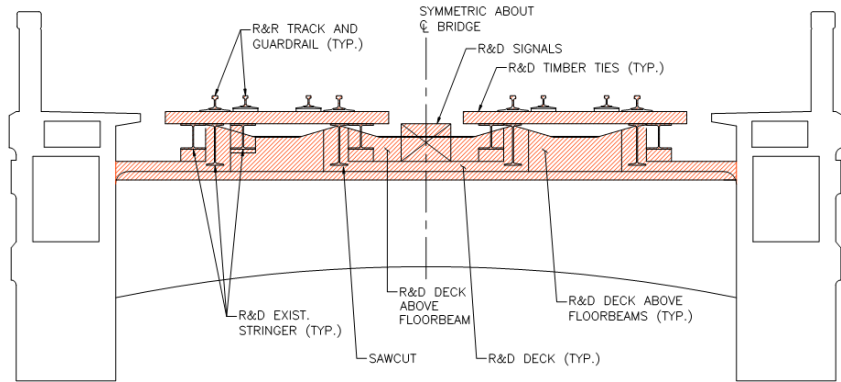
# Construction Scope of Work & Project Benefits

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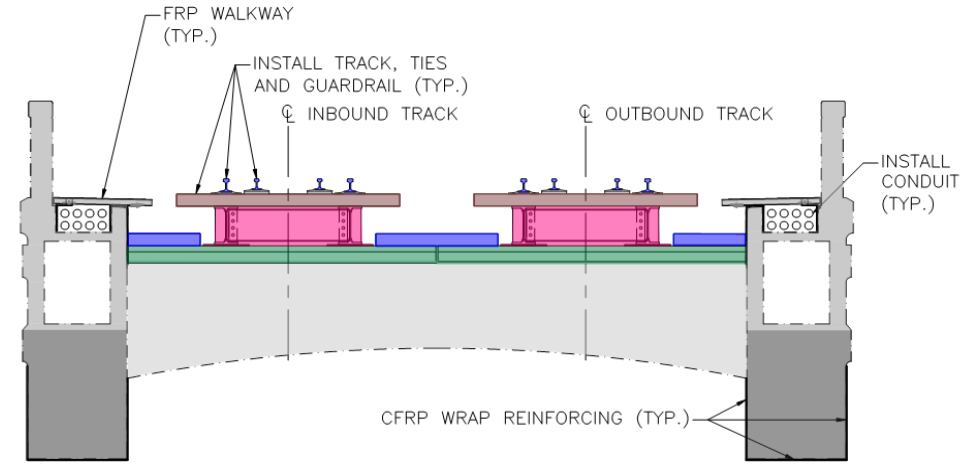
- Lechmere Viaduct Rehabilitation includes strengthening of existing concrete arch superstructure, and replacement of entire track support stringer and deck system
- Arch spans and floor beams to be strengthened with Carbon Fiber Reinforced Polymer (CFRP) wrap system
- Steel strengthening and repairs, complete blast clean and painting of steel bascule span
- Replacement of entire concrete bridge railing system
- Replacement of track, signal cables, and duct bank system, as well as complete replacement of overhead catenary poles and power transmission system
- Improves transit operations by eliminating current speed restrictions and an increased number of vehicles operating on the structure at the same time
- Strengthen the bridge for future Type 10 Vehicle loadings
- Extend the Service Life of the Bridge while conserving the landmark structure, built in 1910



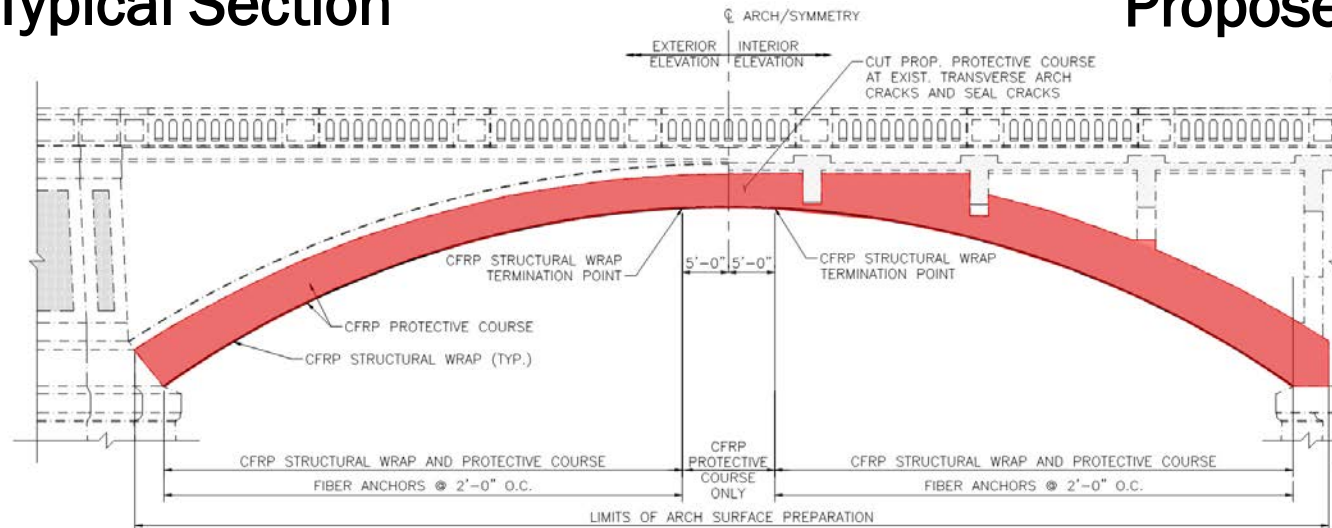
# Existing and Proposed Condition



Existing Typical Section



Proposed Typical Section



CFRP Wrap - Arch Strengthening



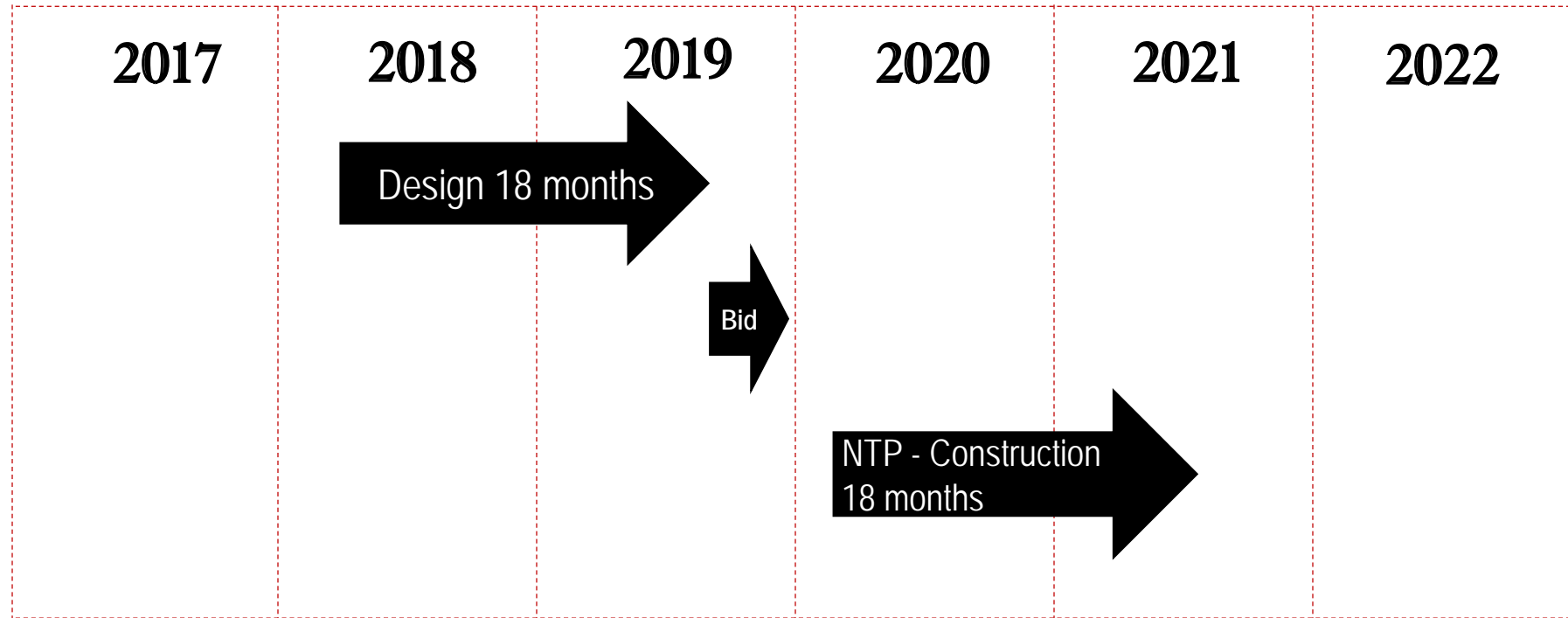
# Operations During Construction

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- Construction schedule to utilize the same **11-month service outage** window required for the Green Line Extension (GLX) and new Lechmere Station construction
- GLX closure window scheduled **May 2020 through April 2021**
- Viaduct strengthening and rehabilitation constrained so as to not impact GLX schedule
- Contractor to be given 24/7 access to the entire structure limits for the first 5 calendar months of the shutdown period which includes **no transit operations**



# Project Schedule



- Advertise for Construction: October 2019
- Anticipated Contractor Notice to Proceed: January 2020
- Approximate Construction Duration: 18 months



## Construction Procurement

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- Project advertised on October 25, 2019
- Engineer's Estimate was \$50,032,750
- Bid opening on December 5, 2019
- 5 Bids were received

<b>\$61,894,820.00</b>	<b>SPS New England, Inc. (Low Bidder)</b>
\$74,989,062.00	The Middlesex Corporation
\$79,667,000.00	Manafort Brothers Incorporated
\$82,668,000.00	Barletta Heavy Division, Inc.
\$89,830,475.00	Judlau Contracting, Inc.

- A bid analysis has been completed and *SPS New England, Inc.* is the recommended low responsible bidder.



# Request of the Fiscal and Management Control Board

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Staff request that the Fiscal and Management Control Board authorize the MBTA General Manager, or his designee, to award and execute MBTA Construction Contract No. B22CN02: Repair/Rehabilitation of East Cambridge (Lechmere) Viaduct with **SPS New England, Inc.** for an amount not to exceed **\$61,894,820.00**.

