



Massachusetts Water Resources Authority

## Metropolitan Water Tunnel Program

Water Supply Citizens Advisory Committee

January 14, 2025



# Agenda

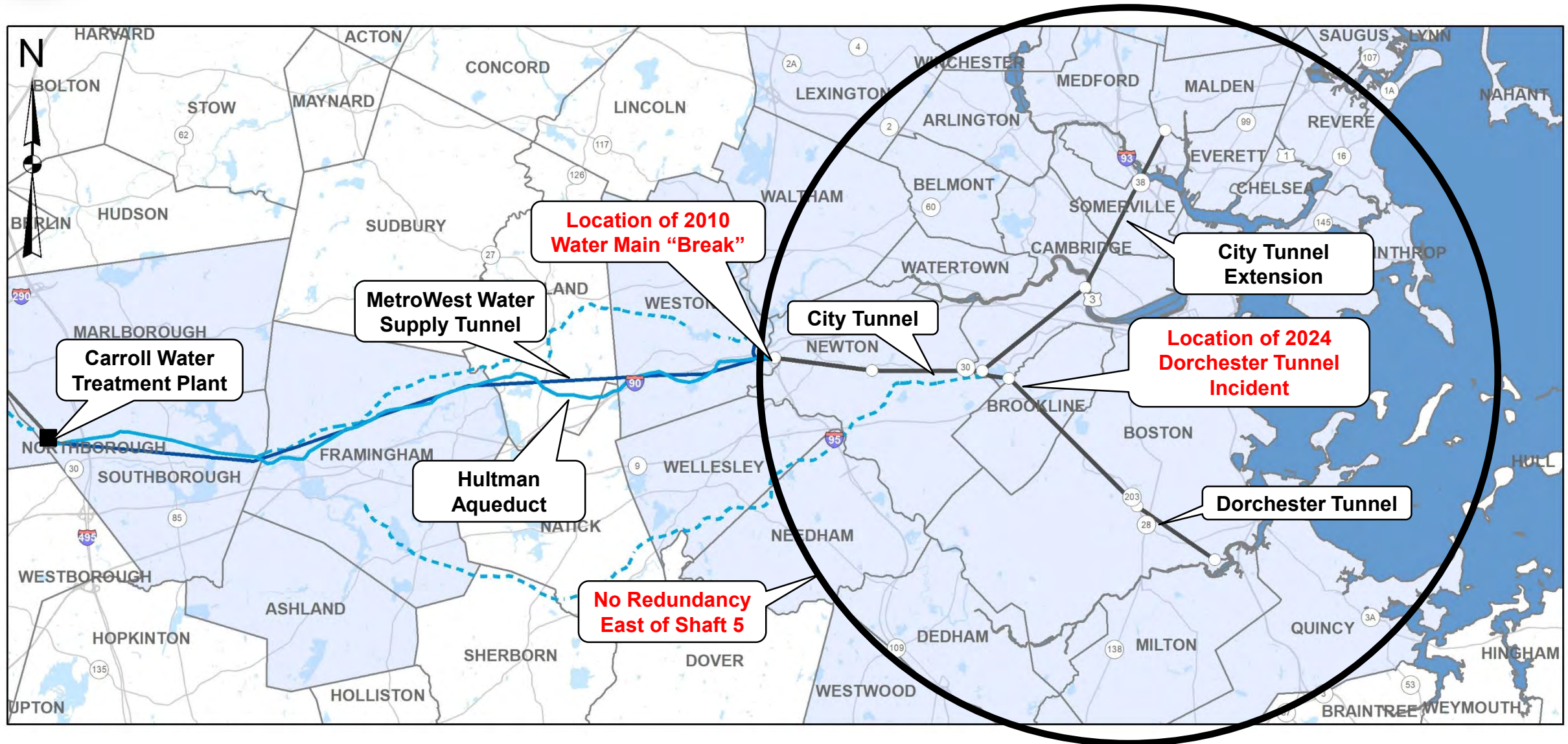
- Introductions
- Tunnel Program Overview
- Preliminary Design and Environmental Impact Report
- Tunnel Program Look Ahead
- Q&A



# *Tunnel Program Overview*



# Metropolitan Tunnel System Serves About 60 Percent of Water Demand in Metropolitan Area

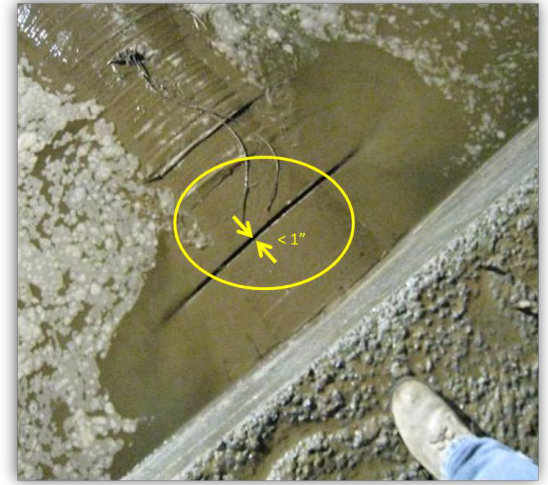






# Metropolitan Water Tunnel Program Purpose

- Our current Metropolitan Tunnel System, servicing the Boston area, is in need of repair
- The tunnels, valves, chambers & pipelines are between 50 – 80 years old



- Currently we cannot maintain our tunnel system east of Shaft 5 in Weston because a shutdown of the entire Metropolitan Tunnel System would be required
- The **Metropolitan Water Tunnel Program** will solve that problem by creating a redundant water tunnel system allowing the old system to be completely taken offline for inspection, maintenance, and repair



# Metropolitan Water Tunnel Program - Goal

## Provide Full Redundancy for the Metropolitan Tunnel System:

- Provide normal water service and fire protection when the existing tunnel system is out of service
- Provide the ability to perform maintenance on existing tunnels year-round
- Provide uninterrupted service in the event of an emergency shut down
- Meet high day demand flow with no seasonal restrictions
- Avoid activation of emergency reservoirs
- Meet customer expectations for excellent water quality





# *Preliminary Design and Environmental Impact Report*



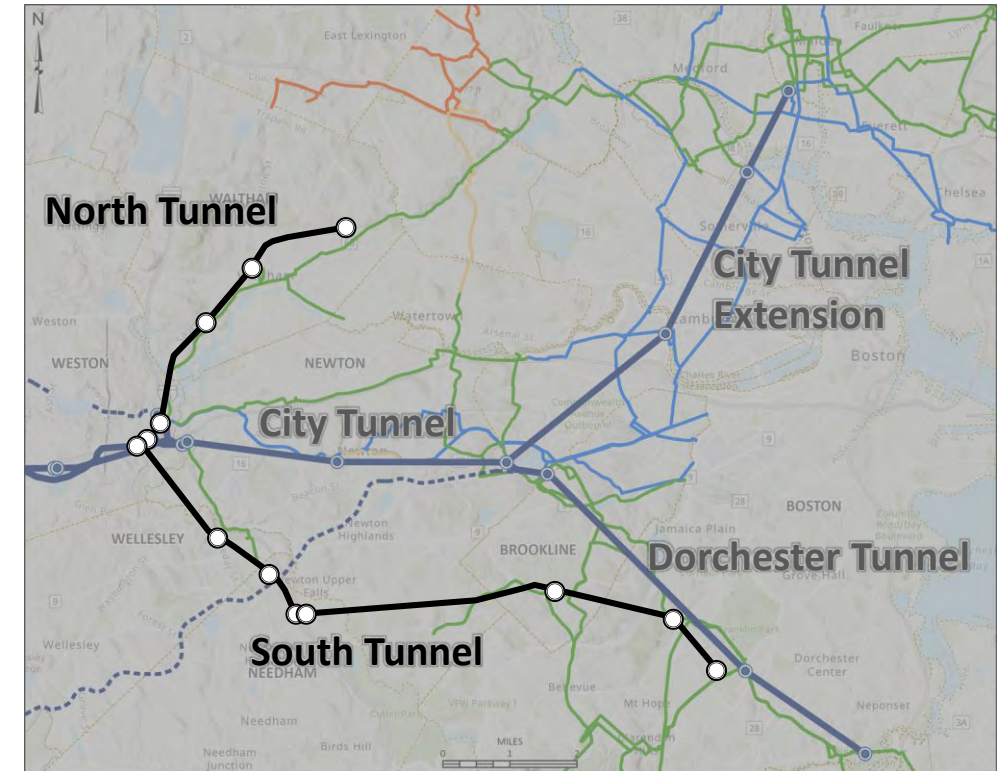
# Metropolitan Water Tunnel Program - Purpose

Purpose: To provide redundancy to the Metropolitan Tunnel System.

Today



When Completed



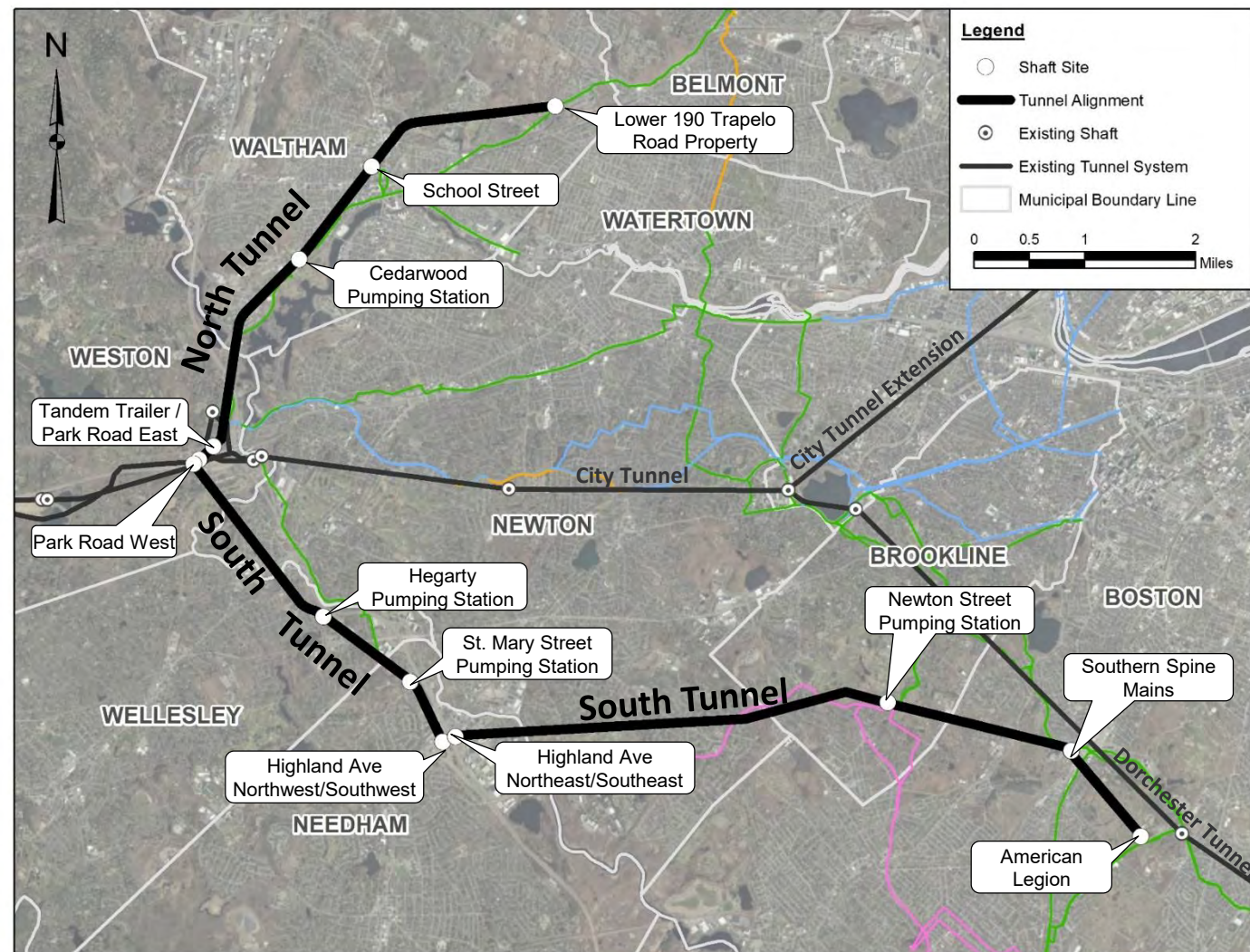
For discussion only





# Metropolitan Water Tunnel Program - Overview

- ~15 miles of deep, hard rock, pressure water tunnels
- 13 Shaft Sites
- Tunnels will begin in the Weston (I-90/I-95 vicinity)
- North Tunnel - ~5 miles, ends in Waltham
- South Tunnel - ~10 miles, ends in Mattapan near American Legion Hwy
- Tunnel Construction anticipated between 2028 and 2040







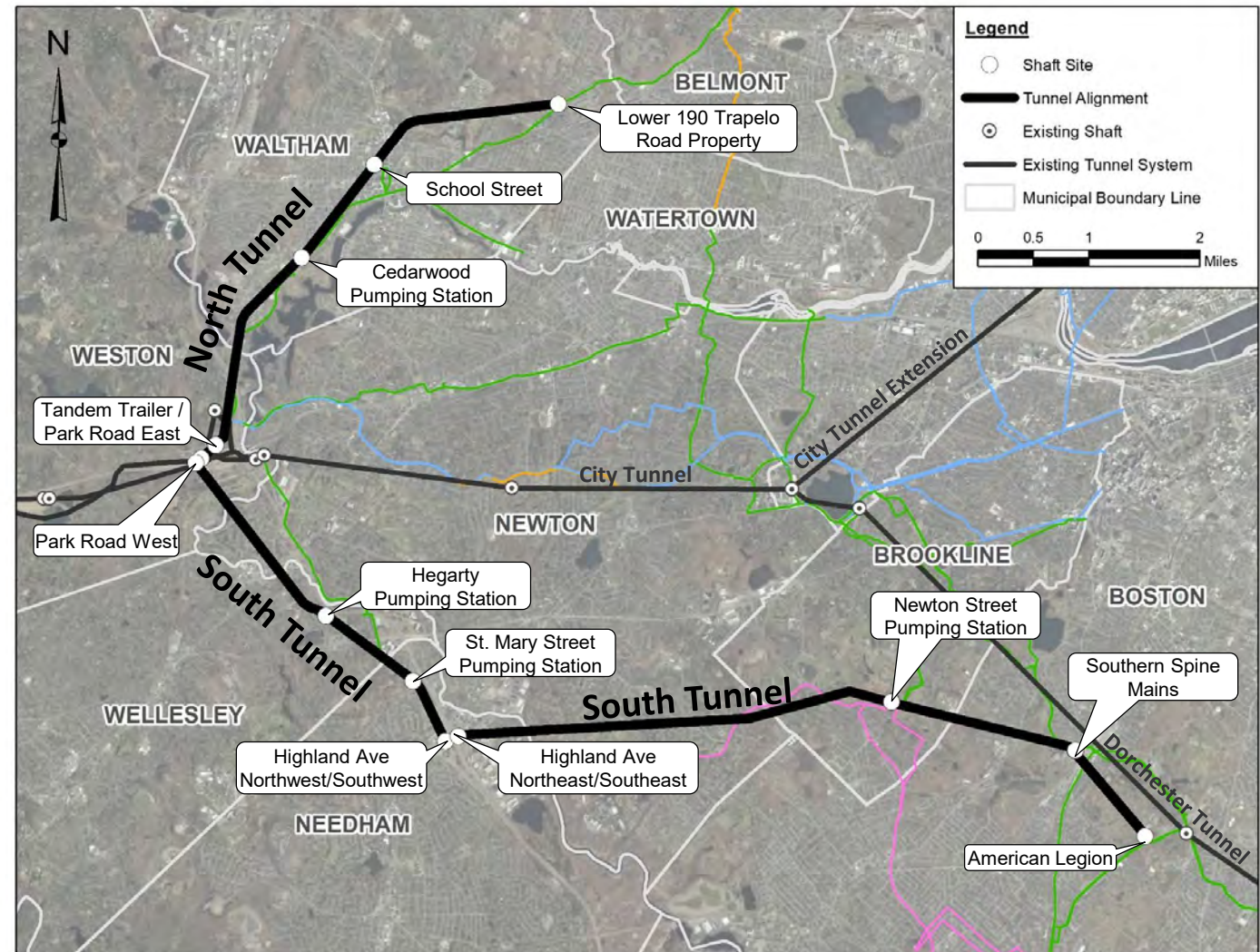
# Shaft Sites

## Construction Shaft Sites

- Lower 190 Trapelo Rd Property, Waltham
- I90/I95 Interchange, Weston
- Highland Ave/I95 Interchange, Needham
- American Legion, Mattapan

## Connection Shaft Sites

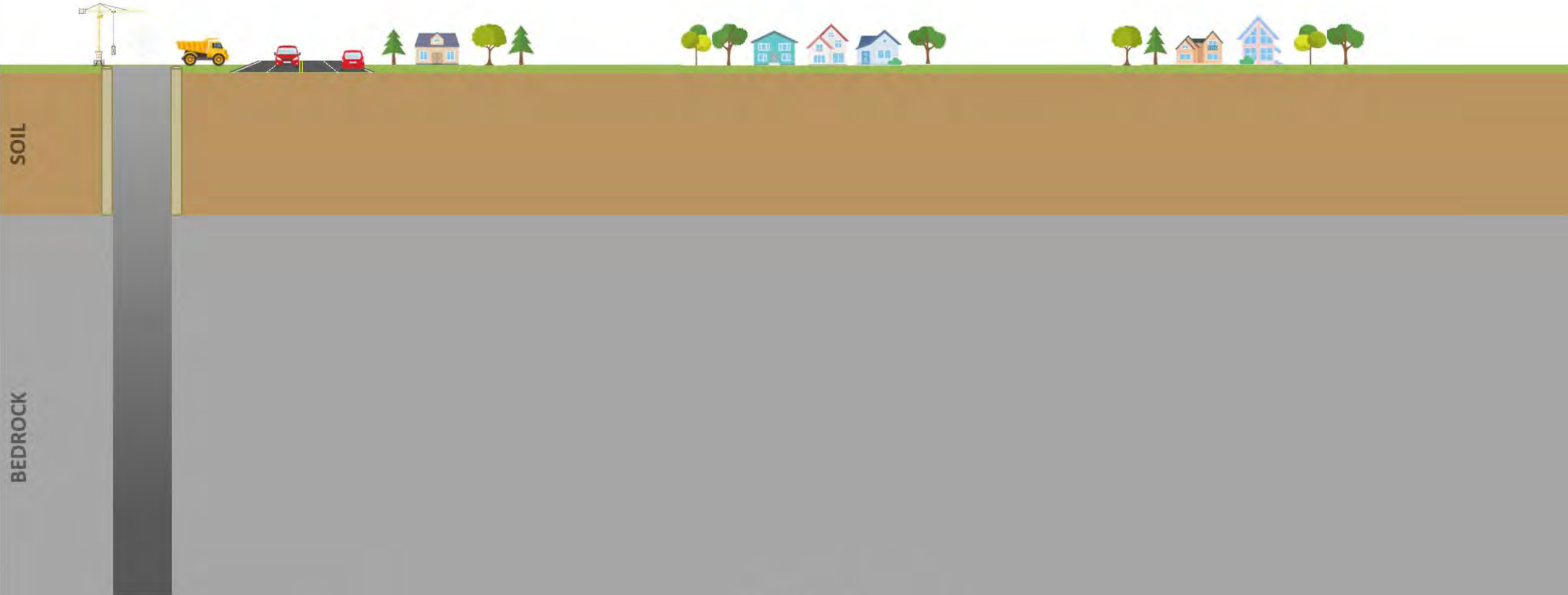
- School St, Waltham
- Cedarwood Pump Station, Waltham
- Hegarty Pump Station, Wellesley
- St. Mary Street Pump Station, Needham
- Newton Street Pump Station, Brookline
- Southern Spine Mains, Boston





# Conceptual Construction

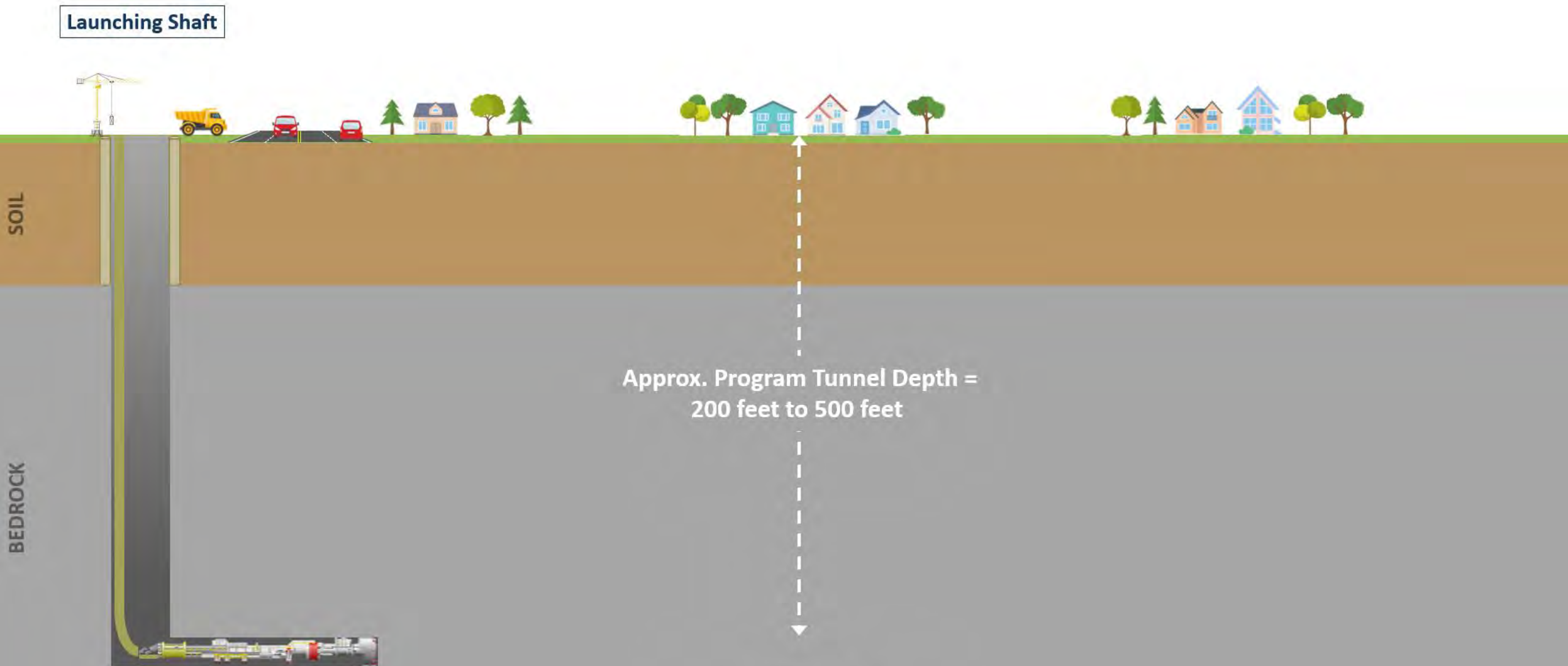
Launching Shaft



NOT TO SCALE  
For discussion only



# Conceptual Construction



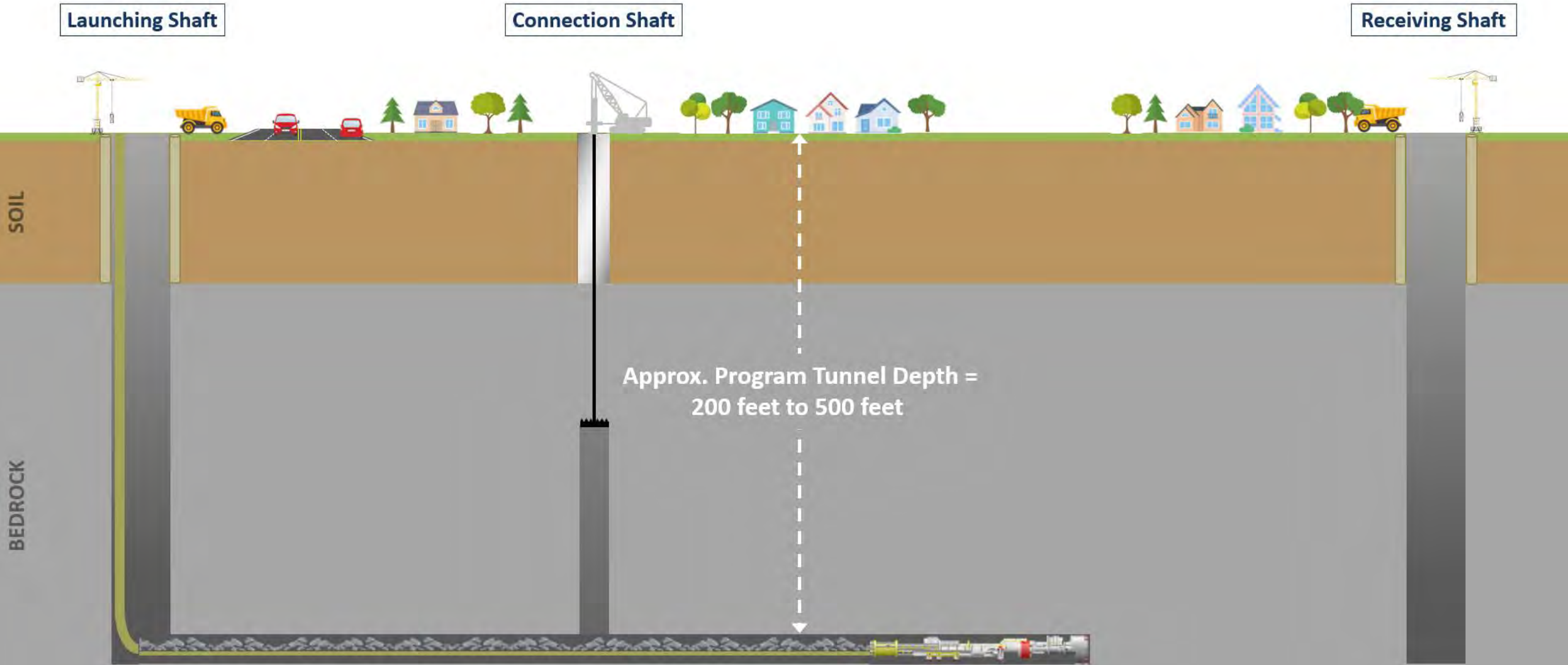
Approx. Program Tunnel Depth =  
200 feet to 500 feet

NOT TO SCALE  
For discussion only





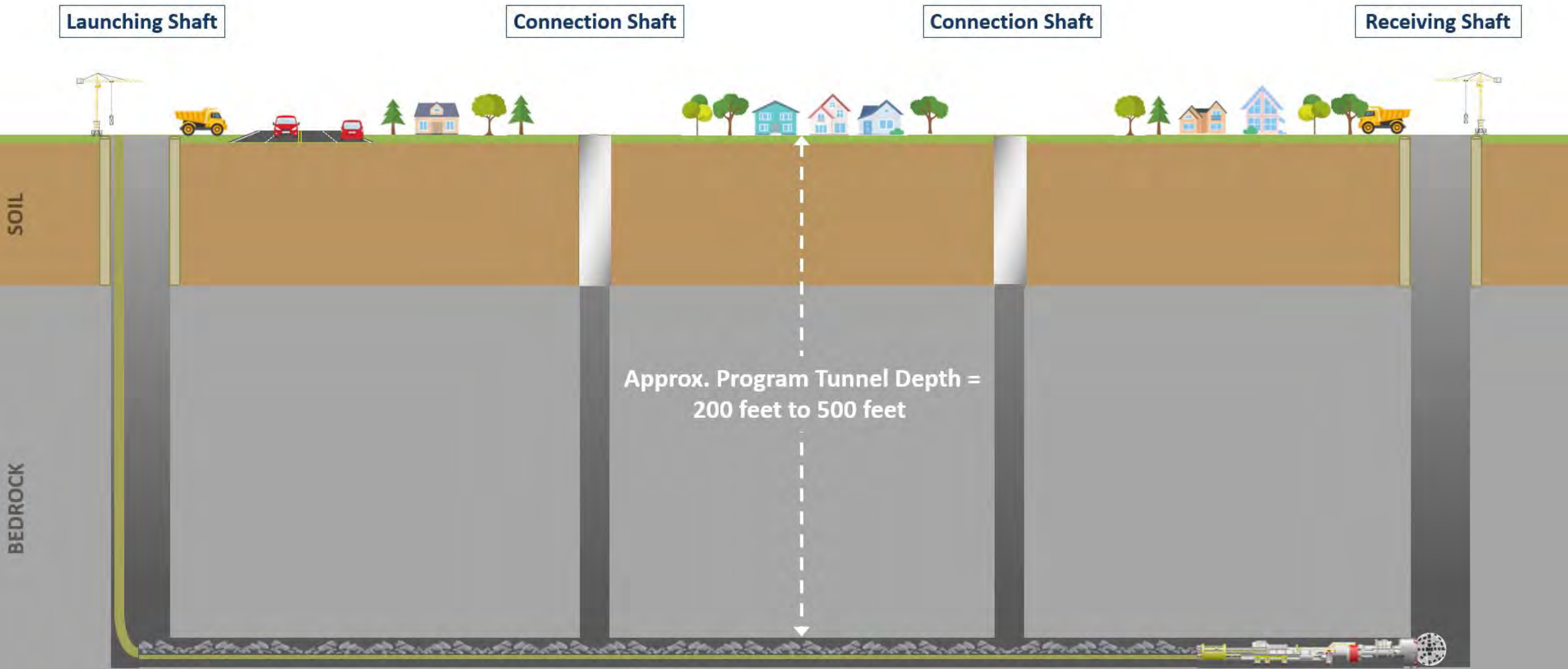
# Conceptual Construction



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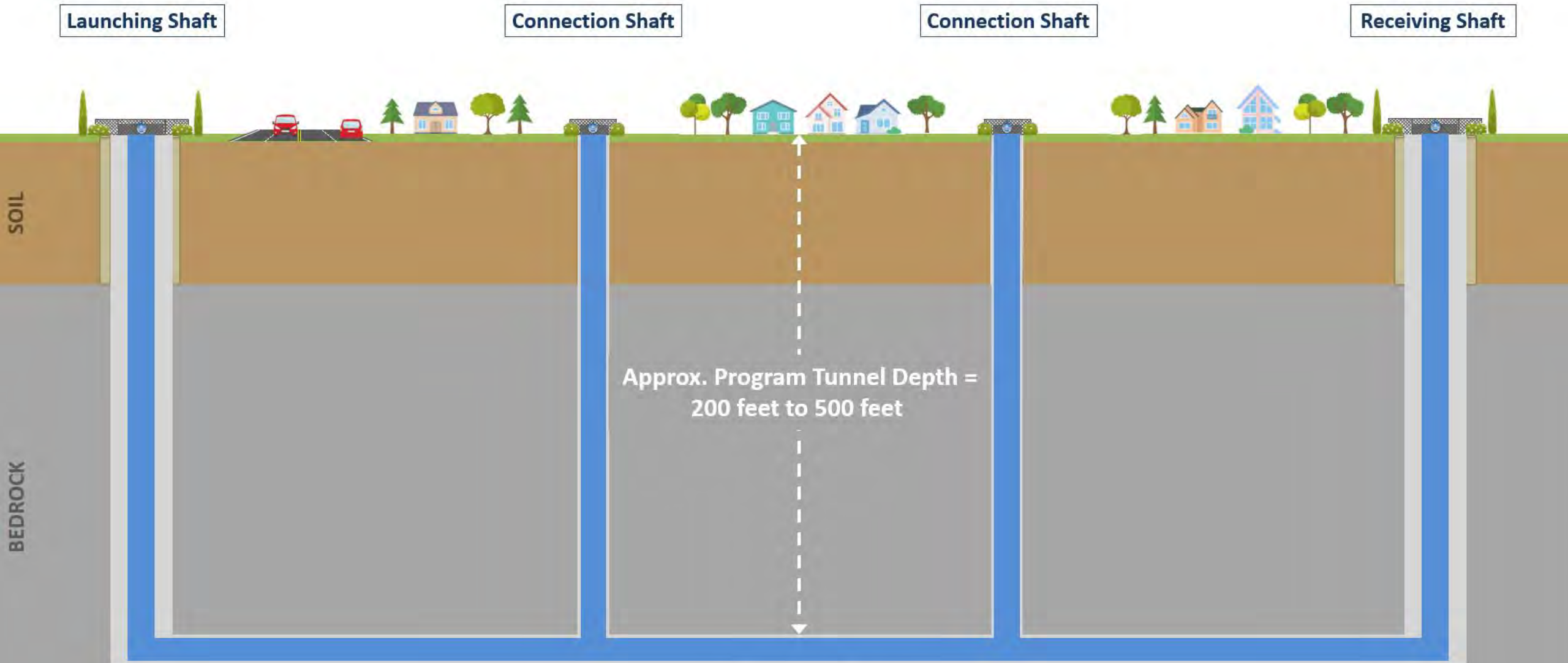
# Conceptual Construction



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For discussion only



# Conceptual Construction



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For discussion only



# Preliminary Design

Early  
Concepts

Prelim. Design  
& EIR

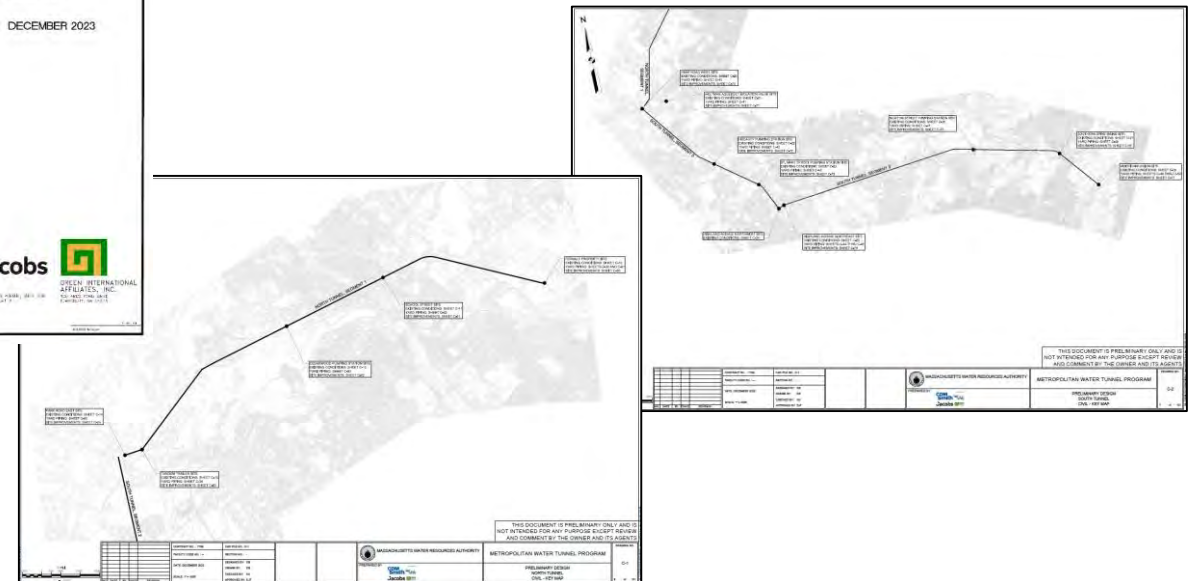
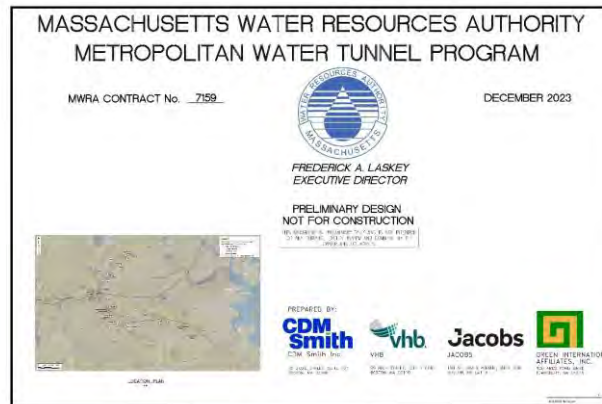
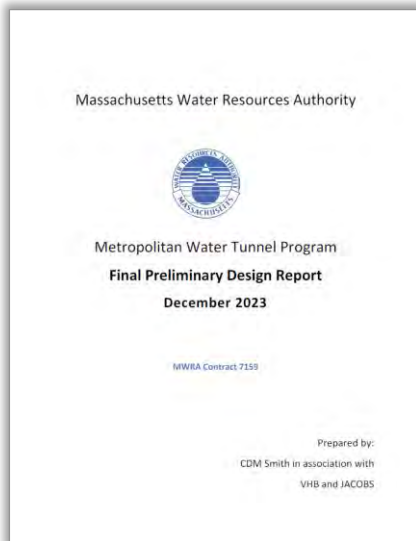
Geotechnical  
Investigations

Final  
Design

Construction

## Preliminary Design (2020 – Early 2024) Complete ✓

- 15 miles of deep rock tunnel
- 100 Year Service Design Life
- Preliminary tunnel alignment and profile, valve chambers and surface pipeline connections
- Construction contract packaging and sequence approach
- Updated construction cost estimate and construction schedule







# Environmental Review Documents

Early  
Concepts

Prelim. Design  
& EIR

Geotechnical  
Investigations

Final  
Design

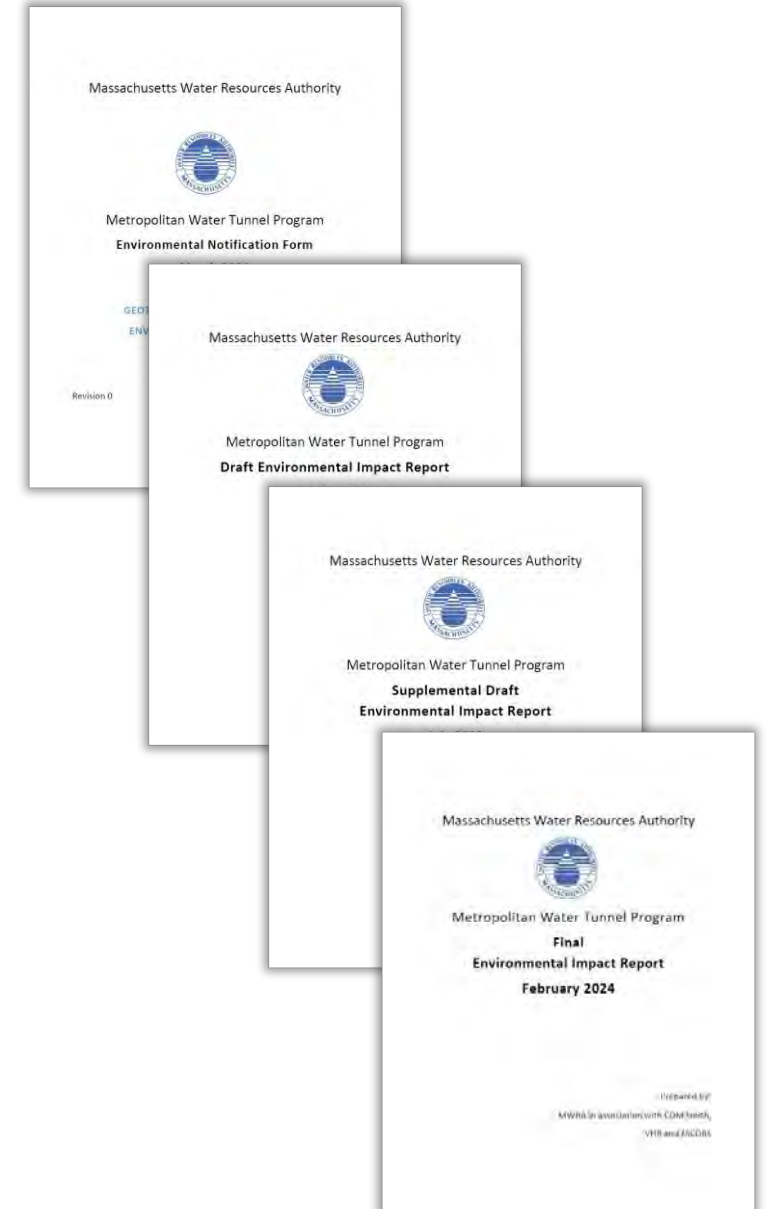
Construction

## MEPA filings and Environmental Impact Reports: Complete ✓

- Environmental Notification Form (ENF), March 2021
  - Certificate Issued May 2021
- Draft Environmental Impact Report (DEIR), October 2022
  - Certificate Issued December 2022
- Supplemental Draft Environmental Impact Report (SDEIR), July 2023
  - Certificate Issued September 2023
- Final Environmental Impact Report (FEIR), February 2024
  - Certificate Issued April 2024

These documents are available on our website:

<https://www.mwra.com/mwtp/resources.html#resources>





# Outreach



- Met with 10 communities in the study area; established Working Groups with representatives from each community
- Numerous meetings with the 7 communities in which the tunnel will be constructed:
  - Town Management, Public Works, Public Safety/Fire, Conservation Commission, etc.
- Multiple meetings with key stakeholders and permit agencies
- Met with numerous organizations, businesses & private property owners to coordinate field work
- Met with several community interest groups
- Established a Website <https://www.mwra.com/mwtp.html> and email address (for questions) [Tunnels.info@mwra.com](mailto:Tunnels.info@mwra.com)
- Created multiple Fact Sheets – available in 4 languages
- Public Information Sessions **Starting February !**

**Outreach will continue throughout final design and construction**





# Geotechnical Investigation




- Phase 1, Preliminary Design/Environmental Impact Report (2020 – 2023) **Complete** ✓
- Phase 2, Geotechnical Support Services (2023 – Early 2026) **Ongoing**
- Phase 3, Final Design (2025 – 2028) **Up Next**



Deep Boring Site Set-up



Deep Boring Site Set-up




### About MWRA's Metropolitan Water Tunnel Program Geotechnical Field Investigation

The Massachusetts Water Resources Authority (MWRA) will be conducting field work to support a major water supply tunnel program in the Metropolitan Boston area. The two new water tunnels will improve the reliability of our water infrastructure and allow our aging existing water tunnel system to be rehabilitated without interrupting service.

The MWRA will be drilling test borings and conducting geophysical surveys in the Metropolitan Boston area. The MWRA will use the data from the field investigations to design and construct solutions that are best suited for the Tunnel Program. The geophysical limits of the field investigations are shown in the shaded area below.





### METROPOLITAN WATER TUNNEL PROGRAM NOTICE TO ABUTTERS

#### NEEDHAM

The Massachusetts Water Resources Authority (MWRA) will be conducting field work to support a major water supply tunnel program in the Metropolitan Boston area. The two proposed water tunnels will improve reliability for our water infrastructure and allow our aging existing water tunnel system to be rehabilitated without interrupting service.

As part of the design effort, MWRA has hired GEI-Deve Joint Venture and other firms to perform pavement cores, vacuum excavations, and test borings to study the existing geological conditions, as well as collecting subsurface soil samples. Observation wells may be installed within selected boreholes to measure groundwater levels.

The site activities will include establishing a work area around each boring location, to provide providing a working space for a drill rig, support trucks, and equipment. Erosion and sedimentation controls will be installed, as needed. At each of the boring locations, the work is estimated to take about 1 to 2 days to complete, including site set-up and breakdown. Upon completion of site activities, our crews will restore the work sites.

MWRA has planned for a total of six test borings along Fremont Street, Charles Street, Wexford Street, Arlington Road, and Brook Road in Needham. The work will be on the public roadways and not on any private property.

For 9<sup>th</sup>, weather dependent, and occur rough Friday. Construction Zone Safety at public safety in each area.

For more information, please contact:  
at the MWRA  
phone at (617) 963-9876

METROPOLITAN WATER TUNNEL PROGRAM									
MWRA CONTRACT NO. 7557									
BORING: B-GSS-405									
CORE RUN: C51-C57									
DATES: 08/01/24									
DEPTH: 171.0 - 187.0									
LOCATION: NEEDHAM									
BOX 10 OF 24									
MWRA CONTRACT No. 7557 B-GSS-405 BOX 10 OF 24 171.0 - 187.0 ft.									





# Final Design

Early  
Concepts

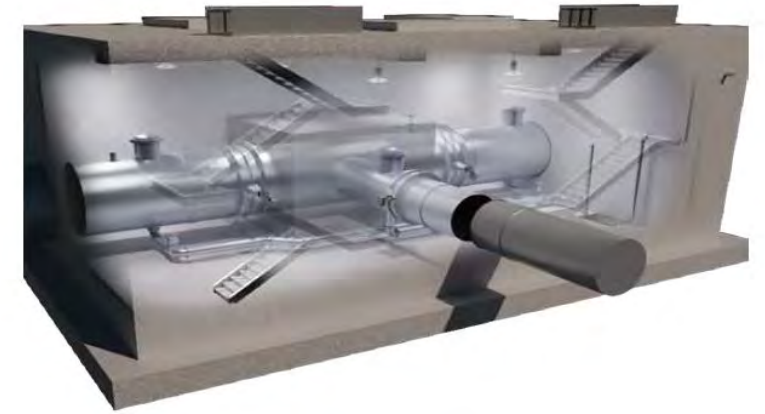
Prelim. Design  
& EIR

Geotechnical  
Investigations

Final  
Design

Construction

- Detailed Design & Contract Document Preparation
- Geotechnical & Environmental Investigations & Reports
- Field work – Test Borings & Survey
- Land Acquisition
- Permitting
- Community Approvals/Agreements
- Continue Outreach
- Securing Power Supply at Shaft Sites



For discussion only





# Permits and Approvals

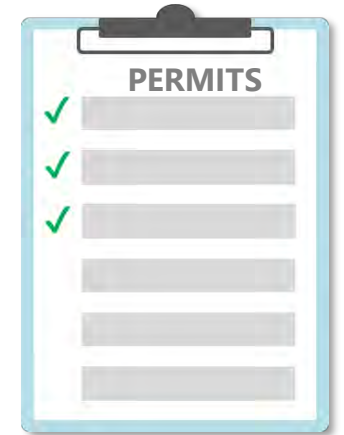


## Commonwealth of Massachusetts

- Massachusetts Environmental Policy Act (MEPA) Review
- Massachusetts Historical Commission (Massachusetts General Law Ch. 9, Section 26-27C)
- Highway Access/Construction Access Permits
- MBTA Right of Way Access License Agreement
- Natural Heritage Endangered Species Program
- Water Management Act Permit
- Chapter 91 Licenses
- Superseding Order of Conditions, upon appeal
- Section 401 Water Quality Certificate
- Distribution System Modification
- Land disposition/easements
- Article 97 Land Disposition Legislation

## Municipal

- Wetlands Protection Act Order of Conditions
- Roadway Access Permits/Street Opening Permit
- Hydrant Permit
- Drainage Discharge Permit



## Federal

- National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP)
- NPDES Dewatering and Remediation General Permit (DRGP), if needed
- Section 404 Department of the Army Permit (General and Preconstruction Notice)



# Construction

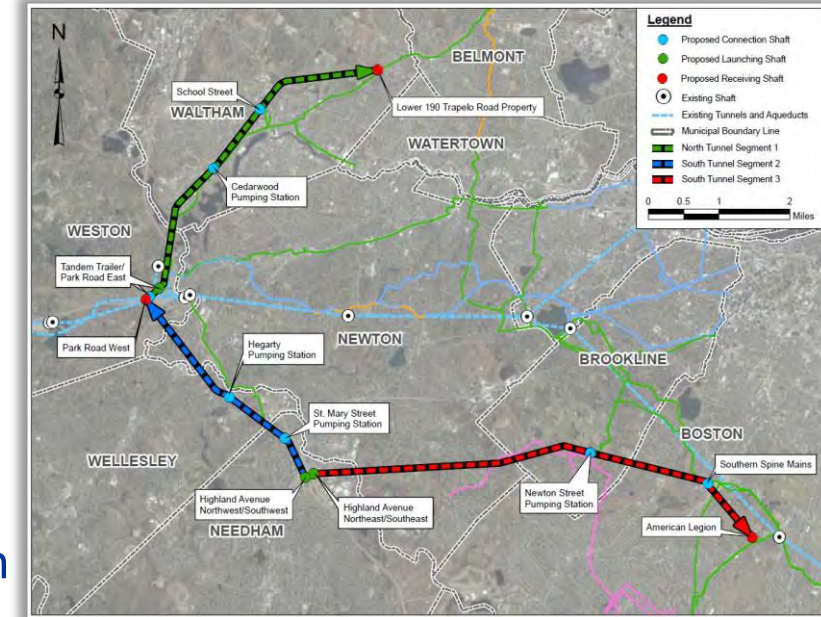


## Tunnel Construction:

- South Tunnel - 2028
- North Tunnel - 2029

## Early Enabling Construction Work: Target to begin 2026

- TBM Power Supply – by Eversource
- Needham Dewatering Drainage Line
- Lower 190 Trapelo Road Property - Building Demolition
- Tandem Trailer Parking Relocation







# Permanent Infrastructure



- Infrastructure is mostly below grade
- Top of shaft structure and valve chamber (~2 ft above grade)
  - Connection piping (all buried)



MWWST Wellesley St  
Connection Shaft, Weston



MWWST Shaft L, Framingham



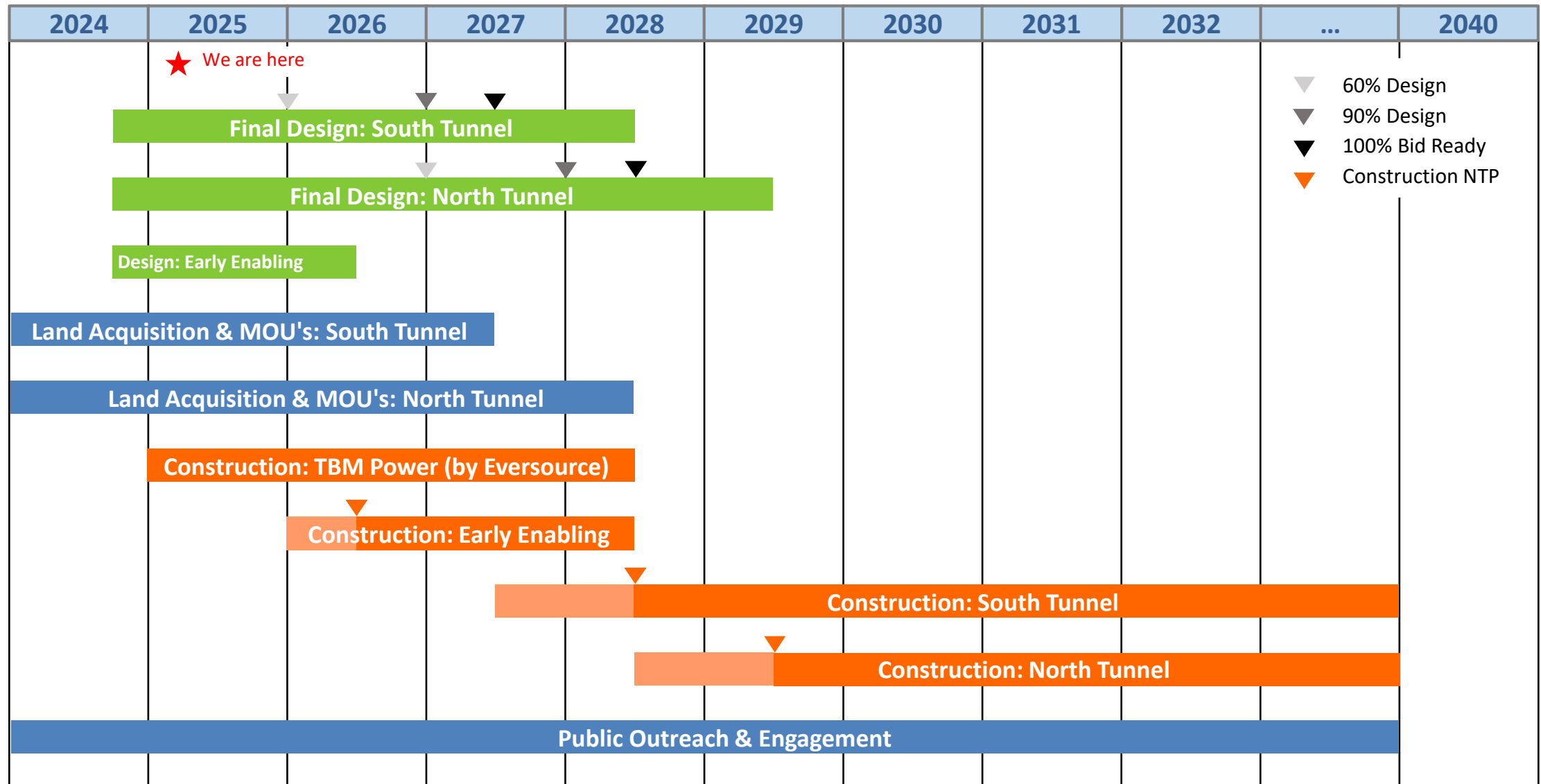
MWWST Shaft 5/5A, Weston



MWWST Shaft E, Southborough



# Tunnel Program - Schedule







## **Metropolitan Water Tunnel Program Public Information Session**

**Wednesday, February 5th, at 6:00PM**

**James Hugh Powers Hall  
2<sup>nd</sup> Floor**

**Needham Town Hall  
1471 Highland Ave, Needham, MA**

<https://www.mwra.com/about-mwra/calendar>



# Where to Find Information / How to Contact Us

- Tunnel Program Website: <https://www.mwra.com/mwtp.html>
  - Program Information
  - Reports and other Documents
  - Meeting Agendas and Minutes
- Program email address: [Tunnels.info@mwra.com](mailto:Tunnels.info@mwra.com)
  - Public inquiries and information requests
- Contact Us
  - Carmine DeMaria, Community Relations Coordinator
  - 617-305-5725
  - [Carmine.DeMaria@mwra.com](mailto:Carmine.DeMaria@mwra.com)







# Metropolitan Water Tunnel Program

**Thank You!**

