



# Metropolitan Water Tunnel Program

## Meeting Minutes

Contract No.: N/A

Contract Name: N/A

### Meeting Title: Working Group Meeting No 7

|          |                                    |              |                    |
|----------|------------------------------------|--------------|--------------------|
| Date     | November 7, 2024                   | Version      | Final              |
| Time     | 9:00 AM to 11:30 AM                | Version Date | November 7, 2024   |
| Location | MWRA Needham Core Storage Facility | Recorded By  | Gina Mician (MWRA) |

### Attendees:

|                      |     |  |    |                                      |     |
|----------------------|-----|--|----|--------------------------------------|-----|
| Kathy Murtagh (MWRA) | KMM | Sean Navin (MWRA)                      | SN | Mike McCormick (FDE)                 | MMC |
| Paul Savard (MWRA)   | PVS | Richard Raiche (Somerville)<br>(WebEx) | RR | Lou Taverna (Newton)                 | LT  |
| Vivian Chan (MWRA)   | VC  | Peter Salvatore (Boston)<br>(WebEx)    | PS | Jennifer Jordan (PSS)                | JJ  |
| Brad Miller (MWRA)   | BAM | Jay Hersey (Brookline)                 | JH | Shane Mark (Needham)<br>(WebEx)      | SM  |
| David Abt (MWRA)     | DA  | Michael Retzky (Needham)               | MR | Gina Mician (MWRA)                   | GM  |
| Gabby Tool (MWRA)    | GT  | Michael Chiasson (Waltham)             | MC | Carmine De Maria<br>(MWRA)           | CDM |
| Chris Dzidek (MWRA)  | CD  | Justin Savignano (Needham)             | JM | Moussa Siri (WSCAC)<br>(WebEx)       | MS  |
| Luis Alvila (FDE)    | LA  | Thomas E. Cullen (Weston)<br>(WebEx)   | TC | Kristin MacDougall<br>(MWRA) (WebEx) | KM  |
| Geoff Hughes (PSS)   | GH  | Michael LaValle (PMA)                  | ML |                                      |     |

### Purpose:

The purpose for the seventh meeting of the Massachusetts Water Resources Authority (MWRA or the Authority), Metropolitan Water Tunnel Program (MWTP or the Program) Working Group was for the MWRA Tunnel Department to provide the Working Group members with an update on the MWTP and to give a tour of the Needham Core Storage Facility located at 116 Gould Street in Needham.

### Summary:

On Thursday, November 7, 2024, the MWTP Working Group members met at the Needham Core Storage Facility (Core Storage Facility) or attended virtually via WebEx. Meeting attendees participated in a series of presentations provided by the MWRA on the progress of the MWTP.



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The following is a summary of items covered, including questions raised by attendees. **Attachment 1** includes the presentation slides projected during the discussion.

## 1. Introductions and Program Overview

- a. Sean Navin (SN) welcomed the Working Group members to the Core Storage Facility and expressed appreciation for their attendance both in-person and online. SN shared the agenda for the meeting to include an overview of the MWTP, the preliminary design and the schedule ahead, followed by questions, a short break and a tour of the Core Storage Facility.
- b. Brad Miller (BAM) gave a safety briefing on the Core Storage Facility highlighting the locations of emergency exits and first aid kits.
- c. Paul Savard (PVS) reviewed the goals of the MWTP and spoke to the graphic on **Slide 6 of Attachment 1**. The figure illustrates the communities served by the Authority in light blue.
  - i. PVS highlighted key points including the existing redundancy via the Hultman Aqueduct and the MetroWest Water Supply Tunnel (MWWST), and the lack of redundancy from the Mass Pike Interchange to the area within the illustrated circle. The existing Metropolitan Tunnel System within this area, includes the City Tunnel, City Tunnel Extension, and Dorchester Tunnel (DT) which serve the metropolitan Boston area.
  - ii. The 2010 water main break highlighted the urgency for redundancy, with significant economic impacts. The MWRA aims to avoid such scenarios by making critical improvements, replacements, and the construction of the MWTP tunnels.

## 2. Dorchester Tunnel Drilling Incident

- a. Kathy Murtagh (KMM) discussed last month's emergency, in which a private contractor installing a geothermal well accidentally drilled through the top of the DT, affecting water supply to approximately 600,000 people in the Boston, Brookline, Canton, Milton, and the Stoughton area. KMM noted that the DT lies approximately 250 feet below ground at that location.
- b. Taking the DT offline required extended operation of the Chestnut Hill Emergency Pump Station (CHEPS). MWRA Operations needed a full day to reconfigure the water system and activate the CHEPS.
- c. BAM and KMM were tasked with developing the fix for the damaged tunnel. A packer device expanded with nitrogen was used to seal the borehole above the tunnel and allowed grouting to fill the hole to the surface.
- d. KMM noted that two geothermal wells had been drilled, and sealing both was essential. The packer and grouting solution successfully contained the leak, with the CHEPS operating for 120 hours.
- e. PVS continued with a discussion on the widespread impacts that a sudden shutdown in the MWRA's Metropolitan Tunnel System could have. PVS emphasized the importance of the MWTP in avoiding future water quality and supply issues. PVS summarized that the overall goal of the MWTP is to provide 100 percent redundancy to the Metropolitan Tunnel System, ensuring water availability without needing to implement restrictions or boil water orders. The new and existing tunnels could operate independently or in various combinations to meet one of the Program's objectives to enable maintenance on the existing tunnels.

## 3. Preliminary Design and Environmental Impact Report (EIR)

- a. PVS reviewed the alignment for the proposed North and South Tunnels. The 4.8-mile North Tunnel will begin at the I-90/I-95 interchange and make a connection to the Weston Aqueduct



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Supply Main (WASM) 3 to supply communities in the north. The South Tunnel extends over 10 miles and connects to communities along its route, ending at the American Legion shaft site.

- b. Preliminary design began in 2020 and finished in January of 2024. Throughout, multiple design alternatives were evaluated through the Massachusetts Environmental Policy Act (MEPA) process to mitigate environmental and community impacts. This effort resulted in the Final Environmental Impact Report (EIR) submission in February 2024 and the Secretary's certificate receipt in April 2024. PVS credited the stakeholders and Working Group members for their contributions. All EIRs are available on the MWRA website (<https://www.mwra.com/mwtp/resources.html>).
- c. PVS reviewed the proposed shaft sites. PVS identified that the green sites will provide system redundancy and are mandatory connections. The blue dots represent other connections to communities, while the yellow site will serve operational needs.
- d. PVS reviewed the current system and the expected layout with the new tunnels online.
  - i. Lou Taverna (LT) inquired about subterranean easements, to which PVS confirmed these would be necessary and discussed later in the presentation.
- e. Gabby Tool (GT) elaborated on the hydraulic modeling used to understand how the system would perform under future high-day demand scenarios, projected at 283 million gallons a day (MGD).
  - i. The WASM 3 work, North and South Tunnel operations, and system connections will be designed to meet each community's needs based on future population and employment projections.
  - ii. GT described operational plans for how both tunnels would provide water flow to various communities, pressure zones, surface pipelines, and pressure-reducing valves.
  - iii. GT explained that this is just one scenario when the new tunnels are in service while the existing Metropolitan Tunnel System is offline.

## 4. Tunnel Program Look Ahead

- a. PVS outlined the tunnel alignment and construction segments. The first segment to launch will be from the Needham I-95/Highland Avenue shaft site, and will span 6.8 miles to the American Legion shaft site in Boston. The second part of the South Tunnel, spanning 3.4 miles will follow, receiving at the Park Road West shaft site. The North Tunnel, 4.8 miles long will launch from the Tandem Trailer shaft site and end at the Lower 190 Trapelo Road Property shaft site in Waltham.
- b. PVS noted tunnel construction methods will include the use of tunnel boring machines (TBMs) and controlled blasting.
  - i. An animation was shown of the sequence of tunneling including the contractor mobilizing to the site, excavation of the shafts by controlled drill and blast techniques, tunnel excavation by TBM, excavated material removed by conveyor back to the launch shaft where it is taken to the surface and loaded onto trucks for disposal.
  - ii. PVS highlighted the importance of the launch shaft being close to the highway to help reduce traffic impacts on local roadways. Other aspects of groundwater control, handling, treatment, and disposal were discussed.
  - iii. After tunnel excavation, tunnel lining is expected to take a couple more years to complete. The tunnel would be put into service after it is filled with water, disinfected, pressurized, and tested.
- c. KMM discussed the timeline to finalize the South Tunnel design and to plan for construction Notice to Proceed (NTP) in 2028. The geotechnical investigations, Memorandum of Understandings (MOU's), land acquisition, TBM power supply and other critical tasks are expected to take considerable time.



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- i. MWRA requires approximately 600 subterranean easements, and land acquisition for shaft sites, with three (3) of the 13 shaft sites fully owned by MWRA. KMM addressed potential community impacts and subterranean easement requirements.
- ii. In conjunction with meeting Occupational Safety and Health Administration (OSHA) standards and contractor safety procedures during construction, community agreements (MOU's) will incorporate tunnel rescue/fire safety training, coordination, and support for local emergency services.

## 5. Public Information Session

- a. SN highlighted an upcoming public information session to raise more awareness of the MWTP to the communities, starting with a session at the Needham Town Hall in early 2025. This meeting will be open to anyone, including those along the tunnel alignment and in the seven (7) communities.
  - i. Information will be made available online, with the MWRA's updated website and translation options to accommodate language needs across communities.
- b. LT asked if the Working Group presentation would be available to the public.
  - i. PVS confirmed and noted that if individuals have additional questions or concerns they should contact MWRA Community Relations Coordinator, Carmine De Maria.
- c. PVS concluded the online portion of the meeting by thanking virtual attendees.

## 6. Shaft Site Figures

- a. Following a break, the in-person group viewed figures showing both construction and final conditions for the 13 shaft sites.
  - i. David Abt (DA) discussed each shaft site's land ownership and MWTP needs for permanent facilities and temporary easements.
  - ii. DA showed some of the preliminary design drawings for the shaft chambers and valves structures to emphasize the size and references of the structures.
    - 1. LT asked about how travel routes between the north cloverleaf to the south cloverleaf of the Needham I-95/Highland Avenue shaft sites will avoid town streets during construction.
      - a. DA responded that travel routes would be further evaluated by the Final Design Engineer (FDE).

## 7. Core Storage Tour

- a. BAM and Vivian Chan (VC) gave a tour of the Core Storage Facility, explaining how it is used to assess rock cores and how such information are then incorporated for tunnel design and construction considerations. BAM noted the MWRA's current 10-year lease of the Core Storage Facility and the lease not continuing after project completion.

## 8. Additional Questions

- a. LT asked about Naturally Occurring Asbestos (NOA) in borings.
  - i. KMM confirmed minor NOA presence, explaining that MWTP contacted the Massachusetts Department of Environmental Protection (MassDEP) immediately and is following safety protocols, as well as brought in an NOA specialist to assist on the Program.
- b. LT asked about identifying drilling breaks versus fault breaks in the cored samples.
  - i. BAM clarified marking procedures during the rock core logging that identify the different types of break.



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- c. Michael Retzky (MR) inquired about construction methods for different rock types.
  - i. VC explained that initial support and final tunnel lining vary by rock quality, strength, and permeability.
- d. Justin Savignano (JS) asked about the tunnel lining process.
  - i. BAM noted that the tunnel would be constructed using a two-pass system, with initial support followed by final tunnel lining. Final tunnel lining is targeted to be mostly unreinforced concrete, along with some stretches of reinforced concrete and some stretches of steel pipe lining depending on ground conditions were described.
- e. Jay Hersey (JH) asked if there were concerns about fault crossings.
  - i. BAM responded with an example of the DT traveling through a fault and noting seismic design considerations not as prevalent in the New England area in comparison to California.
- f. LT inquired about who is responsible for interpreting ground conditions.
  - i. KMM explained that the Geotechnical Baseline Report (GBR) sets baseline conditions for bidding.
- g. LT asked about the roles of Geotechnical Support Services (GSS) and the FDE.
  - i. BAM detailed the GSS's role in data collection and the FDE's role in design as well as additional data collection/interpretation.
- h. JS asked about project costs.
  - i. KMM noted that the Capital Improvement Program (CIP) reported a \$2.1 billion budget for the MWTP in 2023 dollars, with approximately \$1.6 billion allocated for construction.
- i. MR asked about potential property disputes over subterranean easements.
  - i. KMM responded that the MWRA aims to work with property owners, with eminent domain as a last resort.

### Abbreviations:

Board of Directors (BOD)

Chestnut Hill Emergency Pump Station (CHEPS)

Capital Improvement Program (CIP)

Department of Conservation and Recreation (DCR)

Dorchester Tunnel (DT)

Environmental Impact Report (EIR)

Environmental Justice (EJ)

Final Design Engineer (FDE)

Geotechnical Baseline Report (GBR)

Geotechnical Support Services (GSS)

Massachusetts Department of Environmental Protection (MassDEP)

Massachusetts Environmental Policy Act (MEPA)

Massachusetts Water Resources Authority (MWRA)

Metropolitan Water Tunnel Program (MWTP)

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Memorandum of Agreement (MOA)

Memorandum of Understanding (MOU)

Naturally Occurring Asbestos (NOA)

Occupational Safety and Health Administration (OSHA)

Preliminary Design Engineer (PDE)

Tunnel Boring Machine (TBM)

Weston Aqueduct Supply Main (WASM)

## **Attachments:**

Attachment 1. MWTP Working Group Meeting 7 Presentation Slides (November 2024)



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**Attachment 1.** MWTP Working Group Meeting 7 Presentation Slides  
(November 2024)