



# Metropolitan Water Tunnel Program

## Meeting Minutes

**Contract Number:** N/A

**Contract Name:** N/A

**Meeting Title:** Working Group Meeting No. 4

Date	December 1, 2021	Revision	R0
Time	2:00-3:00 PM	Revision Date	N/A
Location	WebEx	Recorded By	Meg Langley (CPP)

### Attendees:

Name (organization)	Initial	Name (organization)	Initial	Name (organization)	Initial
Sean Navin (MWRA)	SN	Kristin MacDougall (MWRA)	KM	Thomas Cullen (Weston)	TC
Kathy Murtagh (MWRA)	KMM	Rebecca Weidman (MWRA)	RW	Martin Pillsbury (MAPC)	MP
Paul Savard (MWRA)	PS	Peter Salvatore (Boston)	PSB	Lexi Dewey (WSCAC)	LD
Colleen Rizzi (MWRA)	CR	Fred Russell (Brookline)	FR	Rafael Castro (JCK)	RC
Anne Canaday (MWRA)	AC	John Sanchez (Burlington)	JS	Meg Langley (CPP)	ML
Ria Convery (MWRA)	RIC	Joseph Flanagan (Dedham)	JF	Tom Lindberg (CPP)	TL
Vivian Chan (MWRA)	VC	Jason Mammone (Dedham)	JM	Tim Dupuis (CDM)	TD
Carmine De Maria (MWRA)	CDM	Lou Taverna (Newton)	LT		
Brad Miller (MWRA)	BM	Michael Chiasson (Waltham)	MC		
		William Shaughnessy (Wellesley)	WS		

### Purpose:

The purpose for the fourth meeting of the Metropolitan Water Tunnel Program Working Group was to explain the criteria and process to evaluate various tunnel alignments for the MEPA process.



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## Summary:

The following is a summary of items covered including next steps as applicable:

1. Sean Navin, MWRA Director of Intergovernmental Affairs, opened the meeting, introduced Paul Savard, MWRA Deputy Director, Design and Construction, and went over the meeting agenda, which included an update to the program schedule, geotechnical field investigation, elements of tunnel alignments alternatives MEPA Review Process, Community & Stakeholder Outreach.
2. PS noted that since the last WG meeting in August, MWRA had acquired a private parcel of land in Waltham needed for the project. The parcel 167-173 School Street will be used for construction of a valve vault and shaft connecting to the tunnel below. The tunnel contractor will construct a pipe connection from the shaft to the suction mains of the Lexington Street Pump Station that are approximately 450 feet away. This will provide one of the connections to the MWRA water system that supplies water to the City of Waltham.
3. Vivian Chan, Geotechnical Manager, gave a geotechnical program update. As part of the Phase 1A field program, we have completed 10 test borings, performed detail bedrock outcrop mapping at 26 locations, and conducted 12,940 feet of seismic refraction survey. The 10 test borings averaged 451 feet deep and included over 4,110 linear feet of rock core collected. The MWRA geotechnical consultant is now cataloguing and testing rock core. The geotechnical work provides important data for understanding the geological conditions at possible shaft sites and along the tunnel. MWRA expects Phase 1B to begin in spring 2022. Phase 1B will continue data gathering to support preliminary design. VC thanked the Working Group members for their assistance with the geotechnical program.
4. PS explained the steps MWRA followed to identify tunnel alternatives for evaluation. Each alternative is a unique set of shaft sites and their shaft function (i.e., launching shaft or receiving shaft) when linked together, creates a complete tunnel system. Each alternative indicates the direction the tunnel boring machine (TBM) would travel (from a launching shaft to a receiving shaft), the approximate length of tunnel between the shafts, and the connection points along a tunnel segment where it will tie into the MWRA or local municipality water system.
5. Development of alternatives started with the two-tunnel concept for the Program. The first tunnel, the north tunnel, will connect to the MWRA's Hultman Aqueduct in Weston. It will extend approximately 4.5 miles to a site near the border between Waltham and Belmont and connect to the MWRA's Weston Aqueduct Supply Main (WASM) 3 pipeline. The second tunnel, the south tunnel, will also connect to the Hultman Aqueduct in Weston and extend approximately 10 miles to a site in Mattapan, near American Legion Highway near the MWRA's Dorchester Tunnel. After identifying possible shaft sites, over 30 alternatives were developed and narrowed to ten feasible alternatives for further consideration.
6. Colleen Rizzi, Design Manager, explained the alternatives evaluation process that the MWRA will use to assess the ten alternatives. This assessment will narrow the selection down to the three most favorable alternatives to be evaluated in more detail. CR noted that the MWRA submitted the



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Environmental Notification Form (ENF) earlier this year and received the Secretary's Certificate in May 2021. The Program is completing the analysis needed for assessing the alternatives and drafting the Environmental Impact Report (EIR) required by the Massachusetts Environmental Policy Act (MEPA). After further evaluation, those three alternatives will be rated to identify the preferred and two backup alternatives that will be presented in the EIR.

7. CR explained the evaluation criteria and process to compare the ten alternatives. The criteria are constructability, land availability, environmental considerations, operations, social and community concerns, cost, and schedule.
8. CR gave an overview of each of the ten alternatives.
  - a. Alternative 1: North Tunnel – Launch the TBM from the Tandem Trailer Parcel to the Fernald Property. South Tunnel – Launch the TBM from the Bifurcation Site to the American Legion site. Both tunnels would connect to the Hultman Aqueduct near the I90/I95 Interchange. Connection to the Hultman Aqueduct in this general area of the Interchange is common to all alternatives. Some key considerations include – this is a very long (approximately 10 miles) single south tunnel with constructability and operational challenges due to its long length. There would be no ability to isolate the south tunnel at some intermediate point along the 10-mile segment. Being able to isolate the tunnel into shorter segments will improve operational flexibility because the MWRA could take one segment out of service for maintenance while the other segment remains in service. Breaking the tunnel into shorter segments also helps tunnel construction by shortening the distance and hence the time the contractor spends moving labor and material from the launch shaft to the TBM and back, and the contractor may be able to reduce other tunnel logistics considerations. Other alternatives look at opportunities to make each tunnel segment more similar in length to help improve these operational and construction concerns. In addition, the MWRA may need to delay access to the Bifurcation Site due to the upcoming MassDOT Bridge Rehabilitation Project. MassDOT intends to rehabilitate the I-90 Bridge over the Charles River just east of the tunnel work. While the rehabilitation is ongoing, we understand that their contractor will use the Bifurcation area for staging. MWRA could not construct the tunnel until after the MassDOT contractor has completed their work at this site. This is a concern with other alternatives as well. Some of the alternatives mitigate this concern by not requiring access to this site until later in the construction period, after the bridge rehabilitation work is completed.
  - b. Alternative 2: North Tunnel – Launch from NW Cloverleaf (Exit 35 B-C Rt.95/258 Needham/Newton) & Receive at Fernald Property with a large connection at Bifurcation Site. South Tunnel – Launch from NE Cloverleaf & Receive at American Legion site. Construction of the north tunnel in this scenario would include constructing part of the south tunnel at the same time from the Highland Ave/I95 Interchange up to the I90/I95 Interchange where it will connect to the Hultman Aqueduct. The north tunnel would also connect to the Hultman Aqueduct near the same location. The contractor would construct a separation between the two tunnels (north tunnel and south tunnel) so the MWRA can isolate each from the other at the Hultman Aqueduct connections. Some key considerations include that this alternative allows construction of the tunnel in more equal tunnel lengths and does not require the



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- Tandem Trailer Parcel. However, although it reduces delay risk due to the bridge project (by launching from the NW cloverleaf of Highland Ave), it does not eliminate this risk.
- c. Alternative 3: North Tunnel – Launch from Tandem Trailer Parcel & Receive at Fernald Property. South Tunnel – Launch from Bifurcation & Receive at NW Cloverleaf, Launch from NE Cloverleaf & Receive at American Legion. Key Considerations - requires the Tandem Trailer Parcel and the MassDOT Bridge Project may delay access to the Bifurcation Site. Use of the Highland Ave site splits South Tunnel into two shorter lengths that is a benefit as described earlier.
  - d. Alternative 4: North Tunnel – Launch from Tandem Trailer Parcel & Receive at Fernald Property. South Tunnel – Launch from NW Cloverleaf & Receive at Park Road, Launch from NE Cloverleaf & Receive at American Legion Key Considerations - Requires the Tandem Trailer parcel. However, the MassDOT Bridge Project would affect the south tunnel construction less because tunnel construction would begin at the I95/Highland Ave Interchange. Highland Ave also splits the south tunnel into two shorter lengths that is a benefit as described earlier.
  - e. Alternative 5: North Tunnel – Launch from Fernald Property & Receive at Tandem Trailer Parcel. South Tunnel – Launch from NW Cloverleaf & Receive at Bifurcation, Launch from NE Cloverleaf & Receive at American Legion. Key Considerations - Launching out of Fernald Property will have more impact on that local community in large part because the site does not have direct highway access for trucks as would be available at the I90/I95 Interchange site. Other construction logistics such as noise control would be more difficult to manage at this property also. Similar to other alternatives, this alternative requires the Tandem Trailer parcel and may have delayed access to Bifurcation Site due to the MassDOT Bridge Project. Similar to other alternatives, the MWRA can construct the south tunnel in two shorter lengths by using the Highland Ave site.
  - f. Alternative 6: North Tunnel – Launch from Tandem Trailer & Receive at Fernald Property. South Tunnels – Launch from NW Cloverleaf & Receive at Bifurcation, Launch from American Legion & Receive at NE Cloverleaf. Key Considerations - Launching out of Mattapan would have similar challenges as launching out of the Fernald Property, such as no direct truck access to major highways and other construction logistics. Similar to other alternatives, this one requires the Tandem Trailer parcel and may have reduced risk of delay for access to Bifurcation Site due to the MassDOT Bridge Project, but it does not eliminate this delay risk. Similar to other alternatives, the MWRA can construct the south tunnel in two shorter lengths by using the Highland Ave site.
  - g. Alternative 7: North Tunnel – Launch from Tandem Trailer Parcel & Receive at Fernald Property. South Tunnels – Launch from NE Cloverleaf & Receive at Bifurcation, Launch from NE Cloverleaf & Receive at American Legion. Key Considerations - Similar to other alternatives, this one requires the Tandem Trailer parcel and may have reduced risk of delay for access to Bifurcation Site due to the MassDOT Bridge Project, but it does not eliminate this delay risk. Similar to other alternatives, the MWRA can construct the south tunnel in two shorter lengths by using the Highland Ave site. This alternative would use a single large shaft with double TBM launch at the NE Cloverleaf (i.e., allow tunneling in two directions from one shaft).



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- h. Alternative 8: North Tunnel – Launch from Tandem Trailer Parcel & Receive at Fernald Property. South Tunnels – Launch from NW Cloverleaf & Receive at Riverside Park, Launch from NE Cloverleaf & Receive at American Legion. Key Considerations - Similar to other alternatives, this one requires the Tandem Trailer parcel. Similar to other alternatives, the MWRA can construct the south tunnel in two shorter lengths by using the Highland Ave site. Unique to this alternative is that it removes the potential delay risk to access the Bifurcation Site due to the MassDOT Bridge Project. However, it increases land availability concerns related to the Riverside Park that would also require Article 97 legislation because it is an active recreation property. It also requires construction of a 10-foot diameter pipe connection to the Hultman Aqueduct from Riverside Park to the MWRA's Hultman Aqueduct that would require crossing below an active railway line (heavily used by MBTA Commuter Rail, Amtrak, and freight lines).
  - i. Alternative 9: North Tunnel – Launch from Bifurcation & Receive at Fernald Property. South Tunnels – Launch from NW Cloverleaf & Receive at Bifurcation, Launch from NE Cloverleaf & Receive at American Legion. Key Considerations - Similar to other alternatives, this one would have risk of delay for access to Bifurcation Site due to the MassDOT Bridge Project. Similar to other alternatives, the MWRA can construct the south tunnel in two shorter lengths by using the Highland Ave site. Although it does not require the Tandem Trailer parcel, it complicates the construction contract interface at the Bifurcation where two contractors will need to coordinate receiving one TBM from the south tunnel possibly while a second TBM is constructing the north tunnel.
  - j. Alternative 10; North Tunnel – Launch from NW Cloverleaf & Receive at Fernald Property with a large connection at Park Road Site. South Tunnel – Launch from NE Cloverleaf & Receive at American Legion. Key Considerations - More equal tunnel lengths. The MassDOT Bridge Project would affect the north and south tunnel construction the least because tunnel construction would begin at the I95/Highland Ave Interchange. MWRA may need to defer start of construction at the I90/I95 site until after the bridge project is completed. Highland Ave also splits the south tunnel into two shorter lengths that is a benefit as described earlier.
  - k. CR opened up to questions; John Sanchez asked if there was a reason for a straight tunnel alignment between shafts vs a curved tunnel alignment. CR explained that the MWRA is representing the tunnel alignment between shafts as the straight (point-to-point) red dash line shown at this early stage of design until more geotechnical investigation is completed. The tunnel design and construction does allow for a curve or radius change. The MWRA will further evaluate the subsurface tunnel alignment as we gather more data on geology etc. JS asked if the TBM would go straight the whole time? Kathy Murtagh explained that the contractor could steer the TBM with some limits on radius of curvature based on the diameter of the TBM.
9. CR described how the MWRA developed the ten alternatives based on considerations of land availability, constructability and engineering (e.g., site function as a launching or receiving shaft, tunnel segment combinations), social & environmental impacts, and risk management & flexibility. The MWRA completed an initial screening of the ten alternatives presented today and found they provide redundancy and would be constructible. Now the MWRA will perform a more detailed



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evaluation to get to the three short listed alternatives and ultimately the preferred alternative.

10. CR went on to explain the next steps in the process of the evaluation of the alternatives. The Program will rate each alternative against the evaluation criteria, finalize the selection of the three short listed alternatives to go be included in the DEIR, perform a deeper evaluation of the three short listed alternatives, continue stakeholder outreach, work on agreements on shaft sites with property owners, and select the preferred alternative.
11. CR described the upcoming "Fun Stuff"; naming the shaft sites and tunnels, creating the Program logo, naming the TBMs, a school education program, and groundbreaking!
12. The Working Group will hold a meeting in spring 2022 where the MWRA will present the preferred and two back up alternatives.
13. CR turned over to SN who went over the MWRA's contact information, reiterated that the Program will come speak to any group who asks and that the next steps would be for the Program to post the meeting notices, agendas, presentations, and meeting minutes.
14. SN opened the floor for questions;
  - a. Lou Taverna asked VC when the geotechnical information collected to date would be available. VC explained she expects a draft early spring 2022. LT also requested a briefing for Newton. He will work with SN to set one up.
15. SN thanked the WG for their time and continued partnership. The meeting adjourned at 2:55 pm.

## Action Items:

MWRA will send out presentation and meeting minutes.

MWRA will post agenda, presentation, handouts, and minutes to the Tunnel Program website:

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

## Attachments:

None.