

Massachusetts Water Resources Authority



Metropolitan Water Tunnel Program

Final

Environmental Impact Report

February 2024

Prepared by:

MWRA in association with CDM Smith,

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February 15, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: MWRA's Metropolitan Water Tunnel Program – EEA #16355
Final Environmental Impact Report

Dear Secretary Tepper,

MWRA is pleased to submit the enclosed Final Environmental Impact Report (FEIR) for the Metropolitan Water Tunnel Program located in multiple communities in the metropolitan Boston area. This FEIR responds to the Secretary of EEA's Supplemental Draft Environmental Impact Report (SDEIR) Certificate issued on September 29, 2023 and provides responses to all comments received on the SDEIR.

Through the Metropolitan Water Tunnel Program (the Program), MWRA proposes to construct approximately 15 miles of two new deep rock tunnels that will provide redundancy for MWRA's existing Metropolitan Tunnel System, which includes the City Tunnel (1950), City Tunnel Extension (1963) and Dorchester Tunnel (1976). The Program will also allow MWRA's aging existing water tunnel system to be rehabilitated without interrupting service. Temporary construction impacts will be associated with the construction of the deep rock tunnels, associated construction shaft sites and intermediate shaft sites.

An electronic copy of the FEIR is being distributed to all parties as noted on the FEIR Distribution List (see Chapter 10 Circulation). We respectfully request that you publish notice of availability of the FEIR for public review in the February 23, 2024 edition of The Environmental Monitor. Public comments are due by March 25, 2024 and a certificate is due to be issued on April 1, 2024.

Please let me know if you have any questions regarding this submittal.

Sincerely,

A handwritten signature in blue ink that reads "Kathleen Murtagh".

Kathleen Murtagh
Director, Tunnel Redundancy Program

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1 Program Description and Permitting

The Massachusetts Water Resources Authority (MWRA) hereby submits this Final Environmental Impact Report (FEIR) on the Metropolitan Water Tunnel Program (the Program) to continue the Program’s review under the Massachusetts Environmental Policy Act (MEPA). The MWRA is a Massachusetts public authority established by an act of the Legislature in 1984 that provides wholesale water and sewer services to 3.1 million people and more than 5,500 businesses in 61 communities in eastern and central Massachusetts.

The Commonwealth of Massachusetts Secretary of the Executive Office of Energy and Environmental Affairs (EEA) issued a Certificate on the Supplemental Draft Environmental Impact Report (SDEIR) for the Program on September 29, 2023. The Certificate on the SDEIR identified a Scope for the FEIR that requested detailed and updated information on the Program and for the MWRA to identify any changes since the filing of the SDEIR. As articulated in the “Project Description and Permitting” section of the Certificate, the Secretary requested that the FEIR:

- Include a detailed and updated description of the Program and identify any changes since the filing of the SDEIR.
- Include an updated description of the Program’s temporary and permanent impacts on environmental resources.
- Include updated site plans for existing and post-development conditions for each Alternative (preferred and backup) that clearly identify environmental resources, either existing land ownership or acquisitions, easements and associated rights required for Program construction, and roadway and intersection jurisdictions.
- Identify and describe applicable state, federal, and local permitting and review requirements and provide an update on the status of each of these pending actions.
- Include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the Program’s consistency with those standards.

In accordance with the Scope requirements, this chapter presents information describing the Program and its purpose and need, alternatives, schedule and phasing, statutory and regulatory standards and requirements, and the permitting and review requirements.

Refer to **FEIR Chapter 9, Responses to Comments**, for the full list of delineated comments received on the SDEIR, along with a copy of Secretary’s Certificate and the comment letters received.

1.1 Program Description

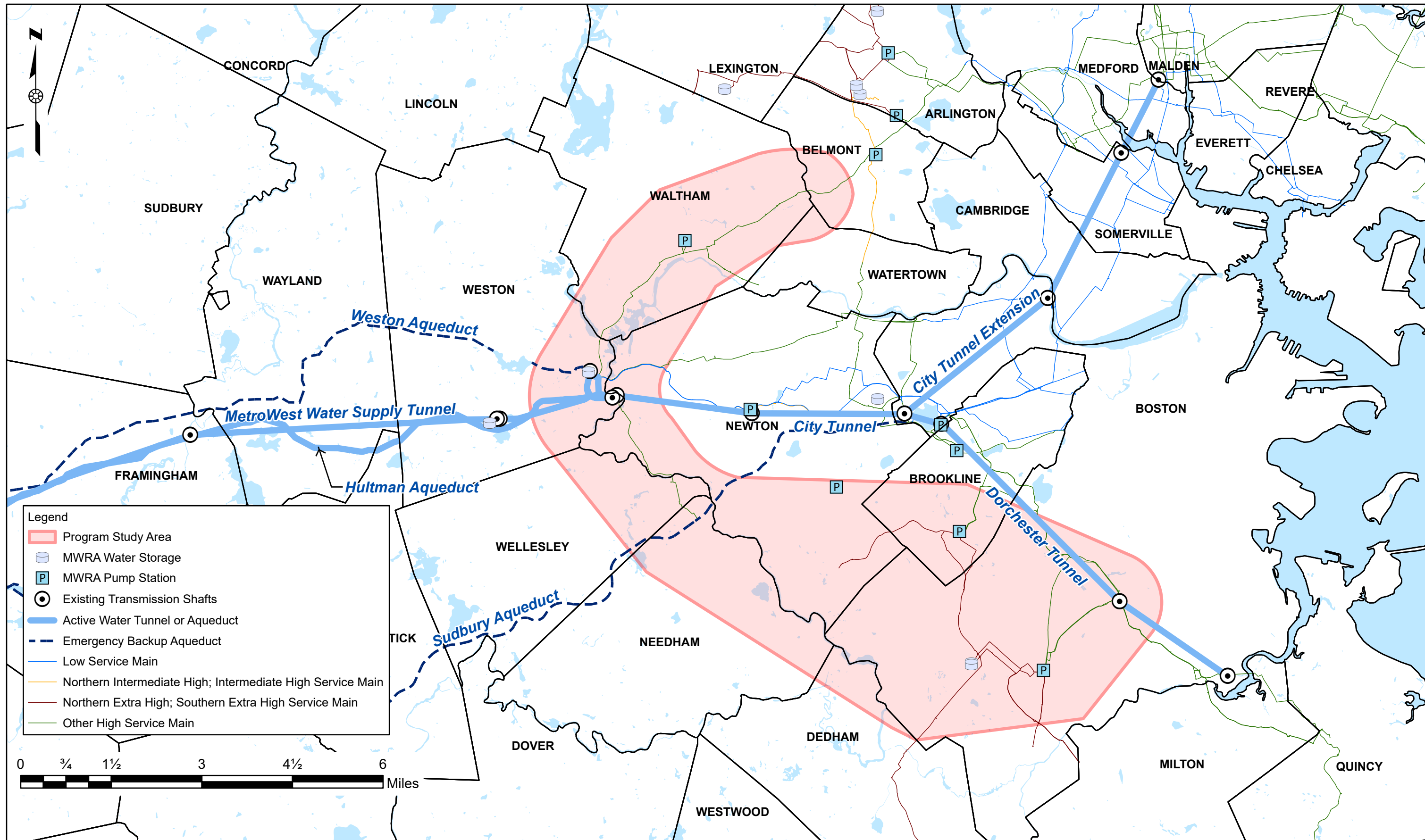
The MWRA plans to construct two new deep rock water supply tunnels (north and south alignments) to provide redundancy for MWRA's existing Metropolitan Tunnel System. The existing Metropolitan Tunnel System includes the City Tunnel (1950), the City Tunnel Extension (1963), and the Dorchester Tunnel (1976). Serving 53 communities, the Metropolitan Tunnel System delivers approximately 60 percent of the water that travels eastward from the Quabbin Reservoir through a series of tunnels and aqueducts to MWRA's John J. Carroll Water Treatment Plant in Marlborough. Treated water is conveyed from the plant through the MetroWest Water Supply Tunnel (MWWST) and the Hultman Aqueduct.

The new, redundant deep-rock tunnels would originate at a site located at the westernmost portion of the existing Metropolitan Tunnel System in the vicinity of the interchange between Interstate 90 (I-90) and Interstate 95 (I-95). The tunnels would be constructed such that water flows in two directions, with one tunnel extending north towards the City of Waltham and the other south towards the City of Boston. Each tunnel would connect to existing water supply infrastructure at key locations to achieve redundancy goals. The Program Study Area encompasses approximately 15 miles of deep rock tunnel approximately 200 to 400 feet below the ground surface of several communities. See **FEIR Figure 1-1** for a depiction of the Program Study Area as previously presented in **SDEIR Figure 1-1**.

The Program was conceived to address outstanding challenges, primarily the inability to maintain or repair the existing Metropolitan Tunnel System or readily respond to emergencies as boil water orders are needed when implementing back-up water supply measures. As a result of the construction of the two new deep-rock tunnels, the Program would allow the MWRA to take its aging existing water tunnel system offline to be rehabilitated without interrupting water service to over 2.5 million water customers.

Program construction is estimated to take 8 to 12 years and is planned to occur between 2027 and 2040. The MWRA expects that the proposed new deep-rock tunnel system would be placed into service before or around 2040 and that the system would have a useful life of more than 100 years. When sizing the proposed facilities, the MWRA considered projected future water demands due to population and employment increases within the service area as well as increased water use efficiency.

The intent of the Program is not to increase the total capacity of the system, but to ensure redundancy by providing a backup to the existing Metropolitan Tunnel System if it were ever out of service for planned or unplanned reasons.



**Metropolitan Water
Tunnel Program**

**Final Environmental
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**Program Study Area
Figure 1-1 (Previously Presented as SDEIR Figure 1-1)**

Belmont, Waltham, Watertown, Weston,
Newton, Wellesley, Needham, Brookline,
Dedham, and Boston, MA

Source: VHB, MassGIS, MWRA

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1.1.1 Summary of Program Changes Since the SDEIR

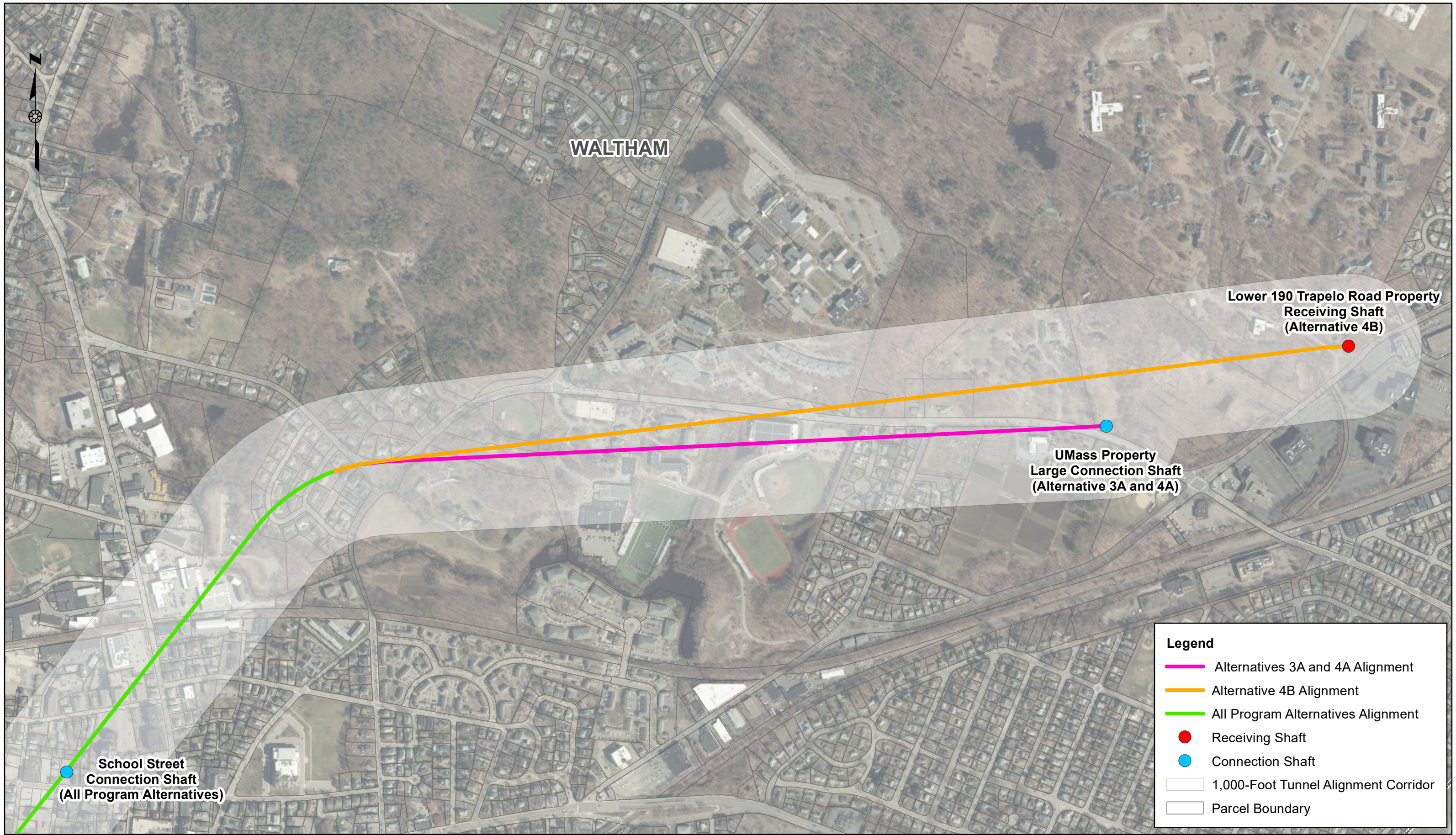
The Secretary's Certificate on the SDEIR identified a Scope for the FEIR that requested detailed and updated information on the Program and for the MWRA to identify any changes since the filing of the SDEIR.

Since the filing of the SDEIR, the MWRA has had additional discussions with the City of Waltham regarding the use of the Lower 190 Trapelo Road Property near the Waverley Oaks Road entrance, previously referred to as the "Lower Fernald Property" in the SDEIR, for the Tunnel Program. The City has indicated a preference for the Lower 190 Trapelo Road Property over the University of Massachusetts (UMass) Property to serve as the terminus of the North Tunnel.

In addition, the lowest scoring SDEIR alternative (Alternative 10A) has been replaced with a modified version of the SDEIR preferred alternative (Alternative 4A). SDEIR Alternative 10A differed from Alternatives 3A and 4A primarily due to the construction of two tunnel segments versus 3 segments and terminating the North Tunnel at the Lower 190 Trapelo Road Property versus the UMass property as described in **SDEIR Section 2.5, Tunnel Segments in SDEIR Alternatives (pg. 2-18)**. Alternative 10A scored lowest due to having a longer duration, more complicated in terms of potential risk and less flexibility in construction contract packaging, and more costly as described in **SDEIR Section 2.8, Selecting the Preferred Alternative (pg. 2-32)**. The modified alternative is referred to as FEIR Alternative 4B. Alternative 4B is the same as Draft Environmental Impact Report (DEIR) Alternative 4 and SDEIR Alternative 4A with the exception of terminating the North Tunnel at the Lower 190 Trapelo Road Property, as shown in **FEIR Figure 1-2**. FEIR Alternative 4B combines the preferred aspects of SDEIR Alternative 4A and 10A and incorporates the City of Waltham's preferred northern terminus location. Alternative 4B introduces no new tunnel segments, tunnel alignments, shaft sites, shaft site usage (i.e., launching, receiving or large connection), construction methodology, construction schedule or duration as compared to those presented and evaluated in the DEIR and SDEIR.

The Program description and temporary and permanent impacts to environmental resources associated with the Program remain the same as described in the SDEIR and are consistent with the Program design at the time of this FEIR. Similarly, the site plans provided in the DEIR and updated in the SDEIR to include the revised northern terminus sites for the North Tunnel, Segment 1, remain current and consistent with the Program design at the time of this FEIR.

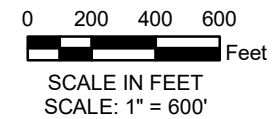
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**Metropolitan Water
Tunnel Program**

**Final Environmental
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2024**

**Massachusetts
Water Resources
Authority**



Waltham, MA

**Comparison of North Tunnel Segment 1 Alignment
School Street Connection Site to North Tunnel Terminus
Figure 1-2**

Source: MWRA, MassGIS, USGS

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1.1.2 Status of Review/Updates to MEPA Guidance

The MWRA filed an Environmental Notification Form (ENF) for the Program with the MEPA Office on March 31, 2021, to initiate review under MEPA. The ENF was noticed in the MEPA Environmental Monitor on April 7, 2021, and the Secretary of the EEA issued a Certificate on the ENF on May 7, 2021, requiring that the Program prepare a mandatory DEIR.

The DEIR was prepared in accordance with the scope outlined in the ENF Certificate. Since the ENF filing, MEPA amended its regulations under 301 Code of Massachusetts Regulations (CMR) 11.00, which were promulgated on December 24, 2021, and January 6, 2023. The DEIR was filed on October 17, 2022, and noticed in the Environmental Monitor of October 24, 2022. On December 16, 2022, the Secretary of the EEA issued a Certificate on the DEIR and determined that the Program did not adequately and properly comply with MEPA due to site availability. The Certificate on the DEIR required that MWRA file an SDEIR to address concerns “related to the viability of the proposed receiving shaft site at the Fernald Property in Waltham, which is common to all alternatives considered for the project for the northern alignment.”¹

As requested in the DEIR Certificate, the MWRA identified and analyzed alternative sites that could replace the DEIR Fernald Property receiving shaft site, which was evaluated as the terminus of the North Tunnel, Segment 1, in each of the three DEIR Alternatives. After an initial level of analysis, two feasible sites were identified that could serve as alternative end points in place of the DEIR Fernald Property site. A description of the site selection process undertaken in the SDEIR to identify and analyze the alternative sites is documented in **SDEIR Chapter 2, Alternatives, Section 2.2.1, Revised North Tunnel Terminus Site (pgs. 2-1 to 2-3)**.

After identifying the two feasible alternative sites, the SDEIR evaluated their existing conditions, conducted an updated assessment of environmental impacts to incorporate the new alternative sites and the resulting refined tunnel alignment, collectively reevaluated the revised Program Alternatives, and identified mitigation where needed. The updated analyses of Program Alternatives and potential environmental impacts incorporating the revised alternative sites are included in **SDEIR Chapter 2** through **SDEIR Chapter 14**. The revised assessment identified a Preferred Alternative (Alternative 4A) and two back up alternatives (Alternative 3A and 10A). See **SDEIR Section 2.7, SDEIR Alternatives and Evaluation Methodology**, and **SDEIR Section 2.8, Selecting the Preferred Alternative**, which describe the alternatives evaluation process and the selection of the Preferred Alternative.

The SDEIR was filed with the MEPA Office on July 31, 2023, and the Secretary of the EEA issued a Certificate on the SDEIR on September 29, 2023. In the Certificate, the Secretary determined that the SDEIR adequately and properly complied with MEPA and directed the MWRA to prepare and submit for review a FEIR. Two of the SDEIR Alternatives (Alternatives 3A and 4A) along with one modified alternative (FEIR Alternative 4B) are carried forward in the FEIR (hereafter referred to as the “Program Alternatives”).

1 Commonwealth of Massachusetts, Certificate of the Secretary of Energy and Environmental Affairs on the Draft Environmental Impact Report for the Metropolitan Water Tunnel Program, December 16, 2022 (refer to **SDEIR Chapter 15, Section 15.2 (pg. 15-3)**).

1.1.2.1 MEPA Protocols

The *MEPA Interim Protocol on Climate Change Adaptation and Resiliency*² is effective for all new filings as of October 1, 2021, and the *MEPA Public Involvement Protocol for Environmental Justice Populations*³ and the *MEPA Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations*⁴ were finalized and are effective as of January 1, 2022, for all new filings. Although the Program ENF was filed before these effective dates, the MWRA continues to voluntarily follow components of these protocols as a part of the EIR. This includes identifying environmental justice (EJ) populations using the EJ Maps Viewer and Department of Public Health (DPH) criterion data by census tract within one mile of each site and along trucking routes to assess Program impacts on EJ populations. Details on the Program's public outreach plan and a summary of the outreach conducted to date, as well as EJ populations near the Program's sites, are documented in **FEIR Chapter 2, Outreach and Environmental Justice**, and **SDEIR Chapter 3, Outreach and Environmental Justice**.

Consistent with the *MEPA Interim Protocol on Climate Change Adaptation and Resiliency*, the MWRA voluntarily used the Resilient Massachusetts Action Teams' Climate Resilience Design Standards Tool (RMAT Tool) to evaluate the Program's climate exposure to sea-level rise, flooding, and extreme heat, as well as methods to mitigate these impacts (see **SDEIR Chapter 7, Climate Change**).

1.2 Program Purpose and Need/Goals

The Metropolitan Tunnel System (City Tunnel, City Tunnel Extension, and Dorchester Tunnel) was constructed from the 1950s to the 1970s and has been in continuous service ever since. While the concrete-lined deep rock tunnels have a long design life, some of the associated valves and piping have exceeded their design life and are currently in poor condition. To exercise, service, and replace some of these valves and piping without interruption to the water supply, a redundant system is needed.

The purpose of the Metropolitan Water Tunnel Program is to enhance the reliability of the Metropolitan Tunnel System that serves the metropolitan Boston area, allowing for system maintenance and repair in a way that maintains the system's ability to provide water needed to support public health and safety without disrupting service.

The primary goal of the Program is to protect public health, provide sanitation, and provide fire protection, in line with the mission of the MWRA. In support of this goal, the Program is intended to:

- Provide redundancy for the Metropolitan Tunnel System.
- Provide normal water service and fire protection when the existing tunnel system is out of service.

2 Massachusetts Environmental Policy Act Office, *MEPA Interim Protocol on Climate Change Adaptation and Resiliency*, effective October 1, 2021, <https://www.mass.gov/doc/mepa-interim-protocol-on-climate-change-adaptation-and-resiliency-effective-oct-1-2021/download>.

3 Massachusetts Environmental Policy Act Office, *MEPA Public Involvement Protocol for Environmental Justice Populations*, effective January 1, 2022, <https://www.mass.gov/doc/final-mepa-public-involvement-protocol-for-environmental-justice-populations-effective-date-of-january-1-2022/download>.

4 Massachusetts Environmental Policy Act Office, *MEPA Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations*, effective January 1, 2022, <https://www.mass.gov/doc/final-mepa-interim-protocol-for-analysis-of-project-impacts-on-environmental-justice-populations-effective-date-of-january-1-2022/download>.

- Provide the ability to perform maintenance on the existing tunnel system year-round.
- Provide uninterrupted service in the event of an emergency shutdown.
- Meet high day demand flow with no seasonal restrictions.
- Avoid activation of emergency reservoirs.
- Meet customer expectations for excellent water quality.
- Preserve sustainable and predictable rates at the water utility level.
- Be constructible.
- Avoid boil water orders.

1.2.1 Condition of the Metropolitan Tunnel System

Each tunnel comprising the existing Metropolitan Tunnel System consists of concrete-lined deep-rock tunnel sections linked to the surface through steel and concrete vertical shafts. At the top of each shaft, cast iron or steel pipes and valves connect to the MWRA's surface pipe network. These pipes and valves are accessed through subterranean vaults and chambers. The tunnels and shafts require little or no maintenance and represent a low risk of failure; however, many of the pipes and valves are in poor condition.

Valve reliability is a particular concern for the Metropolitan Tunnel System. The City Tunnel (1950) appurtenances are more than 70 years old and cannot be adequately maintained or replaced until a back-up exists. Failure of some valves could cut off most of the system's capacity to supply water. Moreover, due to the physical condition, age, and environment in which they were installed, the valves have not been exercised recently for fear of them failing in a closed position which would prevent water supply to downstream portions of the system. At many of the top-of-shaft structures are smaller piping and valves of varying diameters (ranging from less than an inch to several inches in diameter) that provide air and vacuum relief, along with drains, flushing connections, valve by-passes, and control piping for hydraulic valve actuators. Some of these pipes and valves are in a similar deteriorated condition as the main pipes and valves themselves. Failure of one of these smaller diameter connections could require a tunnel shutdown to allow for a safe repair in some of these confined spaces. The amount of water that can flow out of a modest opening under high pressure could exceed 100 million gallons per day (MGD).

Some of these concerns can be minimized in part by replacing corroded bolts, wrapping, or coating corroded pipeline segments, replacing air valves, and installing cathodic protection systems. A separate program is underway to implement some of these measures to reduce the risk of failures that would require complete tunnel shutdown. However, all the potential failure points cannot be addressed without tunnel isolation and complete replacement or maintenance of failed or failing components.

1.3 Summary of Program Alternatives

1.3.1 Overview of the Alternatives Evaluation and Methodology

As described in **DEIR Section 3.2, History of the Program (pg. 3-2)**, the MWRA developed and evaluated a range of alternatives and selected a two-tunnel alternative that was first presented in the ENF. The ENF

included an Alternatives Screening Report that documented the ENF Alternatives screening process. The ENF built on a preliminary alternatives analysis that identified 28 tunnel alignment alternatives, including 13 north tunnel alternatives and 15 south tunnel alternatives (see **DEIR Appendix C, Alternatives Analysis Supporting Documentation**).

DEIR Section 3.2.4, ENF Screening Process and Evaluation Criteria (pg. 3-3), summarizes how two tiers of screening criteria were developed and applied against each of the 28 alternatives in the ENF. The Tier 1 screening criteria addressed the primary Program goals, and alternatives that did not meet the primary Program goals were eliminated from further consideration. Tier 2 featured a high-level assessment of each alternative in terms of its feasibility, potential impacts, and constructability.

The two-tier screening process resulted in a two-tunnel concept where both tunnels would begin in the Town of Weston as both are supplied from existing infrastructure (the Hultman Aqueduct and MWWST). The North Tunnel would extend approximately 4.5 miles to the north, with the Tunnel Boring Machine (TBM) excavation ending near the City of Waltham/Town of Belmont municipal boundary line with a connection to the existing 60-inch diameter Weston Aqueduct Supply Main Three (WASM3). The South Tunnel would begin in Weston and extend approximately 10 miles to the south, with a connection to the distribution pipes near Shaft 7C of the Dorchester Tunnel. Beginning and end points of the tunnel for construction purposes, namely the launching, receiving, and large connection shaft sites, vary by Program Alternative.

Building on the evaluation of alternatives in the ENF, the next step was to set the general location of the tunnel alignments and associated launching, receiving, large connection, and connection sites and identify tunnel alignments made up of segments and routes. The goal was to identify a subset of tunnel alignment alternatives that would proceed through detailed environmental review and assessment in the DEIR. **DEIR Appendix C** describes how a multicriteria decision tool was developed and used to consistently apply evaluation criteria and sub-criteria to evaluate and score the 10 candidate alternatives' components and alignments. As described in **DEIR Section 3.5, Candidate Tunnel Alignment Alternatives to be Evaluated in the DEIR (pg. 3-14)**, the tunnel alignment evaluation process began with identifying nodes⁵ and shaft sites and functions within each node, which were screened for advancement into 10 candidate DEIR Alternatives that were further evaluated. The technical studies, environmental resource impact assessments included in the DEIR, geotechnical investigations, and field surveys described in **DEIR Chapter 4, Existing Conditions and Environmental Assessment**, informed the evaluation process. The screening of the 10 candidate DEIR Alternatives included an evaluation and scoring of each of the Program sites individually, and then cumulatively for the entire tunnel alignment (**DEIR Appendix C.3.1.2**). **DEIR Table C-4, Evaluation Criteria and Scoring (pgs. C-9 to C-13)**, provides a summary of the evaluation criteria categories and sub-criteria, and the associated scoring. **DEIR Section 3.6, Candidate DEIR Alignment Alternatives Evaluation and Scoring Findings (pg. 3-28)**, describes the results of the scoring for each of the 10 candidate DEIR Alternatives and **DEIR Figure 3.7-1** provides a graphical representation of the scoring results. The screening resulted in the selection of three tunnel alignment alternatives (DEIR Alternatives 3, 4, and 10), which underwent further detailed analysis in the DEIR. Among these

5 A node is a site along or at the end of a tunnel segment where a shaft would be constructed. Nodes may include multiple possible shaft sites and corresponding functions.

alternatives, each site was analyzed in detail, with the intent of identifying a Preferred Alternative and two back-up alternatives. The three DEIR Alternatives are described in **DEIR Section 3.8, DEIR Alternatives (pg. 3-68)**.

As described in **FEIR Section 1.1.2**, the Secretary's Certificate on the DEIR required that the SDEIR identify and analyze alternative sites for the northern terminus of the proposed North Tunnel, Segment 1 alignment, which was previously identified in the DEIR as the Fernald Property receiving site in the City of Waltham. In response to the Secretary's request, and in accordance with the Scope the Secretary outlined in the Certificate on the DEIR, the MWRA identified additional sites for review as potential alternative sites in the vicinity of WASM3 in Waltham and Belmont, and to broaden the options, also considered sites with different site functions.

Consistent with **DEIR Section 3.5.1, Identify Nodes and Identify Shaft Sites by Function in Vicinity of Nodes (pg. 3-17)**, the initial level of analysis for identifying potential alternative sites in place of the DEIR Fernald Property site considered availability of land, existing ownership, proximity to WASM3, sufficient site size to accommodate the evaluated function, existing site conditions, accessibility to/from interstate highways, the ability to have permanent access to the site for periodic maintenance and operation, and a high-level environmental screening.

Two sites were identified as potentially viable options for the terminus of the North Tunnel, Segment 1, in place of the DEIR Fernald Property site: the UMass Property site, which would accommodate a large connection shaft in SDEIR Alternatives 3A and 4A; and the Lower 190 Trapelo Road Property site, which would accommodate a receiving shaft in FEIR Alternative 4B (see **SDEIR Chapter 2, Section 2.3, Alternative Sites for the North Tunnel Terminus (pg. 2-7)**). All other sites associated with the two SDEIR Alternatives (3A and 4A) and one modified alternative (FEIR Alternative 4B) are carried forward in the FEIR as the "Program Alternatives". **FEIR Table 1-1** lists the launching, receiving, and large connection sites in the three Program Alternatives. All alternatives include the same six intermediate connection shaft sites that would enable the tunnel system to connect to MWRA or local municipal distribution systems/infrastructure. An isolation valve on the Hultman Aqueduct would also be common to all Program Alternatives.

Table 1-1 Launching, Receiving, and Large Connection Shaft Sites in Program Alternatives

Site	Alternative 3A	Alternative 4A	Alternative 4B
UMass Property (Large Connection)	X	X	
Lower 190 Trapelo Road Property (Receiving)			X
Tandem Trailer (Launching)/Park Road East (Large Connection) ¹	X	X	X
Bifurcation (Launching)	X		
Park Road West (Receiving)		X	X
Highland Avenue Northwest (Receiving)	X		
Highland Avenue Northwest/Southwest (Launching)		X	X
Highland Avenue Northeast/Southeast (Launching)	X	X	X
American Legion (Receiving)	X	X	X

The above table content summarizes the launching, receiving, and large connection shaft sites in the three Program Alternatives and is republished from **SDEIR Table 2-1** for Alternatives 3A and 4A, as previously presented in **SDEIR Section 2.2.1 (pg. 2-3)**.

1 The Tandem Trailer launching shaft site would include a connection tunnel to the Park Road East large connection shaft in all three Alternatives to provide the required connection to the Hultman Aqueduct.

1.3.2 Tunnel Segments in Program Alternatives

FEIR Table 1-2 identifies the tunnel segments in the three Program Alternatives with two carried forward from the SDEIR Alternatives (3A and 4A) and a modified alternative (FEIR Alternative 4B) in place of the least preferred SDEIR Alternative 10A.

Table 1-2 Tunnel Segments in Program Alternatives

Alternative	Segment 1	Segment 2	Segment 3
3A	North Tunnel - Tandem Trailer Launching in Weston to UMass Property Large Connection in Waltham	South Tunnel - Bifurcation Launching in Weston to Highland Avenue Northwest Receiving in Needham	South Tunnel – Highland Avenue Northeast/Southeast Launching in Needham to American Legion Receiving in Boston
4A	North Tunnel - Tandem Trailer Launching in Weston to UMass Property Large Connection in Waltham	South Tunnel - Highland Avenue Northwest/Southwest Launching in Needham to Park Road West Receiving in Weston	South Tunnel - Highland Avenue Northeast/Southeast Launching in Needham to American Legion Receiving in Boston
4B	North Tunnel - Tandem Trailer Launching in Weston to Lower 190 Trapelo Road Property Receiving in Waltham	South Tunnel - Highland Avenue Northwest/Southwest Launching in Needham to Park Road West Receiving in Weston	South Tunnel - Highland Avenue Northeast/Southeast Launching in Needham to American Legion Receiving in Boston

The above table summarizing the tunnel segments is republished for Alternatives 3A and 4A from **SDEIR Table 2-2**, as previously presented in **SDEIR Section 2.5 (pg. 2-18)**.

- The preliminary tunnel alignment for Alternative 3A is depicted in **FEIR Figure 1-3** (previously presented as **SDEIR Figure 2-6**).
- The preliminary tunnel alignment for Alternative 4A is depicted in **FEIR Figure 1-4** (previously presented as **SDEIR Figure 2-7**).
- The preliminary tunnel alignment for Alternative 4B is depicted in **FEIR Figure 1-5**.
- The tunnel construction in all three Alternatives would take place in three tunnel segments.

1.3.3 Summary of Alternative 4B Impacts

SDEIR Chapter 2, Alternatives, compared Program Alternatives 3A and 4A with respect to their potential impacts on environmental resource areas, including EJ, land alteration and protected open space, wetlands and waterways, water supply, impervious area and stormwater management, climate change, air quality and greenhouse gas (GHG) emissions, transportation, rare species and wildlife habitat, noise and vibration, cultural and historic resources, and hazardous materials.

Impacts related to water supply and water management, climate change, air quality and GHG emissions, noise and vibration, cultural and historic resources, and hazardous materials for Alternative 4B are as follows:

- **Water Supply and Water Management Act**
Alternative 4B would rely on the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. The impacts related to water supply and Water Management Act (WMA) within the Lower 190 Trapelo Road Property receiving shaft site were described in **SDEIR Chapter 6, Water Supply and Water Management Act** as part of Alternative 10A. The impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described in **DEIR Chapter 5, Water Supply and Water Management Act** and **SDEIR Chapter 6, Water Supply and Water Management Act**.

The Alternative 4B North Tunnel, Segment 1 Alignment north of the School Street shaft site will follow that of Alternative 10A, terminating at the Lower 190 Trapelo Road Property site. As shown in **SDEIR Figure 6-2**, this portion of the tunnel has one additional irrigation well (Well ID 304769) within 0.5 miles of the tunnel alignment when compared to Alternative 4A. All other wells within 0.5 miles of the Alternative 4B tunnel alignment are the same as those for Alternative 4A.

- **Climate Change**

The impacts related to climate change for the Lower 190 Trapelo Road Property receiving shaft site (now terminus for North Tunnel, Segment 1 of Alternative 4B) were described in **SDEIR Chapter 7, Climate Change** as part of Alternative 10A. The impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described in **DEIR Chapter 8, Climate Change** and **SDEIR Chapter 7, Climate Change**.

- **Air Quality and GHG Emissions**

The impacts related to air quality and GHG emissions relative to the Lower 190 Trapelo Road Property receiving shaft site (now terminus for North Tunnel, Segment 1 of Alternative 4B) were described in **SDEIR Chapter 7, Climate Change** as part of Alternative 10A. The impacts for the remainder of Alternative 4B remain the same as DEIR Alternative 4 and SDEIR Alternative 4A, as described in **DEIR Chapter 6, Climate Change** and **SDEIR Chapter 7, Climate Change**.

- **Noise and Vibration**

The noise and vibration impacts related to the Lower 190 Trapelo Road Property receiving shaft site (now terminus for North Tunnel, Segment 1 of Alternative 4B) were described in **SDEIR Chapter 11, Noise and Vibration** as part of Alternative 10A. The impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described in **DEIR Chapter Section 4.12, Noise and Vibration** and **SDEIR Chapter 11, Noise and Vibration**.

- **Cultural and Historic Resources**

The cultural and historic resource impacts related to the Lower 190 Trapelo Road Property receiving shaft site (now terminus for North Tunnel, Segment 1 of Alternative 4B) were described in **SDEIR Chapter 12, Cultural and Historic Resources** as part of Alternative 10A. The impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 and SDEIR Alternative 4A, as described in **DEIR Section 4.7, Cultural and Historic Resources** and **SDEIR Chapter 12, Cultural and Historic Resources**.

- **Hazardous Materials, Materials Handling, and Recycling.**

The impacts related to hazardous materials, materials handling, and recycling for the Lower 190 Trapelo Road Property receiving shaft site (now terminus for North Tunnel, Segment 1 of Alternative 4B) were described in **SDEIR Chapter 13, Hazardous Materials, Materials Handling, and Recycling** as part of Alternative 10A. The impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described in **DEIR Section**

4.8, Hazardous Materials, Materials Handling, and Reuse and SDEIR Chapter 13, Hazardous Materials, Materials Handling, and Recycling .

Refer to the following FEIR Chapters for all other Alternative 4B impacts:

- **FEIR Chapter 2 – Outreach and Environmental Justice**
- **FEIR Chapter 3 – Land Alteration, Open Space, and Article 97**
- **FEIR Chapter 4 – Wetlands and Waterways**
- **FEIR Chapter 5 – Fisheries**
- **FEIR Chapter 6 – Rare Species**
- **FEIR Chapter 7 – Transportation**

1.3.4 Evaluating the Preferred Alternative

Consistent with the process used to evaluate the alternatives in the ENF, the DEIR, and the SDEIR, the FEIR Alternatives were compared to one another by the evaluation criteria of engineering, land availability, environmental, social/community, operations, cost, and schedule (see **SDEIR Section 2.7, SDEIR Alternatives Evaluation and Methodology (pgs. 2-29 to 2-32)**). The geotechnical investigations, field surveys, and technical studies for each resource category informed the process to select a Preferred Alternative and two back-up alternatives. In addition, the impact assessments performed for each resource category (e.g., transportation, cultural and historic resources, etc.) that are documented in **DEIR Chapter 4, Existing Conditions and Environmental Assessment**, supplemented with information in the technical chapters of the SDEIR and FEIR, were used to inform the evaluation.

A numerical scoring framework was developed to compare the three Alternatives across the seven evaluation criteria described in **SDEIR Section 2.7**. A score of 1 was assigned to a given Alternative if it was considered the “Least Preferred” for a certain evaluation criterion. A score of 3 was assigned if the Alternative was considered “Preferred.” A score of 2 or “Moderate” was assigned if the given Alternative ranked in the middle compared to the other Alternatives. All evaluation criteria were considered equally important and were not weighted.

1.3.4.1 Engineering/Constructability Considerations

All three Program Alternatives have comparable characteristics for availability of utilities, flushing/disinfection and dewatering options, proximity to highways, proximity to sensitive existing infrastructure, groundwater discharge, tunnel length, and geologic features based on the discussions in **SDEIR Section 2.8.1, Engineering/Constructability Considerations (pg. 2-33)**.

The MWRA has performed refined hydraulic analysis for the North Tunnel to discern any difference in long-term operations based on the two terminus locations (Lower 190 Trapelo Road and UMass properties) which result in slightly different overall tunnel length (the tunnel to the Lower 190 Trapelo Road Property is approximately 0.3 miles longer) and different near surface connection pipe lengths (pipeline for the UMass property is approximately 700 feet longer). Based on the refined hydraulic analysis, terminating the North Tunnel at the Lower 190 Trapelo Road Property provides slight improvement in long-term operations when compared to terminating the North Tunnel at the UMass

property. The improvement is due to the shorter near surface pipeline needed to connect to WASM3. The Lower 190 Trapelo Road Property is located approximately 1,450 feet north of the UMass property and allows for a slightly better hydraulic connection to WASM3 and MWRA's existing water distribution system. The hydraulic performance within the tunnel is nearly identical for the two different tunnel terminus locations. SDEIR Alternative 4A and FEIR Alternative 4B have the additional benefit of a potential Value Engineering option later in the design phase to combine the Highland Avenue launching shaft sites.

Based on these engineering/constructability considerations, FEIR Alternative 4B is Preferred (Score 3), followed by SDEIR Alternative 4A (Score 2), and SDEIR Alternative 3A (Score 1).

1.3.4.2 Land Availability Considerations

Land availability characteristics for all three Program Alternatives are discussed in **SDEIR Section 2.8.2**. In addition, **SDEIR Chapter 4, Land Alteration and Article 97, DEIR Chapter 4.9, Land Use, and DEIR Chapter 4.13, Community Resources and Open Space**, informed the process to select the Preferred Alternative and two backup alternatives per the land availability considerations.

As indicated in the SDEIR, Alternative 3A scored lower than Alternative 4A and 4B due to potential implications of the Massachusetts Department of Transportation (MassDOT) Project No. 606783, "Newton-Weston-Bridge Bundle, Replacement and Rehabilitation at I-90/I-95 Interchange Including Ramp G (DB)," in Weston, which presents a potential risk regarding land availability for the Bifurcation site. It is anticipated that the land would be available after the MassDOT construction is completed. The MassDOT schedule is for construction to occupy that site from 2023 through 2027.⁶ Any delays in schedule may impact the availability of access to the Bifurcation launching shaft site in SDEIR Alternative 3A.

Based on discussions with the City of Waltham since the SDEIR, and the City's stated preference for the northern terminus at the Lower 190 Trapelo Road Property, land availability for FEIR Alternative 4A and 4B score higher (Score 3) than SDEIR Alternatives 3A (Score 2).

1.3.4.3 Environmental Considerations

All three Program Alternatives were considered to have similar potential environmental impacts based on the discussion in **SDEIR Section 2.8.3, FEIR Section 1.3.3**, and based on the evaluation of potential impacts included in the DEIR, SDEIR, and FEIR technical chapters (with mitigation measures incorporated where necessary).

Based on these evaluations all three Program Alternative are considered equal (Score 3).

6 Massachusetts Department of Transportation, "Newton-Weston-Bridge Bundle, Replacement and Rehabilitation at I-90/I-95 Interchange Including Ramp G (DB)," Project No. 606783, https://hwy.massdot.state.ma.us/ProjectInfo/Main.asp?ACTION=ViewProject&PROJECT_NO=606783 (accessed May 24, 2023)

1.3.4.4 Social/Community Considerations

Across all Program sites, the three Program Alternatives have comparable overall potential impacts to land use, community resources and open space, EJ, traffic, air quality and GHG emissions, and noise and vibration. There would be a difference in social/community considerations between SDEIR Alternative 3A/4A compared to FEIR Alternative 4B due to the terminus sites considered for the North Tunnel, Segment 1. Compared to the UMass Property site (SDEIR Alternatives 3A and 4A), the Lower 190 Trapelo Road Property site (FEIR Alternative 4B) is anticipated to experience a greater temporary increase in traffic, vibration, and air quality and GHG emissions during construction activities since a receiving shaft would be constructed instead of a large connection shaft site. Refer to discussion in **SDEIR Section 2.8.4, Social/Community Considerations (pg. 2-36)**.

Based on these social/community considerations, SDEIR Alternatives 3A/4A have comparable potential social/community impacts, taking potential mitigation measures into account, and are preferred (Score 3) and FEIR Alternative 4B has more potential social/community impacts because of the receiving site versus large connection (Score 1).

1.3.4.5 Operations Considerations

As assumed in the DEIR and SDEIR, all three FEIR Program Alternatives are comparable regarding flexibility of operations and making provision for maintenance activities. Each alternative includes the necessary valving to isolate critical sections of MWRA infrastructure including dedicated connections to the Hultman Aqueduct for the North Tunnel and the South Tunnel, the Hultman Aqueduct Isolation Valve, and the Highland Avenue Northeast Isolation Valve. Maintenance considerations have been coordinated with MWRA Operations personnel and were included in the sizing and layout of all permanent facilities to facilitate the proactive and safe maintenance of these critical infrastructure elements. There would be a minor difference in operations between SDEIR Alternative 3A/4A compared to FEIR Alternative 4B considering the results of the refined hydraulics analysis performed for the North Tunnel, which indicate a slight operations benefit of a North Tunnel terminus at the Lower 190 Trapelo Road Property (FEIR Alternative 4B).

Based on these operations considerations, SDEIR Alternatives 3A/4A have comparable potential operations impacts (Score 2) and FEIR Alternative 4B has better operations impacts and is preferred (Score 3).

1.3.4.6 Cost Considerations

The costs considerations for SDEIR Alternatives 3A and 4A remain as presented in **SDEIR Section 2.8.6**. The cost considerations for FEIR Alternative 4B are similar to SDEIR Alternative 4A with the following minor exceptions:

- Slightly increased construction costs for a receiving shaft at the Lower 190 Trapelo Road Property (4B) compared to a large connection shaft at the UMass Property (4A)

- Slightly increased costs associated with 0.3 miles of additional tunnel to terminate the North Tunnel at the Lower 190 Trapelo Road Property (4B) compared to the UMass Property (4A)
- Reduced risk and improved construction efficiency for construction of a receiving shaft at the Lower 190 Trapelo Road Property (4B) which would allow the TBM to be removed at the North Tunnel terminus compared to a large connection shaft at the UMass Property (4A) which would require the TBM to be disassembled in the tunnel, parts transported back through the tunnel and removed through the launch shaft with the shell of the TBM left abandoned in the ground at the large connection site, or the TBM may be backed out the whole length to the launching site at Tandem Trailer
- Larger valve chamber but a shorter near surface connection piping to connect to WASM 3 associated with FEIR Alternative 4B

The combination of these cost considerations balance out with SDEIR Alternative 4A and FEIR Alternative 4B being essentially the same.

Based on these costs considerations, SDEIR Alternative 4A and FEIR Alternative 4B are Preferred (Score 3), followed by SDEIR Alternative 3A (Score 2).

1.3.4.7 Schedule Considerations

The schedule considerations for SDEIR Alternatives 3A and 4A remain as presented in **SDEIR Section 2.8.7**. The schedule considerations for FEIR Alternative 4B are essentially the same as SDEIR Alternative 4A since any schedule increase for mining and lining of 0.3 miles of additional tunnel to terminate the North Tunnel at the Lower 190 Trapelo Road Property (4B) compared to the UMass Property (4A) is anticipated to be balanced by improved construction efficiency from a receiving shaft at the Lower 190 Trapelo Road Property (4B) which would allow the TBM to be removed at the North Tunnel terminus. A large connection shaft at the UMass Property (4A) would require the TBM to be disassembled in the tunnel, parts transported back through the tunnel and removed through the launch shaft with the shell of the TBM left abandoned in the ground at the large connection site, or the TBM may be backed out the whole length to the launching site at Tandem Trailer.

Based on these schedule considerations, all three Program Alternative are considered equal (Score 3).

1.3.5 Identifying the Preferred Alternative

FEIR Table 1-3 summarizes the results of the alternatives evaluation across the seven evaluation criteria. All three Program Alternatives provide the required hydraulic, redundancy, and operational features to achieve the MWRA's expressed goals.

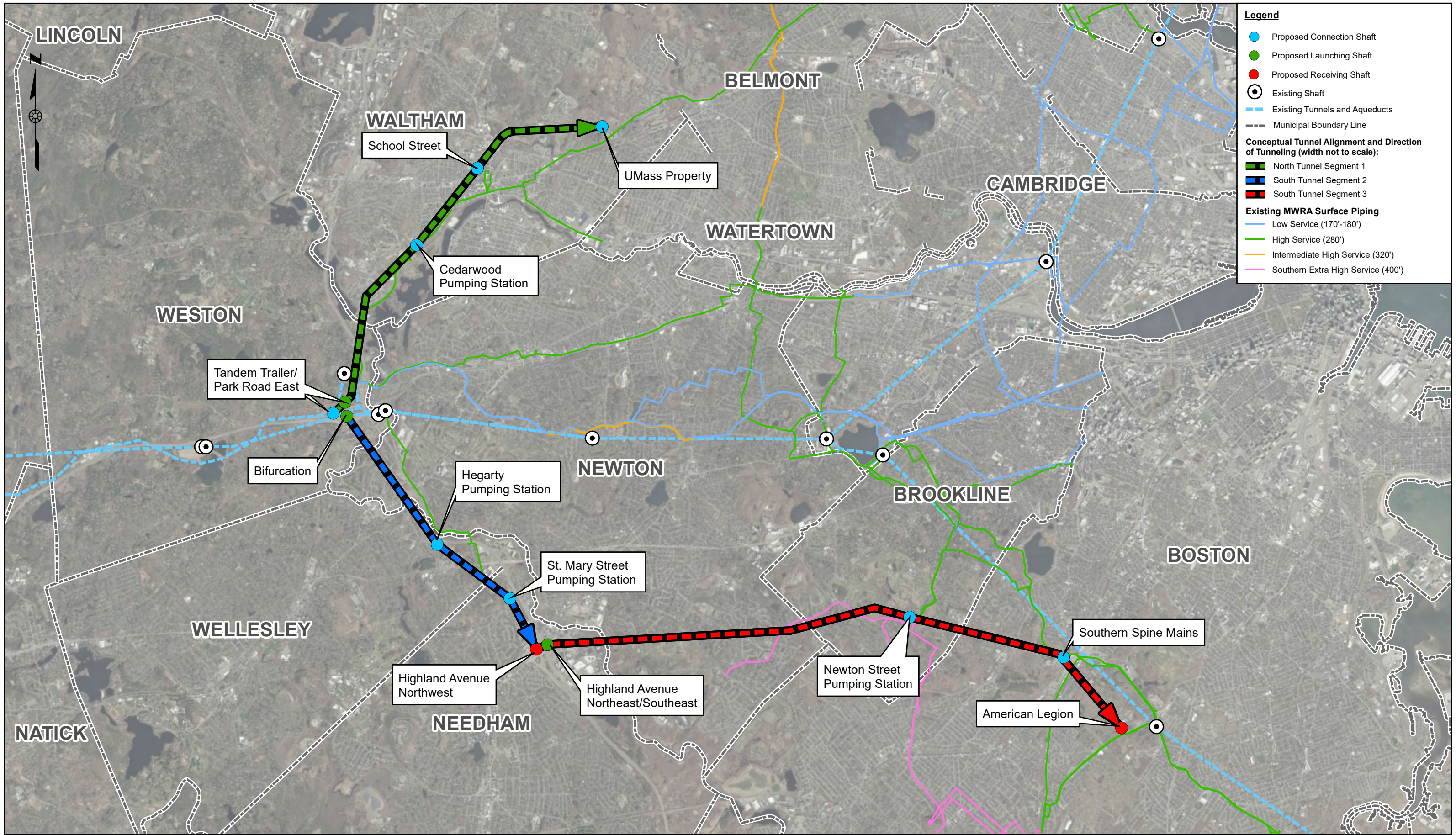
Table 1-3 Summary Ranking of Evaluation Criteria and Recommended Preferred Alternative

Criteria	Alternative 3A	Alternative 4A	Alternative 4B
Engineering/Constructability	1	2	3
Land Availability	2	3	3
Environmental	3	3	3
Social/Community	3	3	1
Operations	2	2	3
Cost	2	3	3
Schedule	3	3	3
Cumulative Score	16	19	19
Overall Evaluation	Backup	Backup	Preferred

The above table content summarizes the ranking of evaluation criteria in the three FEIR Program Alternatives and incorporates changes to the ranking for engineering/constructability and operation for Alternatives 3A and 4A as previously presented in **SDEIR Section 2.8.8 (pg. 2-41)**. The changes reflect the relative comparison of the three FEIR Program Alternatives considering changes since the SDEIR as presented in **FEIR Section 1.1.1**. *3 = Preferred, 2 = Moderate, 1 = Least Preferred*

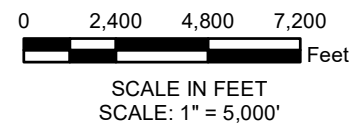
Therefore, based on the engineering/constructability, land availability, social/community, operations, and cost (cost differential) evaluation criteria, **Alternative 4B is identified as the Preferred Alternative**. As shown in **FEIR Table 1-3**, Alternative 4B received a “Preferred” rating (score of 3) in six of the seven evaluation criteria and a resulting total score of 19. Alternative 4A received the same total score (19) with only five of the evaluation criterial receiving a score of 3, followed by Alternative 3A with the lowest total score (16).

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**Metropolitan Water
Tunnel Program**

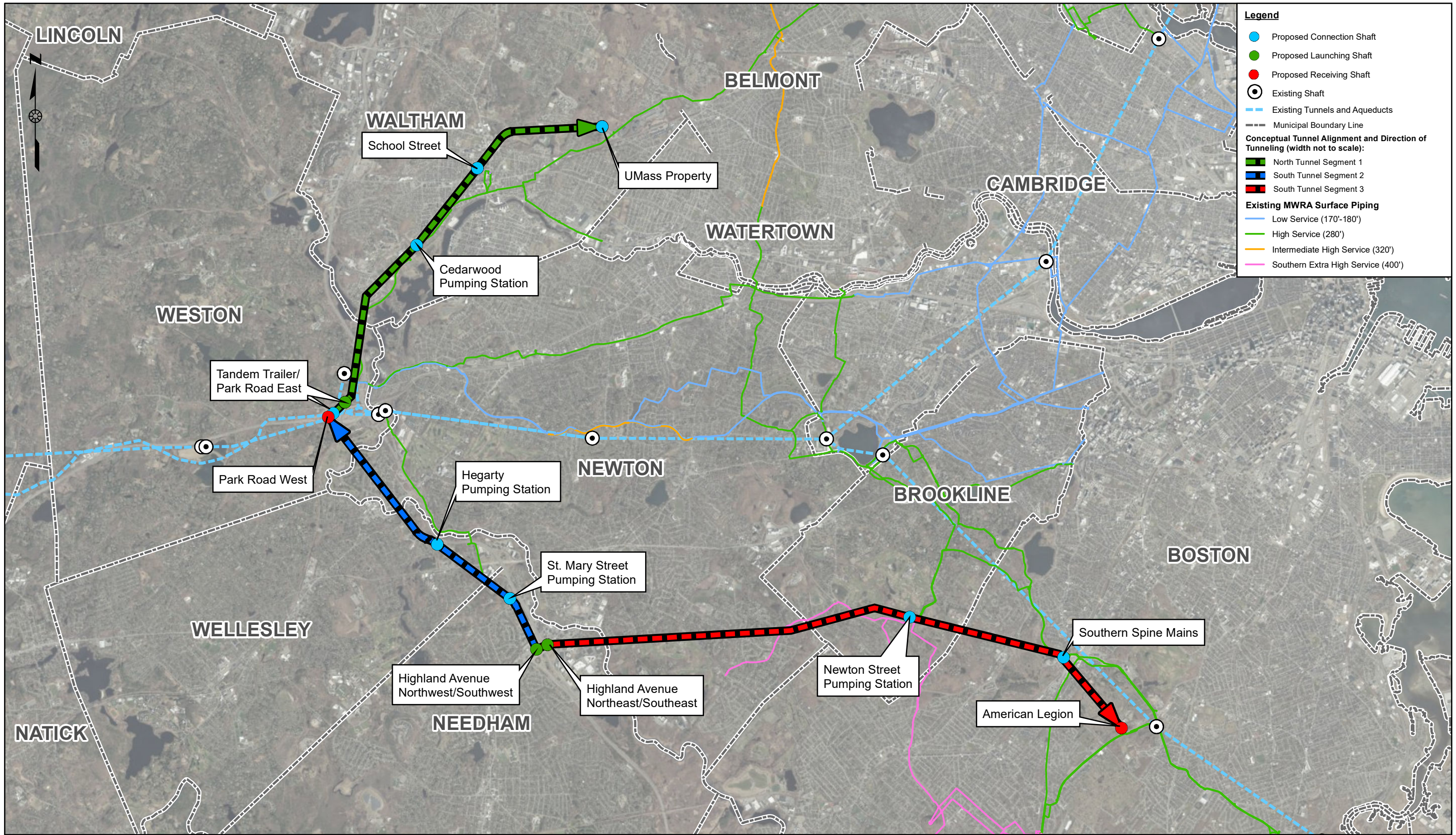
**Final Environmental
Impact Report**



**Alternative 3A
Figure 1-3
(Previously Presented as SDEIR Figure 2-6)**

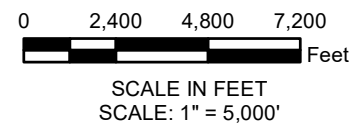
Source: MWRA, CDM Smith, VHB, Jacobs, MassGIS, USGS

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**Metropolitan Water
Tunnel Program**

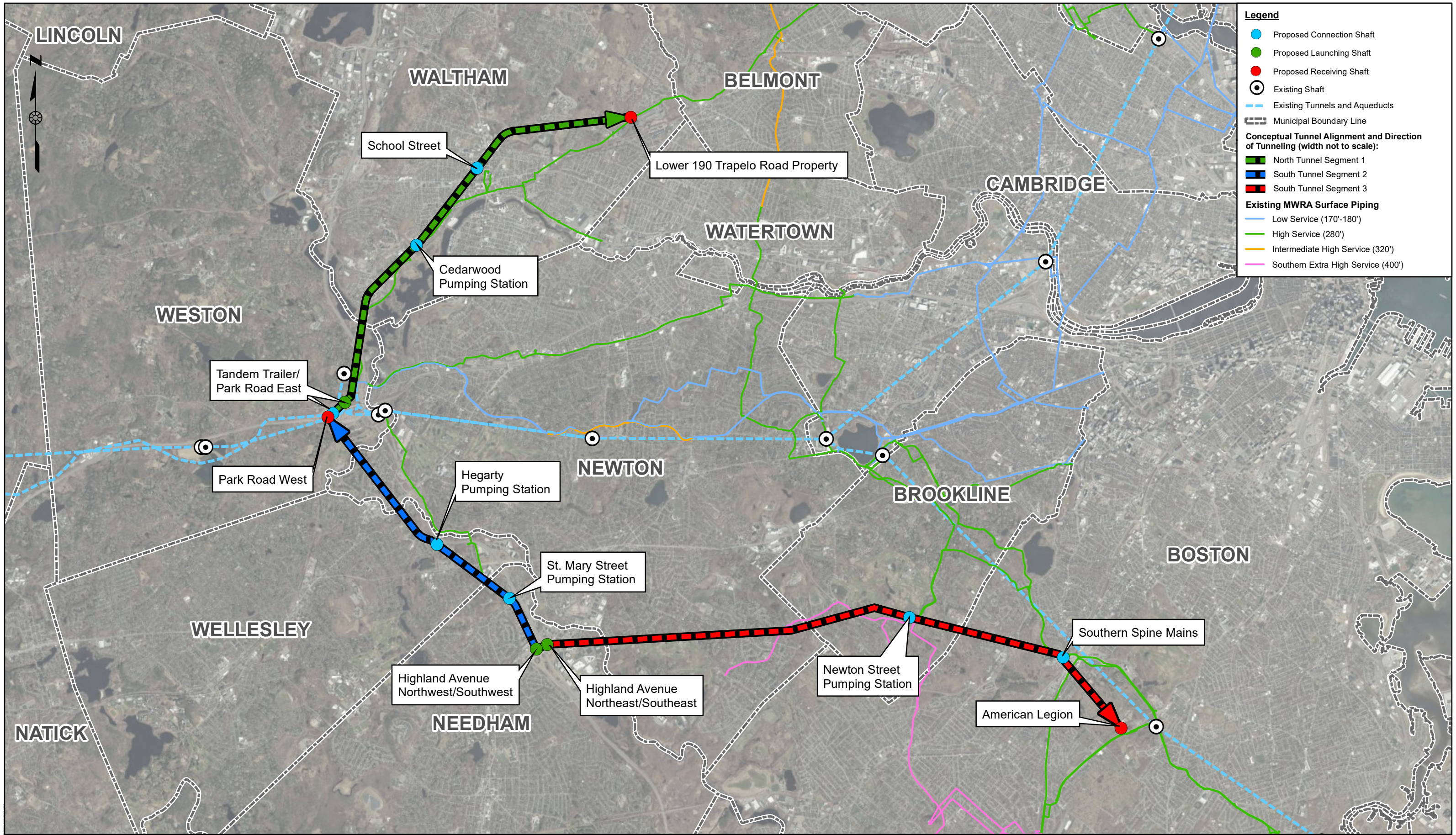
**Final Environmental
Impact Report**



**Alternative 4A
Figure 1-4
(Previously Presented as SDEIR Figure 2-7)**

Source: MWRA, CDM Smith, VHB, Jacobs, MassGIS, USGS

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Legend

- Proposed Connection Shaft
- Proposed Launching Shaft
- Proposed Receiving Shaft
- Existing Shaft
- Existing Tunnels and Aqueducts
- Municipal Boundary Line

Conceptual Tunnel Alignment and Direction of Tunneling (width not to scale):

- North Tunnel Segment 1
- South Tunnel Segment 2
- South Tunnel Segment 3

Existing MWRA Surface Piping

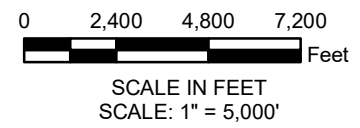
- Low Service (170'-180')
- High Service (280')
- Intermediate High Service (320')
- Southern Extra High Service (400')



Metropolitan Water Tunnel Program

Final Environmental Impact Report 2024

Massachusetts Water Resources Authority



Alternative 4B Figure 1-5

Source: MWRA, MassGIS, USGS

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1.4 Program Schedule and Phasing

The Program is composed of two separate tunnels. The North Tunnel, Segment 1 would include a tunnel extending from a site near the I-90/I-95 interchange to either the UMass Property or Lower 190 Trapelo Road Property, depending on the Alternative. The South Tunnel, Segment 2 would include a tunnel extending between a site near the I-90/I-95 interchange and the Highland Avenue/I-95 interchange. South Tunnel, Segment 3 would extend from the Highland Avenue/I-95 interchange to the American Legion site.

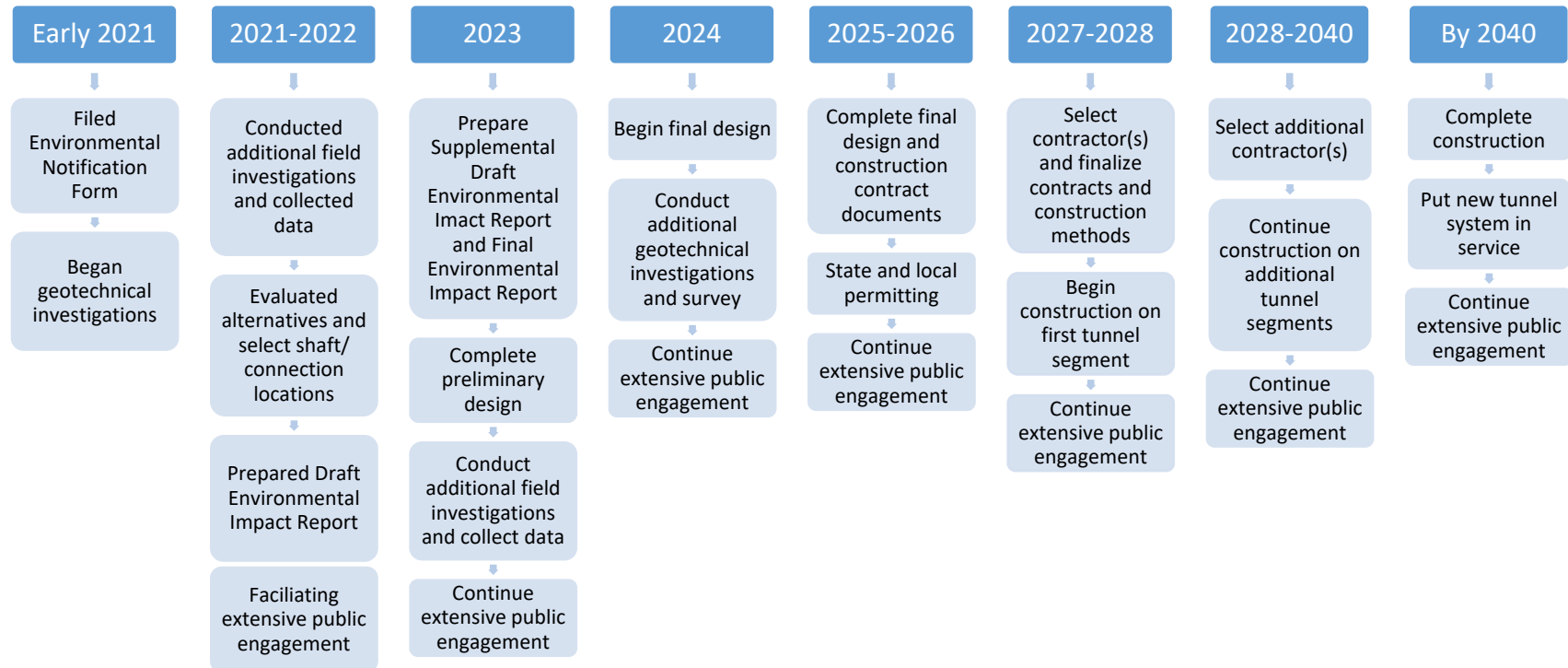
Program construction is estimated to take 8 to 12 years and is planned to occur between 2027 and 2040. The number of construction packages and the duration and sequence of construction activities will be confirmed as the Program advances through the design phases. The MWRA expects that the proposed new deep-rock tunnel system would be placed into service before or around 2040 and that the system would have a useful life of more than 100 years. The following subsections provide details of the Program's progression. **FEIR Figure 1-6**, previously presented as **SDEIR Figure 1-2**, presents a timeline of Program activities including design, the MEPA environmental review process, permitting, public engagement, and construction activities.

1.4.1 Preliminary Geotechnical Data and Design Reports

To aid in the selection of the appropriate subterranean (underground) alignment for the deep-rock tunnels, the MWRA conducted geotechnical investigations during preliminary design in three phases at key locations within the Program Study Area. In the summer and fall of 2021, the MWRA executed the first phase (Phase 1A) of the preliminary geotechnical investigations, which included surficial geophysical investigations and the drilling of 10 deep-rock borings with continuous coring, downhole geophysics and pressure testing, and instrumentation installations (piezometers). Each boring was drilled at least 50 feet below the proposed tunnel depth and took approximately eight weeks to complete, including in-situ (on-site) testing. The MWRA performed the second phase (Phase 1B) in the spring and summer of 2022, which was similar in scope to the first phase but with 6 deep-rock borings. The MWRA performed the third phase (Phase 1C) in the winter of 2023, which consisted of 2 deep-rock borings, again with continuous coring, downhole geophysics and pressure testing, and instrumentation installations (observation well and piezometers). The MWRA will continue to conduct additional geotechnical investigations and testing as the Program moves through final design.

The MWRA has prepared a Preliminary Design Report (PDR) that supports and provides the technical basis for the information included in the DEIR, SDEIR, and FEIR. The PDR includes design criteria, construction considerations, and operational requirements for the tunnels, shafts, and valve chambers and pipe connections. The PDR includes a detailed hydraulic analysis of the proposed tunnels using projected future water demands. In addition, the PDR includes preliminary design drawings, proposed construction packaging, a proposed schedule, and a preliminary cost estimate. The PDR was complete at the end of 2023 with final design to follow.

Figure 1-6 Anticipated Program Timeline (Previously Presented as SDEIR Figure 1-2)



1.4.2 Final Design and Construction

Final design and the development of construction contract documents will be underway in 2024. The MWRA will advance final design to prepare procurement documents, including final plans, specifications, and a detailed construction schedule and cost estimate. Based on these documents, the MWRA will initiate a public bidding process to select contractors. Construction is anticipated to begin in 2027 or 2028.

1.5 Regulatory Context

The MEPA Office within the EEA oversees the state environmental review of the Program. MEPA review is required when:

- A project is undertaken by a state agency, requires a permit from a state agency, or involves financial assistance or a land transfer by a state agency.
- One or more thresholds, as defined in 301 CMR 11.03, are met or exceeded.

The Program is subject to the preparation of a Mandatory EIR pursuant to 301 CMR 11.03(4)(a)(3) because it requires State Agency Actions and involves construction of one or more new water mains 10 or more miles in length. The Program also exceeds the following MEPA thresholds pursuant to 301 CMR 11.03:

- **301 CMR 11.03(1)(b)(3)**: Disposition or change in use of land or an interest in land subject to Article 97 of the Amendments to the Constitution of the Commonwealth.
- **301 CMR 11.03(1)(b)(1)**: Direct alteration of 25 or more acres of land.
- **301 CMR 11.03(3)(b)(1)(f)**: Alteration of ½ or more acres of any other wetlands.
- **301 CMR 11.03(6)(b)(2)(b)**: Construction, widening or maintenance of a roadway or its right-of-way that will cut five or more living public shade trees of 14 or more inches in diameter at breast height.

The MWRA filed an ENF with the MEPA Office on March 31, 2021, to initiate MEPA review and the Secretary of the EEA issued an ENF Certificate on May 7, 2021. The DEIR was drafted in accordance with the Scope identified in the ENF Certificate and was filed on October 17, 2022. The Secretary issued a Certificate on the DEIR on December 16, 2022, requiring the MWRA to prepare a SDEIR before the Program could proceed to the FEIR phase of review. The SDEIR was filed with the MEPA Office on July 31, 2023, and the Secretary of the EEA issued a Certificate on the SDEIR on September 29, 2023. In the Certificate, the Secretary determined that the SDEIR adequately and properly complies with MEPA and directed the MWRA to prepare and submit for review a FEIR.

The chapters included in the FEIR provide clarifications in response to comments received in the Secretary's Certificate on the SDEIR and in the associated comment letters. The FEIR also presents summary information on the Program as directed in the Certificate. See **FEIR Chapter 9, Responses to Comments**, for a list of delineated comments received on the SDEIR, along with a copy of the Certificate and the comment letters received.

1.5.1 Anticipated Permits and Approvals

FEIR Table 1-4, as previously presented in **SDEIR Section 1.4.1, Table 1-1 (pg. 1-11)** and as requested in the Secretary’s Certificate, lists the anticipated permits and approvals that the Program may require. The MWRA will further evaluate this list as Program design progresses.

Table 1-4 Potential Permits and Approvals

Agency/Department	Permit/Approval/Action	Status
Federal		
U.S. Environmental Protection Agency (USEPA)	National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP)	To be obtained
	NPDES Dewatering and Remediation General Permit (DRGP), if needed	To be obtained, if needed
U.S. Army Corps of Engineers (USACE)	Section 404 Department of the Army Permit (General and Preconstruction Notice) ¹	To be obtained
Commonwealth of Massachusetts		
Executive Office of Energy and Environmental Affairs (EEA)	Massachusetts Environmental Policy Act (MEPA) Review	ENF filed March 31, 2021; DEIR filed Oct. 17, 2022; SDEIR filed July 31, 2023; FEIR herein (filed February 15, 2024)
Massachusetts Historical Commission (MHC)	Review pursuant to Massachusetts General Law Ch. 9, Section 26-27C	Included as part of the MEPA review
Massachusetts Department of Transportation (MassDOT) ²	Land disposition/easements ¹	To be obtained
	Highway Access/Construction Access Permits ¹	To be obtained
Massachusetts Bay Transportation Authority (MBTA) ²	MBTA Right of Way Access License Agreement	To be obtained, if needed
Department of Conservation and Recreation (DCR) ²	Land disposition/easements ¹	To be obtained
	Construction/Access Permits ¹	To be obtained
Massachusetts Department of Environmental Protection (MassDEP) ²	Water Management Act Permit	To be obtained
	Chapter 91 Licenses	To be obtained, if needed
	Superseding Order of Conditions, upon appeal ¹	To be obtained, if needed
	Section 401 Water Quality Certificate ¹	To be obtained
	Distribution System Modification	To be obtained
Division of Capital Asset Management & Maintenance	Article 97 Land Disposition Legislation ¹	To be completed
Municipal		
Conservation Commissions	Wetlands Protection Act Order of Conditions ¹	To be obtained
Departments of Public Works	Roadway Access Permits/Street Opening Permit ¹	To be obtained
Boston Water and Sewer Commission	Hydrant Permit	To be obtained
	Drainage Discharge Permit	To be obtained, if needed

The above table content summarizing potential permits and approvals is republished from SDEIR Table 1-1, as previously presented in SDEIR Section 1.4.1 (pg. 1-11).

¹ Indicates that the permit or approval is site specific.

² Indicates State agency that will issue Section 61 Findings (see FEIR Chapter 8, Mitigation and Draft Section 61 Findings).

1.5.2 Federal

The Program may require approval pursuant to the federal environmental permits described below.

1.5.2.1 USEPA NPDES Construction General Permit

Construction activities would involve the disturbance of one acre or more of land, which will require the completion and submittal of a Notice of Intent (NOI) to the U.S. Environmental Protection Agency (USEPA) for coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for stormwater discharge from construction activities. As a part of the NOI, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared by the contractor to document stormwater management during the construction period. The NOI submitted for the NPDES CGP will contain information about the contents and stipulations of the SWPPP. The CGP will be needed to cover all the launching, receiving, large connection, and connection sites for the Program. **SDEIR Section 5.2.2, Wetlands and Waterways Construction Period Impacts (pg. 5-13 to 5-14)**, discusses the requirements needed for the NPDES CGP and SWPPP (refer also to **SDEIR Section 5.3, Technical Analysis to Respond to Comments, Response to Certificate Comment C-37 (pg. 5-45)**).

1.5.2.2 USEPA NPDES Dewatering and Remediation General Permit

Dewatering activities associated with construction and operation of the Program may require the issuance of a USEPA NPDES Dewatering and Remediation General Permit (DRGP). This permit will be issued by the USEPA and authorizes discharges of groundwater, stormwater, potable water, and surface water for dewatering and remediation activities, including infrastructure dewatering and remediation. The DRGP will cover all Program sites that involve dewatering and remediation activities.

1.5.2.3 U.S. Army Corps of Engineers Section 404 Permit (General and Preconstruction Notice)

The construction of the Program would require the discharge of dredge or fill material into waters of the U.S. Work consisting of construction, dredging, or discharge of fill into a U.S. navigable water or adjacent wetlands requires a Section 404 permit from the U.S. Army Corps of Engineers (USACE). Prerequisites for a Section 404 permit would be the Section 401 Water Quality certificate issued by the Massachusetts Department of Environmental Protection (MassDEP). A Section 404 permit would be needed for discharges associated with outlet pipes with riprap splash pads for dewatering facilities at the Tandem Trailer, Bifurcation, Highland Avenue Northeast/Southeast, and Highland Avenue Northwest/Southwest sites, and for discharges at the American Legion site to construct a connection to the existing distribution system and a dewatering outlet pipe with a riprap splash pad. Prior to construction, a Preconstruction Notification filing, or a Self-Verification Form would be completed for the applicable sites.

1.5.3 State

The Program may require the state agency actions described below.

1.5.3.1 Review Pursuant to MGL Ch. 9, Section 26-27C

The Massachusetts Historical Commission (MHC) has review authority over projects requiring state funding, licenses, permits, or approvals to evaluate potential direct or indirect impacts to properties listed in the State Register of Historic Places, in compliance with MEPA and the State Register Review requirements (MGL Ch. 9, Section 26-27C, as amended by Chapter 254 of the Acts of 1988). The consultation process identifies potential adverse effects to historic properties and evaluates ways to avoid, minimize, or mitigate these adverse effects. An evaluation of historic and archaeological resources was conducted as part of the DEIR and the SDEIR. The MHC was included in the distribution of the Program's MEPA filings. The MHC also received a copy of an archaeological study that was conducted for the UMass Property and Lower 190 Trapelo Road Property sites as part of the SDEIR review. Additionally, the MWRA coordinated with MHC in advance of the DEIR filing to provide preliminary information to assist in its review. No comments were received from the MHC on the DEIR or the SDEIR. See **SDEIR Chapter 12, Cultural and Historic Resources**.

1.5.3.2 MBTA Right of Way Access License Agreement

The Program may require access to and the use of sites under the care, custody, and control of the Massachusetts Bay Transportation Authority (MBTA). The use of these sites might require right-of-way access license agreements from MBTA for construction activities or a permanent easement or land disposition from MBTA for the proposed facilities, including the portion of North Tunnel, Segment 1, which travels beneath the MBTA Commuter Rail in Waltham.

1.5.3.3 MassDOT Land Disposition/Easements

The Program requires the use of sites under the care, custody, and control of the Massachusetts Department of Transportation (MassDOT). The use of these sites might require a temporary easement from MassDOT for construction activities or a permanent easement or land disposition from MassDOT for the proposed facilities. Land disposition and/or easement approvals will be needed for multiple Program sites (Tandem Trailer, Park Road East, Park Road West, Bifurcation, Highland Avenue Northeast/Southeast, and Highland Avenue Northwest/Southwest). See **SDEIR Chapter 4, Land Alteration and Article 97**.

1.5.3.4 MassDOT Highway Access/Construction Access Permits

Construction activities would take place within the right-of-way or on property in the care, custody, and control of MassDOT. Activities on these lands would require Highway Access and Construction Access permits from MassDOT. These permits will be needed at Program sites including Tandem Trailer, Park Road East, Park Road West, Bifurcation, Hultman Aqueduct Isolation Valve,⁷ Highland Avenue Northeast/Southeast, Highland Avenue Northwest/Southwest, Lower 190 Trapelo Road Property, UMass Property and American Legion). See **SDEIR Chapter 4, Land Alteration and Article 97**.

1.5.3.5 DCR Land Disposition/Easements

The Program requires the use of sites under the care, custody, and control of the Massachusetts Department of Conservation and Recreation (DCR). The use of these sites may require a temporary easement from DCR for construction activities, and/or a permanent easement and land disposition from DCR for the proposed facilities. For any permanent easements and/or land dispositions, compliance with the EEA Article 97 Land Disposition policy will be necessary for land resources protected under the policy, as well as the requirements under *An Act Preserving Open Space in the Commonwealth*, also known as the Public Lands Preservation Act (PLPA). Two sites (Southern Spine Mains and American Legion) are under the care, custody, and control of DCR and are anticipated to require a land disposition. Subterranean easements would also need to be obtained from the DCR for properties that the tunnel alignment passes beneath. Comment letters from the DCR on the DEIR and the SDEIR (see **SDEIR Section 15.10** and **FEIR Section 9.9**, respectively) concurred that DCR land will require dispositions and or easements and expressed willingness to coordinate with the MWRA throughout permitting. See **FEIR Chapter 3, Land Alteration, Open Space, and Article 97**.

1.5.3.6 DCR Construction and Access Permits

Permits for construction activities and access will be needed for land under the care, custody, and control of DCR, in addition to land disposition and easement approvals. Comment letters from DCR on the ENF, DEIR, and the SDEIR (see **FEIR Chapter 9, Response to Comments, Section 9.9**), confirmed the need for the Program to seek construction and access permits at sites under the care, custody, and control of the DCR. This applies to one receiving site (American Legion) and one connection site (Southern Spine Mains).

1.5.3.7 MassDEP Water Management Act

Dewatering from construction activities would require a Water Management Act (WMA) permit. A WMA permit is required for complete or partial transfer of the right to withdraw water and for requests to withdraw over 100,000 gallons of water per day annually from a watershed. A comment letter on the ENF from the MassDEP Northeast Regional Office (NERO) dated April 27, 2021, expressed the need for the estimated withdrawal rates and discharge locations for dewatering activities associated with construction to determine if a WMA permit is required. A comment letter on the DEIR from MassDEP NERO further confirmed the need for a WMA permit based on the estimated withdrawal rates contained in the DEIR.

⁷ The MWRA has an existing permanent easement for the Hultman Aqueduct Isolation Valve site.

The withdrawal rates and discharge sites are described in **SDEIR Chapter 6, Water Supply and Water Management Act**. The Program consists of sites located in the Charles River Basin, and withdrawal, discharge, and dewatering will not cross major basin boundaries. Therefore, multiple WMA permits are not required, and Program groundwater withdrawals during construction are not subject to the Interbasin Transfer Act.

1.5.3.8 MassDEP Superseding Order of Conditions, Upon Appeal

The MWRA will file a NOI with the local conservation commissions to ultimately receive a Wetlands Protection Act (WPA) Order of Conditions from those commissions for some of the proposed launching, receiving, and large connection sites. If there is an appeal of an Order of Conditions issued by a local conservation commission, a WPA Superseding Order of Conditions by the MassDEP would be needed. This would occur on a site-specific basis.

1.5.3.9 MassDEP Section 401 Water Quality Certificate

Construction activities would result in the discharge of dredged or fill material into waters of the U.S. associated with outlet pipes with riprap splash pads for dewatering facilities at Tandem Trailer, Bifurcation, Highland Avenue Northeast/Southeast, and Highland Avenue Northwest/Southwest and for temporary vegetated wetland impacts for a surface connection and a dewatering outlet pipe with a riprap splash pad at American Legion. These discharge activities would require Section 401 Water Quality Certification (WQC) from MassDEP. It is anticipated that the Program would require a Minor Fill/Excavation Project Certification due to the cumulative impact to less than 5,000 square feet of vegetated wetland and land under water. It is not anticipated that the Program would require a Dredge Project Certification because the volume of dredging would not be more than 100 cubic yards. This determination will be updated as necessary during Program final design and permitting.

1.5.3.10 MassDEP Chapter 91 License

Since the filing of the DEIR, the Program has determined that construction within waterways may be exempt from requiring a Chapter 91 License. All work being completed on, in, over, or under waterways would be installed in accordance with 310 CMR 9.05(3)(g), which states:

“(g) placement in a non-tidal river or stream subject to jurisdiction under 310 CMR9.04(1)(e) of fill or structures for which a final Order of Conditions has been issued under M.G.L. c. 131, § 40 and 310 CMR 10.00: Wetlands Protection, and which does not reduce the space available for navigation; such fill or structures are limited to:

- 1. overhead wires, conduits, or cables to be attached to an existing bridge, without substantial alteration thereof, or constructed and maintained in accordance with the National Electrical Safety Code;*
- 2. fish ladders, fishways, and other devices which allow or assist fish to pass by a dam or other obstruction in the waterway;*

3. *pipelines, cables, conduits, sewers, and aqueducts entirely embedded in the soil beneath such river or stream; and*
4. *bulkheads, revetments, headwalls, storm drainage outfalls, and similar structures which do not extend into such river or stream, except as may be necessary for bank stabilization.”*

In accordance with 310 CMR 9.05(3)(g)(3) the tunnel would be entirely embedded in the soil (or bedrock) beneath the waterway. In accordance with 310 CMR 9.05(3)(g)(4), proposed outfalls and splash pads would not extend into the waterway or adjacent wetland. The placement of rip rap splash pads and tunneling of the structure below waterways would not reduce the space available for navigation and therefore may not require Chapter 91 authorization. See **SDEIR Chapter 5, Wetlands and Waterways, Table 5-13** for further details. Further coordination with MassDEP will be completed during final design to determine applicability of Chapter 91 exemptions to proposed Program elements and/or requirements to comply with Chapter 91 regulations should the Program not meet exemption criteria.

1.5.3.11 MassDEP Distribution System Modification Permit

The goal of the Program is to provide redundancy to the existing MWRA distribution system that supplies the Greater Boston area. Modification of a public water supply system requires a Distribution System Modification Permit from MassDEP. This permit is required for modification of water distribution systems serving more than 3,300 people in order to protect public health and welfare. The permit will be required for the entire Program.

1.5.3.12 Article 97 Land Disposition Legislation

The Program would use land that is protected under the EEA Article 97 Land Disposition Policy. Article 97 includes a no-net-loss policy for designated land within Massachusetts. This Program includes a transfer of ownership, change in physical or legal control, and change in use in and to Article 97 land. For a disposition of Article 97 land to take place, a two-thirds vote from the General Court must occur, demonstrating that there is no reasonable alternative to using land protected by Article 97. A comment letter from DCR on the ENF dated April 27, 2021, expressed that the use of some DCR sites that will require permanent easements may trigger Article 97. The MWRA is working directly with DCR to comply with Article 97. Article 97 land disposition is anticipated to be needed for three proposed connection and receiving sites: Hegarty Pumping Station, owned by the Town of Wellesley, Southern Spine Mains and American Legion, both under the care, custody, and control of DCR. Comment letters from the DCR on the DEIR and the SDEIR (see **SDEIR Section 15.10** and **FEIR Section 9.9**, respectively) concurred that DCR land will require an Article 97 disposition for DCR owned land and expressed willingness to coordinate with the MWRA throughout permitting. As described in **FEIR Section 3.2.2, Commitment to Article 97 Land Disposition Policy and PLPA Obligations (pgs. 3-5 to 3-9)**, the MWRA will also have to follow additional requirements for Article 97 disposition review under the PLPA. The PLPA effectively sets up a method of review of potential Article 97 land dispositions for the Secretary of the EEA before heading to the state legislature. The MWRA will comply with the Article 97 Land Disposition Policy process and the requirements of the PLPA by identifying and providing compensatory land of equal or greater value to offset the disposal of land required for the Program and/or by complying with alternative mitigation

provisions of the Policy. The MWRA will notify the Secretary of the EEA and the public by submitting the proposed disposition request within the PLPA portal and will perform additional notification as required. A brief alternatives analysis will be prepared in the EEA PLPA portal submission for site use and the MWRA will either select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, the MWRA may request to provide in-lieu funding for all or part of the replacement land.

Additionally, subterranean easements of Article 97 protected open space may be required for properties overlaying the tunnel alignment, which are also subject to Article 97 requirements. The permanent subterranean easements would not change the property use or aboveground conditions, and therefore would not be required to be disposed.

1.5.4 Municipal

The Program may require approval pursuant to the local environmental regulations summarized below.

1.5.4.1 Wetlands Protection Act Order of Conditions

This Program has planned work within 100 feet of wetlands and within 200 feet of perennial waterways. Work within the vicinity of such resources requires the issuance of a WPA Order of Conditions by the Conservation Commission for each municipality in which proposed construction would occur. For the Program, a WPA Order of Conditions will be needed from the Conservation Commissions of Waltham, Weston, Needham, Wellesley, and Boston.

1.5.4.2 Roadway Access Permits/Street Opening Permit

Construction at some of the sites for the Program would occur within the public right-of-way or may include alteration to existing driveways or curb cuts. At sites where this work is anticipated, Roadway Access Permits or Street Opening Permits from the Department of Public Works of each respective municipality will be needed. The MWRA anticipates this work at some of the proposed Program sites located in Waltham, Weston, Wellesley, Needham, and Boston; Program sites requiring a Roadway Access Permit or Street Opening Permit include the School Street site, UMass Property site, Lower 190 Trapelo Road Property site, Highland Avenue Northwest/Southwest site, Highland Avenue Northeast/Southeast site, Hegarty Pumping Station site, St. Mary Street Pumping Station site, Southern Spine Mains site, and American Legion site.

1.5.4.3 Boston Water and Sewer Commission Hydrant Permit and Drainage Discharge Permit

The MWRA's contractor will have to obtain a Hydrant Permit from the Boston Water and Sewer Commissions Meter Department for use of any hydrant during the construction phase of the Program. The water used from the hydrant will have to be metered. The MWRA's contractor will have to obtain a Drainage Discharge Permit for any dewatering discharges to the Boston Water and Sewer Commission's storm drainage system.

1.5.5 Interagency Coordination

The MWRA continues to perform extensive interagency coordination, including meetings and/or correspondence with State agencies and organizations, local communities and community stakeholder groups, and federal agencies, including:

- **State Agencies and Organizations:** The MEPA Office, MassDOT, DCR, MHC, DPH, MBTA, MassDEP, the Department of Youth Services (DYS), the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP), Water Supply Citizens' Advisory Committee (WSCAC), the Commonwealth of Massachusetts General Court, and the University of Massachusetts.
- **Local Communities and Community Stakeholder Groups:** The Town of Belmont, City of Boston, Town of Brookline, Town of Needham, City of Newton, Town of Wellesley, City of Waltham, Town of Weston, Jamaica Plain Neighborhood Council, Asticou Martinwood South Street Neighborhood Association (AMSNA), Waltham Land Trust (WLT), Charles River Watershed Association (CRWA), local Conservation Commissions, the local Departments of Public Works, local elected officials, and local fire departments. As the Program evolves MWRA will work with local partners to identify and coordinate with additional community groups/stakeholders.
- **Federal Agencies:** The USEPA and USACE.

To date, more than 50 meetings have been held with the community representatives in which proposed Program sites are located. The MWRA will continue to coordinate and communicate with stakeholders as Program design and permitting progresses.

DEIR Chapter 2, Outreach and Environmental Justice, Section 2.2, Stakeholder Outreach (pgs. 2-2 to 2-8) and **DEIR Table 2.2-1 (pgs. 2-3 to 2-6)** summarize the stakeholder outreach that took place between the ENF filing (March 31, 2021) and the DEIR filing (October 17, 2022).

SDEIR Chapter 3, Outreach and Environmental Justice, Section 3.2, Updated Outreach to Stakeholders (pgs. 3-3 to 3-7) and **SDEIR Table 3-1 (pg. 3-4)** summarize the stakeholder that took place between the DEIR filing and the SDEIR filing (July 31, 2023).

FEIR Chapter 2, Outreach and Environmental Justice, Section 2.2, Outreach Activities Since the SDEIR (pgs. 2-1 to 2-4) and **FEIR Table 2-1 (pg. 2-2)** summarize the stakeholder outreach that took place since the SDEIR filing.

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2 Outreach and Environmental Justice

2.1 Introduction

This chapter clarifies information related to the environmental justice (EJ) analysis and outreach efforts of the Massachusetts Water Resources Authority (MWRA) Metropolitan Water Tunnel Program (the Program) as requested in the Executive Office of Energy and Environmental Affairs (EEA) Secretary’s Certificate on the Supplemental Draft Environmental Impact Report (SDEIR). The Certificate on the SDEIR, issued on September 29, 2023, identified a Scope for the Final Environmental Impact Report (FEIR) that requested an “Environmental Justice” section where clarifications in response to comments received from the Secretary would be provided. As articulated in the Certificate, the Secretary requested that the FEIR:

- Provide an update on outreach efforts since the filing of the SDEIR and the MWRA’s efforts to seek public input, work with the Stakeholder Working Group(s), and other work with stakeholders.
- Address comments from Charles River Watershed Association (CRWA) regarding active outreach to EJ populations and the EJ impact assessments (see **FEIR Chapter 9, Responses to Comments, Table 9-5**).
- Circulate a copy of the FEIR or summary of the FEIR to the EJ Reference List prior to filing.
- Identify measures to avoid, minimize, and mitigate impacts to EJ populations from Program-related activities during and post construction including working with Departments of Public Works (DPWs) and transportation departments in each municipality to implement mitigation measures in all areas with EJ populations.
- Clarify the extent of the transportation study area used to calculate air emissions for the Program as contrasted with the Study Area for the Program as whole.

Refer to **FEIR Chapter 9, Responses to Comments**, for the full list of delineated comments received on the SDEIR, along with a copy of Secretary’s Certificate and the comment letters received.

2.2 Outreach Activities Since the SDEIR

The Certificate requested that MWRA continue to actively seek public input and work closely with the Stakeholder Working Group(s) and other stakeholders in developing the FEIR. The Certificate requested that the FEIR provide an overview of outreach activities that have taken place since the SDEIR was submitted.

The MWRA continues to conduct extensive outreach within the Program Study Area through community meetings, working group collaboration, and regular updates to the Board of Directors and Advisory Board. **FEIR Table 2-1** summarizes stakeholder outreach that was conducted since the SDEIR filing (July 31, 2023), as well as outreach with communities and with State agencies with care, custody, and control of Program sites.

Table 2-1 Stakeholder Outreach Conducted Since the SDEIR Filing

Stakeholder	Date	Location	Topic
City of Cambridge	8/16/2023	Virtual	Tunnel Program Overview – Stony Brook Reservoir
Boston Fire Dept.	8/31/2023	Virtual	Community Emergency Response
Brookline Fire Dept.	8/31/2023	Virtual	Community Emergency Response
Needham Fire. Dept.	8/31/2023	Virtual	Community Emergency Response
Newton Fire Dept.	8/31/2023	Virtual	Community Emergency Response
Waltham Fire Dept.	8/31/2023	Virtual	Community Emergency Response
Weston Fire Dept.	8/31/2023	Virtual	Community Emergency Response
Waltham Land Trust	9/14/2023	Virtual	Tunnel Program Overview
University of Massachusetts (UMass)	9/26/2023	Virtual	Geotechnical Investigations Coordination
Massachusetts Department of Conservation & Recreation (DCR)	10/12/2023	Virtual	Tunnel Program Overview – Property Interests Update
Charles River Watershed Association (CRWA)	1/3/2024	Virtual	Tunnel Program Overview
Water Supply Citizens Advisory Committee (WSCAC)	1/9/2024	Virtual	Tunnel Program Overview & Update
City of Waltham	2/1/2024	In-person	North Tunnel Terminus
Boston Fire Dept.	2/9/2024	Virtual	Community Emergency Response
Brookline Fire Dept.	2/9/2024	Virtual	Community Emergency Response
Needham Fire. Dept.	2/9/2024	Virtual	Community Emergency Response
Newton Fire Dept.	2/9/2024	Virtual	Community Emergency Response
Waltham Fire Dept.	2/9/2024	Virtual	Community Emergency Response
Weston Fire Dept.	2/9/2024	Virtual	Community Emergency Response

The stakeholder outreach conducted between the Draft Environmental Impact Report (DEIR) filing (October 17, 2022) and the SDEIR filing (July 31, 2023) is provided in **SDEIR Chapter 3, Section 3.2, Updated Outreach to Stakeholders, Table 3-1 (pg. 3-4)**. **SDEIR Table 3-1** also lists the outreach with communities and with State agencies with care, custody, and control of Program sites. A summary of the stakeholder outreach that took place between the Environmental Notification Form (ENF) filing (March 31, 2021) and the DEIR filing is summarized in **DEIR Table 2.2-1 (pgs. 2-3 to 2-6)** and further described in **DEIR Sections 2.2.1 through 2.2.7 (pgs. 2-6 to 2-8)**.

2.2.1 Working Group

The MWRA continues to meet and work closely with the Working Group that was specifically convened at the outset of this Program. The Working Group includes representatives of each of the 10 communities within the Program Study Area and representatives from the MWRA Advisory Board, the Water Supply Citizens Advisory Committee to the MWRA (WSCAC), and the Metropolitan Area Planning Council (MAPC). The MWRA convened the first Working Group meeting on April 7, 2021. The Working Group meetings have provided a collaborative and transparent process for evaluating alternatives and yielding more informed comments during the Massachusetts Environmental Policy Act (MEPA) process. The Working Group meetings will also continue to provide a mechanism for ongoing updates regarding fieldwork and other Program-related activities planned in the communities. Additional presentations to community representatives will continue as design of the Program progresses.

2.2.2 Community Representatives

As described in **SDEIR Section 3.2, Updated Outreach to Stakeholders (pgs. 3-5 to 3-6)**, in addition to Working Group meetings, MWRA staff has held meetings with individual communities to introduce the Program to additional community staff and to brief staff on community-specific items that may be of interest, including fieldwork, traffic, noise and vibration, and other topics. The MWRA Program Team will follow up with additional meetings and/or presentations to each of the host communities as part of the Program outreach or as requested by the host community to present to the host communities' city council/select members or to interested community members. In addition, the MWRA Program Team will continue to communicate with each individual community on Program activities through the community-nominated working group member.

To date, more than 50 meetings have been held with the community representatives in which Program sites are located. Topics included a Program overview, fieldwork coordination, summary of potential construction period impacts and mitigation, and emergency services coordination.

2.2.3 State Agencies

To date, the MWRA has met with EEA, the MEPA Office, Massachusetts Department of Transportation (MassDOT), Division of Capital Asset Management and Maintenance (DCAMM), Massachusetts Department of Conservation and Recreation (DCR), Massachusetts Department of Environmental Protection (MassDEP), Massachusetts Department of Youth Services, and other State agencies. Meetings have also been held with state regulatory agencies including MEPA staff and MassDEP to provide an overview of the Program and to seek guidance on the permitting strategy. The MWRA has coordinated with the Massachusetts Historical Commission (MHC) during field investigations as well as in advance of the DEIR and SDEIR filings. Ongoing outreach with state agencies will be carried out as the design phase progresses, which will be scheduled to occur prior to major submittals, and more frequently as needed to provide updates on the Program or to address specific items. MWRA coordinated with the Natural Heritage and Endangered Species Program (NHESP) representatives as requested by the NHESP comment letter on the SDEIR (see **FEIR Chapter 6, Rare Species**).

2.2.4 MWRA Board of Directors

The MWRA has and will continue to offer briefings for the MWRA Board of Directors to provide updates on Program status, including the filing of public documents. All MWRA Board of Directors meeting materials, presentations, and approved minutes are available on the MWRA's website (<https://www.mwra.com/02org/html/bodmtg.htm>).

2.2.5 MWRA Advisory Board

The MWRA continues to conduct ongoing briefings and meetings with the MWRA Advisory Board, which represents the MWRA's member communities. Ongoing meetings with members from each of the communities within the Program Study Area may be held if requested by community representatives.

2.2.6 Environmental Advocacy Groups

The MWRA commenced and will continue comprehensive outreach to environmental advocacy groups. The MWRA met with the CRWA on January 3, 2024, to discuss comments received on the SDEIR.

2.2.7 Public Information Sessions and Workshops

The MWRA will hold public information sessions starting in 2024 with a variety of topics to keep the sessions to a reasonable timeframe. Topics may include a Program overview, an overview of tunneling methods (i.e., "Tunneling 101") and associated construction period impacts such as traffic, noise and vibration, and other topics of interest to stakeholders. As design and/or construction progresses, these public sessions may be split to focus on the North Tunnel and the South Tunnel given the geographic area and the schedules associated with each tunnel. Additionally, the MWRA will continue to hold public information sessions and/or workshops as requested by communities or other stakeholders.

Prior to these meetings, MWRA will post notifications in prevalent languages on MWRA's website and use non-traditional media sources to disseminate information. Interpretation services will be provided for MWRA-hosted meetings. Public information sessions will be recorded and posted on the Program website along with contact information so the public can view at their convenience and submit comments or questions outside of a live meeting. See **FEIR Section 2.3, Active Outreach to EJ Populations**, for additional information regarding notifications and meeting materials.

2.3 Active Outreach to EJ Populations

The Certificate requested that the FEIR address comments from the CRWA regarding active outreach to EJ populations.

Responses to comments received on the SDEIR from the CRWA are provided in **FEIR Chapter 9, Responses to Comments, Section 9.5, Letter 3: Charles River Watershed Association**, along with a copy of the CRWA's comment letter. A key goal of MWRA's public outreach plan is to ensure participation of members of EJ populations throughout the phases of the Program. MWRA is committed to improving the

accessibility of our programs, policies and activities to our non-English speaking residents within the communities that we serve. MWRA recognizes the importance of providing accessible communications, engaging with communities, and fostering involvement from all members of the public. The MWRA has and will continue to tailor outreach to EJ communities throughout the Program planning, design, and construction to facilitate EJ population involvement in the environmental review process. The MWRA will share information with the public in an accessible way through a) in-person and virtual meetings and b) providing resources and information online.

Since the SDEIR filing, the MWRA continues its commitment to hold public meetings in the communities within Designated Geographic Areas (DGAs) as requested by the community and will begin formal public information sessions in 2024 as described in **FEIR Section 2.2.7**. Notifications of meetings are provided through traditional media outlets, social media, and www.MWRA.com. Interpretation services are offered during the meetings based on languages spoken by at least five percent of the census tract population in each community and for other languages spoken within the community as requested. The MWRA continues to post minutes from public meetings on the Program website (<https://www.mwra.com/mwtp.html>) and to share minutes with municipal and other key contacts in Program Study Area communities, where appropriate.

The MWRA committed to and will implement a variety of public involvement strategies, which include:

- Holding public information sessions (virtual or in-person) to discuss the overall Program and specific topics such as construction period impacts at a time of day that will ensure the greatest level of participation. These public information sessions will be recorded and posted on MWRA's Program website.
- Holding community meetings (virtual or in-person) upon request by anyone contacted through advance notification or by anyone who received a written Program summary upon further dissemination. These community meeting will be held in a variety of formats and at a time of day that will ensure the greatest level of participation.
- Providing interpreters at virtual and in-person public information sessions, community meetings, and during site visits, as needed. MWRA will employ a pre-registration process to ensure appropriate interpretation services are available for live meetings and will translate recorded meetings into the prevalent languages or other languages as requested.
- Widely disseminating a written project summary (with translation into prevalent languages or upon request) with basic project details.
- Widely disseminating fact sheets (with translation into relevant languages) for key topics such as traffic, noise and vibration, shaft site selection process, and natural and cultural resource impacts (see examples on the MWRA's webpage: <https://www.mwra.com/mwtp/resources.html>).
- Hosting a project website or making project information available through other similar electronic means on local municipality websites.
- Ensuring outreach is communicated in clear, understandable language and in a user-friendly format.
- Using non-English and/or community-specific media outlets to publicize the project, including local newspapers.

MWRA will employ additional methods of engagement as the Program progresses with feedback from stakeholders. MWRA will work with community representatives and community-based organizations (CBOs) to determine the most effective means of communication and notification to EJ populations.

Progress on the outreach plan timing and methods is summarized in **FEIR Table 2-2**, consistent with **SDEIR Table 3-3** as previously presented in **SDEIR Section 3.3, Updated Environmental Justice Outreach Plan (pgs. 3-9 to 3-10)**.

Table 2-2 Outreach Plan Methods/Update

Timing	Outreach Method	Outreach Details
Since Project Initiation	MWRA Website	Regular updates to dedicated page on MWRA website on the Program.
Prior to DEIR Filing Fall 2022	Notifications	Translated project and meeting information were provided, where appropriate, based on languages spoken by at least 5 percent of census tract population in each community. An Advance Notification Form (EJ Screening Form) was provided to CBOs ahead of the DEIR filing (https://www.mwra.com/mwtp/resources.html). Advertised upcoming meetings through www.MWRA.com and organizational social media.
Fall 2022	Fact Sheet Dissemination	Fact sheets on Environmental Resources, Noise and Vibration, Air Quality, Shaft Selection, Traffic, and Water Supply were prepared and posted on the MWRA's website. Fact sheets were translated into Spanish, Haitian Creole, and Chinese (https://www.mwra.com/mwtp/resources.html)
Fall 2022- Winter 2023	Public Meetings	Presented at select board meetings in the towns of Weston and Needham. These meetings had the option of virtual attendance. Documented meeting minutes as a record of community feedback. Established a point of contact at MWRA and within Program Study Area communities that residents can contact regarding questions or concerns throughout the course of the Program.
Prior to SDEIR Filing	Notifications	Translated project and meeting information were provided, where appropriate, based on languages spoken by at least 5 percent of census tract population in each community. An Advance Notification Form (EJ Screening Form) was provided to CBOs ahead of the SDEIR filing (https://www.mwra.com/mwtp/resources.html).
Post SDEIR Filing – Summer 2023	Public Meetings	Held public meetings in the communities within DGAs as requested by the community. Provided notifications of meetings through social media, traditional media outlets, and www.MWRA.com . Offered interpretation services during the meetings based on languages spoken by at least 5 percent of census tract population in each community and for other languages spoken within the community as requested. Documented meeting minutes as a record of community feedback.

Table 2-2 Outreach Plan Methods/Update

Timing	Outreach Method	Outreach Details
Prior to FEIR Filing – Winter 2024	Public Meetings Follow-up	<p>Posted minutes from public meetings on the Program website; shared minutes with municipal and other key contacts in Program Study Area communities, where appropriate; requested that communities make these minutes available for viewing on municipal websites.</p> <p>Incorporated project feedback gathered at community meetings and adjusted the FEIR based on that feedback, where appropriate.</p> <p>An Advance Notification Form (EJ Screening Form) was provided to CBOs ahead of the FEIR filing (https://www.mwra.com/mwtp/resources.html).</p>
Design Phase Planned Outreach	Public Meetings	<p>Commit to holding additional public meetings with a virtual option for community members who are unable to attend in person.</p> <p>Offer interpretation services during the meeting based on languages spoken by at least 5 percent of census tract population in each community, where appropriate.</p> <p>Present details regarding project design and provide full-size plan sets for viewing by meeting attendees. Discuss anticipated Program-related impacts and allow time for a question-and-answer period regarding potential impacts.</p> <p>Record public meetings and post on MWRA’s Program website in prevalent languages, with additional languages if requested.</p> <p>Document meeting minutes as a record of community feedback.</p> <p>Post minutes from public meetings on the Program website; share minutes with municipal and other key contacts in project communities, where appropriate; request that Study Area communities make these minutes available for viewing on municipal websites.</p> <p>Implement design changes to the greatest extent practicable based on community feedback.</p> <p>Finalize designs and share Program status with communities through www.MWRA.com and organizational social media.</p>
Pre-Construction Phase Planned Outreach	Advertisement	<p>Distribute a public meeting notice to local newspapers in Program Study Area communities for posting at least 2 weeks prior to the virtual pre-construction meeting.</p> <p>Post notices in prevalent languages on MWRA’s website, community websites, and use non-traditional media sources to disseminate information.</p> <p>Mail flyers with project timeline, MWRA and municipal contact information, and pre-construction meeting information to residents and businesses of Program Study Area communities with focus on abutters in proximity to work zones and residents within the DGA.</p> <p>Provide translated notices provided based on languages spoken by at least 5 percent of census tract population in each community, where appropriate.</p>

Table 2-2 Outreach Plan Methods/Update

Timing	Outreach Method	Outreach Details
Pre-Construction Phase Planned Outreach	Public Meeting	<p>Host a recorded virtual pre-construction meeting, provided in all languages spoken by at least 5 percent of census tract population in each community, where appropriate, for members of all Program Study Area communities. Finalized details regarding the Program design, construction, and proposed construction timeline and work hours will be presented to meeting attendees. Hold a question-and-answer period at the end of the presentation so that any Program-related questions or concerns may be addressed. Take meeting minutes as a record of community feedback; share completed minutes with municipal contacts in project communities so that they may be posted online. Circulate a recording of the public meeting to public access stations within Program Study Area communities so that it may be periodically aired prior to project commencement.</p>
Construction Phase Planned Outreach	Ongoing Updates of Project Status	<p>Provide Program updates provided on a regular basis to Study Area communities through www.MWRA.com, organizational social media, and on municipal websites in communities within the EJ Study Area.</p> <p>Provide translations of Program updates based on languages spoken by at least 5 percent of census tract population in each community, where appropriate. Make email addresses and phone numbers of contacts at MWRA available so that residents can reach out with questions and concerns.</p> <p>Host virtual Program update meetings on a quarterly basis for all Study Area communities. These meetings will be recorded and provided in all languages spoken by at least 5 percent of census tract population in each community, where appropriate; recordings will be shared and circulated to public access stations within project communities so that they may be periodically aired throughout the duration of the Program until a new meeting is recorded.</p>

2.4 EJ Impact Assessments

The Certificate requested that the FEIR address comments from the CRWA regarding the EJ impact assessments.

The MWRA would implement proposed mitigation measures to address adverse Program impacts as described in **FEIR Chapter 8, Mitigation and Draft Section 61 Findings**. Specific comments raised by the CRWA are addressed in **FEIR Chapter 9, Responses to Comments, Table 9-5**.

The potential for temporary Program-related construction period activities and final conditions to disproportionately impact EJ populations were evaluated for the following environmental resource categories:

- **Transportation** (see **SDEIR Chapter 9, Transportation**, and **DEIR Chapter 4.10, Transportation**)
- **Air Quality and GHG Emissions** (see **SDEIR Chapter 8, Air Quality and Greenhouse Gas Emissions**, and **DEIR Chapter 4.11, Air Quality and Greenhouse Gas Emissions**)
- **Noise and Vibration** (see **SDEIR Chapter 11, Noise and Vibration**, and **DEIR Chapter 4.12, Noise and Vibration**)
- **Hazardous Materials** (see **SDEIR Chapter 13, Hazardous Materials, Materials Handling, and Recycling**, and **DEIR Chapter 4.8, Hazardous Materials, Materials Handling, and Reuse**)
- **Wetlands and Waterways** (see **SDEIR Chapter 5, Wetlands and Waterways**, and **DEIR Chapter 4.6, Wetlands and Waterways**)
- **Water Supply and Water Management Act** (see **SDEIR Chapter 6, Water Supply and Water Management Act**, and **DEIR Chapter 5, Water Supply and Water Management Act**)
- **Climate Change** (see **SDEIR Chapter 7, Climate Change**, and **DEIR Chapter 6, Climate Change**)
- **Article 97 lands** (see **SDEIR Chapter 4, Land Alteration and Article 97**, **DEIR Chapter 4.9, Land Use**, and **DEIR Chapter 4.13, Community Resources and Open Space**)
- **Community and Open Space Resources** (see **SDEIR Chapter 4, Land Alteration and Article 97**, and **DEIR Chapter 4.13, Community Resources and Open Space**)

SDEIR Chapter 3, Outreach and Environmental Justice, Section 3.4, Environmental Justice Impact Assessment (pgs. 3-11 to 3-135), included a comprehensive assessment of potential construction period and final condition impacts on EJ populations. While there are anticipated adverse impacts for some environmental resource areas, no EJ populations would be subject to disproportionate adverse effects in any of the three Alternatives. Where environmental impacts require mitigation, the MWRA will implement mitigation measures to address adverse Program impacts as described in the respective environmental resource categories (refer to **FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Sections 8.2.2 through 8.2.11**). Mitigation measures would be implemented for both EJ and non-EJ communities to address short-term construction-period impacts.

The improved water supply redundancy provided by the Program for the MWRA's existing Metropolitan Tunnel System will benefit both EJ and non-EJ populations. As described in **FEIR Chapter 1, Program Description and Permitting**, the MWRA provides wholesale water and sewer services to 3.1 million people and more than 5,500 businesses in 61 communities in eastern and central Massachusetts, which includes

several EJ communities as indicated by the Massachusetts Department of Public Health's (DPH's) EJ Tool and the EEA's Massachusetts 2020 Environmental Justice Populations mapping tool (EJ Maps Viewer). The MWRA's assets are critical infrastructure for serving residents, communities, and the economy in eastern Massachusetts. The reliable delivery of water is essential to protecting public health, providing sanitation and fire protection, and supporting a viable economy in these communities. Construction of the Program would allow the MWRA to take its aging existing water tunnel system offline to be rehabilitated without interrupting water service to over 2.5 million water customers in these communities.

2.5 EJ Circulation Prior to FEIR Filing

The Certificate requested that the MWRA circulate a copy of the FEIR or summary thereof to the EJ Reference List prior to filing.

To be consistent with 301 CMR 11.05(4), the MWRA voluntarily proposes to provide advance notification of the Program prior to FEIR filing to CBOs and tribes based on a recommended list provided by the EEA EJ Director.

Refer to **FEIR Chapter 10, Circulation, Table 10-1 (pgs. 10-1 to 10-6)** for a list of the federal, state, and municipal contacts that the FEIR was distributed to (the EJ Reference List contacts are listed on **page 10-5**). Notices of Availability have been mailed or emails have been sent to all parties indicating the filing location on the MWRA's website. An Advance Notification Form (EJ Screening Form) was provided to CBOs ahead of the DEIR, SDEIR and FEIR filings (<https://www.mwra.com/mwtp/resources.html>).

The MWRA also prepared and published fact sheets on its website (<https://www.mwra.com/mwtp/resources.html>) on topics including "About MWRA's Metropolitan Water Tunnel Program," "Potential Natural and Cultural Resource Environmental Impacts," "Potential Noise, Vibration, and Air Quality Impacts," "How Were Shaft Sites Selected?", "Potential Traffic Impacts," and "Potential Water Supply Impacts." All the fact sheets were translated into Spanish, Haitian Creole, and Chinese. These fact sheets were updated prior to the filing of the SDEIR to reflect minor Program changes.

2.6 Mitigation and Collaboration with DPWs and Transportation Departments

The Certificate requested that the FEIR identify measures to avoid, minimize, and mitigate transportation-related impacts to EJ populations from Program-related activities during and post-construction, including working with DPWs and transportation departments in each municipality to implement mitigation measures in all areas with EJ populations.

The MWRA would implement proposed mitigation measures to address adverse transportation (and other) Program impacts as described in **FEIR Chapter 8, Mitigation and Draft Section 61 Findings**. No significant Program-related permanent transportation impacts are anticipated as described in **SDEIR Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation Measures (pg. 9-51)**. Potential impacts to the transportation network may occur temporarily during the construction period due to an

increase in truck trips to and from the construction sites, transportation of contractors, and physical construction of near-surface pipelines in public roadways at some sites.

If construction activities were to result in significant traffic congestion during the peak hour, mitigation measures would be implemented, which may include not allowing work to take place within the roadway during weekday peak hours, which normally occur from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM, in accordance with local ordinances. Coordination with the roadway owner would take place if the proposed construction work needs to be completed during the weekday peak hours. On heavily traveled urban arterials, work within the roadway may primarily be permitted during off-peak, overnight hours. In some residential areas, work may be restricted to daytime hours to minimize potential disturbance to residents. In some areas, if necessary, time restrictions may also be used to avoid potential impacts to routine street sweeping or other activities.

Based on the results of the capacity analysis, the Study Area intersections subject to potential temporary construction-related traffic impacts could be mitigated, if necessary and where appropriate, by adjusting the traffic signal timings. Depending on final design and coordination with local municipality and/or MassDOT, modifications could be made permanent. The MWRA will work with the DPWs and transportation departments of each affected municipality to establish appropriate transportation-related mitigation measures, as needed and where appropriate.

Measures that would be considered to mitigate potential traffic impacts, if necessary and where appropriate, are described in **SDEIR Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation Measures (pgs. 9-51 to 9-54)**, and are summarized in **FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.7 (pgs. 8-26 to 8-29)**.

2.7 Transportation Study Area Used to Calculate Air Emissions

The Certificate requested that the FEIR clarify the “transportation Study Area” used to calculate air emissions for the Program, as contrasted with the “Study Area” for the Program as a whole.

The Study Area used to calculate Program-related air emissions included construction activity at the Program sites and the anticipated construction vehicle routes along local roadways to and from Program sites to the nearest major highway. Vehicle trips estimated to/from each Program site were distributed onto the surrounding roadway network based on the most direct route along main State and local roadways to/from the nearest highway (i.e., Interstate 93 (I-93) and Interstate 95 (I-95)).

Construction period air pollutant emissions were then modeled along these local routes for on-road construction trucks and employee trips. **FEIR Section 7.2.1, Transportation Existing Conditions, Table 7-2, (pgs. 7-5 to 7-7)** lists the Study Area roadways associated with each Program site. Emissions for off-road mobile sources (non-road construction equipment used at the Program sites) were quantified by Program site for each Alternative. As described in **SDEIR Chapter 8, Air Quality and Greenhouse Gas Emissions**, Program-related construction-period emissions would be primarily associated with off-road equipment and, more specifically, construction equipment temporarily used at launching shaft sites.

The Study Area used to model air emissions was the same as the Study Area used to assess potential transportation-related impacts (i.e., the “Transportation Study Area”). **SDEIR Chapter 3, Outreach and Environmental Justice, Figure 3-3** through **Figure 3-19** depict the anticipated construction vehicle routes to be used during temporary Program-related construction activities to/from each Program site and the nearest interstate highway. Block groups containing EJ populations within a 0.5-mile distance from the anticipated routes that have existing unfair or inequitable environmental burdens were identified per the DPH vulnerable health criteria data (low birth rate and elevated blood lead prevalence) are also shown on **SDEIR Figure 3-3** through **Figure 3-19**. **SDEIR Chapter 3, Table 3-20 (pgs. 3-91 to 3-96)** lists the intersections along the construction vehicle routes and the block groups containing EJ populations that are within 0.5-miles of the anticipated vehicle routes. Study Area intersections along the anticipated routes are also identified and labeled in **SDEIR Figure 3-3** through **Figure 3-19**.

See **FEIR Figure 1-1 (pg. 1-3)** for a depiction of the overall Program Study Area, which encompasses portions of the communities of Boston, Belmont, Brookline, Dedham, Needham, Newton, Watertown, Waltham, Wellesley, and Weston. As described in **FEIR Chapter 1, Program Description and Permitting, Section 1.1, Program Description (pg. 1-2)**, the overall Program Study Area encompasses approximately 15 miles of deep rock tunnel approximately 200 to 400 feet below the ground surface.

To assess potential impacts associated with the Program sites and the tunnel alignment, a specific Study Area was defined for each environmental resource category. For example, the Cultural and Historic Resources Study Area established a 400-foot distance around the temporary construction area limits of disturbance to account for potential Program-related visual effects on aboveground properties while the Land Alteration and Article 97 Study Area encompassed a larger area to also evaluate which properties within a 1,000-foot-wide corridor along the tunnel alignment may require a subterranean easement. **Table 2-3** summarizes the Study Area used to evaluate each environmental resource category.

Table 2-3 Study Areas Evaluated for Each Environmental Resource Category

Resource Topic	Study Area
Outreach and Environmental Justice	A DGA was assessed around each Program site, which consists of a one-mile radius around each site’s temporary construction area limits of disturbance (LOD). The EJ analysis identified EJ block groups that fall partially or fully within the DGA. The EJ Study Area also includes the area within half a mile of proposed construction vehicle routes for each Alternative. Collectively, the DGAs surrounding each Program site and construction vehicle route, make up the EJ Study Area.
Land Alteration and Article 97	The area within a 500-foot distance from the extents of the temporary construction area LOD boundary for each Program site. The Land Alteration and Article 97 Study Area also includes a 1,000-foot-wide corridor (500 feet on either side) around the proposed tunnel alignment for each Alternative to identify which properties may require a subterranean easement.
Wetlands and Waterways	The areas within a 200-foot distance from the extents of the temporary construction area LOD boundary for each Program site. The Wetlands and Waterways Study Area also includes a 2,000-foot-wide corridor that extends 1,000 feet on either side of the proposed tunnel alignment for each Alternative.
Water Supply and Water Management Act	Area within a 0.5-mile distance from each Program site and the area within 0.5-mile of the tunnel alignment.

Table 2-3 Study Areas Evaluated for Each Environmental Resource Category

Resource Topic	Study Area
Climate Change	The Resilient Massachusetts Action Team’s Climate Resilience Design Standards Tool (RMAT Tool) was used to determine climate exposures and risk. The boundary of each Program site’s permanent aboveground footprint area was input into the RMAT Tool’s built-in geographic information system (GIS) map, which considers distances to water bodies, floodplains, and other factors.
Air Quality and Greenhouse Gas Emissions	Evaluated construction activity at the Program sites and the anticipated construction vehicle routes along local roadways to and from Program sites to the nearest major highway. Background information on State-reported greenhouse gas (GHG) emissions levels and ambient air quality concentrations were reviewed based on the nearest applicable air monitoring stations operated by the Massachusetts Department of Environmental Protection (MassDEP).
Transportation	Evaluated anticipated construction vehicle routes and associated intersections between the access point(s) to each Program site and the nearest major highway.
Rare Species and Wildlife	Area within the LOD surrounding each Program site. The Rare Species and Wildlife Study Area also includes a 2,000-foot-wide corridor that extends 1,000 feet on either side of the proposed tunnel alignment for each Alternative to identify any listed species habitat polygon areas designated by the Massachusetts Department of Fish and Wildlife’s (DFW) Natural Heritage and Endangered Species Program (NHESP).
Noise and Vibration	Ambient sound measurements were conducted at 20 locations to establish the existing conditions at receptor locations near Program sites. The nearest sensitive receptors were identified in proximity to each Program site. The noise and vibration analysis also considered construction vehicle routes in proximity to potential sensitive areas.
Cultural and Historic Resources	Area within a 400-foot distance of the extents of the temporary construction area LOD to account for potential visual effects associated with Program sites (the Study Area surrounding the near-surface piping work extends only to the boundary of the LOD since there are no anticipated permanent visual effects associated with surface piping work).
Hazardous Materials, Materials Handling, and Recycling	Area within a 500-foot distance of the extents of the temporary construction area LOD.

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3 Land Alteration, Open Space, and Article 97

3.1 Introduction

This chapter clarifies information related to potential impacts of the Metropolitan Water Tunnel Program (the Program) on land alteration, open space, and Article 97 as requested in the Executive Office of Energy and Environmental Affairs (EEA) Secretary’s Certificate on the Supplemental Draft Environmental Impact Report (SDEIR). The Certificate on the SDEIR, issued on September 29, 2023, identified a Scope for the Final Environmental Impact Report (FEIR) that requested additional information on the section topic of “Land Alteration, Open Space, and Article 97” where clarifications in response to comments received from the Massachusetts Department of Conservation and Recreation (DCR) would be provided. The Certificate also requested that the FEIR address comments from the Charles River Watershed Association (CRWA) and the Waltham Land Trust (WLT) regarding land alteration, open space, and Article 97. In particular, the Certificate requested that the FEIR:

- Provide a summary of the outcome of further consultation with DCR regarding Article 97 protection and mitigation.
- Clarify the estimated area of the total tunnel alignment on DCR properties.
- Demonstrate that the Massachusetts Water Resources Authority (MWRA) will meet the obligations of the Public Lands Preservation Act (PLPA),¹ including public notification, an alternatives analysis, the identification and dedication of replacement land to Article 97 purposes, an appraisal, requests for the Secretary to waive or modify the replacement land requirement or make findings relative to funding in lieu of replacement land, if applicable, and Article 97 legislation.
- Address CRWA comments related to Article 97 mitigation commitments, avoidance and minimization of Article 97 impacts, and compliance with the PLPA (see **FEIR Chapter 9, Responses to Comments, Table 9-5**).
- Address comments from WLT as they relate to environmental and public access goals for the Lawrence Meadow parcel, which is adjacent to the proposed University of Massachusetts (UMass) Property large connection shaft site that would be used in Program Alternative 3A or 4A (see **FEIR Chapter 9, Responses to Comments, Table 9-6**).

Refer to **FEIR Chapter 9, Responses to Comments**, for the full list of delineated comments received on the SDEIR, along with a copy of Secretary’s Certificate and the comment letters received.

This chapter also provides a summary of land alteration, open space, and Article 97 as it relates to FEIR Alternative 4B (the Preferred Alternative). As described in **FEIR Chapter 1, Program Description and Permitting**, Alternative 4B is the same as Draft Environmental Impact Report (DEIR) Alternative 4 and

1 Commonwealth of Massachusetts, Chapter 274, *An Act Preserving Open Space in the Commonwealth*, <https://malegislature.gov/Laws/SessionLaws/Acts/2022/Chapter274#:~:text=Acts%20%282022%29%20Chapter%20274%20AN%20ACT,PRESERVING%20OPEN%20SPACE%20IN%20THE%20COMMONWEALTH> (accessed February 6, 2024).

SDEIR Alternative 4A with the exception of terminating the North Tunnel at the Lower 190 Trapelo Road Property site near the Waverley Oaks Road entrance, as shown previously in **FEIR Figure 1-2 (pg. 1-7)**. The Lower 190 Trapelo Road Property site was previously referred to as the “Lower Fernald Property” when used in and evaluated as part of SDEIR Alternative 10A, which is no longer being carried forward. FEIR Alternative 4B combines the preferred aspects of SDEIR Alternative 4A and 10A and incorporates the City of Waltham’s preferred northern terminus location. Alternative 4B introduces no new tunnel segments, tunnel alignments, shaft sites, shaft site usage (i.e., launching, receiving or large connection), construction methodology, construction schedule or duration as compared to those presented and evaluated in the DEIR and SDEIR.

FEIR Section 3.5, Alternative 4B Land Alteration, Open Space, and Article 97 Impact Assessment summarizes the cumulative impacts of FEIR Alternative 4B. For details related to the MWRA’s actions to avoid, minimize, and mitigate potential impacts to land use, community resources, and open space, including Article 97 lands, see **FEIR Section 8.2.2, Land Alteration, Open Space, and Article 97 (pg. 8-8 to 8-13)**.

3.2 Summary of Consultation with DCR Since SDEIR Filing

In the Certificate, the Secretary requested that the FEIR provide a summary of the outcome of further consultations with DCR regarding Article 97 protection and mitigation. The Secretary expressed an expectation in the Certificate that mitigation commitments relative to Article 97 dispositions will be finalized in conceptual fashion by the time of the FEIR.

The MWRA met with representatives of DCR on October 12, 2023, for further consultation regarding Article 97. The meeting was attended by the DCR Deputy General Counsel, Acting General Counsel, Director of Land Protection, and Land Protection Specialist. The MWRA described the two proposed Program sites (the American Legion receiving shaft site and the Southern Spine Mains connection shaft site) located on property owned by the Commonwealth of Massachusetts under the care, custody, and control of the DCR that MWRA proposes to acquire. The MWRA also noted that subterranean tunnel easements would be required at approximately ten DCR properties underneath which the proposed tunnel travels.

Land use in the permanent condition at the American Legion site would include approximately 1.5 acres surrounding the shaft site that would be transferred to the MWRA. The location of the shaft and this permanent land acquisition was developed based on previous meetings held with DCR representatives to reduce impact on the operator of the ongoing wood waste processing operations. **FEIR Table 3-1**, as previously presented in **SDEIR Section 4.2.4, Land Alteration and Article 97 Avoidance, Minimization, and Mitigation, Table 4-13 (pgs. 4-49 to 4-51)**, describes that the minimum amount of interest in DCR land is being disposed to meet the purpose and need for the Program.

A permanent easement of approximately 1.5 acres would also be obtained from DCR along the proposed near-surface pipeline route connecting the American Legion shaft site to the existing MWRA distribution lines along Morton Street (Route 203). For the permanent easement area, approximately 0.5 acres would be located within vegetated area near the ongoing wood waste processing operations. The other 1.0 acres

of the permanent easement would be within the existing roadway areas used by DCR for access to the various buildings and uses on the parcel. The permanent easement for the proposed near-surface pipeline would be 30 feet wide, centered on the pipeline.

The MWRA also identified and discussed with DCR the planned permanent condition at the Southern Spine Mains site along the Arborway. The limit of permanent acquisition for the shaft site is approximately 0.2 acres. The limit of permanent easement along the proposed near-surface pipeline to connect to the MWRA distribution lines in the Arborway and to access the site would be less than 0.1 acres. The permanent easement for the pipeline would be 30 feet wide, centered on the pipeline.

During the meeting with DCR, the MWRA described the subterranean tunnel easements would be below grade and represented by 50-foot by 50-foot subsurface easements centered on the tunnel centerline. The subterranean tunnel easements are anticipated to be at depths ranging between approximately 200 to 450 feet below the ground surface. The MWRA explained that the number of subterranean tunnel easements on DCR property is subject to the final tunnel alignment that will be determined during the final design.

To demonstrate mitigation commitments in conceptual fashion, the MWRA committed at the meeting with the DCR to follow the requirements of the PLPA. These steps include providing public notice, conducting an alternatives analysis, identifying compensatory land or funding in lieu of replacement land, completing an appraisal for the subject lands, and taking actions to enact Article 97 legislation before construction of the tunnel begins. The MWRA also committed to provide updates to DCR as the design progresses and work through the Article 97 process with the DCR Director of Land Protection and the Land Protection Specialist as the main points of contact regarding Article 97.

As the DCR noted in its SDEIR comment letter (refer to **FEIR Chapter 9, Responses to Comments, Section 9.9, Letter 7: Massachusetts Department of Conservation and Recreation**), the MWRA and DCR will continue to work together to identify appropriate mitigation to compensate for the disposition of land protected under Article 97.

3.2.1 Total Tunnel Alignment Area on DCR Properties

The Certificate referenced a comment by the DCR that noted the SDEIR does not provide an estimate of the total tunnel alignment area on DCR properties. The Certificate noted that, during post-SDEIR consultation with the DCR, MWRA indicated that a permanent easement approximately 30 feet wide would be required, which would also trigger Article 97 requirements.

As noted in the previous section, MWRA met with DCR on October 12, 2023, for further consultation regarding Article 97. During the meeting, the MWRA described that the easements for the near-surface pipeline connections to existing MWRA distribution lines would be 30 feet wide and the subterranean tunnel easements would be below grade and represented by 50-foot by 50-foot subsurface easements centered on the tunnel centerline. The subterranean tunnel easements are anticipated to be at depths ranging between approximately 200 to 450 feet below the ground surface. The MWRA described that subterranean tunnel easements would be required at approximately ten DCR properties underneath

which the proposed tunnel travels. The MWRA explained that the number of subterranean tunnel easements on DCR property is subject to the final tunnel alignment that will be determined during the final design.

Article 97 mitigation would be required for the permanent acquisitions and easements on properties that are protected by Article 97. As described in **SDEIR Section 4.2.3, Land Alteration and Article 97 Resources Final Conditions (pg. 4-42)**, properties protected by Article 97 within a 1,000-foot corridor centered around the preliminary tunnel alignment (500 feet on either side of the alignment) were identified for each Alternative. The 1,000-foot corridor was used to identify Article 97 resources that may require a subterranean easement should the tunnel be located directly underneath a given property. Since the proposed subterranean tunnel alignment easements would be 50 feet wide, the 1,000-foot corridor tunnel alignment Study Area represents a conservative estimate of properties that may require a subterranean easement. Article 97 properties located within a 1,000-foot corridor of the preliminary tunnel alignment are listed by Alternative in **SDEIR Table 4-12** as presented in **SDEIR Section 4.2.3.3, Tunnel Alignment (pgs. 4-44 to 4-45)**, and updated to include Alternative 4B below in **FEIR Table 3-8**.

Properties that are protected under Article 97 and located within the 1,000-foot corridor of the preliminary tunnel alignment are shown in **DEIR Figure 4.13-17** to **DEIR Figure 4.13-25**. **SDEIR Figures 4-3** to **Figure 4-4** provide the alignment associated with North Tunnel, Segment 1, for Alternatives 3A and 4A, and **FEIR Figure 3-1** (see **Section 3.5.2.3** below) provides the alignment associated with North Tunnel, Segment 1, for Alternative 4B (all other tunnel segments are the same as presented in the DEIR).^{2,3}

The tunnel alignment between shaft sites will be further refined as design for the Program is finalized. Geotechnical and geologic data from borings, surface geophysical surveys, and bedrock outcrop mapping, along with data collected as part of past projects (e.g., past MWRA projects, MassDOT work, etc.), will continue to be analyzed to characterize the geologic and hydrogeologic setting for the Program area and to understand conditions which influence shaft and tunnel design and construction methods (e.g., top of rock elevation, location and limits of geologic faults, permeability, strength, abrasively, mineralogy, lithology, stability, etc.). The results of these investigations and analyses, along with other factors such as hydraulic connections to critical infrastructure, will dictate the final tunnel alignment between shaft sites and the resulting parcels that would require permanent subterranean easements. As design progresses, the MWRA will finalize which parcels require subterranean easements and the acreages required.

2 **DEIR Figure 4.13-17** (Alternative 3 – Tunnel Segment 1) is superseded by **SDEIR Figure 4-3** (Alternative 3A – Tunnel Segment 1) and **DEIR Figure 4.13-20**, (Alternative 4 – Tunnel Segment 1) is superseded by **SDEIR Figure 4-4** (Alternative 4A – Tunnel Segment 1). **FEIR Figure 3-1** (Alternative 4B – Tunnel Segment 1) is a new figure which, in combination with **DEIR Figures 4.13-21** (Alternative 4 – Tunnel Segment 2) and **4.13-22** (Alternative 4 – Tunnel Segment 3), comprise the new FEIR Alternative 4B.

3 As described in **SDEIR Section 4.2.1.3, Tunnel Alignment Existing Conditions (pg. 4-17)** and above **FEIR Section 3.1**, use of the UMass Property large connection shaft site in SDEIR Alternatives 3A and 4A, or the Lower 190 Trapelo Road Property receiving shaft site in FEIR Alternative 4B, revises the tunnel alignment from the School Street connection shaft site to the northern terminus site. South of the School Street connection shaft site, the preliminary alignment of the North Tunnel, Segment 1, would remain the same as described in the DEIR for Alternatives 3 and 4. South Tunnel, Segment 2, and South Tunnel, Segment 3, would remain the same as previously described in the DEIR.

3.2.2 Commitment to Article 97 Land Disposition Policy and PLPA Obligations

As noted in the Certificate and in the DCR and CRWA comments, MWRA will be responsible for meeting the obligations of the PLPA, including public notification, an alternatives analysis, the identification and dedication of replacement land to Article 97 purposes, an appraisal, requests for the Secretary to waive or modify the replacement land requirement or make findings relative to funding in lieu of replacement land, if applicable, and Article 97 legislation.

The MWRA is committed to working with the DCR and other agencies to meet the requirements for the transfer of Article 97 property in accordance with the EEA Article 97 Land Disposition Policy,⁴ the PLPA, and the Commonwealth's "Guidance on Public Lands Preservation Act Implementation."⁵

As noted in previous sections, to demonstrate mitigation commitments in conceptual fashion, the MWRA committed at the meeting with DCR to follow the requirements of the PLPA. These steps include providing public notice, conducting an alternatives analysis, identifying compensatory land or funding in lieu of replacement land, completing an appraisal for the subject lands, and taking actions to enact Article 97 legislation before construction of the tunnel begins. The MWRA would also adhere to the requirements of the PLPA for Ouellet Park.

As described in **SDEIR Chapter 4, Land Alteration and Article 97, Section 4.1.1, Summary of Findings (pg. 4-1)**, existing open space areas protected by Article 97 through the EEA Article 97 Land Disposition Policy would be avoided to the greatest extent practicable. Use of open space land and community resources has been minimized during the site-selection process and alternatives analysis as described in **DEIR Section 4.13.7, Avoidance, Minimization, and Mitigation Measures (pgs. 4.13-91 to 4.13-92)**. As previously assumed in the DEIR and the SDEIR, three sites (common to the three Alternatives) may require the disposition⁶ of land protected under Article 97 (not under the care, custody, and control of MWRA):

- **Ouellet Park** – The Hegarty Pumping Station connection shaft site is within Ouellet Park, which is owned by the Town of Wellesley. Approximately 0.1 acres of land acquisition is anticipated to be required (to be confirmed in final design). Temporary use of approximately 0.3 acres of the site is anticipated for construction.
- **Southwest Corridor Park/Arborway I** – The Southern Spine Mains connection shaft site is within Southwest Corridor Park/Arborway I, which is owned by the Commonwealth of Massachusetts under care, custody, and control of DCR. Approximately 0.2 acres of land acquisition is anticipated to be

4 Commonwealth of Massachusetts, Executive Office of Environmental Affairs, "Article 97 Land Disposition Policy," February 19, 1998, www.mass.gov/files/documents/2018/06/06/article97_LandDisposition_Policy.pdf (accessed November 8, 2023).

5 Commonwealth of Massachusetts, "Guidance on Public Lands Preservation Act Implementation," February 2023, <https://www.mass.gov/doc/guidance-on-public-lands-preservation-act-implementation-january-2023/download> (accessed November 8, 2023).

6 Per the Article 97 Land Disposition Policy, "an Article 97 land disposition is defined as a) any transfer or conveyance of ownership or other interests; b) any change in physical or legal control; and c) any change in use, in and to Article 97 land or interests in Article 97 land owned or held by the Commonwealth or its political subdivisions, whether by deed, easement, lease or any other instrument effectuating such transfer, conveyance or change."

required (to be confirmed in final design). Temporary use of up to 0.5 acres of Southwest Corridor Park/Arborway I is anticipated to be required for construction.

- **Morton Street Property** – A portion of the American Legion receiving shaft site is within the Morton Street Property owned by the Commonwealth of Massachusetts under care, custody, and control of DCR. Approximately 1.5 acres of Morton Street Property land acquisition is anticipated to be required for the shaft and valve chamber and up to 2.0 acres of permanent easement would be required for the near-surface pipeline (to be confirmed in final design). Temporary use of up to 5.4 acres of the Morton Street Property is anticipated to be required for construction.

Proposed change in use or disposition of land or interests in land subject to Article 97 by the MWRA would comply with the PLPA and its established requirements and process per the PLPA and the EEA’s Article 97 Land Disposition Policy to avoid net loss of lands protected under Article 97. **FEIR Table 3-1**, as previously presented in **SDEIR Section 4.2.4.2, Table 4-13 (pgs. 4-49 to 4-51)**, summarizes how the MWRA would seek to comply with the conditions outlined in the Article 97 Land Disposition Policy.

In accordance with the requirements of the PLPA, the MWRA will notify the Secretary of the EEA and the public by submitting the proposed disposition request within the PLPA portal (the portal is forthcoming as of February 2024⁷) and perform additional notification as required by the EEA. Prior to the submission, the MWRA will coordinate with the owner/maintainer of the parcel of interest, as required by the PLPA.

As outlined in the PLPA and as described in **SDEIR Section 4.3, Technical Analysis to Respond to Certificate Comments (pgs. 4-52 to 4-53)**, the MWRA will prepare a brief alternatives analysis in the EEA portal submission for site use and select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, the MWRA may request to provide in-lieu funding for part or all of the replacement land. The MWRA will continue to work with the appropriate agencies regarding the most appropriate option for each applicable site subject to the PLPA and the Article 97 Policy.

7 Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs, “Article 97 & The Public Lands Preservation Act,” <https://www.mass.gov/info-details/article-97-the-public-lands-preservation-act> (accessed February 6, 2024).

Table 3-1 Program Compliance with Article 97 Land Disposition Policy (SDEIR Table 4-13)

Policy Condition	Compliance
<p>All other options to avoid Article 97 disposition have been explored and no feasible and substantially equivalent alternatives exist (monetary considerations notwithstanding).</p>	<p>Ouellet Park (Article 97 status TBD) at Hegarty Pumping Station Connection Shaft Site: The Program would provide a connection to the existing Hegarty Pumping Station, which is surrounded by land that may be protected by Article 97. Approximately 0.1 acre of Ouellet Park would be needed for the proposed connection shaft site. Wellesley Water Supply Land, located south of the Hegarty Pumping Station, is protected by Article 97 and local zoning that designates it as a place for groundwater recharge. Therefore, no feasible and substantially equivalent alternatives are available to avoid potential Article 97 land.</p> <p>DCR Morton Street Property at American Legion Receiving Shaft Site: To create redundancy, the Program requires a connection to the Dorchester Tunnel. Shaft 7C, located in the southwest corner of the American Legion Highway and Morton Street intersection, is the preferred connection point to pipelines near the Dorchester Tunnel. Other sites near Shaft 7C include open space properties that host public amenities such as the Forest Hills Cemetery, Franklin Park, and Mass Audubon’s Boston Nature Center. Unlike the surrounding open space, DCR’s Morton Street property does not host public amenities/recreational activities. No other feasible and substantially equivalent alternatives that avoid Article 97 land are available.</p> <p>Southwest Corridor Park/Arborway I at Southern Spine Mains Connection Shaft Site: The Program would require a connection to the Southern Spine Mains pipelines in the vicinity of the Arborway (Route 203) and Washington Street to create redundancy in the Southern High-Pressure Zone. These twin mains are located within the western lanes of the Arborway, so other options for connection in this area would still require a connection through the Arborway. Approximately 0.2 acres of Southwest Corridor Park/Arborway I are anticipated to be required for the Program. Other parcels of Southwest Corridor Park, which are Article 97 land, are within 500 feet of the proposed site temporary construction area limits of disturbance (LOD). The 52-acre Southwest Corridor Park is a linked system of parks comprising a “greenway” along a roughly 4-mile corridor from the MBTA Back Bay Station to Forest Hills Station. The parks are zoned for residential use and recreational open space and are in the Greenbelt Overlay District. No other feasible and substantially equivalent alternatives are available.</p>

Table 3-1 Program Compliance with Article 97 Land Disposition Policy (SDEIR Table 4-13)

Policy Condition	Compliance
<p>The disposition of the subject parcel and its proposed use do not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation), as determined by EEA and its agencies.</p>	<p>The disposition of approximately 0.1 acres of Ouellet Park (Article 97 status TBD), approximately 3.5 acres of DCR’s Morton Street Property, and approximately 0.2 acres of Southwest Corridor Park/Arborway I would not destroy or threaten a unique or significant resource.</p> <p>Trees and vegetation present on the sites subject to Article 97 disposition may provide existing habitat for protected biological resources, including the endangered Northern Long-eared Bat (NLEB). Land alteration and tree clearing required to construct the Program would be limited to the extent practicable. The MWRA would implement tree impact avoidance and protection strategies where feasible.</p> <p>As described in SDEIR Chapter 10, Rare Species and Wildlife Habitat, no construction work is proposed within a quarter mile of a NLEB hibernacula (shelter) or within 150 feet of a known maternity roost tree. In accordance with the Endangered Species Act (ESA), specific provisions for tree removal would be followed to reduce the potential for adverse impacts on NLEB. Tree removal would not take place until the U.S. Fish & Wildlife Service (USFWS) confirms that ESA requirements for NLEB have been met and all required permits obtained. Consultation in accordance with ESA would be undertaken with the USFWS prior to construction during the final design and permitting phase. Upon completion of the Program sites, the MWRA would implement landscaping and/or tree planting where possible and where appropriate to minimize potential impacts.</p> <p>Ouellet Park (Hegarty Pumping Station) public playground infrastructure, fields, and courts are not near the proposed connection shaft site; the 0.1-acre acquisition is not anticipated to impede the existing recreational amenities or public access at Ouellet Park (7.3-acre park).</p> <p>The 0.2-acre portion of Southwest Corridor Park/Arborway I to be used by the Program is not anticipated to interfere with the existing recreational use of the greenway nor the adjacent community garden. DCR’s Morton Street property (American Legion site) does not provide recreational activities.</p> <p>The Hegarty Pumping Station connection shaft site, Southern Spine Mains connection shaft site, and American Legion receiving shaft site, in their finished condition, would include the proposed shaft and valve chamber, chain-link fencing, a paved driveway and parking area, an access gate, and a concrete top of shaft structure and valve structure anticipated to extend no more than 3 feet above ground surface. The permanent facilities would be surrounded by a chain link fence. The shafts would be covered with a hatch that is at or slightly above ground level. The site terrains are, and would remain, consistent with surrounding terrain. The finished condition is not anticipated to impact local wildlife. Use of a portion of each of the three properties would be minor in overall property size (acreage) in relation to the total area, and use of the sites for the Program is not anticipated to significantly interfere with or detract from the existing use.</p>

Table 3-1 Program Compliance with Article 97 Land Disposition Policy (SDEIR Table 4-13)

Policy Condition	Compliance
As part of the disposition, real estate of equal or greater fair market value or value in use of proposed use, whichever is greater, and significantly greater resource value as determined by EEA and its agencies, are granted to the disposing agency or its designee, so that the mission and legal mandate of EEA and its agencies and the constitutional rights of the citizens of Massachusetts are protected and enhanced.	The MWRA will work with the EEA, the DCR, and the Town of Wellesley as necessary to identify appropriate mitigation to compensate for the dispositions occurring at Ouellet Park (Article 97 TBD), the Southwest Corridor Park/Arborway I, and the DCR Morton Street property.
The minimum acreage necessary for the proposed use is proposed for disposition and, to the maximum extent possible, the resources of the parcel proposed for disposition continue to be protected.	The proposed dispositions, to be confirmed in final design, include approximately 0.1 acres of Ouellet Park (Article 97 status TBD), 0.2 acres of Southwest Corridor Park/Arborway I, and 1.5 acres of the DCR Morton Street Property (a 2.0-acre permanent easement of the DCR Morton Street Property would also be required for the near-surface pipeline). These acreages are small in relation to the total Article 97 property area and would contain only the critical Program infrastructure needed for operation and maintenance of the tunnel system. The MWRA will continue to work with the DCR and the Town of Wellesley as design for the Program progresses to ensure that the layout of the Program sites minimizes potential impacts associated with Article 97 resources.
The disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies, and mandates of EEA and its appropriate department or division.	The potential disposition of approximately 0.1 acres of Ouellet Playground (Article 97 TBD) at the Hegarty Pumping Station connection shaft site, 0.2 acres of Southwest Corridor Park/Arborway I (Article 97) at the Southern Spine Mains connection shaft site, and 1.5 acres of the DCR’s Morton Street Property at the American Legion receiving shaft site (a 2.0-acre permanent easement of the DCR Morton Street Property would also be required for the near-surface pipeline) would be used to enhance redundancy for the existing water supply infrastructure within the Greater Boston Area. The reliable delivery of water is essential to protecting public health, providing sanitation, fire protection, and supporting a viable economy. Wellesley and Boston, where the properties are located, would benefit from the Program as they are communities that rely on this infrastructure for water supply.
The disposition of a parcel is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests therein to the Commonwealth.	The MWRA has coordinated with the Town of Wellesley Natural Resources Commission (owner of Ouellet Playground (Article 97 TBD)) and DCR (owner of the Southwest Corridor Park/Arborway I (Article 97) and the Morton Street property (Article 97)) as part of the MEPA process and both parties have expressed understanding and support for the Program. The MWRA will continue to coordinate with the Town of Wellesley and the DCR regarding use of Article 97 land and minimization of potential impacts.

The above table content summarizing Program compliance with the Article 97 Land Disposition Policy is republished from SDEIR Table 4-13, Program Compliance with Article 97 Land Disposition Policy, as previously presented in SDEIR Section 4.2.4.2 (pgs. 4-49 to 4-51).

3.3 CRWA Comments on Article 97 Mitigation Commitments

The Certificate requested that the FEIR address comments from the CRWA regarding avoidance and minimization of Article 97 impacts and compliance with the PLPA.

Refer to the previous section, **FEIR Section 3.2.2**, for information on how the MWRA will comply with the EEA Article 97 Land Disposition Policy and the PLPA obligations. The MWRA will work with the EEA, the DCR, and the Town of Wellesley as necessary to identify appropriate mitigation to compensate for the dispositions occurring at Ouellet Park (Article 97 TBD), the Southwest Corridor Park/Arborway I (Article 97), and the DCR Morton Street property (Article 97). Refer to **FEIR Table 3-1**, as previously presented in **SDEIR Section 4.2.4.2, Table 4-13 (pgs. 4-49 to 4-51)**, for a summary of how the MWRA would seek to comply with the conditions outlined in the Article 97 Land Disposition Policy for use of a portion of the three sites protected by Article 97, as applicable. Per the PLPA requirements, the MWRA will provide public notice, conduct an alternatives analysis, identify compensatory land or funding in lieu of replacement land, complete an appraisal for the subject lands, and take actions to enact Article 97 legislation before construction of the tunnel begins. Refer to **FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.2 (pgs. 8-8 to 8-13)**, for more information on measures that would be implemented by the MWRA to avoid, minimize, and mitigate potential impacts to Article 97 lands.

Responses to all comments received on the SDEIR from the CRWA are provided in **FEIR Chapter 9, Responses to Comments, Section 9.5, Letter 3: Charles River Watershed Association** (see **FEIR Table 9-5**), along with a copy of the CRWA's comment letter.

3.4 Waltham Land Trust Comments on Preservation of Lawrence Meadow

The Certificate requested that the FEIR address comments from the WLT as they relate to its environmental and public access goals for the Lawrence Meadow parcel, which is adjacent to the UMass Property site used only in Alternative 3A and 4A, as well as clean-up of existing site contamination.

The proposed UMass Property site, which would accommodate a large connection shaft site in Alternative 3A or 4A, is located on open space within Lawrence Meadow (see **SDEIR Figure 4-1**). As described in **SDEIR Section 4.2.1.1, Alternative 3A/Alternative 4A Existing Conditions (pgs. 4-8 to 4-10)**, Lawrence Meadow is an approximately 31-acre conservation/recreation area that surrounds the Samuel D. Warren Estate (Lawrence Meadow is not protected by Article 97).^{8,9} The property is owned by the Commonwealth of Massachusetts under the care, custody, and control of UMass.

8 City of Waltham, Massachusetts, "2015-2022 Open Space & Recreation Plan," https://www.city.waltham.ma.us/sites/g/files/vyhlf6861/f/u151/open_space_plan.pdf (accessed February 6, 2024).

9 City of Waltham, Massachusetts, "Zoning District Map of Waltham, Massachusetts," revised June 29, 2017, https://www.city.waltham.ma.us/sites/g/files/vyhlf6861/f/uploads/zoning_map_-_city_color_scheme_-_30x30_6-29-2017.pdf (accessed February 6, 2024).

Per the WLT's comment letter (a copy is provided in **FEIR Chapter 9, Responses to Comments, Section 9.6, Letter 4: Waltham Land Trust**), the MWRA acknowledges the WLT's plans to construct a new segment of the Western Greenway trail along the western boundary of Lawrence Meadow, adjacent to (east of) the Girl Scouts of Eastern Massachusetts property, that would travel north towards the Walter E. Fernald State School property. Based on the WLT's letter and the planned trail route published on the WLT's website dated January 2023,¹⁰ the planned trail would travel on Lawrence Meadow along the existing dirt road adjacent to the western boundary of the proposed UMass Property site.

As shown on **SDEIR Figures 2-2 and 2-3**, the proposed temporary construction area limits of disturbance (LOD) and the permanent (final conditions) boundary of the UMass Property used in Alternatives 3A or 4A site is located east of the existing dirt road that WLT plans to use for a future segment of the Western Greenway trail. Use of the UMass Property site is not anticipated to obstruct the existing dirt road nor hinder access to the entrance to Lawrence Meadow. As described in **SDEIR Chapter 4, Land Alteration and Article 97, Section 4.2.1.1, Alternative 3A/Alternative 4A Existing Conditions (pgs. 4-8 to 4-10)**, the temporary LOD includes an approximately 0.5-acre area of Lawrence Meadow surrounding the proposed shaft site and an approximately 0.4-acre area along the public right-of-way on Beaver Street to accommodate a near-surface pipeline (see **SDEIR Figure 2-2**). As shown on **SDEIR Figure 2-3**, the MWRA would propose to acquire approximately 0.3 acres of the 31-acre Lawrence Meadow property for permanent use (final conditions) associated with Alternative 3A or 4A. The MWRA's proposed construction and operation of the UMass Property site in Alternatives 3A or 4A would not restrict access to Lawrence Meadow beyond the UMass Property site boundary; Lawrence Meadow would remain available for land stewardship and future trail use.

The MWRA also acknowledges the WLT's goal of permanent environmental preservation of Lawrence Meadow and desire to restore the property via clean-up of documented releases of hazardous materials near and/or within the UMass Property. As described in **FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.8.1, Rare Species and Wildlife Habitat Construction Period Mitigation (pg. 8-30)**, the MWRA would seek to protect and minimize potential disturbance to existing natural resources on-site. MWRA would revegetate areas disturbed during construction with native species of trees and vegetation, where required and as appropriate. Tree planting and landscaping associated with Alternatives 3A or 4A would be coordinated with UMass, the City of Waltham, and community stakeholders during final design.

As described in **FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.11.1, Hazardous Materials Construction Period Mitigation (pg. 8-36)**, the MWRA would develop and implement a Soils and Materials Management Plan (SMMP) to manage all soil and excavated material including contaminated and uncontaminated materials encountered during construction within the limits of work. Properties with confirmed oil and hazardous materials (OHM) contamination will be managed in accordance with the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000), the Program-wide SMMP, and associated MassDEP policies and guidance.

¹⁰ Waltham Land Trust, "The Western Greenway," <https://walthamlandtrust.org/the-western-greenway/> (accessed February 6, 2024).

Responses to all comments received on the SDEIR from the WLT are provided in **FEIR Chapter 9, Responses to Comments, Section 9.6, Letter 4: Waltham Land Trust** (see **FEIR Table 9-6**), along with a copy of the WLT's comment letter.

3.5 Alternative 4B Land Alteration, Open Space, and Article 97 Impact Assessment

This section describes and evaluates the existing land uses, community resources, open space, and Article 97 properties in the vicinity of FEIR Alternative 4B. An analysis of the Program's potential environmental impacts relative to land alteration and the creation of impervious area is provided, updating where necessary the information provided in the DEIR and SDEIR. Included is a comparison of the Alternatives 3A, 4A, and 4B with respect to their potential impacts on land use, community resources, open space, and Article 97 properties, including consistency with the EEA Article 97 Land Disposition Policy.¹¹

3.5.1 Summary of Findings

The key findings related to Land Alteration and Article 97 for the three Program Alternatives are listed below. Findings are consistent with those previously identified in the DEIR and SDEIR.

- Proposed shafts, valve chambers, meters and connecting pipelines would be underground structures.
- Proposed sites would be located on state- or municipality-owned land.
- Relocation of residential units would not be required; Program sites would be located away from residential uses and protected and recreational open spaces to the extent feasible.
- Permanent above-ground features, such as concrete slabs and concrete vaults or top of shafts, are not anticipated to extend more than three feet above finished grade.
- Areas temporarily disturbed during construction would be restored to preconstruction conditions where possible in accordance with the respective property owners.
- The Program may require the removal of public shade trees as defined in Massachusetts General Law Chapter 87; potential public shade trees will be identified pending advancement of site design and the MWRA would not plant, trim, cut, or remove a public shade tree without permission of the Tree Warden (and/or in coordination with the park commissioner, the Massachusetts Department of Conservation and Recreation (DCR), and/or the Massachusetts Department of Transportation (MassDOT) where appropriate) and would follow the necessary requirements for public hearings and public notification in accordance with Chapter 87, as well as Chapter 40, Section 15C (the "Scenic Roads Act"), where applicable.
- Trees removed during construction would be replaced where required and as appropriate.
- Fencing and proper signage would be installed surrounding shaft areas, where appropriate.

¹¹ Commonwealth of Massachusetts, Executive Office of Environmental Affairs, "Article 97 Land Disposition Policy," February 19, 1998, www.mass.gov/files/documents/2018/06/06/article97_LandDisposition_Policy.pdf (accessed February 6, 2024).

Existing open space areas protected by Article 97 through the Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs (EEA) Article 97 Land Disposition Policy would be avoided to the greatest extent practicable. As previously assumed in the DEIR and SDEIR, three sites may require the disposition¹² of land protected under Article 97:

- The Hegarty Pumping Station connection shaft site (Ouellet Park) (Article 97 status to be determined)
- Southern Spine Mains connection shaft site (Southwest Corridor Park/Arborway I)
- The American Legion receiving shaft site (Morton Street Property)

Three other sites have resources that are protected under Article 97 but would not result in an Article 97 land disposition since the protected resources (Hultman Aqueduct and Sudbury Aqueduct) are owned by the Commonwealth of Massachusetts under the care, custody, and control of the MWRA, namely:

- Park Road East large connection shaft site (Hultman Aqueduct) [paired with the Tandem Trailer launching shaft site]
- Bifurcation launching shaft site (Hultman Aqueduct)
- St. Mary Street Pumping Station connection shaft site (Sudbury Aqueduct)

Any proposed change in use or disposition of land or interests in land subject to Article 97 would seek to comply with the Public Lands Preservation Act (PLPA) and its established requirements and process per *An Act Preserving Open Space in the Commonwealth* (Chapter 274 of the Acts of 2022, M.G.L. c. 3, § 5A). For more on Article 97 and the PLPA, see **SDEIR Section 4.3**.

3.5.2 Land Alteration and Article 97 Existing Conditions

The methodology used to assess existing conditions remains unchanged from the DEIR and SDEIR as described in **DEIR Section 4.9.3, Methodology (pg. 4.9-2)**, **DEIR Section 4.13.3, Methodology (pgs. 4.13-2 to 4.13-3)** and **SDEIR Section 4.2.1, Land Alteration and Article 97 Existing Conditions (pg. 4-3)**. The Study Area for land use, community resources, open space, and Article 97 properties consists of the area within a 500-foot distance from the extents of the proposed temporary construction area limits of disturbance (LOD) boundary for each Program site. The construction area LOD includes the area proposed for site access, excavation, staging, near-surface pipeline connections, temporary water treatment areas, dewatering discharge locations, and other construction-related activities. Land uses, community resources, open space, and Article 97 properties within 500 feet of the construction area LOD surrounding the Lower 190 Trapelo Road Property site were reviewed as part of Alternative 10A in the SDEIR for compatibility with the Program and summarized here. Consistent with DEIR and SDEIR, the Study Area for community resources, open space, and Article 97 resources also includes a 1,000-foot-wide corridor (500 feet on either side of the proposed tunnel alignments) along the tunnel alignment for each Alternative to identify which properties may require a subterranean easement.

12 Per the Article 97 Land Disposition Policy, “an Article 97 land disposition is defined as a) any transfer or conveyance of ownership or other interests; b) any change in physical or legal control; and c) any change in use, in and to Article 97 land or interests in Article 97 land owned or held by the Commonwealth or its political subdivisions, whether by deed, easement, lease or any other instrument effectuating such transfer, conveyance or change.”

Aboveground construction activities would take place at 13 different Program sites. **Table 3-2** provides a summary comparison of the land use characteristics associated with the three FEIR Alternatives, including the proposed change in impervious surface compared to existing conditions, the total temporary construction area LOD, permanent easements or land acquisition, and Article 97 land disposition anticipated to be required. The table has been updated since the SDEIR to include the new Alternative 4B.

Table 3-2 Summary Comparison of Land Alteration/Article 97 Considerations by Alternative

Land Use Characteristics	Alternative 3A	Alternative 4A	Alternative 4B
Proposed change in impervious surface cover	2.7 acres	2.4 acres	2.4 acres
Estimated total temporary construction area limits of disturbance	42.4 acres	36.1 acres	37.5 acres
Estimated permanent easements or land acquisition required to support the shaft and valve chambers (excluding the tunnel alignment, access and pipeline easements, and existing MWRA-owned lands or lands with an existing MWRA easement)	Minimum of 9	Minimum of 9	Minimum of 9
Estimated total permanent easement or acquisition area (excluding the underground tunnel alignment and existing MWRA-owned lands or lands with an existing MWRA easement)	8.4 acres	8.0 acres	9.1 acres
Total Program sites ¹	13	13	13
Article 97 Properties (not under the care, custody, and control of the MWRA) within construction area limits of disturbance	3 1 Ouellet Park (Hegarty Pumping Station) 2 Southwest Corridor Park/ Arborway I (Southern Spine Mains) 3 Morton Street Property (American Legion)	3 1 Ouellet Park (Hegarty Pumping Station) 2 Southwest Corridor Park/ Arborway I (Southern Spine Mains) 3 Morton Street Property (American Legion)	3 1 Ouellet Park (Hegarty Pumping Station) 2 Southwest Corridor Park/ Arborway I (Southern Spine Mains) 3 Morton Street Property (American Legion)
Estimated Article 97 land disposition area within the proposed Hegarty Pumping Station site (Ouellet Park under care, custody, control of the Town of Wellesley [Article 97 status TBD]), Southern Spine Mains site (Southwest Corridor Park/Arborway I under care, custody, control of the Commonwealth of Massachusetts Department of Conservation and Recreation (DCR)), and American Legion site (Morton Street Property under care, custody, control of DCR)	3.8 acres (0.1 acres of Ouellet Park, 0.2 acres of Southwest Corridor Park, and 3.5 acres of the Morton Street Property)	3.8 acres (0.1 acres of Ouellet Park, 0.2 acres of Southwest Corridor Park, and 3.5 acres of the Morton Street Property)	3.8 acres (0.1 acres of Ouellet Park, 0.2 acres of Southwest Corridor Park, and 3.5 acres of the Morton Street Property)
Article 97 Properties within a 1,000-Foot Corridor of the Preliminary Tunnel Alignment ²	37	37	36

- 1 The Tandem Trailer launching shaft site would include a connection tunnel to the Park Road East large connection shaft in all three alternatives to provide the required connection to the Hultman Aqueduct. The total number of Program sites considers the area around the Tandem Trailer launching shaft and the area around the Park Road East large connection shaft as one site paired.
- 2 The total number of Article 97 Properties within the 1,000-foot corridor for Alternative 4A alignment has been revised since the SDEIR to correct a minor numerical error. There have been no changes to Alternative 4A or the associated Article 97 Properties.

As presented in the SDEIR as part of Alternative 10A, the Lower 190 Trapelo Road Property site, now used as the North Tunnel, Segment 1 terminus for Alternative 4B, does not contain Article 97 property that would require a disposition. All other Alternative 4B sites are the same as those in DEIR Alternative 4 and SDEIR Alternative 4A. **Table 3-3** lists community resources and open space identified within 500 feet of the temporary construction area LOD for sites used in the FEIR Alternatives.

Table 3-3 Community Resources and Open Space within 500 feet of Program Sites

Site (Alternative)	Property Name	Property Owner/Maintainer (if applicable)	Property Use	Property Size (acres) ²	Property Type
Launching, Receiving, and Large Connection Shaft Sites					
UMass Property (3A, 4A)	Lawrence Meadow	Commonwealth of Massachusetts/ University of Massachusetts	Conservation	31.0	Open Space and Community Resource
	Cornelia Warren Field ¹	City of Waltham	Recreation	4.8	Open Space and Community Resource
	Waltham Agricultural Fields ¹	City of Waltham	Agriculture/ Conservation	28.0	Open Space and Community Resource
	Cedar Hill Girl Scout Camp	Girl Scouts of America – Patriots Trail Council	Recreation/ Conservation	75.5	Open Space and Community Resource
Lower 190 Trapelo Road Property (4B)	Fernald Property (Non-CPA Funded)	City of Waltham	Conservation / Recreation	50.0	Open Space
	Lawrence Meadow	Commonwealth of Massachusetts/ University of Massachusetts	Conservation	31.0	Open Space and Community Resource
	Fernald Property (CPA Funded) ¹	City of Waltham	Conservation / Recreation	140.0	Open Space
Tandem Trailer/Park Road East (3A, 4A, 4B)	Loring Road Covered Storage Tanks ¹	Commonwealth of Massachusetts/MWRA	Water Supply	41.0	Open Space
	Cutters Bluff Property	Weston Forest and Trail Association	Conservation	4.3	Community Resource
	Fitzgerald Well ¹	Town of Weston	Water Supply (abandoned)	0.9	Open Space
	Hultman Aqueduct ¹	Commonwealth of Massachusetts/MWRA	Water Supply	5.8	Open Space
Park Road West (4A, 4B)	Hultman Aqueduct ¹	Commonwealth of Massachusetts/MWRA	Water Supply	10.9	Open Space
Bifurcation (3A)	Hultman Aqueduct ¹	Commonwealth of Massachusetts/MWRA	Water Supply	10.9	Open Space
	Nickerson Well ¹	Town of Weston	Water Supply (abandoned)	0.7	Open Space

Table 3-3 Community Resources and Open Space within 500 feet of Program Sites

Site (Alternative)	Property Name	Property Owner/Maintainer (if applicable)	Property Use	Property Size (acres) ²	Property Type
	Fitzgerald Well ¹	Town of Weston	Water Supply (abandoned)	0.9	Open Space
Highland Avenue Northwest/Southwest (All)	Charles River Pathway ¹	Oak Park Realty	Conservation	1.8	Open Space and Community Resource
Highland Avenue Northeast/Southeast (All)	Charles River Pathway ¹	Oak Park Realty	Conservation	1.8	Open Space and Community Resource
American Legion (All)	Morton Street ¹	Commonwealth of Massachusetts/DCR	Conservation	31.5	Open Space
	Boston Nature Center	Massachusetts Audubon Society	Recreation/Conservation / Agriculture	62.3	Community Resource
	St. Michaels Cemetery	Italian Catholic Cemetery Association	Religious Site	40.0	Community Resource
	Franklin Park ¹	Commonwealth of Massachusetts/City of Boston	Recreation	397.0	Open Space and Community Resource
	Forest Hills Cemetery	Private	Religious Site	273.9	Community Resource
Connection Shaft and Isolation Valve Sites (Common to All Alternatives)					
School Street	St. Mary's Church	St. Mary's Church	Religious Site	3.6	Community Resource
	Waltham Housing Authority	City of Waltham	Housing	2.0	Community Resource
Cedarwood Pumping Station	William Stanley Elementary School	City of Waltham	Education	11.8	Community Resource
	Beth Israel Memorial Park	The Temple of Beth Israel	Open Space	7.7	Community Resource
	Mt. Feake Cemetery	City of Waltham	Religious Site	86.1	Community Resource
	Nipper Maher Park	City of Waltham	Recreation	19.6	Open Space and Community Resource
Hegarty Pumping Station	Ouellet Park ¹	Town of Wellesley Parks and Recreation Department	Recreation	7.3	Open Space and Community Resource
	Wellesley Water Supply Land ¹	Town of Wellesley	Water Supply	6.5	Open Space
	Charles River Reservation ¹	Commonwealth of Massachusetts/DCR	Recreation	65.0	Open Space and Community Resource

Table 3-3 Community Resources and Open Space within 500 feet of Program Sites

Site (Alternative)	Property Name	Property Owner/Maintainer (if applicable)	Property Use	Property Size (acres) ²	Property Type
	Wellesley Housing Authority	Town of Wellesley	Housing	16.9	Community Resource
St. Mary Street Pumping Station	Sudbury Aqueduct ¹	Commonwealth of Massachusetts/MWRA	Water Supply	13.5	Open Space
Newton Street Pumping Station	Newton St. Parcel ¹	Town of Brookline	Water Supply	0.1	Open Space
	Robert T. Lynch Memorial Golf Course ¹	Town of Brookline	Recreation	123.0	Community Resource
	The Country Club	The Country Club	Recreation	232.8	Community Resource
Southern Spine Mains	Southwest Corridor Park/ Arborway I ¹	Commonwealth of Massachusetts/DCR/MBTA	Recreation	1.9	Community Resource and Open Space
	South Street Community Garden	Commonwealth of Massachusetts	Agriculture	0.4	Community Resource
	Arnold Arboretum ¹	City of Boston/Harvard University	Conservation / Recreation	159.7	Community Resource and Open Space
	Department of Public Health	Commonwealth of Massachusetts	Laboratory	11.4	Community Resource
	Arborway ¹	Commonwealth of Massachusetts/ DCR	Conservation / Recreation	4.3	Community Resource and Open Space
Hultman Aqueduct Isolation Valve	Nickerson Well ¹	Town of Weston	Water Supply (abandoned)	0.7	Open Space

¹ Property may be protected under Article 97 (Article 97 properties to be confirmed as design progresses).

² Total size of the open space or community resource property. The specific area (quantity or acres) within the Study Area has not been determined.

Shaded areas are located on the Program site; nonshaded areas are within the Study Area and not within the temporary construction area Limits of Disturbance (LOD). Several properties are now shaded that were not previously shaded in the corresponding SDEIR table to correct inadvertent omissions. There have been no changes to use of these properties (i.e., no change to temporary LOD or permanent easement/acquisition) since the SDEIR.

DCR - Commonwealth of Massachusetts, Department of Conservation and Recreation

MWRA - Massachusetts Water Resources Authority

MassDOT - Massachusetts Department of Transportation

MBTA - Massachusetts Bay Transit Authority

CPA - Community Preservation Act

3.5.2.1 Alternative 3A/Alternative 4A Existing Conditions

Existing conditions for land use, community resources, open space, and Article 97 for SDEIR Alternatives 3A and 4A would remain the same as described in **SDEIR Section 4.2.1.1, Alternative 3A/Alternative 4A Existing Conditions (pgs. 4-8 to 4-10)**.

3.5.2.2 Alternative 4B Existing Conditions

Alternative 4B would utilize the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. The existing conditions for land use, community resources, open space, and Article 97 resources for the Lower 190 Trapelo Road Property receiving shaft site were described in **SDEIR Section 4.2.1.2 Alternative 10A Existing Conditions (pg. 4-15)**. **SDEIR Figure 4-2** showed the surrounding land use, open space, and Article 97 for the Lower 190 Trapelo Road Property site, as it was previously evaluated for SDEIR Alternative 10A. The existing conditions for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 and SDEIR Alternative 4A, as described in **DEIR Section 4.9.4, Existing Conditions** and **SDEIR Section, 4.2.1 Land Alteration and Article 97 Existing Conditions**.

3.5.2.3 Tunnel Alignment Existing Conditions

As shown in **FEIR Figure 1-2 (pg. 1-7)**, only the northern most portion of the Alternative 4B North Tunnel, Segment 1 alignment after the School Street site would differ from Alternative 4A (though follow that of Alternative 10A). South of the School Street connection shaft site the North Tunnel, Segment 1 preliminary alignment would remain the same as described in the DEIR and SDEIR. South Tunnel, Segment 2, and South Tunnel, Segment 3, would remain the same as previously described in the DEIR and SDEIR for Alternatives 4 and 4A.

As described in **FEIR Chapter 1, Program Description and Permitting**, the depth of the tunnel would range from approximately 200 feet to 400 feet below ground surface. Thus, the tunnel alignment would be below ground and would not disrupt open space or community resources at the surface; however, a subterranean easement would be required for properties that the tunnel alignment passes underneath, including those that are protected by Article 97. Therefore, as described in **DEIR 4.13.4.3, Tunnel Alignments (pg. 4.13-49)**, the analysis of community resources and open space used a Study Area for the tunnel alignments in addition to the Study Area used surrounding the construction area LOD around each Program site.

The Study Area for the tunnel alignments considered a 1,000-foot-wide corridor centered around the preliminary tunnel alignment (500-foot distance extending from either side of the alignment). The tunnel alignment Study Area was used to identify Article 97 resources that may require a subterranean easement should the tunnel be located directly underneath a given property. Since the proposed tunnel would be up to approximately 12 feet in diameter, the 1,000-foot corridor tunnel alignment Study Area represents a conservative estimate of properties that may require a subterranean easement.

Alternative 3A and 4A, Article 97 Existing Resources

There are no changes to SDEIR Alternative 3A and 4A. Their respective Article 97 properties remain unchanged since those listed in **SDEIR Section 4.2.1.3 Tunnel Alignment Existing Conditions**.

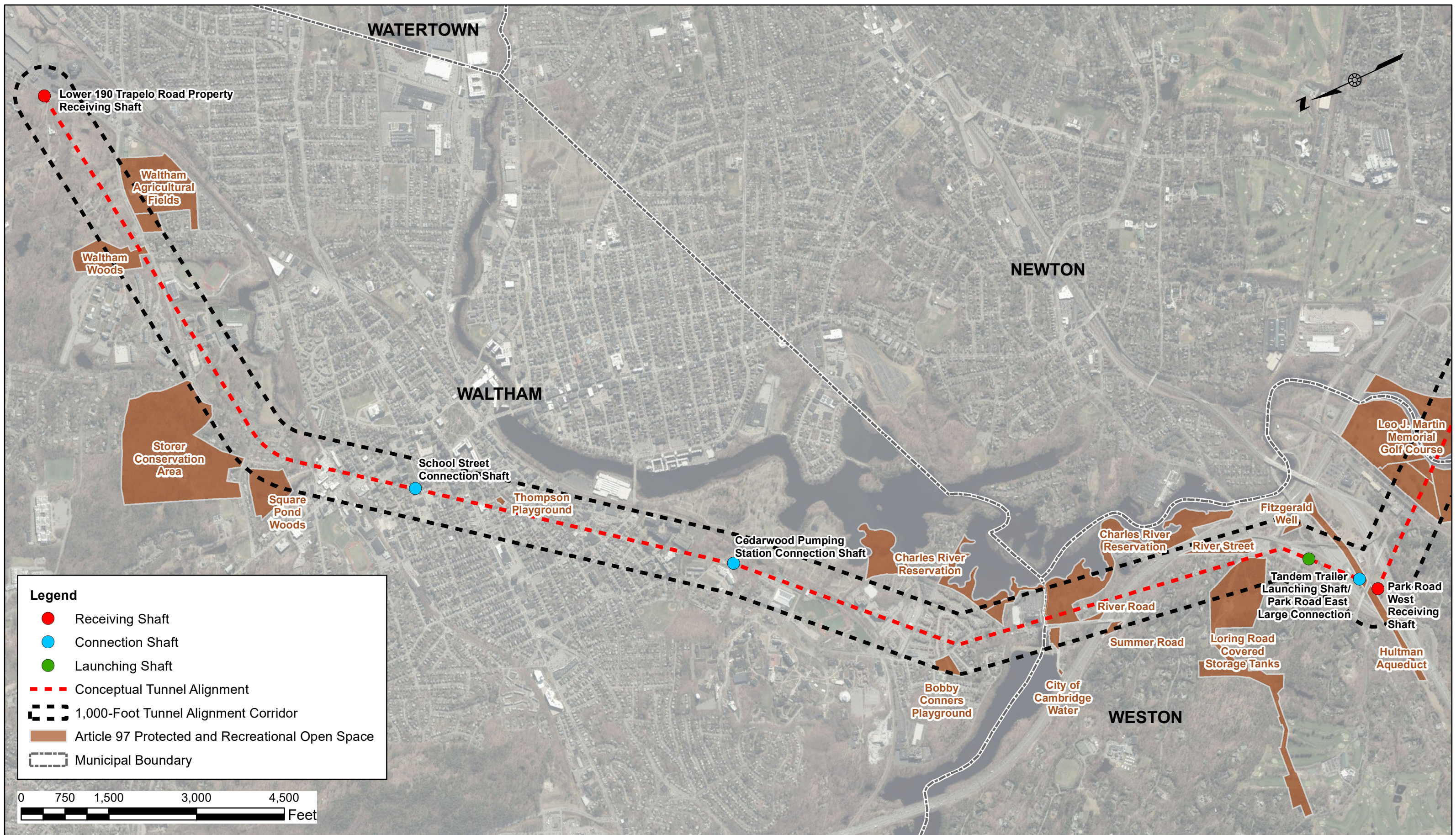
Alternative 4B, Article 97 Existing Resources

This section describes Article 97 properties that may require subterranean easements for Alternative 4B. **Table 3-4** identifies the launching and receiving shaft sites for the three tunnel segments in Alternative 4B. Note that the only difference between DEIR Alternative 4, and SDEIR Alternative 4A, and FEIR Alternative 4B is the location of the terminus of North Tunnel, Segment 1. Where the North Tunnel terminated at the Fernald Property receiving shaft for DEIR Alternative 4 and the UMass Property large connection for SDEIR Alternative 4A, the North Tunnel terminates at the Lower 190 Trapelo Road Property for FEIR Alternative 4B.

Table 3-4 *Alternative 4B Tunnel Segments, Launching Shafts, and Receiving Shafts*

Tunnel Segment	Launching Site	Receiving Site
North Tunnel Segment 1	Tandem Trailer	Lower 190 Trapelo Road Property
South Tunnel Segment 2	Highland Avenue Northwest	Park Road West
South Tunnel Segment 3	Highland Avenue Northeast	American Legion

The FEIR Alternative 4B North Tunnel, Segment 1, alignment travels from the Tandem Trailer launching shaft site to the Lower 190 Trapelo Road Property receiving shaft site and is located within the Town of Weston and City of Waltham. The Article 97 properties within the North Tunnel, Segment 1, alignment corridor in FEIR Alternative 4B are shown in **Figure 3-1** and summarized from north to south in **Table 3-5**. The Article 97 properties within the South Tunnel, Segment 2, corridor and the South Tunnel, Segment 3, corridor remain the same as previously assumed in the DEIR for Alternative 4 and SDEIR for Alternative 4A.



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Table 3-5 Article 97 Properties within 1,000-Foot Corridor of North Tunnel Segment 1 Alignment – Alternative 4B

Property Name	City/ Town	Property Owner/ Maintainer (if applicable)	Property Use	Property Size (Acres) ¹	Parcels Within 1,000-Foot Alignment Corridor
Waltham Agricultural Fields	Waltham	City of Waltham	Agriculture	25.4	1
Waltham Woods	Waltham	City of Waltham	Conservation	11.7	1
Storer Conservation Area	Waltham	City of Waltham	Conservation/ Recreation	72.3	1
Square Pond Woods	Waltham	City of Waltham	Conservation	5.0	1
Thompson Playground (Article 97 status unknown)	Waltham	City of Waltham	Recreation	0.4	1
Bobby Connors Playground	Waltham	City of Waltham	Recreation	2.2	1
Charles River Reservation I	Waltham, Weston	Commonwealth of Massachusetts/DCR	Conservation/ Recreation	52.4	3
City of Cambridge Water (Article 97 status unknown)	Weston	City of Cambridge	Water Supply/ Conservation	1.6	1
River Road	Weston	Town of Weston	Conservation	0.7	1
Summer Road	Weston	Town of Weston	Conservation	0.8	1
River Street	Weston	Commonwealth of Massachusetts/DCR	Conservation	1.9	1
Loring Road Covered Tanks	Weston	Commonwealth of Massachusetts/ MWRA	Water Supply/ Recreation	38.5	1
Fitzgerald Well	Weston	Town of Weston	Water Supply (abandoned)	0.9	1
Hultman Aqueduct	Weston	Commonwealth of Massachusetts/ MWRA	Water Supply	10.9	2

¹ Total size of the Article 97 property. The specific acreage within the Study Area has not been determined.

“Article 97 status unknown” indicates the Article 97 status of the property was listed as unknown by MassGIS and deed research. As design progresses, the properties listed unknown along the alignment will be confirmed through coordination with the appropriate agencies and municipalities.

No new Article 97 properties along the 1,000-foot corridor were identified since the SDEIR. The revised northern terminus of the North Tunnel, Segment 1, for Alternative 4B would result in one less property (Cornelia Warren Field) protected under Article 97 that may require a subterranean easement when compared to Alternative 4A. All other Article 97 properties that may require a subterranean easement for Alternative 4B North Tunnel, Segment 1, remain the same as SDEIR Alternative 4A.

3.5.3 Land Alteration and Article 97 Construction Period Impacts

As described in **DEIR Section 4.9.5, Construction Period Impacts (pg. 4.9-57)**, **Section 4.13.5, Construction Period Impacts (pg. 4.13-84)**, and **SDEIR Section 4.2.2, Land Alteration and Article 97 Construction Period Impacts (pg. 4-29)** construction-period impacts would be associated with the physical construction of the deep-rock tunnels and would primarily take place underground with limited and localized disruption to land uses at the surface above. Above-ground construction-related impacts would primarily be associated with the shaft site locations where lined shafts would connect the deep-rock tunnel to the surface and/or water distribution infrastructure, and where the associated ground-level construction staging areas would be located. Construction activities would be contained within the designated temporary construction area LOD for each site to minimize the area of potential disruptions at the surface.

The total tunnel shaft site above-ground construction temporary LOD would encompass approximately 36 to 42 acres of land, depending on FEIR alternative. Depending on the site type and function, construction-related activities within the LOD would include:

- Tunnel excavation
- On-site access
- Temporary staging of construction equipment and supplies such as cranes, tunnel boring machines (TBMs), pumps, generators, ventilation and electrical equipment, and batch plants
- Truck and vehicle parking and trailer storage
- A collection area for temporarily storing and managing the excavated materials removed from the shaft and tunnel before it is hauled off-site via truck haul routes to the nearest highway
- Temporary water treatment systems to treat water before it is discharged

The proposed construction staging areas are generally located within previously disturbed, vacant land. This includes existing state-owned and municipality-owned land. No new private lands are anticipated to be used for construction of the Program sites. The affected state-owned land consists of lands under care, custody, and control of the MWRA, DCR, Department of Youth Services (DYS), UMass, and MassDOT, including MassDOT right-of-way (ROW) land associated with I-90, I-95, Park Road, and Highland Avenue.

Temporary easements are anticipated to be required to accommodate the construction of tunnel shaft sites, isolation valve sites, connecting pipelines, and associated infrastructure, and the areas for staging construction materials and equipment on properties not under care, custody, and control of MWRA or where an existing MWRA easement does not exist. Coordination would take place prior to construction to develop agreements to temporarily use these properties during construction. Use of these areas is not anticipated to have an adverse effect on land use as these areas are primarily vacant, are located on state- or municipality-owned land, and the proposed use would be temporary. See **Table 3-2** for a summary comparison of the estimated change in impervious area, number of sites, and anticipated permanent easements or acquisition required for Alternatives 3A, 4A, and 4B.

Table 3-6 summarizes the differences among Alternatives 3A, 4A, and 4B in terms of tunnel Program sites and identifies which sites are located on protected open space or recreational land and/or lands held for natural resources purposes in accordance with Article 97.

Table 3-6 Land Use – Summary Comparison – Alternatives 3A, 4A, and 4B

Site	City/ Town	Property Owner	LOD on Article 97 Resource?	Alternative		
				3A	4A	4B
UMass Property	Waltham	Commonwealth of Massachusetts under care, custody, control of University of Massachusetts	No	Large Connection	Large Connection	n/a
Lower 190 Trapelo Road Property	Waltham	Waltham	No	n/a	n/a	Receiving
School Street	Waltham	Commonwealth of Massachusetts under care, custody, control of MWRA	No	Connection	Connection	Connection
Cedarwood Pumping Station	Waltham	Waltham	No	Connection	Connection	Connection
Tandem Trailer/ Park Road East	Weston	Commonwealth of Massachusetts under care, custody, control of MassDOT; MWRA has care, custody, control of area associated with Hultman Aqueduct (Article 97)	Yes (MWRA Hultman Aqueduct [Park Road East])	Launching/ Large Connection	Launching/ Large Connection	Launching/ Large Connection
Bifurcation	Weston	Weston and Commonwealth of Massachusetts under care, custody, control of MassDOT; MWRA has care, custody, control of Hultman Aqueduct area (Article 97)	Yes (MWRA Hultman Aqueduct)	Launching	n/a	n/a
Park Road West	Weston	Commonwealth of Massachusetts under care, custody, control of MassDOT; MWRA has care, custody, control of area associated with Hultman Aqueduct (Article 97)	Yes (MWRA Hultman Aqueduct)	n/a	Receiving	Receiving
Hultman Aqueduct Isolation Valve	Weston	Commonwealth of Massachusetts under care, custody, control of MassDOT; MWRA has care, custody, control of area associated with Hultman Aqueduct (Article 97)	Yes (MWRA Hultman Aqueduct)	Isolation Valve	Isolation Valve	Isolation Valve
Hegarty Pumping Station	Wellesley	Wellesley	TBD (Ouellet Park)	Connection	Connection	Connection

Table 3-6 Land Use – Summary Comparison – Alternatives 3A, 4A, and 4B

Site	City/ Town	Property Owner	LOD on Article 97 Resource?	Alternative		
				3A	4A	4B
St. Mary Street Pumping Station	Needham	Needham and Commonwealth of Massachusetts under care, custody, control of MWRA and DCR	Yes (MWRA Sudbury Aqueduct)	Connection	Connection	Connection
Highland Avenue NW	Needham	Needham and Commonwealth of Massachusetts under care, custody, control of MassDOT	No	Receiving	n/a	n/a
Highland Avenue NW/SW	Needham	Needham and Commonwealth of Massachusetts under care, custody, control of MassDOT	No	n/a	Launching	Launching
Highland Avenue NE/SE	Needham	Needham and Commonwealth of Massachusetts under care, custody, control of MassDOT	No	Launching	Launching	Launching
Newton Street Pumping Station	Brookline	Commonwealth of Massachusetts under care, custody, control of MWRA	No	Connection	Connection	Connection
Southern Spine Mains	Boston	Commonwealth of Massachusetts under care, custody, control of DCR	Yes ¹ (SW Corridor Park/ Arborway I)	Connection	Connection	Connection
American Legion	Boston	Commonwealth of Massachusetts under care, custody, control of DCR and DYS	Yes ¹ (Morton Street Property)	Receiving	Receiving	Receiving
Total Program Sites:				13	13	13

¹ Site located on lands held for natural resources purposes in accordance with Article 97.

NW: Northwest; NE: Northeast; SW: Southwest; SE: Southeast

3.5.3.1 Alternative 3A/Alternative 4A Construction Period Impacts

There are no changes to SDEIR Alternative 3A and 4A. Their respective potential construction period impacts to land use, community resources, open space, and Article 97 remain unchanged since those described in **SDEIR Section 4.2.2.1, Alternative 3A/4A Construction Period Impacts**.

3.5.3.2 Alternative 4B Construction Period Impacts

This section discusses potential construction period impacts to land use, community resources, open space, and Article 97 for FEIR Alternative 4B. Alternative 4B utilizes the Lower 190 Trapelo Road Property

site as a receiving shaft for the terminus of North Tunnel, Segment 1. This Lower 190 Trapelo Road Property site was previously used in and evaluated as part of SDEIR Alternative 10A, and its construction period impacts to land use, community resources, open space, and Article 97 were described in **SDEIR Section 4.2.2.2 (pg. 4-39)**. The construction period impacts at all other Alternative 4B sites are the same as DEIR Alternative 4 and SDEIR Alternative 4A as previously described in **DEIR Section 4.9.5, Construction Period Impacts and Section 4.13.5, Construction Period Impacts** and **SDEIR Section 4.2.2.1, Alternative 3A/4A Constriction Period Impacts**.

FEIR Alternative 4B would require three launching shaft sites, three receiving shaft sites, six connection shaft sites, and one isolation valve site. All sites are located on state- or municipality-owned land. FEIR Alternative 4B would use land owned by Waltham, Wellesley, Needham, and the Commonwealth of Massachusetts under care, custody, and control of the MWRA, MassDOT, DCR, and DYS. It is anticipated that nine different sites would require above-ground permanent easements or land acquisition in FEIR Alternative 4B (not including below-ground easements for the tunnel alignment or easements along proposed near-surface pipelines).

As shown in **Table 3-7**, the temporary construction area LOD in FEIR Alternative 4B is estimated to encompass approximately 38 acres. FEIR Alternative 4B would result in approximately 2 acres of new impervious area compared to existing conditions and is anticipated to require approximately 9 acres of permanent easements or land acquisition for the areas supporting the shafts and valve chamber.

Table 3-7 Estimated Land Alteration and Impervious Area in Alternative 4B

Proposed Program Site	City/Town	Property Owner(s)	Estimated Construction Limits of Disturbance ¹	Estimated Change in Impervious Area ¹	Estimated Permanent Easement/Acquisition Area for Shaft and Valve Chamber ²	Notes
North Tunnel, Segment 1						
Lower 190 Trapelo Road Property (Receiving)	Waltham	Waltham	2.3 acres	0.1 acres	1.4 acres	Requires acquisition from Waltham
School Street (Connection)	Waltham	Commonwealth of Massachusetts under care, custody, control of MWRA	0.6 acres	0.0 acres	n/a (not required)	Construction area LOD includes connection to MWRA distribution line
Cedarwood Pumping Station (Connection)	Waltham	Waltham	0.7 acres	0.1 acres	0.1 acres	Requires acquisition from Waltham
Hultman Aqueduct Isolation Valve	Weston	Commonwealth of Massachusetts under care, custody, control of MassDOT; existing MWRA easement	0.3 acres	0.1 acres	n/a (not required)	Within an existing MWRA easement
Tandem Trailer (Launching) [paired with Park Road East]	Weston	Commonwealth of Massachusetts under care, custody, control of MassDOT	4.0 acres	0.0 acres	0.2 acres	Requires a permanent easement; requires easement for pipeline
Park Road East (Large Connection)	Weston	Commonwealth of Massachusetts under care, custody, control of MassDOT; MWRA has care, custody, control of area associated with Hultman Aqueduct (Article 97)	1.5 acres	0.2 acres	0.9 acres	Requires permanent easement
North Tunnel, Segment 1, Total: ³			9.4 acres	0.5 acres	2.6 acres	

Table 3-7 *Estimated Land Alteration and Impervious Area in Alternative 4B*

Proposed Program Site	City/Town	Property Owner(s)	Estimated Construction Limits of Disturbance ¹	Estimated Change in Impervious Area ¹	Estimated Permanent Easement/Acquisition Area for Shaft and Valve Chamber ²	Notes
South Tunnel, Segment 2						
Highland Ave. Northwest/ Southwest (Launching)	Needham	Needham and Commonwealth of Massachusetts under care, custody, control of MassDOT	8.7 acres (5.6 northwest; 3.1 southwest)	0.0 acres	n/a (not required)	LOD includes dewatering discharge pipeline northeast to Charles River
St. Mary Street Pumping Station (Connection)	Needham	Needham and Commonwealth of Massachusetts under care, custody, control of MWRA and DCR	0.6 acres	0.1 acres	n/a (not required)	
Hegarty Pumping Station (Connection)	Wellesley	Wellesley	0.3 acres	0.1 acres	0.1 acres	Requires acquisition of 0.1 acres of Ouellet Park (Article 97 (TBD))
Park Road West (Receiving)	Weston	Commonwealth of Massachusetts under care, custody, control of MassDOT; MWRA has care, custody, control of area associated with Hultman Aqueduct (Article 97)	2.7 acres	0.4 acres	1.1 acres	Requires a permanent easement
South Tunnel, Segment 2, Total: ³			12.3 acres	0.6 acres	1.2 acres	

Table 3-7 Estimated Land Alteration and Impervious Area in Alternative 4B

Proposed Program Site	City/Town	Property Owner(s)	Estimated Construction Limits of Disturbance ¹	Estimated Change in Impervious Area ¹	Estimated Permanent Easement/Acquisition Area for Shaft and Valve Chamber ²	Notes
South Tunnel, Segment 3						
Highland Ave. Northeast/Southeast (Launching)	Needham	Needham and Commonwealth of Massachusetts under care, custody, control of MassDOT	9.5 acres (4.8 Northeast; 4.7 Southeast)	0.7 acres	1.5 acres	Requires permanent easement; LOD includes dewatering discharge pipeline northeast to Charles River
Newton Street Pumping Station (Connection)	Brookline	Commonwealth of Massachusetts under care, custody, control of MWRA	0.3 acres	0.1 acres	n/a (not required)	
Southern Spine Mains (Connection)	Boston	Commonwealth of Massachusetts under care, custody, control of DCR	0.5 acres	0.1 acres	0.2 acres	Requires acquisition of 0.2 acres of Southwest Corridor Park/Arborway I (Article 97)
American Legion (Receiving)	Boston	Commonwealth of Massachusetts under care, custody, control of DCR and DYS	5.4 acres	0.5 acres	3.5 acres	Requires acquisition for the shaft and valve (1.5 acres), including portions of the Morton Street Property (Article 97); includes permanent easement (2.0 acres) for near-surface pipeline connection
South Tunnel, Segment 3, Total ³			15.8 acres	1.4 acres	5.3 acres	
GRAND TOTAL: ³			37.5 ACRES	2.4 ACRES	9.1 ACRES	

¹ The site areas (acreages) are conservatively estimated based on October 2022 concept site plans (UMass Property site areas are based on March 2023 concept site plans). The size of the temporary construction LOD boundary was established to accommodate proposed construction-related activities, including tunnel excavation, excavation laydown areas, on-site access, near-surface pipelines, temporary staging of construction equipment and supplies (such as cranes, TBM, pumps, generators, ventilation and electrical equipment, and batch plants), truck and vehicle parking, trailer storage, a collection area for temporarily managing excavation materials, temporary water treatment areas, dewatering discharge, and related activities.

² The permanent easement/acquisition areas (acreages) include the area surrounding the proposed shaft and valve chamber and near-surface pipeline connections, where applicable. Subterranean easements along the tunnel alignment and easements along proposed pipelines are not included. The acreages are conservatively estimated based on the area required to accommodate permanent above-ground infrastructure and associated access in the post-construction condition. For example, and dependent on the function of a proposed site, this may include valve chambers, fencing, signage, top of shaft structures, and access road pavement.

³ Totals may not add due to rounding.

3.5.4 Land Alteration and Article 97 Resources Final Conditions

In the post-construction condition, most of the proposed facilities, such as shafts, valve chambers, meters, and connecting pipelines, would be underground. Above-ground surface features associated with the Program would be limited and include top-of-shaft structures, valve chambers, fencing, signage, vehicle access roads, and parking areas. It is anticipated that the Program would create up to approximately 3 acres of new impervious surface compared to existing conditions including new pavement proposed for vehicle parking and site access roadways. Concrete vaults or top-of-shafts and concrete slabs are not anticipated to extend more than three feet above ground surface. As assumed in the DEIR and SDEIR, the Program would be compatible with the existing and future land use plans, open space plans, and zoning plans and policies established by the municipalities and planning agencies across the Study Area.

Permanent easements or land acquisition for FEIR Alternative 4B are summarized in **Table 3-7**, and for SDEIR Alternatives 3A and 4A in **SDEIR Table 4-9** and **Table 4-10**. Within the permanent easements or land acquisition areas, a fenced-off area would surround valve chambers and tunnel shafts. It is anticipated that the three Program Alternatives would each require nine acquisitions or permanent easements totaling approximately 8-9 acres.

Additionally, subterranean easements of Article 97 protected open space may be required for properties overlaying the tunnel alignment. As described in **FEIR Section 3.5.2.3**, a 1,000-foot corridor around the preliminary tunnel alignment (500 feet on either side) was used to identify existing Article 97 properties that may require a subterranean easement, depending on the final tunnel alignment.

3.5.4.1 Alternative 3A/Alternative 4A Site Final Conditions

There are no changes to SDEIR Alternative 3A and 4A. Their respective final conditions remain unchanged since those described in **SDEIR Section 4.2.3.1, Alternative 3A/4A Final Site Conditions**.

3.5.4.2 Alternative 4B Site Final Conditions

Alternative 4B utilizes the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. This Lower 190 Trapelo Road Property site was previously used in and evaluated as part of SDEIR Alternative 10A, and its final conditions for land use, community resources, open space, and Article 97 were described in **SDEIR Section 4.2.3.2 Alternative 10A Site Final Conditions (pg. 4-43)**. The Lower 190 Trapelo Road Property site is not located on Article 97 land and therefore would not cause a disposition. The final conditions for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 and SDEIR Alternative 4A as described in **DEIR Section 4.9.6, Final Conditions (pg. 4.9-70)** and **SDEIR Section 4.2.3, Land Alteration and Article 97 Resources Final Conditions (pg. 4-42)**.

3.5.4.3 Tunnel Alignment

As described in **FEIR Section 3.5.2.3**, a subterranean easement would be required for portions of Article 97 properties located above the tunnel alignment, which would trigger the need for approval by the

Legislature. Article 97 properties located within a 1,000-foot corridor of the preliminary tunnel alignment corridor (500 feet on either side of the alignment) are listed by Alternative in **Table 3-8**. As design progresses, the MWRA will determine which properties listed would be directly along the tunnel alignment and require subterranean easements.

Table 3-8 Article 97 Properties Within 1,000-Foot Corridor of Preliminary Tunnel Alignment

Property Name	Location	Property Owner/ Maintainer (if applicable)	Alter- native 3A	Alter- native 4A ¹	Alter- native 4B
Cornelia Warren Field	Waltham	City of Waltham	X	X	
Waltham Agricultural Fields	Waltham	City of Waltham	X	X	X
Waltham Woods	Waltham	City of Waltham	X	X	X
Storer Conservation Area	Waltham	City of Waltham	X	X	X
Square Pond Woods	Waltham	City of Waltham	X	X	X
Thompson Playground (Article 97 status unknown)	Waltham	City of Waltham	X	X	X
Bobby Connors Playground	Waltham	City of Waltham	X	X	X
Charles River Reservation I	Waltham, Weston	Commonwealth of Massachusetts/ DCR	X	X	X
City of Cambridge Water (Article 97 status unknown)	Weston	City of Cambridge	X	X	X
River Road	Weston	Town of Weston	X	X	X
Summer Road	Weston	Town of Weston	X	X	X
River Street	Weston	Town of Weston	X	X	X
Loring Road Covered Tanks	Weston	Commonwealth of Massachusetts/ MWRA	X	X	X
Fitzgerald Well (abandoned)	Weston	Town of Weston	X	X	X
Hultman Aqueduct	Weston	Commonwealth of Massachusetts/ MWRA	X	X	X
Nickerson Well (abandoned)	Weston	Town of Weston	X		
Leo J. Martin Memorial Golf Course	Weston, Newton	City of Newton	X	X	X
Hamilton Park/Lower Falls Playground (Article 97 status unknown)	Newton	City of Newton	X	X	X
Charles River Reservation II	Wellesley, Newton	Commonwealth of Massachusetts/ DCR	X	X	X
Cochituate Aqueduct Trail	Wellesley	Town of Wellesley	X	X	X
Schofield Tennis Courts	Wellesley	Town of Wellesley		X	X
Ouellet Park	Wellesley	Town of Wellesley	X	X	X
Wellesley Water Supply Land	Wellesley	Town of Wellesley	X	X	X

Table 3-8 Article 97 Properties Within 1,000-Foot Corridor of Preliminary Tunnel Alignment

Property Name	Location	Property Owner/ Maintainer (if applicable)	Alter- native 3A	Alter- native 4A ¹	Alter- native 4B
Hurd Brook CR (Article 97 status unknown)	Newton	Sun Life Assurance Company of Canada	X	X	X
Sudbury Aqueduct	Needham	Commonwealth of Massachusetts/ DCR	X	X	X
Chester F Mills Field (Article 97 status unknown)	Needham	Town of Needham	X	X	X
Riverside Terrace (Article 97 status unknown)	Needham	Town of Needham	X	X	X
Charles River Reservation III	Newton	Commonwealth of Massachusetts/ DCR	X	X	X
Goddard Christina Conservation Area	Newton	City of Newton	X	X	X
Nahanton Park (Article 97 status unknown)	Newton	City of Newton	X	X	X
Gables Condominium CR (Article 97 status unknown)	Newton	Green Company Inc.	X	X	X
Baldpate Meadow	Newton	City of Newton	X	X	X
Skyline Park (Article 97 status unknown)	Brookline	Town of Brookline	X	X	X
Robert T. Lynch Memorial Golf Course	Brookline	Town of Brookline	X	X	X
Newton Street Parcel	Brookline	Town of Brookline	X	X	X
Arnold Arboretum	Boston	City of Boston	X	X	X
Arborway	Boston	Commonwealth of Massachusetts/ DCR	X	X	X
Southwest Corridor Park	Boston	Commonwealth of Massachusetts/ DCR and MBTA	X	X	X
Total:			37	37	36

¹ The total number of Article 97 Properties within the 1,000-foot corridor for Alternative 4A alignment has been revised since the SDEIR to correct a minor numerical error. There have been no changes to Alternative 4A or the associated Article 97 Properties.

“Article 97 status unknown” indicates the Article 97 status of the property was listed as unknown by MassGIS and deed research. As design progresses, the properties listed unknown along the alignment will be confirmed through coordination with the appropriate agencies and municipalities.

CR - Conservation Restriction

DCR - Commonwealth of Massachusetts Department of Conservation and Recreation

MBTA - Massachusetts Bay Transportation Authority

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4 Wetlands and Waterways

4.1 Introduction

This chapter clarifies information related to potential impacts of the Program on wetlands as requested in the Executive Office of Energy and Environmental Affairs (EEA) Secretary’s Certificate on the Supplemental Draft Environmental Impact Report (SDEIR). The Certificate on the SDEIR, issued on September 29, 2023, identified a Scope for the Final Environmental Impact Report (FEIR) that requested a “Wetlands” section where clarifications in response to comments received from the Massachusetts Department of Environmental Protection (MassDEP) would be provided. In particular, the Certificate requested that the FEIR:

- Provide an update on temporary and permanent impacts to wetland resource areas.
- Address MassDEP comments which note that permanent alterations to Bordering Vegetated Wetlands (BVWs) and Bank will occur due to the installation of splash pads and culvert outlets. The FEIR should confirm that these structures are located as far from BVW as possible.
- Confirm with calculations that the pipes and splash pads have been properly sized to regulate flows to prevent scour.
- Confirm that MWRA will develop a plan to monitor the outfalls during dewatering activities to ensure that scour and erosion does not occur, that includes a contingency plan to address any unexpected impacts.
- Verify that none of the waterbodies proposed for discharge are identified as Outstanding Resource Waters (ORWs).

Refer to **FEIR Chapter 9, Responses to Comments**, for the full list of delineated comments received on the SDEIR, along with a copy of Secretary’s Certificate and the comment letters received.

This chapter also provides a summary of wetlands and waterways as they relate to FEIR Alternative 4B (the Preferred Alternative). As described in **FEIR Chapter 1, Program Description and Permitting**, Alternative 4B is the same as Draft Environmental Impact Report (DEIR) Alternative 4 and SDEIR Alternative 4A with the exception of terminating the North Tunnel at the Lower 190 Trapelo Road Property, as previously shown in **FEIR Figure 1-2 (pg. 1-7)**. The Lower 190 Trapelo Road Property was previously referred to as the “Lower Fernald Property” when used in and evaluated as part of SDEIR Alternative 10A, which is no longer being carried forward. FEIR Alternative 4B combines the preferred aspects of SDEIR Alternative 4A and 10A and incorporates the City of Waltham’s preferred northern terminus location. Alternative 4B introduces no new tunnel segments, tunnel alignments, shaft sites, shaft site usage (i.e., launching, receiving or large connection), construction methodology, construction schedule or duration as compared to those presented and evaluated in the DEIR and SDEIR.

FEIR Section 4.3, Alternative 4B Wetlands and Waterways Impact Assessment summarizes the cumulative impacts of FEIR Alternative 4B. For details related to the MWRA’s actions to avoid, minimize,

and mitigate potential impacts to wetlands and waterways, see **FEIR Section 8.2.3, Wetlands and Waterways (pgs. 8-14 to 8-19)**.

4.2 Update on Temporary and Permanent Impacts to Wetland Resource Areas

In the Certificate, the Secretary requested that the FEIR provide an update on temporary and permanent impacts to wetland resource areas.

As described in **FEIR Chapter 1, Program Description and Permitting**, this FEIR includes Alternatives 3A, 4A, and 4B, and no longer includes Alternative 10A. **FEIR Table 4-1** below, which provides the estimated temporary and permanent impacts to wetland resource areas at each of the proposed Program sites by municipality for each Alternative, has been updated accordingly. The only difference between Alternatives 4A and 4B is the location of the terminus of North Tunnel, Segment 1 (UMass Property site for Alternative 4A and Lower 190 Trapelo Road Property site for Alternative 4B).

Table 4-1 Summary of Wetland Impacts by Municipality in Alternatives 3A, 4A, and 4B

Sites by Municipality	Resource Area(s) Affected	Alternative 3A			Alternative 4A			Alternative 4B		
		Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)
Waltham										
UMass Property	None	0	0	0	0	0	0	0	0	0
Lower 190 Trapelo Road Property	None	0	0	0	0	0	0	0	0	0
School Street	None	0	0	0	0	0	0	0	0	0
Cedarwood Pumping Station	None	0	0	0	0	0	0	0	0	0
SUBTOTAL WALTHAM	None	0	0	0	0	0	0	0	0	0
Weston										
Tandem Trailer/ Park Road East	Bank (lf)	8	26	34	8	26	34	8	26	34
	BLSF (sf)	300	368	668	300	368	668	300	368	668
	LUW/WW (sf)	652	368	1,020	652	368	1,020	652	368	1,020
	RA (sf)	105,722	1,685	107,407	105,722	1,685	107,407	105,722	1,685	107,407
Bifurcation	Bank (lf)	8	26	34	0	0	0	0	0	0
	BLSF (sf)	250	368	618	0	0	0	0	0	0
	LUW/WW (sf)	652	368	1,020	0	0	0	0	0	0
	RA (sf)	33,987	0	33,987	0	0	0	0	0	0
Park Road West	None	0	0	0	0	0	0	0	0	0
Hultman Aqueduct Isolation Valve	RA (sf)	7,837	2,989	10,826	7,837	2,989	10,826	7,837	2,989	10,826
SUBTOTAL WESTON	Bank (sf)	16	52	68	8	26	34	8	26	34
	BLSF (lf)	550	736	1,286	300	368	668	300	368	668
	LUW/WW (sf)	1,304	736	2,040	652	368	1,020	652	368	1,020

Table 4-1 Summary of Wetland Impacts by Municipality in Alternatives 3A, 4A, and 4B

Sites by Municipality	Resource Area(s) Affected	Alternative 3A			Alternative 4A			Alternative 4B		
		Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)
		RA (sf)	147,546	4,674	152,220	113,559	4,674	118,233	113,559	4,674
Wellesley										
Hegarty Pumping Station	RA (sf)	5,757	157	5,914	5,757	157	5,914	5,757	157	5,914
SUBTOTAL WELLESLEY	RA (sf)	5,757	157	5,914	5,757	157	5,914	5,757	157	5,914
Needham										
Highland Avenue Sites	Bank (lf)	8	26	34	8	26	34	8	26	34
	BLSF (sf)	1,340	660	2,000	1,340	660	2,000	1,340	660	2,000
	LUW/WW (sf)	652	368	1,020	652	368	1,020	652	368	1,020
	RA (sf)	4,322	0	4,322	4,322	0	4,322	4,322	0	4,322
St. Mary Street Pumping Station	None	0	0	0	0	0	0	0	0	0
SUBTOTAL NEEDHAM	Bank (lf)	8	26	34	8	26	34	8	26	34
	BLSF (sf)	1,340	660	2,000	1,340	660	2,000	1,340	660	2,000
	LUW/WW (sf)	652	368	1,020	652	368	1,020	652	368	1,020
	RA (sf)	4,322	0	4,322	4,322	0	4,322	4,322	0	4,322
Brookline										
Newton Street Pumping	None	0	0	0	0	0	0	0	0	0
SUBTOTAL BROOKLINE	None	0	0	0	0	0	0	0	0	0
Boston										
American Legion	BVW/VW (sf)	1,558	0	1,558	1,558	0	1,558	1,558	0	1,558
	Bank (lf)	19	0	19	19	0	19	19	0	19
	LUW/WW (sf)	380	0	380	380	0	380	380	0	380

Table 4-1 Summary of Wetland Impacts by Municipality in Alternatives 3A, 4A, and 4B

Sites by Municipality	Resource Area(s) Affected	Alternative 3A			Alternative 4A			Alternative 4B		
		Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)
	RA (sf)	845	0	845	845	0	845	845	0	845
Southern Spine Mains	None	0	0	0	0	0	0	0	0	0
SUBTOTAL BOSTON	BVW/VW (sf)	1,558	0	1,558	1,558	0	1,558	1,558	0	1,558
	Bank (lf)	19	0	19	19	0	19	19	0	19
	LUW/WW (sf)	380	0	380	380	0	380	380	0	380
	RA (sf)	845	0	845	845	0	845	845	0	845
GRAND TOTAL	BVW/VW (sf)	1,558	0	1,558	1,558	0	1,558	1,558	0	1,558
	Bank (sf)	43	78	121	35	52	87	35	52	87
	BLSF (sf)	1,890	1,396	3,286	1,640	1,028	2,668	1,640	1,028	2,668
	LUW/WW (sf)	2,336	1,104	3,440	1,684	736	2,420	1,684	736	2,420
	RA (sf)	158,470	4,831	163,301	124,483	4,831	129,314	124,483	4,831	129,314

RA – Riverfront Area, BLSF – Bordering Land Subject to Flooding, BVW – Bordering Vegetated Wetlands, VW – Vegetated Wetlands, LUW/WW – Land Under Waterbodies and Waterways.

4.2.1 Splash Pad and Culvert Outlet Wetland Resource Impacts

The Certificate requested that the FEIR address MassDEP comments which note that permanent alterations to BVW and Bank will occur due to the installation of splash pads and culvert outlets and confirm that these structures are located as far from BVW as possible.

The only impact to BVW (which would be temporary) is associated with the surface connection to the existing water distribution infrastructure near the American Legion site. Construction period impacts to Bank, Land Under Water (LUW), and Bordering Land Subject to Flooding (BLSF) would occur due to installation of splash pads at dewatering discharge pipe outlets but have been minimized to the maximum extent practicable by locating them outside of BVW and sizing them appropriately to manage anticipated flows without excess footprint. However, these impacts are unavoidable and moving these structures farther from the BVW (and other resource areas) is not feasible because the dewatering discharge must be in proximity to a receiving water body. Options to reduce the impacts associated with dewatering discharge infrastructure would be further developed during the final design phase and detailed in the contract documents and permit application materials to be filed and may include a rock-lined sedimentation basin with a level spreader, filter bags, or frac tanks.

4.2.1.1 Dewatering Pipe and Splash Pad Sizing Calculations

According to MassDEP comments, the Certificate noted that the SDEIR appears to assume that splash pads will be adequate to dissipate velocity to avoid erosion and/or sedimentation in resource areas. The Certificate requested that the FEIR confirm with calculations that the pipes and splash pads have been properly sized to regulate flows to prevent scour.

As noted by the Secretary in page 13 of the Certificate, “the SDEIR provides calculations (Appendix B) demonstrating that proposed pipes and splash pads, intended to dissipate velocity to avoid eroding effects on resource areas, have been properly sized to regulate flows and prevent scour.” The MWRA has reconfirmed that the splash pads have been properly sized to regulate flows and to prevent scour. By e-mail dated October 31, 2023, MassDEP confirmed regarding the calculations in **SDEIR Appendix B, Wetlands and Waterways Supporting Documentation**, “that the additional information in the SDEIR sufficiently addresses the comments and no further information on that is needed.”

4.2.1.2 Dewatering Discharge Monitoring

The Certificate requested that the FEIR confirm that MWRA will develop a plan to monitor the outfalls during dewatering activities to ensure that scour and erosion does not occur, and that the plan includes a contingency plan to address any unexpected impacts.

As indicated in **DEIR Section 4.6.5.4, Tunnel Dewatering and Disinfection (pg. 4.6-151)**, the MWRA will require the contractor to develop a plan to monitor the dewatering discharge outfalls during dewatering activities to ensure that scour and erosion does not occur, which will be developed during the final design phase. The monitoring plan will include corrective action contingencies to address unanticipated impacts.

These corrective actions would include procedures such as modifications to discharge pipe sizes, changes to splash pad configurations, or implementation of additional discharge velocity dissipation measures.

4.2.1.3 Dewatering Discharges to Outstanding Resource Waters

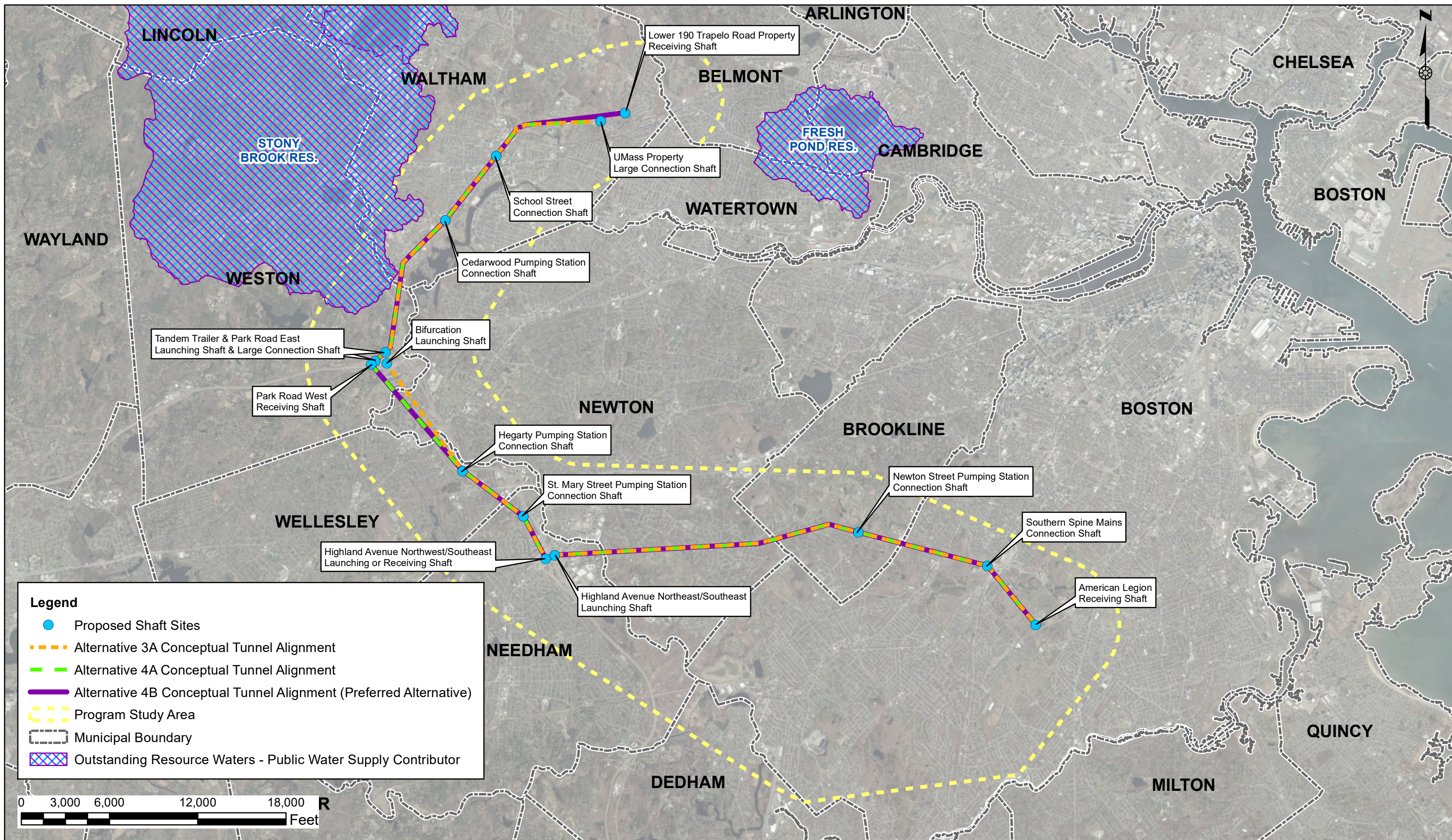
The Certificate requested that the FEIR verify that none of the waterbodies proposed for discharge are identified as ORWs because discharges to ORWs are ineligible for coverage under the National Pollutant Discharge Elimination System (NPDES) Dewatering and Remediation General Permit (DRGP) unless an authorization is granted by the MassDEP pursuant to 314 CMR 4.04(3)(b). If authorization is needed from MassDEP, the Certificate noted that it must be obtained prior to seeking coverage under the DRGP.

The MWRA has verified that none of the waterbodies proposed for discharge are identified as ORWs as shown in the most recent MassGIS data layer for ORWs, dated March 2010.¹ The ORW data layer in proximity to the tunnel alignment alternatives and Program sites is provided for reference² in **FEIR Figure 4-1, Study Area Outstanding Resource Waters**. As shown in **FEIR Figure 4-1**, one ORW is within the Study Area: Stony Brook Reservoir, which is not proposed to receive dewatering discharges.

1 Commonwealth of Massachusetts, Executive Office of Technology Services and Security, "MassGIS Data: Outstanding Resource Waters," March 2010, <https://www.mass.gov/info-details/massgis-data-outstanding-resource-waters>.

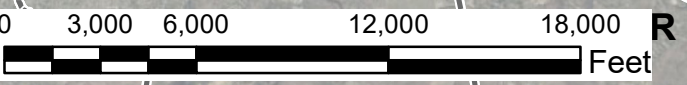
2 The MassGIS data layer for ORWs provided in **FEIR Figure 4-1** is the same as previously presented in **DEIR Figures 4.6-17 to 4.6-49** and **SDEIR Figures 5-3 to 5-6**.

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Legend

- Proposed Shaft Sites
- - - Alternative 3A Conceptual Tunnel Alignment
- - - Alternative 4A Conceptual Tunnel Alignment
- Alternative 4B Conceptual Tunnel Alignment (Preferred Alternative)
- - - Program Study Area
- ⋯ Municipal Boundary
- ▨ Outstanding Resource Waters - Public Water Supply Contributor



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4.3 Alternative 4B Wetlands and Waterways Impact Assessment

As described in **FEIR Chapter 1, Program Description and Permitting**, Alternative 4B is the same as Draft Environmental Impact Report (DEIR) Alternative 4 and SDEIR Alternative 4A with the exception of terminating the North Tunnel at the Lower 190 Trapelo Road Property, as shown in **FEIR Figure 1-2 (pg. 1-7)**. The Lower 190 Trapelo Road Property receiving shaft site was previously used in and evaluated as part of SDEIR Alternative 10A, which is no longer being carried forward. FEIR Alternative 4B combines the preferred aspects of SDEIR Alternative 4A and 10A and incorporates the City of Waltham's preferred northern terminus location. Alternative 4B introduces no new tunnel segments, tunnel alignments, shaft sites, shaft site usage (i.e., launching, receiving or large connection), construction methodology, construction schedule or duration as compared to those presented and evaluated in the DEIR and SDEIR.

The following section describes the existing conditions for wetland and waterways resources for the new FEIR Alternative 4B and presents anticipated construction-phase impacts and the anticipated impacts under the final conditions. Resources assessed include wetlands and surface waters such as streams, rivers, and ponds. Information on the existing quality and usage of the wetlands and waterways is based on publicly accessible information.

4.3.1 Summary of Findings

Key findings of the Program as they relate to wetland resources are summarized below. **Table 4-2** below provides a summary of wetland impacts by municipality for each Alternative.

Key findings associated with the Program Alternatives, which remain consistent with the findings of the three SDEIR and DEIR Alternatives, are:

- There would be no permanent impacts to state-regulated BVW or federally jurisdictional Vegetated Wetlands (VW) due to Program construction or operation.
- The Program would require temporary impacts to BVW and VW for connection to the existing water supply infrastructure at the American Legion site.
- The Program would require permanent and temporary impacts to LUW/Waterway (WW), Bank, and BLSF for rip rap splash pads at permanent dewatering discharge locations (Tandem Trailer or Bifurcation and Highland Avenue), depending on the Alternative. Compensatory flood storage volume would be provided at appropriate elevations within the same floodplains.
- The program would require temporary impacts to LUW/WW, Bank and Riverfront Area (RA) at the American Legion site for rip rap splash pads at the temporary dewatering discharge location.
- The pipeline connection to Hegarty Pumping Station would require temporary and permanent impacts to RA.
- Permanent impacts to RA would be required for top of shaft/valve structures and associated paved access roads and parking at the Tandem Trailer site and at the Hultman Aqueduct Isolation Valve site.

- During construction, there would be the potential for wetlands and surface waters on or adjacent to construction sites to be impacted by erosion and sedimentation from disturbed areas. Implementation of appropriate Best Management Practices (BMPs) in accordance with the Stormwater Pollution Prevention Plan (SWPPP) to be prepared by the construction contractors under the NPDES Construction General Permit (CGP) would avoid and minimize wetland and surface water impacts.
- During construction, there would be the potential, without mitigation, for impacts to water quality in surface waters in tunnel dewatering discharges and in discharges related to tunnel cleaning, disinfection, and flushing. Accordingly, prior to discharge, all flows would be treated as necessary to meet water quality standards for the receiving water body and other requirements of environmental permits issued for the Program. These standards and requirements would be included in contract documents so that construction-period discharges would not adversely impact surface water quality.
- During construction, there would be the potential for groundwater drawdown, due to tunnel inflows, to temporarily impact water levels in surface waters and wells. Grouting of water-bearing rock features in advance of the tunnel boring machine (TBM) excavation activities and after its passage would reduce groundwater inflows to avoid and minimize impacts of groundwater drawdown. If necessary, alternative water supplies would be provided as described in **SDEIR Appendix C, Draft Water Supply Contingency Plan**.
- No impacts to surface or groundwater resources would be anticipated in the Final Conditions. The completed tunnel would be lined and pressurized substantially higher than the surrounding groundwater thereby preventing groundwater inflow into the tunnel.
- No impacts to water quality are anticipated in the Final Conditions. Stormwater runoff from impervious surfaces at Program sites would be treated and managed in accordance with the MassDEP Stormwater Management Standards. Loss of annual recharge resulting from new impervious area at Program sites would be minimized in accordance with the Stormwater Management Standards.

Table 4-2 Summary Comparison of Program Alternatives

Description of Potential Impacts	Alternative 3A – Sites Subject to Potential Impacts	Alternative 4A – Sites Subject to Potential Impacts	Alternative 4B – Sites Subject to Potential Impacts
Impacts to state-regulated Riverfront Areas (RA) due to top-of-shaft and/or valve structures and associated pavement	3 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Hegarty Pumping Station · Hultman Aqueduct Isolation Valve 	3 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Hegarty Pumping Station · Hultman Aqueduct Isolation Valve 	3 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Hegarty Pumping Station · Hultman Aqueduct Isolation Valve
Impacts to Bordering Land Subject to Flooding (BLSF) and Bank for rip rap splash pads at dewatering discharge locations	3 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Bifurcation · Highland Avenue 	2 sites: <ul style="list-style-type: none"> · Tandem Trailer · Highland Avenue 	2 sites: <ul style="list-style-type: none"> · Tandem Trailer · Highland Avenue
Impacts to state-regulated Bank, Land Under Waterway (LUW) and federally regulated waterways (WW) for rip rap splash pads at dewatering discharge locations	3 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Bifurcation · Highland Avenue 	2 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Highland Avenue 	2 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Highland Avenue
Impact to state-regulated Riverfront Area(s) due to construction staging	6 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Bifurcation · Highland Avenue · American Legion · Hegarty Pumping Station · Hultman Aqueduct Isolation Valve 	5 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Highland Avenue · American Legion · Hegarty Pumping Station · Hultman Aqueduct Isolation Valve 	5 sites: <ul style="list-style-type: none"> · Tandem Trailer/Park Road East · Highland Avenue · American Legion · Hegarty Pumping Station · Hultman Aqueduct Isolation Valve
Temporary impacts to state regulated Bordering Vegetated Wetland (BVW) and federally jurisdictional Vegetated Wetlands (VW) due to a near-surface pipeline for a connection to existing water supply infrastructure	1 site: <ul style="list-style-type: none"> · American Legion 	1 site: <ul style="list-style-type: none"> · American Legion 	1 site: <ul style="list-style-type: none"> · American Legion
Construction of dewatering discharge pipes and rip rap splash pads would cause temporary impacts to Bank, WW, and LUW	1 site: <ul style="list-style-type: none"> · American Legion 	1 site: <ul style="list-style-type: none"> · American Legion 	1 site: <ul style="list-style-type: none"> · American Legion

4.3.2 Wetlands and Waterways Existing Conditions

Wetland resource areas in the vicinity of the UMass property site (Alternative 3A and 4A) and the Lower 190 Trapelo Road Property site (Alternatives 4B), were reviewed as part of the assessment of existing conditions as presented in **SDEIR Section 5.2.1, Wetlands and Waterways Existing Conditions (pg. 5-4)**. Wetland resource areas in the vicinity of the Lower 190 Trapelo Road Property site were inspected and field delineated on April 7 and 8, 2022 (**SDEIR Figure 5-2**). The Existing Conditions of wetlands and waterways for all other Program sites were evaluated in **DEIR Section 4.6.4 Existing Conditions (pg. 4.6-13)**. This section summarizes the wetland existing conditions for Alternatives 3A, 4A, and 4B. A summary of wetland resource areas at all Program sites is included in **Table 4-3**.

All Program sites are located within the Charles River Watershed, which drains approximately 308 square miles through 23 towns and cities in eastern Massachusetts to the Boston Harbor. The UMass property site (Alternative 3A and 4A) and the Lower 190 Trapelo Road Property site (Alternatives 4B) are in the upper Charles River basin. The Watertown Dam delineates the upper and middle basins of the Charles River from the lower basin. The UMass Property site and the Lower 190 Trapelo Road Property site would discharge dewatering and stormwater runoff to tributaries of the Charles River.

The Charles River Watershed has two nutrient-focused Total Maximum Daily Loads (TMDLs). The upper and middle basins have goals of 65 percent reduction in total phosphorus (TP), and the lower basin has a goal of 62 percent reduction in TP. The Charles River also has a TMDL for bacteria that recommends measures to reduce pathogen/bacteria inputs to the river such as illicit connection of sewage to storm drains, failing sewer infrastructure, Combined Sewer Overflows, and stormwater discharges (including sheet flow runoff). Enhanced nutrient reduction from stormwater discharges to municipal storm drains may be required by municipalities within the Charles River Watershed to meet MS4 Permit requirements associated with the nutrient focused TMDLs.

4.3.2.1 Alternative 3A/Alternative 4A Existing Conditions

Existing conditions of wetlands and waterways for SDEIR Alternatives 3A and 4A are unchanged and remain the same as described in **SDEIR Section 5.2.1.1, Alternative 3A/Alternative 4A Existing Conditions (pg. 5-4)**.

4.3.2.2 Alternative 4B Existing Conditions

Alternative 4B would utilize the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. The existing conditions of wetlands and waterways for the Lower 190 Trapelo Road Property receiving shaft were described in **SDEIR Section 5.2.1.2 Alternative 10A Existing Conditions (pg. 5-6)** and shown in **SDEIR Figure 5-2** as part of Alternative 10A. The existing conditions for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described **DEIR Section 4.6.4 Existing Conditions (pg. 4.6-13)**.

4.3.2.3 Tunnel Alignments

Wetlands and surface waters along the tunnel alignments were identified based on existing data sources as described in **DEIR Chapter 4.6, Wetlands and Waterways, Section 4.6.3, Methodology (pg. 4.6-9)** and were not field delineated.

The following wetlands and waterbodies are within 1,000 feet of the FEIR Alternative 4B North Tunnel, Segment 1 alignment that terminates at the Lower 190 Trapelo Road Property site. Wetlands and waterbodies along each of the other tunnel segments are the same as identified in **DEIR Section 4.6.3, Methodology (pg. 4.6-9)**. The tunnel would be located between approximately 200 and 400 feet below ground surface within the rock, well below the bottom elevation of the surface waterbodies. The following waterbodies are common to all three Program alternatives (Alternatives 3A, 4A, and 4B):

- Clematis Brook, Waltham
- Beaver Brook, Waltham
- Chester Brook/Lyman Pond, Waltham
- Charles River, Waltham, Weston, Newton

See **Figure 4-2** and **Figure 4-3** for wetlands and waterways along the Alternative 4B North Tunnel, Segment 1 alignment north of the School Street site.

Table 4-3 Wetland Resource Areas Summary – Launching, Receiving, and Large Connection Sites

Site (Alternative)	Town/ City	Wetland Flag Number ¹	Cowardin Type and Description ²	Bank	LUW/ WW	BVW/ VW	IVW	RA	BLSF	ILSF
UMass Property (3A, 4A)	Waltham	N/A No wetlands within the LOD	PEM and BVW (marsh)	-	-	✓	-	-	✓	-
Lower 190 Trapelo Road Property (4B)	Waltham	A-1 to A-14 No wetlands within the LOD	PEM and BVW (marsh)	✓	✓	✓	-	-	✓	-
		B-1 to B-19	PFO/PSS – IVW, which was likely BVW to Clematis Brook prior to development in the area	-	-	-	✓	-	✓	-
Tandem Trailer/ Park Road East (All)	Weston	A-1 to A-6	PFO - Seaverns Brook (perennial stream)	✓	✓	-	-	✓	✓	-
		B-1 to B-9	PFO - An isolated wetland that could be characterized as a BVW to two roadway culverts that drain from significantly higher elevations	-	-	-	✓	-	-	-
		F-1 to F-38	PFO - Intermittent drainage channels with some BVW	✓	✓	✓	-	-	-	-
Bifurcation (3A)	Weston	B-1 to B-7	PFO - Seaverns Brook within a concrete channel with some BVW to the east	✓	✓	✓	-	✓	✓	-
		C-1 to C-16	PFO - An intermittent stream with asphalt side walls and BVW	✓	✓	✓	-	-	-	-
		D-1 to D-19	PFO - Drainage with a corrugated metal lined culvert (starts at D-11 and D-12)	-	✓	✓	-	-	-	-
		E-1 to E-22	PFO - Drainage channel to the north which drains to a culvert under I-90	✓	✓	-	-	-	-	-
Park Road West (4A, 4B)	Weston	A-1 to A-12	PFO -Intermittent stream and BVW.	✓	✓	✓	-	-	-	-
		B-1 to B-5	PFO - BVW to intermittent stream.	✓	✓	✓	-	-	-	-

Table 4-3 Wetland Resource Areas Summary – Launching, Receiving, and Large Connection Sites

Site (Alternative)	Town/ City	Wetland Flag Number ¹	Cowardin Type and Description ²	Bank	LUW/ WW	BVW/ VW	IVW	RA	BLSF	ILSF
Highland Avenue Northwest (3A)	Needham	None	NA	-	-	-	-	-	-	-
Highland Avenue Northwest/ Southwest (4A, 4B)	Needham	None	NA	-	-	-	-	-	-	-
Highland Avenue Northeast/ Southeast (All)	Needham	A-1 to A-12	PSS/PEM - A drainage channel which is either non-jurisdictional based on the date of construction or could be considered an intermittent stream.	✓	✓	✓	-	-	-	-
American Legion (All)	Boston	A-1 to A-16	PFO - An intermittent stream that drained to the east and then south	✓	✓	✓	-	-	-	-
		B-1 to B-12	PFO - An intermittent stream off the north side of the American Legion Highway and to the west starting near a cemetery and extending east to land that is currently occupied by the Landscape Express company	✓	✓	✓	-	-	-	-
		C-1 to C-12	PFO - A continuation of intermittent drainage from the west to the east	✓	✓	✓	-	-	-	-
		D-1 to D-22	PEM/PFO - A drainage channel east off the northern side of American Legion Highway and drained from the west to the east	✓	✓	✓	-	-	-	-
		E-1 to E-16	PFO - BVW to intermittent stream drainage	✓	✓	✓	-	-	-	-

¹ Wetland Flags at the UMass Property and Lower 190 Trapelo Road Property sites are identified in SDEIR Figures 5-1 and 5-2, respectively. Wetland Flags at all other sites are identified in DEIR Figure 4.6-1 through DEIR Figure 4.6-16.

² Cowardin Types: OW = Open Water, PEM = Palustrine Emergent, PFO = Palustrine Forested, PSS = Palustrine Scrub/Shrub
Wetland Classifications: LUW/WW = Land Under Water, BVW = Bordering Vegetated Wetland, VW=Vegetated Wetland, IVW = Isolated Vegetated Wetland (federal only), RA = Riverfront Area, BLSF = Bordering Land Subject to Flooding, ILSF = Isolated Land Subject to Flooding

NA: Not applicable

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Legend

- Receiving Shaft
- Connection Shaft
- - - Conceptual Tunnel Alignment
- ▭ 1,000-Foot Tunnel Alignment Corridor
- ▭ Municipal Boundary

DEP Wetland Areas

- Marsh/Bog
- Wooded marsh
- Open Water
- Reservoir (with PWSID)

DEP Wetlands Linear Features

- Shoreline
- Hydrologic Connection
- Wetland Limit
- Closure Line

Delineated Wetlands

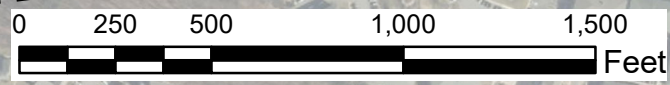
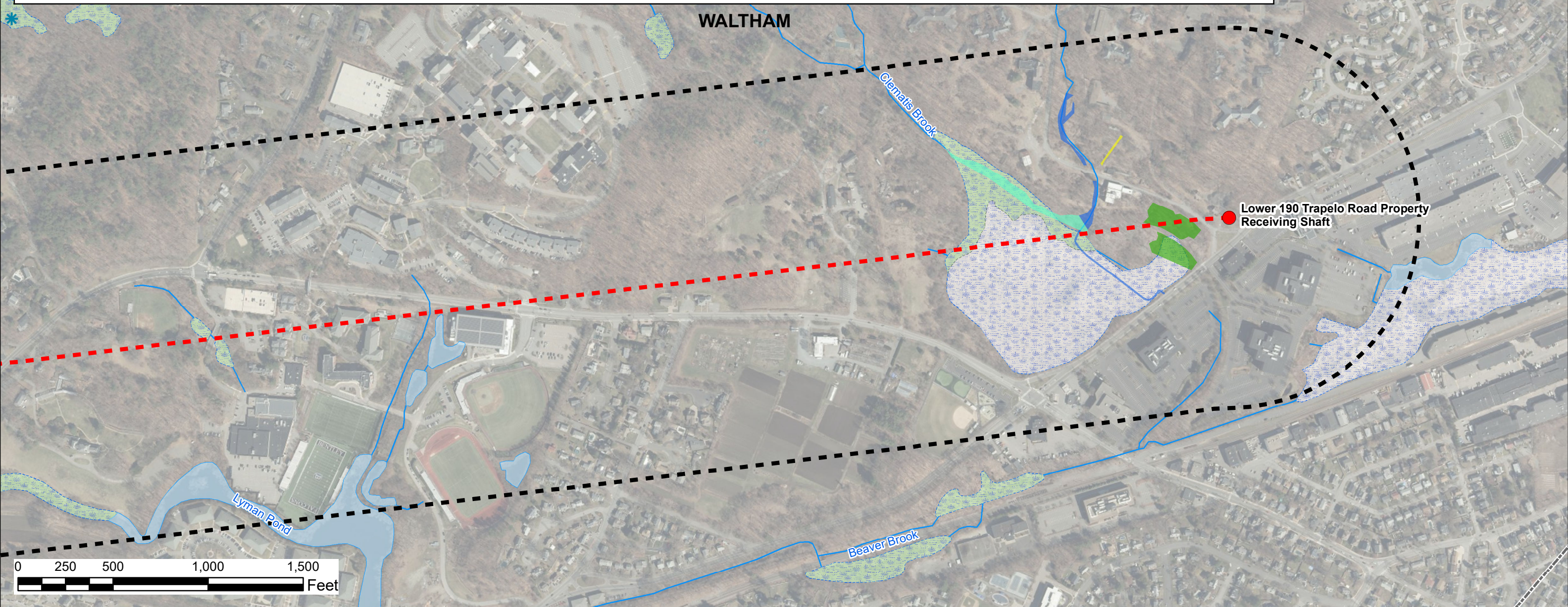
- Boarding Vegetated Wetland
- Perennial Watercourse
- Boarding Vegetated Wetland/Perennial Watercourse
- Intermittent Watercourse
- Isolated Wetland

NHESP Certified Vernal Pools

- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Wildlife

ORW - Public Water Supply Watershed

- Other ORW
- Chapter 91 Jurisdiction



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Water Resources
Authority**

**Wetlands and Waterways Overview Map
North Tunnel Terminus at Lower 190 Trapelo Road Property (Alternative 4B), 1 of 2
Figure 4-2**

Waltham, MA

Source: MWRA, MassGIS

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Legend

- Receiving Shaft
- Connection Shaft
- - - Conceptual Tunnel Alignment
- - - 1,000-Foot Tunnel Alignment Corridor
- - - Municipal Boundary

DEP Wetland Areas

- Marsh/Bog
- Wooded marsh
- Open Water
- Reservoir (with PWSID)

DEP Wetlands Linear Features

- Shoreline
- Hydrologic Connection
- Wetland Limit
- Closure Line

Delineated Wetlands

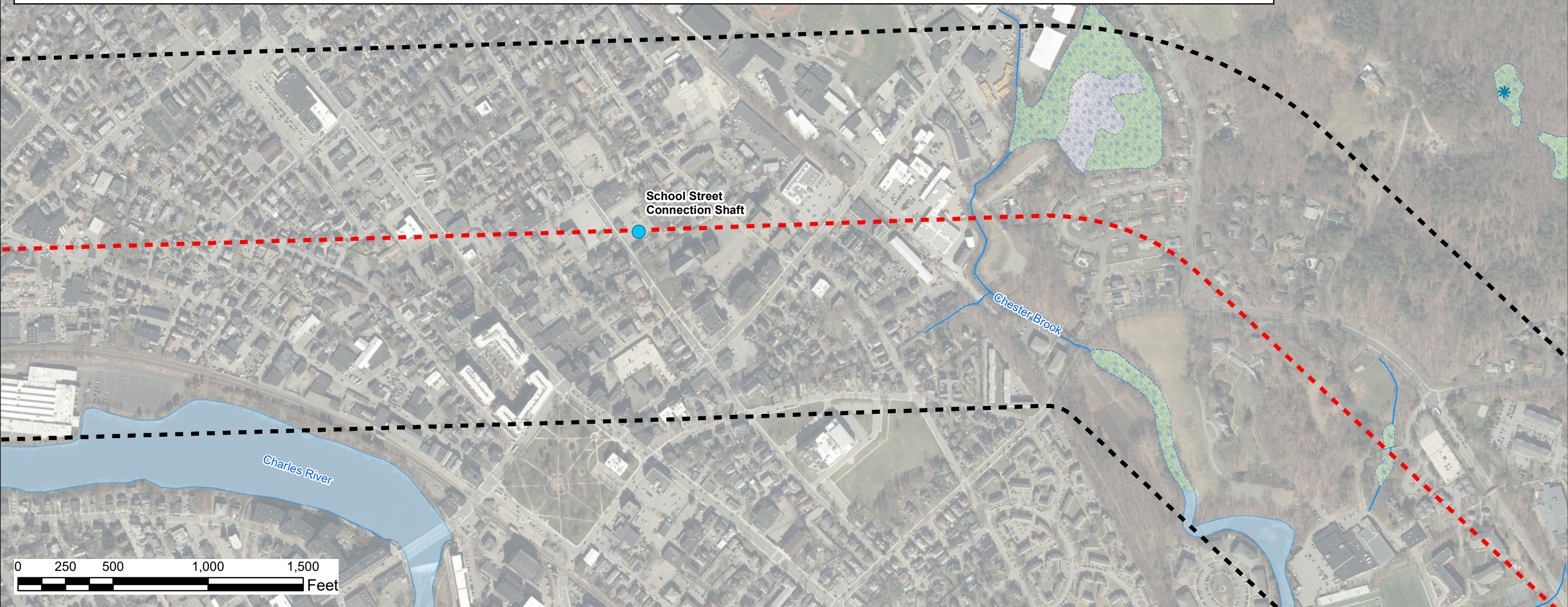
- Boarding Vegetated Wetland
- Perennial Watercourse
- Boarding Vegetated Wetland/Perennial Watercourse
- Intermittent Watercourse
- Isolated Wetland

NHESP Certified Vernal Pools

- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Wildlife

ORW - Public Water Supply Watershed

- Other ORW
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Waltham, MA

Wetlands and Waterways Overview Map
North Tunnel Terminus at Lower 190 Trapelo Road Property (Alternative 4B), 2 of 2
Figure 4-3

Source: MWRA, MassGIS

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4.3.3 Wetlands and Waterways Construction Period Impacts

Construction period impacts for wetlands and waterways in the vicinity of the UMass property site (Alternative 3A and 4A) and the Lower 190 Trapelo Road Property site (Alternative 4B), were reviewed as part of the construction period impacts assessment as presented in **SDEIR Section 5.2.2, Wetlands and Waterways (pg. 5-13)**. The construction period impacts for wetlands and waterways for all other Program sites are evaluated in **DEIR Section 4.6.5, Construction Period Impacts (pg. 4.6-127)**.

Potential impacts due to construction dewatering as well as temporary wetland impacts are summarized below for SDEIR Alternatives 3A and 4A and FEIR Alternative 4B.

4.3.3.1 Alternative 3A/Alternative 4A Construction Period Impacts

Construction period impacts to wetlands and waterways for SDEIR Alternatives 3A and 4A are unchanged and remain the same as described in **SDEIR Section 5.2.2.1, Alternative 3A/Alternative 4A Construction Period Impacts (pg. 5-14)**.

4.3.3.2 Alternative 4B Construction Period Impacts

Alternative 4B would utilize the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. The construction period impacts to wetlands and waterways for the Lower 190 Trapelo Road Property receiving shaft site were described in **SDEIR Section 5.2.2.2 Alternative 10A Construction Period Impacts (pg. 5-26)** as part of Alternative 10A. There would be no direct wetland impacts associated with the Lower 190 Trapelo Road Property site. The construction period impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described **DEIR Section 4.6.5, Construction Period Impacts (pg. 4.6-127)**.

The wetland impacts at launching and receiving shaft sites for the new FEIR Alternative 4B are summarized below in **Table 4-4**. The wetland impacts for SDEIR Alternatives 3A and 4A and FEIR Alternative 4B are summarized by municipality earlier in **Table 4-1**. The only difference between Alternatives 4A and 4B is the location of the terminus of North Tunnel, Segment 1 (UMass Property site for Alternative 4A and Lower 190 Trapelo Road Property site for Alternative 4B). Neither site has direct wetland impacts.

Table 4-4 Alternative 4B - Wetland Impacts at Launching and Receiving

Site and Structure/Activity	Resource Area(s) Affected	Temporary Impacts	Permanent Impacts	Total Impacts
Lower 190 Trapelo Road Property Receiving				
No wetland impacts	None	0	0	0
SUBTOTAL	None	0	0	0
Tandem Trailer/Park Road East Launching				
Discharge Pipe & Splash Pad	Bank (lf)	8	26	34
	BLSF (sf)	300	368	668
	LUW/WW (sf)	652	368	1020
Construction Staging Area	RA	105,722	0	105,722
Top-of-Shaft Structure	RA	0	1,685	1,685
SUBTOTAL	Bank (lf)	8	26	34
	BLSF (sf)	300	368	668
	LUW/WW (sf)	652	368	1,020
	RA (sf)	105,722	1,685	107,407
Highland Avenue Sites				
Discharge Pipe	RA	4,322	0	4,322
Discharge Pipe & Splash Pad	Bank (lf)	8	26	34
	BLSF (sf)	1,340	660	2,000
	LUW/WW (sf)	652	368	1,020
SUBTOTAL	Bank (lf)	8	26	34
	BLSF (sf)	1,340	660	2,000
	LUW/WW (sf)	652	368	1,020
	RA (sf)	4,322	0	4,322
American Legion Receiving				
Discharge Pipe & Splash Pad ¹	Bank (lf)	19	0	19
	LUW/WW (sf)	380	0	380
Discharge Pipe	RA (sf)	845	0	845
Connection Pipeline	BVW/VW (sf)	1,558	0	1,558
SUBTOTAL	BVW/VW (sf)	1,558	0	1,558
	Bank (lf)	8	11	19
	LUW/WW (sf)	289	91	380
	RA (sf)	845	0	845
TOTAL	BVW/VW (sf)	1,558	0	1,558
	Bank (lf)	35	52	87
	BLSF (sf)	1,640	1,028	2,668
	LUW/WW (sf)	1,684	736	2,420
	RA (sf)	110,889	1,685	112,574

¹ As noted in the SDEIR, these values have been updated after the DEIR to reflect that discharge pipe and splash pad to be installed at the American Legion site for dewatering would be temporary and would be removed and the impacted area would be restored to existing conditions at the end of construction.

RA – Riverfront Area, BLSF – Bordering Land Subject to Flooding, BVW – Bordering Vegetated Wetlands, VW – Vegetated Wetlands

4.3.3.3 Tunnel Alignments

Tunnel alignments for the three Alternatives would be located in deep rock, with the lowest elevation at the launching shafts.⁵ The TBMs would proceed from the launching shafts driving at an upward grade to the receiving shafts or large connection sites, which would also be in deep rock. This would allow for gravity drainage of groundwater back to the launching sites during construction. The tunnel profiles, tunnel alignments, and invert depths of the launching and receiving shafts would vary slightly among the Alternatives as described in **SDEIR Chapter 2, Alternatives, Section 2.4, Construction Methodology (pg. 2-17)**.

Given the deep depths of the proposed tunnels, a direct hydrologic connection between the tunnels and surface waters and wetlands would be unlikely, however unmitigated groundwater drawdown during tunnel construction could, in extreme cases, reduce the levels of local water bodies. Therefore, the Program would employ mitigation practices to address the potential impacts to surface waters and wetlands along the alignment, as discussed in **SDEIR Section 5.2.4, Wetlands and Waterways Avoidance, Minimization, and Mitigation Measures (pg. 5-42)** and described in more detail in the **DEIR Section 4.6.5.3, Tunnel Alignments – All Alternatives (pg. 4.6-149)**.

To estimate the flow rates in the existing receiving waterbodies, the U.S. Geological Survey (USGS) Stream Stats: Stream Flow Statistics and Spatial Analysis Tool (web application) was utilized,⁶ as described in **DEIR Appendix D.2, USGS Stream Stats Results**. The web application was used to delineate drainage areas for waterways adjacent to potential Program sites and then to get basin characteristics and estimates of flow statistics for the selected sites. The analysis tool uses regression equations with available geographic information systems (GIS) information and recorded flood flows from existing stream gages to estimate the flow rates at un-gaged locations.⁷

Potential impacts along the tunnel alignments due to construction dewatering are summarized below for SDEIR Alternatives 3A and 4A and FEIR Alternative 4B.

Alternative Alignment 3A/Alternative Alignment 4A

Construction period impacts along the tunnel alignments for SDEIR Alternatives 3A and 4A are unchanged and remain the same as described in **SDEIR Section 5.2.2.3, Tunnel Alignment (pg. 5-33)**.

Alternative Alignment 4B

Shaft construction at the Lower 190 Trapelo Road Property site would result in dewatering volumes of approximately 300 GPM, while larger volumes of dewatering due to tunnel construction would occur at each of the tunnel launching sites. **Table 4-5** summarizes the impacts to receiving water flows from dewatering discharges at launching, receiving, and large connection sites in Alternatives 4B.

5 SDEIR tunnel alignments are preliminary and would be refined during final design.

6 https://www.usgs.gov/mission-areas/water-resources/science/streamstats-streamflow-statistics-and-spatial-analysis-tools?qt-science_center_objects=0#qt-science_center_objects (accessed 8/17/2021).

7 Magnitude of Flood Flows at Selected Annual Exceedance Probabilities for Streams in Massachusetts (usgs.gov).

The Stream Stats results for potential receiving water bodies at the alternative sites are summarized in **Table 4-5** for Alternatives 4B. For the Lower 190 Trapelo Road Property receiving water (Clematis Brook), additional flow is estimated to add less than 1 percent of the total 25-year event storm flow.

Table 4-5 Alternative 4B - Impacts to Dewatering Receiving Waters at Launching/Receiving Sites and Large Connection Sites

Site		Lower 190 Trapelo Road Property Receiving	Lower 190 Trapelo Road Property Receiving	Tandem Trailer/Park Road East Launching and Park Road West Receiving	Highland Avenue Northwest Launching and Northeast Launching	American Legion Receiving
Waterway Name		Clematis Brook	Beaver Brook	Seaverns Brook	Charles River	Canterbury Brook/Stony Brook
Nearby USGS Stream Gauge #		1104500 ¹	1104500 ¹	N/A	1104200 ²	N/A
USGS Stream Gauge Name		Charles River at Waltham ¹	Charles River at Waltham ¹	N/A	Charles River at Wellesley ²	N/A
Discharge Volume	GPM	300	300	2,280	4,130	300
50 % Duration (avg. flow)	CFS	0.89	4.95	2.39	224	1.6
	GPM	398	2,222	1,073	100,539	598
	Discharge Ratio	0.754	0.135	2.125	0.041	0.502
95 % Duration (low flow)	CFS	0.03	0.32	0.16	30.6	0.5
	GPM	15	145	70	13,734	224
	Discharge Ratio	19.430	2.069	32.571	0.301	1.339
100-year flood -1%	CFS	188	595	306	8,410	381
	GPM	84,381	267,055	137,343	3,774,682	171,005
	Discharge Ratio	0.004	0.001	0.017	0.001	0.002
25-year flood -4%	CFS	129	415	212	6,060	266
	GPM	57,899	186,266	95,153	2,719,925	119,390
	Discharge Ratio	0.005	0.002	0.024	0.002	0.003

¹ Source: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=01104500

² Source: https://waterdata.usgs.gov/nwis/inventory?site_no=01104200

CFS: Cubic feet per second

GPM: Gallons per minute

All Alternatives

While shaft construction at the UMass Property (Alternative 3A and 4A) and Lower 190 Trapelo Road Property (Alternative 4B) sites would result in dewatering volumes of approximately 100 to 300 GPM, respectively, larger volumes of dewatering due to tunnel construction would occur at each of the tunnel launching sites. Impacts to receiving waters from tunnel dewatering volumes are discussed below. **Table 4-6** presents the proposed tunnel construction dewatering discharge volumes and locations for each alternative.

As described in the **SDEIR Section 5.2.2.3, Tunnel Alignments, All Alternatives (pg. 5-37)**, there was the unlikely possibility that the entirety of the approximately 15 miles of fully excavated tunnel could be dewatered at one location under Alternative 10A. This resulted in an estimated maximum required pumping and treatment capacity of approximately 6,110 GPM if the entire tunnel length (15 miles) was fully mined and unlined (as shown in Alternative 10A in **SDEIR Table 5-9** where all dewatering would be performed at the Highland Avenue sites). With Alternative 10A removed from consideration, the maximum length of fully excavated tunnel that could be dewatered at one location is now approximately 10.2 miles for South Tunnel, Segments 2 and 3 in Alternatives 4A and 4B. Accordingly, the estimated maximum required pumping and treatment capacity is now approximately 4,130 GPM if, in the unlikely event, the entire South Tunnel length was fully mined and unlined (as shown in Alternative 4A and 4B in **Table 4-6** below where all South Tunnel dewatering would be performed at the Highland Avenue sites).

These estimates were determined based on observations during construction of the MetroWest Water Supply Tunnel Program which was constructed using similar methods. However, the calculated maximum dewatering rates (see **Table 4-6**) could only be observed, if ever, for a short period near the mid-point of construction when tunnel Segments 2 and 3 have both been excavated to their maximum length and prior to final lining.

Table 4-6 Proposed Tunnel Construction Dewatering Discharge Volumes and Locations by Alternative

Alternative	Tunnel Segment	Launch Site	Excavated Tunnel Diameter (ft)	Length (mi)	Estimated Total Dewatering (GPM)	Estimated Total Dewatering (MGD)	Proposed Discharge Location
3A	North Tunnel, Segment 1	Tandem Trailer	15	4.6	1,860	2.7	Seaverns Brook ¹
	South Tunnel, Segment 2	Bifurcation	15	3.3	1,340	1.9	Seaverns Brook
	South Tunnel, Segment 3	Highland Ave NE	15	6.8	2,750	4.0	Charles River
4A	North Tunnel, Segment 1	Tandem Trailer	15	4.6	1,860	2.7	Seaverns Brook
	South Tunnel, Segment 2	Highland Ave NW	15	3.4	1,380	2.0	Charles River
	South Tunnel, Segment 3	Highland Ave NE	15	6.8	2,750	4.0	Charles River
4B	North Tunnel, Segment 1	Tandem Trailer	15	4.9	1,980	2.9	Seaverns Brook
	South Tunnel, Segment 2	Highland Ave NW	15	3.4	1,380	2.0	Charles River
	South Tunnel, Segment 3	Highland Ave NE	15	6.8	2,750	4.0	Charles River

¹ Seaverns Brook ultimately drains to the Charles River.

GPM: Gallons per minute

MGD: Million gallons per day

4.3.4 Wetlands and Waterways Final Conditions

Final conditions for proposed sites after site restoration would include maintenance of vegetation within cleared areas (e.g., mowing); inspection and maintenance of shafts, valve chambers, and associated utilities; maintenance of access roadways and parking areas (e.g., snow plowing); and maintenance of stormwater management areas. Shafts, valve chambers, parking areas, and stormwater management features would be located in small, fenced-in areas. Proposed final conditions are described for the UMass Property site (SDEIR Alternatives 3A and 4A) and Lower 190 Trapelo Road Property (FEIR Alternative 4B) in **SDEIR Section 5.2.3, Wetland and Waterways Final Conditions (pg. 5-39)**. Final conditions associated with other sites in the DEIR alternatives have not changed and can be referenced in **DEIR Section 4.6.6, Final Conditions (pg.4.6-153)**. See **DEIR Section 4.6.2.9, Massachusetts Stormwater Management and Standards (pg. 4.6-9)** and **DEIR Section 4.6.7.8, Compliance with MassDEP Stormwater Management Standards (pg. 4.6-179)** for the assessment of compliance with the Massachusetts Stormwater Management Standards, which would be met at all Program alternative sites to the extent practicable.

4.3.4.1 Alternative 3A/Alternative 4A Wetlands and Waterways Final Conditions

Final conditions for wetlands and waterways for SDEIR Alternatives 3A and 4A are unchanged and remain the same as described in **SDEIR Section 5.2.3.1, Alternative 3A/Alternative 4A Wetlands and Waterways Final Conditions (pg. 5-39)**.

4.3.4.2 Alternative 4B Wetlands and Waterways Final Conditions

Alternative 4B would utilize the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. The final conditions for wetlands and waterways for the Lower 190 Trapelo Road Property receiving shaft were described in **SDEIR Section 5.2.3.2 Alternative 10A Final Conditions (pg. 5-41)** as part of Alternative 10A. There would be no wetland impacts in the final conditions associated with the Lower 190 Trapelo Road Property site. The final conditions for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described **DEIR Section 4.6.6, Final Conditions (pg. 4.6-153)**.

Table 4-7 summarizes the proposed impervious cover estimated for Alternative 4B. As the final site designs are refined, proposed impervious cover estimates may change. Under final design, stormwater management systems would be designed to meet Stormwater Management Standards.

Table 4-7 Proposed Impervious Cover under Final Conditions at Alternative 4B Sites

Site	Change in Impervious Cover (acres) ¹
Launching, Receiving, and Large Connection Sites	
Lower 190 Trapelo Road Property (Receiving)	0.1
Tandem Trailer (Launching)	0.0
Park Road East (supporting Tandem Trailer)	0.2
Park Road West (Receiving)	0.4
Highland Avenue Northwest	0.0
Highland Avenue Northeast (Launching)	0.7
American Legion (Receiving)	0.5
Connection and Isolation Valve Sites	
School Street	0.0
Cedarwood Pumping Station	0.1
Hegarty Pumping Station	0.1
St. Mary Street Pumping Station	0.1
Newton Street Pumping Station	0.1
Southern Spine Mains	0.1
Hultman Aqueduct Isolation Valve	0.1
TOTAL	2.4

¹ Impervious areas (acreages) are conservatively estimated based on SDEIR Final Conditions Schematic Figures (included as part of SDEIR Figures 2-2 through 2-5) and DEIR Final Conditions Schematic Figures (included as part of DEIR Figures 3-1 through 3-30). Totals may not add due to rounding.

5 Fisheries

5.1 Introduction

This chapter clarifies information related to potential impacts of the Program on fish species as requested in the Executive Office of Energy and Environmental Affairs (EEA) Secretary’s Certificate on the Supplemental Draft Environmental Impact Report (SDEIR). The Certificate on the SDEIR, issued on September 29, 2023, identified a Scope for the FEIR that requested a “Fisheries” section where clarifications in response to comments received from the Massachusetts Division of Marine Fisheries (DMF) would be provided. In particular, the DMF, as articulated in the Certificate, requested that the FEIR:

- Address concerns regarding the proposed construction dewatering discharge at the Tandem Trailer launching shaft site and potential impacts on fish species, including river herring spawning and migration in the Charles River based on changes in water velocity and volume, increased turbidity, and potential changes in temperature.
- Consider a time-of-year restriction requested by the DMF for no in-water, silt-producing work from April 15 to July 15.
- Include additional information about the temporary water treatment facility proposed at the Tandem Trailer launching shaft site.
- Include additional information, as available, regarding how potential noise and vibration impacts caused by tunneling could impact fish migration and spawning, particularly underneath the Stony Brook Dam which is adjacent to the Charles River.

Refer to **FEIR Chapter 9, Responses to Comments**, for the full list of delineated comments received on the SDEIR, along with a copy of Secretary’s Certificate and the comment letters received.

5.2 Proposed Dewatering at the Tandem Trailer Site

The Secretary’s Certificate commented that one of the primary dewatering discharge sites (Tandem Trailer) is located near the I-90/I-95 interchange; flows will discharge into Seaverns Brook, which discharges into the Charles River, which supports diadromous fish including American shad, rainbow smelt, white perch, Atlantic tomcod, and American eel. The Certificate noted that the area between the Moody Street Dam and I-90/I-95 provides important spawning habitat for River Herring. Therefore, the Certificate requested MWRA to include additional information about the temporary water treatment facility proposed at the Tandem Trailer launching shaft site concerning potential impacts on fish migration and spawning.

As described in **DEIR Section 4.5.4, Existing Conditions (pg. 4.5-5)** and **SDEIR Section 10.2.1, Rare Species and Wildlife Habitat Existing Conditions (pg. 10-3)**, all Program work sites are within the Charles River Basin. Study Area waterways are all Class B warmwater fisheries, with the exception of Seaverns Brook,

which is designated by the DMF as a coldwater fish resource.¹ As described in **DEIR Section 4.5.4, Existing Conditions (pg. 4.5-5)**, the Charles River is known to include at least 25 different fish species, with the most prevalent being bluegill (*Lepomis macrochirus*), redbfin pickerel (*Esox americanus americanus*), largemouth bass (*Micropterus salmoides*), American eel (*Anguilla rostrata*), and redbreast sunfish (*Lepomis auritus*).

FEIR Table 5-1, as presented in **SDEIR Section 10.2.1 (pgs. 10-3 to 10-4)**, summarizes the presence or absence of fisheries habitat in waterways within the limit of disturbance at or adjacent to each Program site.

Table 5-1 Summary of Fisheries Habitat Present at Program Sites

Site (Alternative)	City/Town	Fisheries Habitat Present
Launching, Receiving, and Large Connection Shaft Sites		
UMass Property (3A, 4A)	Waltham	Warmwater ¹
Lower 190 Trapelo Road Property (4B)	Waltham	Warmwater ¹
Bifurcation (3A)	Weston	Coldwater
Tandem Trailer/Park Road East (3A, 4A)	Weston	Coldwater
Park Road West (4A, 4B)	Weston	None
Highland Avenue Northwest/Southwest (3A, 4A, 4B)	Needham	Warmwater
Highland Avenue Northeast/Southeast (3A, 4A, 4B)	Needham	Warmwater
American Legion (3A, 4A, 4B)	Boston	Warmwater
Connection Shaft and Isolation Valve Sites (Common to All Alternatives)		
School Street	Waltham	None
Cedarwood Pumping Station	Waltham	Warmwater ¹
Hegarty Pumping Station	Wellesley	Warmwater ¹
St. Mary Street Pumping Station	Needham	None
Newton Street Pumping Station	Brookline	None
Southern Spine Mains	Boston	None
Hultman Aqueduct Isolation Valve	Weston	None

The above table content on fisheries habitat present was taken from SDEIR Table 10-1, Summary of Rare Species and Wildlife Habitats at Program Sites, as previously presented in SDEIR Section 10.2.1 (pgs. 10-3 to 10-4), and updated to include Alternative 4B and remove Alternative 10A.

¹ Habitat is adjacent to Program site but not within the limit of disturbance.

As indicated in **DEIR Section 4.6.5.4, Tunnel Dewatering and Disinfection (pg. 4.6-150)**, temporary water treatment facilities would be constructed at all launching sites, including the Tandem Trailer launching shaft site. Contract documents will require that the contractor design and construct the treatment system to meet applicable surface water quality standards for the classification of the receiving water, as required by Title 314 of the Code of Massachusetts Regulations (CMR) Section 4.05. All proposed receiving waters are designated Class B.

1 Commonwealth of Massachusetts, Massachusetts Environmental Policy Act Office, Title 321 of the Code of Massachusetts Regulations, Section 5.00: Coldwater Fish Resources, December 5, 2014, <https://www.mass.gov/regulations/321-CMR-500-coldwater-fish-resources>.

5.2.1 Water Quality Regulatory Requirements

The requirements for Class B waterways included under 314 CMR 4.05(3)(b) set the following limits for Dissolved Oxygen, Temperature, pH, Bacteria, Solids, Color and Turbidity, Oil and Grease, and Taste and Odor:

- **Dissolved Oxygen** - Shall not be less than 6.0 mg/l in cold water fisheries and not less than 5.0 mg/l in warm water fisheries. Where natural background conditions are lower, Dissolved Oxygen shall not be less than natural background conditions. Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained.
- **Temperature** - Shall not exceed 68°F (20°C) based on the mean of the daily maximum temperature over a seven-day period in cold water fisheries, unless naturally occurring. Where a reproducing cold water aquatic community exists at a naturally occurring higher temperature, the temperature necessary to protect the community shall not be exceeded and natural daily and seasonal temperature fluctuations necessary to protect the community shall be maintained. Temperature shall not exceed 83°F (28.3°C) in warm water fisheries. The rise in temperature due to a discharge shall not exceed 1.5°F (0.8°C); and natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. There shall be no changes from natural background conditions that would impair any use assigned to this Class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions, or growth of aquatic organisms.
- **Acidity/pH** - Shall be in the range of 6.5 through 8.3 standard units but not more than 0.5 units outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class.
- **Bacteria** - For non-bathing beach waters, the geometric mean of all E. coli samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples, and no single sample shall exceed 235 colonies per 100 ml; alternatively, where enterococci are the chosen indicator, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples, and no single sample shall exceed 61 colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of MassDEP.
- **Solids** - Waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.
- **Color and Turbidity** - Waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class.
- **Oil and Grease** - Waters shall be free from oil and grease, petrochemicals and other volatile or synthetic organic pollutants.
- **Taste and Odor** – Waters shall have none other than of natural origin.

5.2.1.1 Water Quality Treatment Measures

Sampling and testing of receiving waters would be conducted prior to construction to determine natural background conditions and naturally occurring variations. Sampling and testing of dewatering flows prior to discharge would be required on an on-going basis to confirm that all criteria are being met.

The water treatment facility will likely include a variety of treatment means and methods to address the various water quality parameters as follows:

- **Dissolved oxygen concentration** can be increased using aeration devices such as diffusers or surface aerators; these devices create turbulence to increase the water's contact with the atmosphere, allowing more oxygen to dissolve.
- The **temperature** of the water may be controlled using natural shading or insulation of tanks (to minimize heat exchange with the surrounding environment), circulation systems, and limiting exposure to direct sunlight.
- The **pH** of the water can be adjusted using a base to raise the pH (e.g., lime) or using an acid to lower the pH; thorough mixing is required to achieve a uniform pH level.
- **Bacteria** can be removed by one or more of the following: filtration; chlorination; ultra-violet sterilization; ozone treatment; or biological treatment, such as activated sludge or biofiltration.
- **Solids, color, turbidity, and odor** can be addressed by using clarifiers, designed to separate solids and impurities from the water. Clarifiers typically consist of an inlet, a clarifier tank, and an outlet. The clarifier tank, which may include a weir system, reduces the velocity of water and retains the water a sufficient time (typically 60 to 90 minutes) to allow silt, sand, and other suspended solids to settle due to gravity. The clarified water is typically removed from the upper part of the tank, while accumulated sludge must be periodically removed from the bottom of the tank. Testing will indicate if the clarified water from the tank is suitable for discharge, or if necessary, may be sent for additional treatment and testing (i.e., to meet regulatory requirements for dissolved oxygen, pH, temperature, bacteria, oil, or grease).

5.2.2 Time-of-Year Restriction

The Secretary directed that the FEIR address a DMF comment that the proposed dewatering work presents a potential risk to river herring spawning and migration in the Charles River. Considering these potential concerns, the DMF indicated that it may recommend a time-of-year restriction of no in-water, silt-producing work from April 15 to July 15 to minimize this potential impact.

The MWRA will continue consultation and coordination with the DMF during the final design phase. It has been acknowledged in the DEIR and SDEIR that during construction there would be the potential for water quality in surface waters to be impacted by pollutants in tunnel dewatering discharges and in discharges related to tunnel cleaning, disinfection, and flushing. Prior to discharge, all flows would be treated as necessary as described in the prior section to meet water quality standards for the receiving waterbody and any other requirements of environmental permits issued for the Program.

The Special Conditions included in permits issued for the Program, if deemed appropriate by DMF or other regulatory agencies, could include a time-of-year restriction on in-water silt-producing work from April 15 to July 15. If deemed appropriate by DMF or other regulatory agencies during the detailed design and permitting phase, the time-of-year restriction would be included in contract documents so that construction-period discharges would not involve in-water, silt-producing work from April 15 to July 15.

5.3 Noise and Vibration from Tunneling

The Certificate requested that MWRA provide additional information in the FEIR regarding potential noise and vibration impacts caused by tunneling. In particular, the DMF requested additional information concerning how tunneling underneath the Stony Brook Dam, which is adjacent to the Charles River, might affect fish migration and spawning.

The proposed tunnels will be excavated using a tunnel boring machine (TBM), with an average advance rate of 50-60 feet per day. As a result, any noise and/or vibration will be temporary in nature. The tunnel excavation below water bodies will be completed within days and at a depth of approximately 300 feet underground. At such distances to the river, TBM operations may have the potential to induce vibrations in the river substrate, which could have potential impacts on species residing in, on, or near the substrate for activities such as feeding or spawning. Based on the vibration data provided in **DEIR Section 4.12.3.1 Vibration Methodology (pg. 4.12-60)** and the propagation model outlined in the Federal Transit Administration (FTA) documentation,² it is reasonable to anticipate that the peak particle velocity (PPV) of the TBM will be approximately 0.003 inches per second (in/s) at the river. Furthermore, the transmission of TBM-induced vibrations through the geological strata into the river substrate would result in additional reduction in the vibration. Although quantification of the attenuation factor depends on the geologic material properties including density, stiffness, and damping for both mediums, it is reasonable to assume that the relatively low vibration levels, coupled with the attenuation through the rock into the river substrate, are unlikely to result in significant behavioral alterations, such as migration, spawning or feeding disruptions, among the fish population within the river.

2 U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, September 2018, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

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6 Rare Species

6.1 Introduction

This chapter clarifies information related to potential impacts of the Program on rare species as requested in the Executive Office of Energy and Environmental Affairs (EEA) Secretary’s Certificate on the Supplemental Draft Environmental Impact Report (SDEIR). The Certificate on the SDEIR, issued on September 29, 2023, identified a Scope for the FEIR that requested a “Rare Species” section to provide an update on consultation to address comments received from the Massachusetts Natural Heritage and Endangered Species Program (NHESP). In particular, the Secretary’s Certificate requested that the following items be addressed in this FEIR:

- According to comments from NHESP, a portion of the project under all Alternatives is proposed within Priority or Estimated Habitat of rare species. Work adjacent to or within unpaved roads or beyond 10 feet from a paved road are unlikely to qualify as exempt from review under the Massachusetts Endangered Species Act (MESA, MGL c131A) and its implementing regulations (321 CMR 10.00) pursuant to 321 CMR 10.14. Therefore, some aspects of the project may require review through a direct filing with NHESP for compliance with MESA.
- Consult with NHESP prior to filing the FEIR to address state-listed species concerns, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review.
- Provide an update on any consultations with NHESP and identify avoidance, minimization, and mitigation measures, as appropriate.

Refer to **FEIR Chapter 9, Responses to Comments**, for the full list of delineated comments received on the SDEIR, along with a copy of Secretary’s Certificate and the comment letters received.

6.2 Avoidance and Minimization of Impacts to State-Listed Species

In the Certificate, the Secretary requested that the FEIR clarify potential impacts to state-listed rare species or their habitats and avoidance, minimization, and mitigation measures, as appropriate. Based on further consultation between the NHESP and MWRA during preparation of the FEIR, the NHESP specifically requested clarification as to whether vibration from the proposed tunnel construction could impact a designated habitat polygon associated with the Bald Eagle located within the Study Area.

The Program does not propose any construction work (aboveground or underground) within any NHESP Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife polygons.^{1,2} As a result of the Program's site selection process, none of the proposed Program sites include any identified habitats for state-listed rare species. Consequently, potential impacts to designated habitat for state-listed species due to Program construction have been avoided.

The Study Area used to evaluate potential impacts to rare species, wetlands, waterways, and related natural resources in proximity to the tunnel alignments considered a 2,000-foot-wide corridor centered around the preliminary tunnel alignment (1,000-foot distance extending from either side of the alignment). As described in **DEIR Section 4.6.3.1, Study Area**, the corridor width was conservatively determined based on an estimate of 780 feet for the potential zone of tunnel influence for groundwater drawdown within rock at a depth of 450 feet without mitigation.

As shown on **FEIR Figure 6-1**, which was previously presented as **DEIR Figure 4.6-19**, one NHESP Priority Habitat of Rare Species/Estimated Habitat of Rare Wildlife polygon (PH 1301/EH 935) was identified within the Study Area corridor along the preliminary tunnel alignment in all Program Alternatives (see **DEIR Chapter 4.5, Rare Species and Wildlife Habitat, Section 4.5.4, Existing Conditions (pg. 4.5-5)**). The polygon is in the City of Waltham in the vicinity of the proposed Cedarwood Pumping Station connection shaft site, which is located behind the Stanley Elementary School. The PH 1301/EH 935 polygon is within a portion of Mount Feake Cemetery along the Charles River. Based on consultation with the NHESP in November 2023, the polygon is associated with a nesting site for the Bald Eagle (*Haliaeetus leucocephalus*), a state-listed species of Special Concern.

As shown on **FEIR Figure 6-1**, which is common to Alternatives 3A, 4A, and 4B, the NHESP habitat polygon is more than 600 feet horizontally from the Cedarwood Pumping Station site and the centerline of the tunnel alignment, where the tunnel would be at a depth of approximately 300 feet below ground.

As described in **SDEIR Chapter 11, Noise and Vibration, Section 11.3.2, Vibration Construction Period Impacts (pgs. 11-21 to 11-22)**, vibration-generating equipment to be used for Program construction includes pile drivers, drills, the tunnel boring machine (TBM), clam shovel drops, and bulldozers. Vibration levels associated with construction of the Program were predicted based on methods in the Federal Transit Administration's (FTA's) noise and vibration guidance manual.³ **SDEIR Table 11-6 (pg. 11-22)**, provides the distances from construction activities to the threshold of vibration impact for the onset of perceptible vibration in offices and residences, and the onset of interference with vibration sensitive equipment. Vibration thresholds for human perception or annoyance are based on the International Standards Organization (ISO) Standard 2631-2, "Evaluation of Human Exposure to Whole-Body

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- 1 Commonwealth of Massachusetts, Executive Office of Technology Services and Security, "MassGIS Data: NHESP Priority Habitats of Rare Species," August 2021, www.mass.gov/info-details/massgis-data-nhesp-priority-habitats-of-rare-species.
 - 2 Commonwealth of Massachusetts, Executive Office of Technology Services and Security, "MassGIS Data: NHESP Estimated Habitats of Rare Wildlife," August 2021, www.mass.gov/info-details/massgis-data-nhesp-estimated-habitats-of-rare-wildlife.
 - 3 U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, September 2018, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

Vibration,”⁴ which are 0.016 inches per second (in/s) root-mean square (RMS) for office settings and 0.008 in/s RMS in residential settings where people may sleep. General Vibration Criteria (VC) curves are used to categorize equipment based on sensitivity to vibration. For example, as shown in **SDEIR Table 11-1 (pg. 11-6)**, the VC-A curve (0.002 in/s RMS) is an appropriate limit for most laboratory settings where equipment such as microscopes with a 400-times zoom factor are used.

There is no existing guidance on vibration thresholds specifically associated with Bald Eagles or birds in general. Therefore, thresholds established for human perception and sensitive equipment represent the best approach for assessing perceptible levels of vibration in the absence of specific avian guidelines.

To assess the potential vibration impact from Program-related construction activities, the existing conditions within the Bald Eagle habitat polygon were considered. With the closest (westernmost) portion of the designated Bald Eagle habitat polygon located less than 200 feet from the Massachusetts Bay Transportation Authority (MBTA) Commuter Rail Fitchburg Line, the area is regularly exposed to vibration from more than 35 train passages on a typical weekday.⁵ Based on the FTA Manual,⁶ a commuter rail produces a vibration velocity level of 66 decibels (equivalent to 0.0021 in/s RMS). Given their regular exposure to these vibrations and their documented presence at the site since 2015,⁷ it is assumed that the existing ground-borne vibrations from the trains at that distance do not disturb the Bald Eagles such that it prevents them from returning to nest within the habitat polygon.

Furthermore, as shown in **SDEIR Table 11-6**, exceeding the VC-A curve due to a vibratory pile driver, which would be the most vibration-intensive equipment potentially used at the Cedarwood Pumping Station site, requires a proximity within 131 feet. Considering that vibration-generating equipment used for the Program would be 600 feet or farther from the Bald Eagle habitat polygon, it is unlikely that vibration levels would be perceptible. Construction at the Cedarwood Pumping Station site would be temporary and is anticipated to be completed within approximately three months, which includes setup and removal of excavated material using the raisebore method. The proposed tunnels will be excavated using a TBM, with an average advance rate of 50 to 60 feet per day. Therefore, the tunnel excavation in proximity to the habitat polygon will be completed in less than a month and at a depth of about 300 feet underground.

Given the existing vibration levels in the habitat polygon, the minimal vibration expected from Program construction at more than 600 feet away, and that construction near the habitat polygon would be completed in less than three months, it is anticipated that there will be no significant vibration impact on the Bald Eagle in the designated habitat polygon. Refer also to the evaluation completed to assess the

4 International Standards Organization Standard 2631-2 “Evaluation of Human Exposure to Whole-Body Vibration,” Second Edition, April 1, 2003.

5 Massachusetts Bay Transportation Authority, “Fitchburg Line Fall/Winter Schedule,” Effective October 2, 2023, https://cdn.mbta.com/sites/default/files/media/route_pdfs/batch_6697/2023-10-02-cr-fall-winter-fitchburg-line.pdf.

6 U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, Table 6-10, “Generalized Ground Surface Vibration Equations,” page 138, September 2018, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

7 City of Waltham, Massachusetts, “Eagles At Mount Feake,” posted March 21, 2017, <https://www.city.waltham.ma.us/cemetery-department/news/eagles-at-mount-feake-0>.

potential for TBM operations at depth to affect fish in **FEIR Chapter 5, Fisheries, Section 5.3, Noise and Vibration from Tunneling (pg. 5-5)**.

As described in **SDEIR Section 11.3.4, Vibration Avoidance, Minimization, and Mitigation (pg. 11-23)**, although no Program-related vibration impacts are anticipated, best practices would be implemented during construction to minimize the potential for perceptible vibration. Additionally, to protect wildlife such as the Bald Eagle, the MWRA will develop a rodent control plan that will include requirements to not use toxic Second Generation Anticoagulant Rodenticides (SCARs). As described in **SDEIR Chapter 10, Rare Species and Wildlife Habitat, Section 10.2.4, Rare Species and Wildlife Habitat Avoidance, Minimization, and Mitigation Measures (pg. 10-12)**, tree clearing would be minimized to the extent possible, and areas disturbed during construction would be revegetated with native species as appropriate. Potential impacts to rare species and their habitats would be further minimized as a result of the proposed measures to minimize impacts to surface waters, including probing and grouting in advance of the TBM and post-excavation cut-off grouting (see **DEIR Section 4.6.5.3, Tunnel Alignments – All Alternatives**).

6.3 Update on Consultation with Natural Heritage and Endangered Species Program

The Certificate requested that the FEIR provide an update on any consultations with NHESP.

Since the Program does not propose work within any NHESP Priority or Estimated Habitat polygons, review pursuant to MESA (MGL c131A) and its implementing regulations (321 CMR 10.00) would not be required. The tunnel alignment in the vicinity of the Cedarwood Pumping Station connection shaft site, located behind the Stanley Elementary School, is the only Program site where construction work would take place near a habitat polygon, under any of the Program Alternatives. As discussed above in **FEIR Section 6.2** and as shown on **FEIR Figure 6-1** (previously presented as **DEIR Figure 4.6-19**), the habitat polygon is more than 600 feet horizontally from the centerline of the preliminary tunnel alignment, where the tunnel would be at a depth of approximately 300 feet below the ground surface.

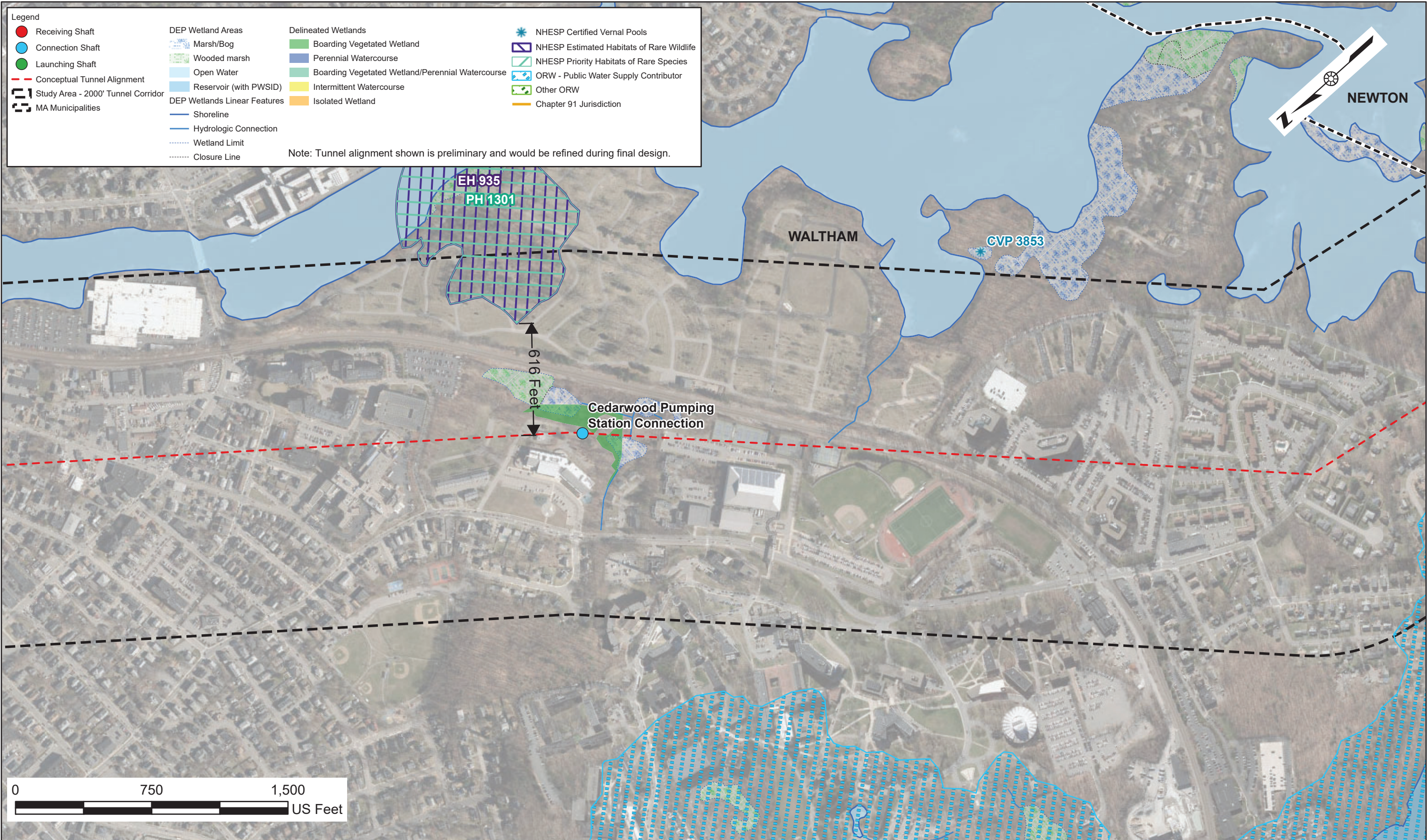
The MWRA consulted with the NHESP via email during preparation of the FEIR. As recommended by the NHESP, the MWRA would require the contractor to check the latest federal Endangered Species Act (ESA) guidance at periodic intervals to ensure that work remains in compliance with the federal ESA and MESA, including any potential changes to listed species or modifications to guidance. In accordance with recommendations set forth by the NHESP, all plants and seed mixes used for landscaping or revegetation of areas disturbed during construction shall be composed of species native to the respective county in accordance with *The Vascular Plants of Massachusetts: A County Checklist First Revision*.⁸ Per the NHESP, state-listed plants and seeds shall not be used for landscaping or revegetation of areas disturbed during construction. The MWRA will require the contractor(s) to carefully review seeds and plantings at the time of sourcing against the NHESP's latest listing of Endangered, Threatened, and Special Concern species

8 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, *The Vascular Plants of Massachusetts: A County Checklist, First Revision, 2011* (Dow Cullina, M, B Connolly, B Sorrie, and P Somers), <https://www.mass.gov/doc/the-vascular-plants-of-massachusetts-a-county-checklist/download>.

protected under MESA to ensure they are not state-listed species.⁹ The MWRA will continue consultation and coordination with NHESP during the final design phase as project elements move forward to confirm that circumstances and regulatory requirements have not changed.

9 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, "List of Endangered, Threatened, and Special Concern Species," updated January 10, 2020, <https://www.mass.gov/info-details/list-of-endangered-threatened-and-special-concern-species#list-of-species->.

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7 Transportation

7.1 Introduction

This chapter summarizes updates to the Traffic Impact Assessment (TIA) to include Alternative 4B, and was prepared in accordance with the Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs (EEA) and Massachusetts Department of Transportation (MassDOT) *Transportation Impact Assessment (TIA) Guidelines*,¹ to assess the Program’s potential traffic impacts in each of the three Program Alternatives (Alternatives 3A, 4A, and 4B).

As described in **Final Environmental Impact Report (FEIR) Chapter 1, Program Description and Permitting**, Alternative 4B (the Preferred Alternative) is the same as Draft Environmental Impact Report (DEIR) Alternative 4 and Supplemental Draft Environmental Impact Report (SDEIR) Alternative 4A with the exception of terminating the North Tunnel at the Lower 190 Trapelo Road Property, as previously shown in **FEIR Figure 1-2 (pg. 1-7)**. The Lower 190 Trapelo Road Property was previously referred to as the “Lower Fernald Property” when used in and evaluated as part of SDEIR Alternative 10A, which is no longer being carried forward. FEIR Alternative 4B combines the preferred aspects of SDEIR Alternative 4A and 10A and incorporates the City of Waltham’s preferred northern terminus location. Alternative 4B introduces no new tunnel segments, tunnel alignments, shaft sites, shaft site usage (i.e., launching, receiving or large connection), construction methodology, construction schedule or duration as compared to those presented and evaluated in the DEIR and SDEIR.

The analysis incorporating the Lower 190 Trapelo Road Property site is provided in **SDEIR Chapter 9, Transportation** and **SDEIR Appendix F, Transportation Supporting Documentation**. Information for all other Alternative 4B sites remains the same as previously provided in **DEIR Chapter 4, Section 4.10, Transportation**, and **DEIR Appendix F, Transportation Supporting Documentation**.

For details related to the MWRA’s actions to avoid, minimize, and mitigate potential impacts to transportation, see **FEIR Section 8.2.7, Transportation (pgs. 8-26 to 8-29)**.

7.1.1 Summary of Findings

Key findings of the Program as they relate to transportation are listed below and are summarized in **Table 7-1**.

Key findings associated with the Lower 190 Trapelo Road Property site (terminus of the North Tunnel, Segment 1 for Alternative 4B) include:

1 Massachusetts Department of Transportation, *Transportation Impact Assessment (TIA) Guidelines*, updated September 21, 2017, <https://www.mass.gov/doc/transportation-impact-assessment-guidelines> (accessed February 6, 2024).

- During temporary construction activities at the Lower 190 Trapelo Road Property site, the maximum estimated overall number of daily diesel truck trips would be up to 27 trips per day for a maximum duration of one quarter of a year; up to four diesel truck trips per hour were estimated to arrive at and depart from the site.
- At the Lower 190 Trapelo Road Property site, up to 64 construction worker trips were conservatively estimated to arrive in the morning peak hour and depart in the evening peak hour for a maximum duration of one quarter a year. Construction worker trips are not expected to occur during the evening peak hour as shift change is usually at approximately 3:00 PM.

Key findings associated with the three Program Alternatives, which are consistent with the findings in the DEIR and SDEIR include:

- For the SDEIR Alternatives, most traffic expected to be generated by construction activities at Program sites would be due to construction workers driving to and from the sites at the beginning and end of their workday shifts.
- The maximum amount of temporary Program-related traffic would occur at launching shaft sites where there is a shift change conservatively modeled to take place during the evening peak hour. Launching shaft sites (i.e., Tandem Trailer, Bifurcation, and Highland Avenue sites) are adjacent to highway ramps and are therefore not expected to cause a significant traffic impact to nearby local roadways.
- Construction of near-surface piping at some shaft site locations would require temporary traffic management measures, including temporary lane closures, sidewalk closures, and detours. Near-surface piping construction may temporarily impact traffic at the proposed UMass Property site in Waltham (SDEIR Alternatives 3A and 4A), the Lower 190 Trapelo Road Property site in Waltham (FEIR Alternative 4B), the School Street site in Waltham (common to all Program Alternatives), the Highland Avenue sites in Needham (due to the discharge pipeline which is common to all Program Alternatives), and the American Legion and Southern Spine Mains sites in Boston (common to all Program Alternatives).
- At locations where near-surface piping construction would be expected to temporarily increase traffic, construction activities would be limited to certain time periods depending on the characteristics of the roadways and surrounding land uses. As a potential mitigation measure, construction work could be performed during off-peak hours, as necessary and where appropriate.
- At locations where the additional traffic due to temporary Program-related construction may increase intersection delays, potential mitigation measures, if required, may consist of adjusting traffic signal timings. Adjusting traffic signal timings, if necessary and where appropriate, would be expected to result in either minimal increases or reductions in intersection delay when compared to existing conditions.

Table 7-1 Transportation Summary of Findings

Description of Potential Impact	Alternative 3A	Alternative 4A	Alternative 4B
Temporary increase in daily traffic volumes on Study Area roadways for the modeled peak day	<ul style="list-style-type: none"> • Non-highway: 0.1% to 2.0% temporary increase in daily volumes • Highway: 0.2% to 0.7% temporary increase in daily volumes 	<ul style="list-style-type: none"> • Non-highway: 0.1% to 1.8% temporary increase in daily volumes • Highway: 0.2% to 0.7% temporary increase in daily volumes 	<ul style="list-style-type: none"> • Non-highway: 0.1% to 1.8% temporary increase in daily volumes • Highway: 0.2% to 0.7% temporary increase in daily volumes
Maximum average daily trips (ADT) of diesel vehicles of one quarter of a year (all sites)	389 (Year 3, Quarter 4)	393 (Year 3, Quarter 4)	393 (Year 3, Quarter 4) ¹
Sites potentially subject to more than 150 ADT of diesel trucks during temporary construction activities if shift change were to take place in the peak hour (quantity and duration) ²	<ul style="list-style-type: none"> • Tandem Trailer (156 truck trips per day for 5 quarters) • Highland Avenue Northeast/Southeast (156 truck trips per day for 7 quarters) • Bifurcation (152 truck trips per day for 3 quarters) 	<ul style="list-style-type: none"> • Tandem Trailer (156 truck trips per day for 5 quarters) • Highland Avenue Northwest/Southwest (156 truck trips per day for 3 quarters) • Highland Avenue Northeast/Southeast (156 truck tips per day for 7 quarters) 	<ul style="list-style-type: none"> • Tandem Trailer (156 truck trips per day for 5 quarters) • Highland Avenue Northwest/Southwest (156 truck trips per day for 3 quarters) • Highland Avenue Northeast/Southeast (156 truck trips per day for 7 quarters)
Installation of near-surface piping would require traffic management measures including lane closure, sidewalk closures, and/or detours	<ul style="list-style-type: none"> • UMass Property site • Highland Avenue sites • American Legion site • School Street site • Southern Spine Mains 	<ul style="list-style-type: none"> • UMass Property site • Highland Avenue sites • American Legion site • School Street site • Southern Spine Mains 	<ul style="list-style-type: none"> • Lower 190 Trapelo Road Property site • Highland Avenue sites • American Legion site • School Street site • Southern Spine Mains

1 The maximum ADT for Alternative 4B was assumed to be the same as Alternative 4A to be conservative. The nature of work at a receiving shaft (e.g., Alternative 4B, Lower 190 Trapelo Road Property) would lead to higher ADTs at the beginning and end of construction when compared to a large connection shaft (e.g., Alternative 3A and 4A, UMass Property).

2 The assessment of ADT of diesel trucks was based on a conservative, worst-case scenario where approximately 70 feet of excavation per day is assumed, and that construction would only occur on business days. The average rate for excavation is likely to be less than 60 feet per day, translating to fewer than 150 additional ADT by diesel trucks. The annual ADT generated by the Program would be around 111 average daily trips per year. The sequence of constructing each element within a construction package will be at the discretion of the selected contractor(s).

7.2 Transportation Impact Assessment

Consistent with the methodology and analysis in the DEIR, the TIA, provided in **SDEIR Appendix F.1**, includes a description of existing conditions and evaluates the traffic operations for roadways and key intersections on anticipated construction vehicle routes between the highway and shaft sites under existing and future construction conditions.

As described in **FEIR Chapter 1, Program Description and Permitting**, this FEIR includes Alternatives 3A, 4A, and 4B, and no longer includes Alternative 10A. The only difference between Alternatives 4A and 4B is the location of the terminus of North Tunnel, Segment 1 (UMass Property site for Alternative 4A and Lower 190 Trapelo Road Property site for Alternative 4B). The transportation impacts related to Alternatives 3A and 4A, and for the Lower 190 Trapelo Road Property receiving shaft site (previously part of Alternative 10A) were previously presented in **SDEIR Chapter 9, Transportation** and **DEIR Section 4.10, Transportation**. This section describes the transportation impacts related to Alternative 4B.

7.2.1 Transportation Existing Conditions

Alternative 4B would rely on the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. The existing conditions of study area roadways, study area intersections, safety, intersection operation, and regional highway volumes related Lower 190 Trapelo Road Property receiving shaft site were presented in **SDEIR Section 9.2.1, Transportation Existing Conditions (pg. 9-4)** as part of Alternative 10A. The existing conditions related to all other sites used in Alternative 4B remain the same as Alternative 4/4A, as described **SDEIR Section 9.2.1, Transportation Existing Conditions (pg. 9-4)** and **DEIR Section 4.10.2, Existing Conditions (pg. 4.10-18)**. Existing conditions for all Program sites remain unchanged from the DEIR and SDEIR.

Table 7-2 lists the roadways along the anticipated construction vehicle routes. All other tables remain the same as presented in **SDEIR Section 9.2.1, Transportation Existing Conditions (pg. 9-4)**.

Table 7-2 Study Area Roadways – Existing Conditions

Shaft Site (Alternative) ¹	Roadway	From	To	City/Town	Existing Average 24-Hour Traffic Volume
UMass Property Large Connection (3A, 4A)	Trapelo Road	I-95	Waverley Oaks Road	Waltham	20,489
	Waverley Oaks Road	Trapelo Road	Linden Street	Waltham	13,665
	Linden Street	Waverley Oaks Road	Main Street	Waltham	9,398
	Main Street	Linden Street	Weston Street (Route 20)	Waltham	12,342
	Weston Street (Route 20)	Main Street	I-95	Waltham	13,208
Lower 190 Trapelo Road Property (4B)	Trapelo Road	I-95	Waverley Oaks Road	Waltham	20,489
	Waverley Oaks Road	Trapelo Road	Linden Street	Waltham	13,665
	Linden Street	Waverley Oaks Road	Main Street	Waltham	9,398
	Main Street	Linden Street	Weston Street (Route 20)	Waltham	12,342
	Weston Street (Route 20)	Main Street	I-95	Waltham	13,208
School Street Connection (All)	Weston Street (Route 20)	I-95	Main Street	Waltham	13,208
	Main Street	Weston Street (Route 20)	Bacon Street	Waltham	12,342
	Bacon Street	Main Street	School Street	Waltham	8,612
	School Street	Bacon Street	Macks Court	Waltham	6,942
Cedarwood Pumping Station Connection (All)	Weston Street (Route 20)	I-95	South Street	Waltham	13,208
	South Street	Weston Street (Route 20)	Shakespeare Road	Waltham	11,755
Bifurcation Launching (3A)	I-90 to I-95 Ramp	-	-	Weston	162,000
Tandem Trailer Launching (All)	South Avenue (Route 30)	Site Exit	I-95	Weston	22,587
	I-95 to I-90 West Ramp	I-95	Site Entrance	Weston	134,000
Park Road East Large Connection (All)	South Avenue (Route 30)	I-95	Park Road	Weston	22,587
	Park Road	South Avenue (Route 30)	Site Entrance	Weston	9,050
Park Road West Receiving (4A, 4B)	South Avenue (Route 30)	I-95	Park Road	Weston	22,587

Table 7-2 Study Area Roadways – Existing Conditions

Shaft Site (Alternative)¹	Roadway	From	To	City/Town	Existing Average 24-Hour Traffic Volume
Hegarty Pumping Station Connection (All)	Worcester Street (Route 9)	I-95	Cedar Street	Wellesley	47,052
	Cedar Street	Worcester Street (Route 9)	Barton Road	Wellesley	13,463
St. Mary Street Pumping Station Connection (All)	Worcester Street (Route 9)	I-95	Cedar Street	Wellesley	47,052
	Cedar Street	Worcester Street (Route 9)	Central Avenue	Wellesley/Needham	15,552
	Central Avenue	Cedar Street	St. Mary Street	Needham	10,817
Highland Avenue Northeast/Southeast Launching (All)	I-95 Northbound On-Ramp	Highland Avenue	I-95	Needham	162,000
	I-95 Northbound Off-Ramp	I-95	Highland Avenue	Needham	149,000
Highland Avenue Northwest Receiving (3A)/Northwest/Southwest Launching (4A, 4B)	I-95 Southbound On-Ramp	Highland Avenue	I-95	Needham	162,000
	I-95 Southbound Off-Ramp	I-95	Highland Avenue	Needham	149,000
Newton Street Pumping Station Connection (All)	Boylston Street (Route 9)	I-95	Lee Street	Newton/Brookline	57,001
	Lee Street	Boylston Street (Route 9)	Clyde Street	Brookline	15,458
	Clyde Street	Lee Street	Newton Street	Brookline	16,716
	Newton Street	Clyde Street	Site Entrance	Brookline	12,833
Southern Spine Mains Connection (All)	Gallivan Blvd. (Route 203)	I-93	Morton Street (Route 203)	Boston	48,894
	Morton Street (Route 203)	Gallivan Blvd. (Route 203)	Arborway (Route 203)	Boston	35,658
	Arborway (Route 203)	Morton Street (Route 203)	Centre Street	Boston	32,778
	South Street	Arborway (Route 203)	Asticou Road	Boston	11,755

Table 7-2 Study Area Roadways – Existing Conditions

Shaft Site (Alternative)¹	Roadway	From	To	City/Town	Existing Average 24-Hour Traffic Volume
American Legion Receiving (All)	Gallivan Blvd. (Route 203)	I-93	Morton Street (Route 203)	Boston	48,894
	Morton Street (Route 203)	Gallivan Blvd. (Route 203)	Arborway (Route 203)	Boston	35,778
	Arborway (Route 203)	Morton Street (Route 203)	Centre Street	Boston	32,778

1. Only the “Shaft Site (Alternative)” column has changed since this table was presented in the SDEIR to reflect the inclusion of Alternative 4B instead of Alternative 10A.

7.2.2 Transportation Construction Period Impacts

For the Program Alternatives, most traffic expected to be generated by construction activities at the proposed Program sites would be due to construction workers driving to and from the sites at the beginning and ends of their workday shifts. Construction period impacts to transportation related to the UMass Property site (Alternative 3A and 4A) and the Lower 190 Trapelo Road Property site (Alternative 4B) were reviewed as part of the construction period impacts assessment presented in **SDEIR Section 9.2.2 Transportation Construction Period Impacts (pg. 9-17)**. The construction period impacts to transportation related to all other Program sites are evaluated in **DEIR Section 4.10.3, Construction Period Impacts (pg. 4.10-50)**.

7.2.2.1 Alternative 3A/Alternative 4A Traffic Volumes Construction Period Impacts

Construction period impacts to traffic volume for Alternatives 3A and 4A are unchanged, and remain the same as described in **SDEIR Section 9.2.2.1, Alternative 3A/Alternative 4A Traffic Volumes Construction Period Impacts (pg. 9-18)**.

7.2.2.2 Alternative 4B Traffic Volumes Construction Period Impacts

Alternative 4B would utilize the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. The traffic volume construction period for the Lower 190 Trapelo Road Property receiving shaft site was described in **SDEIR Section 9.2.2.2, Alternative 10A Traffic Volumes Construction Period Impacts (pg. 9-23)** as part of Alternative 10A. The construction period impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described **DEIR Section 4.10.3, Construction Period Impacts (pg. 4.10-50)**.

7.2.2.3 Study Area Roadways Traffic Volume Construction Period Impacts

The vehicle trips estimated at each shaft site were distributed onto the surrounding roadway network based on the anticipated construction vehicle routes. This section describes the maximum net new vehicle trips conservatively estimated to travel through each Study Area intersection in Waltham during the morning and evening peak hours in comparison to the existing volumes. Vehicle trips combine both construction worker trips and diesel truck trips. **Table 7-3** below presents the Non-Highway Study Area Roadway Traffic Volumes for North Tunnel, Segment 1. Non-Highway Study Area Roadway Traffic Volumes for Alternative 4B South Tunnel, Segments 2 and 3 remain the same as Alternative 4A, as presented in **SDEIR Section 9.2.2.3, Study Area Roadways Traffic Volume Construction Period Impacts (pg. 9-24)**. Program-related vehicle traffic is estimated to temporarily increase peak 24-hour traffic volumes by approximately 0.1 percent to 2.0 percent on local roadways compared to existing conditions, consistent with the SDEIR.

Table 7-3 Non-Highway Study Area Roadway Traffic Volumes – North Tunnel, Segment 1

Shaft Site	Roadway	From	To	City/Town	AM Peak Hour Trips			PM Peak Hour Trips ¹				24-Hour Volume				
					Existing	Alt 3A	Alt 4A	Alt 4B	Existing	Alt 3A	Alt 4A	Alt 4B	Existing	Alt 3A	Alt 4A	Alt 4B
UMass Property/Lower 190 Trapelo Road Property entering	Trapelo Road	West of	Smith Street	Waltham	1,850	43 (2.4%)	43 (2.4%)	68 (3.8%)	1,650	3 (0.2%)	3 (0.2%)	4 (0.3%)	20,500	51 (0.3%)	51 (0.3%)	82 (0.5%)
UMass Property/Lower 190 Trapelo Road Property entering	Trapelo Road	Old Lexington Road	Bow Street	Waltham	1,200	43 (3.7%)	43 (3.7%)	68 (5.8%)	1,350	3 (0.3%)	3 (0.3%)	4 (0.4%)	14,600	51 (0.4%)	51 (0.4%)	82 (0.6%)
UMass Property/Lower 190 Trapelo Road Property entering	Trapelo Road	Manning Road	Upton Road	Waltham	850	43 (5.2%)	43 (5.2%)	68 (8.2%)	1,050	3 (0.3%)	3 (0.3%)	4 (0.4%)	10,650	51 (0.5%)	51 (0.5%)	82 (0.8%)
UMass Property/Lower 190 Trapelo Road Property entering	Waverly Oaks Road	Shirley Road	Brookfield Road	Waltham	1,000	43 (4.4%)	43 (4.4%)	68 (6.9%)	1,350	3 (0.3%)	3 (0.3%)	4 (0.4%)	13,700	51 (0.4%)	51 (0.4%)	82 (0.7%)
UMass Property/Lower 190 Trapelo Road Property exiting	Linden Street	North of	Middlesex Road	Waltham	650	3 (0.5%)	3 (0.5%)	4 (0.7%)	800	43 (5.5%)	43 (5.5%)	68 (8.7%)	9,400	51 (0.6%)	51 (0.6%)	82 (0.9%)
UMass Property/Lower 190 Trapelo Road Property exiting	Main Street	Linden Street	Weston Street	Waltham	650	3 (0.5%)	3 (0.5%)	4 (0.7%)	800	43 (5.5%)	43 (5.5%)	68 (8.7%)	9,400	51 (0.6%)	51 (0.6%)	82 (0.9%)
School Street	School Street	Exchange Street	Spring Street	Waltham	450	20 (4.7%)	20 (4.7%)	20 (4.7%)	650	20 (3.2%)	20 (3.2%)	20 (3.2%)	6,950	44 (0.7%)	44 (0.7%)	44 (0.7%)
School Street	Bacon Street	South of	School Street	Waltham	600	20 (3.6%)	20 (3.6%)	20 (3.6%)	700	20 (3.0%)	20 (3.0%)	20 (3.0%)	8,650	44 (0.6%)	44 (0.6%)	44 (0.6%)
UMass Property, Lower 190 Trapelo Road Property, School Street, Cedarwood Pumping Station exiting	Weston Street	South Street	Elm Street	Waltham	900	43 (4.9%)	43 (4.9%)	44 (5.0%)	1,050	83 (8.3%)	83 (8.3%)	108 (10.7%)	13,250	141 (1.1%)	141 (1.1%)	170 (1.3%)
Cedarwood Pumping Station	South Street	Morris Street	Drew Street	Waltham	1,050	20 (2.0%)	20 (2.0%)	20 (2.0%)	1,000	20 (2.1%)	20 (2.1%)	20 (2.1%)	11,800	44 (0.4%)	44 (0.4%)	44 (0.4%)

Existing traffic volumes are rounded up to the nearest 50 trips.

¹ Evening peak hour trips are a conservative estimate since construction worker trips are not anticipated to occur in the evening peak hour as shift change is usually at approximately 3:00 PM and the evening peak hour generally occurs between 4:00 PM and 6:00 PM.

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7.2.2.4 Study Area Intersections Construction Period Impacts

The vehicle trips estimated at each Program site were distributed onto the surrounding roadway network based on the anticipated construction vehicle routes. Vehicle trips combine both construction worker trips and diesel truck trips. The TIA provided in **SDEIR Appendix F.1 Updated Transportation Impact Assessment** describes the net new vehicle trips conservatively estimated to travel through each Study Area intersection in each municipality during the morning and evening peak hours for Alternatives 3A and 4A. New vehicle trips conservatively estimated to travel through each Study Area intersection in each municipality during the morning and evening peak hours for Alternative 4B would be the same as those for Alternative 4A, except for those related to the terminus of the North Tunnel, Segment 1 location (Lower 190 Trapelo Road Property receiving shaft site for Alternative 4B, UMass Large Connection site for Alternative 4A), which would instead match those of Alternative 10A.

The Study Area intersections were examined with regard to flow rates, capacity, and delay characteristics to determine the Level of Service (LOS) using the methodology defined in the Highway Capacity Manual² for the existing and future (No-Build and Build) traffic conditions. The LOS is an indicator of operating conditions that occur on a given roadway feature while accommodating varying levels of traffic volumes. It is a qualitative measure that accounts for a number of operational factors, including roadway geometry, speed, traffic composition, peak hour factors, travel delay, freedom to maneuver, and driver expectation. When all of these measures are assessed, and an LOS is assigned to a roadway or intersection, it is equivalent to presenting an “index” to the operational qualities of the section under study. The LOS is classified into six levels that are designated ‘A’ through ‘F’ based on the control delay ranges they fall under. Additionally, a movement with a volume-to-capacity (v/c) ratio of more than 1.00 also has a LOS of ‘F’, regardless of delay. These are presented in **Table 7-4** for signalized and unsignalized intersections.

Table 7-4 Level of Service Criteria at Unsignalized and Signalized Intersections

Level of Service (LOS)	Unsignalized Intersection Control Delay (Seconds) per Vehicle	Signalized Intersection Control Delay (Seconds) per Vehicle
A	≤10	≤10
B	>10 and ≤15	>10 and ≤20
C	>15 and ≤25	>20 and ≤35
D	>25 and ≤35	>35 and ≤55
E	>35 and ≤50	>55 and ≤80
F	>50 or v/c ≥1.00	>80 or v/c ≥1.00

v/c = Volume-to-Capacity Ratio

Source: Transportation Research Board, National Academies of Sciences, Engineering, and Medicine, *Highway Capacity Manual 7th Edition*, Washington, D.C., 2022.

Table 7-5 and **Table 7-6** summarize the Study Area intersection operational analyses for Existing, No-Build, and Temporary Construction conditions during the morning and evening peak hours at the

2 Transportation Research Board, National Academies of Sciences, Engineering, and Medicine, *Highway Capacity Manual 7th Edition*, Washington, D.C., 2022.

intersections near sites along the northern terminus of the North Tunnel, Segment 1. Detailed analysis results (including delay times and volume-to-capacity ratios) for the intersections surrounding the Lower 190 Trapelo Road Property receiving shaft site (now terminus for North Tunnel, Segment 1 of Alternative 4B) were previously provided in **SDEIR Appendix F.2, Intersection Operational Analysis**, as part of Alternative 10A. The intersection operational analysis results for all other Program sites for Alternative 4B would remain the same as previously provided for Alternative 4/4A in **DEIR Appendix F.3, Intersection Operational Analysis Results**.

The No-Build condition projects traffic volumes into the future construction year using a background growth rate but assumes the Program will not take place and no additional trips are added. Build (i.e., final) conditions assume that construction will take place. This methodology conforms with the MassDOT TIA Guidelines.³

Table 7-5 Study Area Intersection Operational Analysis: Morning Peak Hour – North Tunnel, Segment 1

Study Area Intersection	Existing	No-Build	Alternative 3A/4A	Alternative 4B
	LOS	LOS	LOS	LOS
Trapelo Road at Lexington Street (Waltham)				
Trapelo Rd. EB L	D	D	D	D
Trapelo Rd. EB T	C	C	C	C
Lexington St. WB L	D	D	D	D
Lexington St. WB T	D	D	D	D
Trapelo Rd. WB R	C	C	C	C
Trapelo Rd. NB L	D	D	D	D
Trapelo Rd. NB T	D	D	D	D
Lexington St. SB L	D	D	D	D
Lexington St. SB T	C	C	C	C
Overall Intersection	D	D	D	D
Trapelo Road at Waverley Oaks Road (Waltham)				
Trapelo Rd. EB T	C	C	D	E
Trapelo Rd. WB L	F	F	F	F
Trapelo Rd. WB T	A	A	A	A
Waverley Oaks Rd. NB L	C	C	C	C
Overall Intersection	F	F	F	F

³ Massachusetts Department of Transportation, *Transportation Impact Assessment (TIA) Guidelines*, updated September 21, 2017, <https://www.mass.gov/doc/transportation-impact-assessment-guidelines> (accessed February 6, 2024).

Table 7-5 Study Area Intersection Operational Analysis: Morning Peak Hour – North Tunnel, Segment 1

Study Area Intersection	Existing	No-Build	Alternative 3A/4A	Alternative 4B
	LOS	LOS	LOS	LOS
Beaver Street at Waverley Oaks Road (Waltham)				
Beaver St. EB L	E	E	E	E
Beaver St. EB T	C	C	C	C
Beaver St. WB L	D	D	D	D
Beaver St. WB T	C	C	C	C
Waverley Oaks Rd. NB L	D	D	D	D
Waverley Oaks Rd. NB T	C	C	C	C
Waverley Oaks Rd. NB R	C	C	C	C
Waverley Oaks Rd. SB L	D	D	D	D
Waverley Oaks Rd. SB T	C	C	C	C
Waverley Oaks Rd. SB R	B	B	B	B
Overall Intersection	C	C	C	C
Main Street at Ellison Park/Linden Street (Waltham)				
Main St. EB L	F	F	F	F
Main St. EB T	E	E	E	E
Main St. WB T	D	E	E	E
Linden St. NB T	C	C	C	C
Main St. SB L	B	B	B	B
Main St. SB T	B	B	B	B
Main St. SB L	D	D	D	D
Main St. SB R	F	F	F	F
Overall Intersection	F	F	F	F
Main Street at Elm Street (Waltham)				
Main St. EB L	A	A	A	A
Main St. EB T	B	B	B	B
Main St. EB R	F	F	F	F
Main St. WB L	A	A	A	A
Main St. WB T	B	B	B	B
Elm St. NB T	D	D	D	D
Overall Intersection	C	D	D	D

Table 7-5 Study Area Intersection Operational Analysis: Morning Peak Hour – North Tunnel, Segment 1

Study Area Intersection	Existing	No-Build	Alternative 3A/4A	Alternative 4B
	LOS	LOS	LOS	LOS
Main Street at Moody Street (Waltham)				
Main St. EB T	B	B	B	B
Main St. EB R	B	B	B	B
Main St. WB L	F	F	F	F
Main St. WB TR	B	B	B	B
Moody St. NB L	B	B	B	B
Moody St. NB T	B	B	B	B
Moody St. NB R	C	C	C	C
Overall Intersection	E	E	E	E
Main Street at Bacon Street (Waltham)				
Main St. EB L	C	C	C	C
Main St. EB T	F	F	F	F
Main St. WB T	C	C	C	C
Main St. NB T	F	F	F	F
Bacon St. SB L	D	D	D	D
Bacon St. SB T	F	F	F	F
Bacon St. SB R	F	F	F	F
Overall Intersection	F	F	F	F
Main Street at Weston Street/ South Street (Waltham)				
Main St. EB T	B	B	B	B
Weston St. WB L	B	B	B	B
Weston St. WB T	C	C	C	C
Main St. NE L	A	A	A	A
Main St. NE R	A	A	A	A
Overall Intersection	B	B	B	B

Table 7-5 Study Area Intersection Operational Analysis: Morning Peak Hour – North Tunnel, Segment 1

Study Area Intersection	Existing	No-Build	Alternative 3A/4A	Alternative 4B
	LOS	LOS	LOS	LOS
Shakespeare Road at South Street (Waltham) [Unsignalized Intersection]				
South St. NEB LTR	A	A	A	A
Pump Station Driveway NB LTR	D	D	D	D
South St. SWB LTR	A	A	A	A
Shakespeare Rd. SB LTR	D	E	E	E
River Road at South Avenue (Weston)				
South Ave. NEB L	F	F	F	F
South Ave. NEB T	B	B	B	B
I-95 S Exit 39A off-ramp LT	D	D	F	F
I-95 S Exit 39A off-ramp R	B	B	B	B
South Ave. WB L	F	F	F	F
South Ave. WB T	B	B	F	F
River Rd. SB L	C	C	C	C
River Rd. SB T	C	C	C	C
River Rd. SB R	A	A	A	A
Overall Intersection	D	D	E	E
I-95 N Off Ramp at South Avenue/Commonwealth Ave (Weston)				
South Ave. EB T	B	A	B	B
I-95 N off-ramp L	C	B	E	E
I-95 N off-ramp R	B	B	B	B
Commonwealth Ave. WB T	B	C	B	B
Commonwealth Ave. WB TR	C	C	C	C
Overall Intersection	A	B	C	C
Park Road at South Avenue (Weston)				
South Ave. EB T	D	D	D	D
South Ave. EB R	A	A	A	A
Park Rd. NB L	D	D	D	D
Park Rd. NB LR	D	D	D	D
South Ave. WB L	E	E	E	E
South Ave. WB T	C	C	C	C
Overall Intersection	C	C	C	C

Abbreviations:

EB = Eastbound

NB = Northbound

L=Left

R=Right

WB = Westbound

SB = Southbound

T=Through

LOS=Level of Service

Table 7-6 Study Area Intersection Operational Analysis Results: Evening Peak Hour – North Tunnel, Segment 1

Study Area Intersection	Existing	No-Build	Alternative 3A/4A	Alternative 4B
	LOS	LOS	LOS	LOS
Trapelo Road at Lexington Street (Waltham)				
Trapelo Rd. EB L	D	D	D	D
Trapelo Rd. EB T	C	C	C	C
Lexington St. WB L	E	E	E	E
Lexington St. WB T	D	D	D	D
Trapelo Rd. WB R	C	C	C	C
Trapelo Rd. NB L	D	E	E	E
Trapelo Rd. NB T	D	D	D	D
Lexington St. SB L	D	D	D	D
Lexington St. SB T	D	D	D	D
Overall Intersection	D	D	D	D
Trapelo Road at Waverley Oaks Road (Waltham)				
Trapelo Rd. EB T	C	C	C	C
Trapelo Rd. WB L	F	F	F	F
Trapelo Rd. WB T	A	A	A	A
Waverley Oaks Rd. NB L	F	F	F	F
Overall Intersection	F	F	F	F
Beaver Street at Waverley Oaks Road (Waltham)				
Beaver St. EB L	E	F	F	F
Beaver St. EB T	C	C	C	C
Beaver St. WB L	D	D	D	D
Beaver St. WB T	C	C	C	C
Waverley Oaks Rd. NB L	D	D	D	D
Waverley Oaks Rd. NB T	D	D	D	D
Waverley Oaks Rd. NB R	C	C	C	C
Waverley Oaks Rd. SB L	D	D	D	D
Waverley Oaks Rd. SB T	C	C	C	C
Waverley Oaks Rd. SB R	C	C	C	C
Overall Intersection	C	C	C	C

Table 7-6 Study Area Intersection Operational Analysis Results: Evening Peak Hour – North Tunnel, Segment 1

Study Area Intersection	Existing	No-Build	Alternative 3A/4A	Alternative 4B
	LOS	LOS	LOS	LOS
Main Street at Ellison Park/Linden Street (Waltham)				
Main St. EB L	F	F	F	F
Main St. EB T	D	D	D	D
Main St. WB T	D	D	D	D
Linden St. NB T	C	C	C	C
Main St. SB L	C	C	C	C
Main St. SB T	C	C	C	C
Main St. SB L	C	C	C	C
Main St. SB R	F	F	F	F
Overall Intersection	F	F	F	F
Main Street at Elm Street (Waltham)				
Main St. EB L	A	A	A	A
Main St. EB T	B	B	B	B
Main St. EB R	D	D	D	D
Main St. WB L	A	A	A	A
Main St. WB T	B	B	B	B
Elm St. NB T	D	D	D	D
Overall Intersection	C	C	C	C
Main Street at Moody Street (Waltham)				
Main St. EB T	B	B	B	B
Main St. EB R	B	B	B	B
Main St. WB L	F	F	F	F
Main St. WB TR	B	B	B	C
Moody St. NB L	B	B	B	B
Moody St. NB T	B	B	B	B
Moody St. NB R	C	C	C	C
Overall Intersection	F	F	F	F
Main Street at Bacon Street (Waltham)				
Main St. EB L	A	A	A	A
Main St. EB T	C	C	C	C
Main St. WB T	A	A	B	B
Main St. NB T	A	A	A	A
Bacon St. SB L	C	C	C	C
Bacon St. SB T	F	F	F	F
Bacon St. SB R	B	B	B	B
Overall Intersection	F	F	F	F

Table 7-6 Study Area Intersection Operational Analysis Results: Evening Peak Hour – North Tunnel, Segment 1

Study Area Intersection	Existing	No-Build	Alternative 3A/4A	Alternative 4B
	LOS	LOS	LOS	LOS
Main Street at Weston Street/South Street (Waltham)				
Main St. EB T	D	D	D	D
Weston St. WB L	A	A	A	A
Weston St. WB T	E	E	E	E
Main St. NE L	A	A	A	A
Main St. NE R	A	A	A	A
Overall Intersection	C	C	C	C
Shakespeare Road at South Street (Waltham) [Unsignalized Intersection]				
South St. NEB LTR	A	A	A	A
Pump Station Driveway NB LTR	C	C	C	C
South St. SWB LTR	A	A	A	A
Shakespeare Rd. SB LTR	D	D	E	E
River Road at South Avenue (Weston)				
South Ave. NEB L	D	D	D	D
South Ave. NEB T	B	B	B	B
I-95 S Exit 39A off-ramp LT	F	F	F	F
I-95 S Exit 39A off-ramp R	A	A	A	A
South Ave. WB L	F	F	F	F
South Ave. WB T	A	A	A	A
River Rd. SB L	F	F	F	F
River Rd. SB T	F	F	F	F
River Rd. SB R	A	A	A	A
Overall Intersection	D	D	E	E
I-95 N Off Ramp at South Avenue/Commonwealth Ave (Weston)				
South Ave. EB T	C	A	C	C
I-95 N off-ramp L	B	B	B	B
I-95 N off-ramp R	A	B	A	A
Commonwealth Ave. WB T	C	C	C	C
Overall Intersection	B	B	C	C

Table 7-6 Study Area Intersection Operational Analysis Results: Evening Peak Hour – North Tunnel, Segment 1

Park Road at South Avenue (Weston)				
South Ave. EB T	C	C	C	C
South Ave. EB R	A	A	A	A
Park Rd. NB L	C	C	C	C
Park Rd. NB LR	B	B	B	B
South Ave. WB L	C	C	D	D
South Ave. WB T	F	F	F	F
Overall Intersection	D	D	D	D

Abbreviations:

EB = Eastbound

NB = Northbound

L=Left

R=Right

WB = Westbound

SB = Southbound

T=Through

LOS=Level of Service

7.2.2.5 Alternative 3A/Alternative 4A Intersections Construction Period Impacts

Study Area intersections subject to potential temporary increases in traffic volumes during construction of the UMass Property site (SDEIR Alternatives 3A and 4A) are described in **SDEIR Section 9.2.2.5 Alternative 3A/Alternative 4A Intersections Construction Period Impacts (pg. 9-46)**, and remain unchanged.

7.2.2.6 Alternative 4B Intersections Construction Period Impacts

Alternative 4B would utilize the Lower 190 Trapelo Road Property site as a receiving shaft for the terminus of North Tunnel, Segment 1. Study Area intersections subject to potential temporary increases in traffic volumes during construction of the Lower 190 Trapelo Road Property receiving shaft site were described in **SDEIR Section 9.2.2.6, Alternative 10A Intersections Construction Period Impacts (pg. 9-47)** as part of Alternative 10A. The construction period impacts for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described **DEIR Section 4.10.3.4, Study Area Intersections Construction Period Impacts (pg. 4.10-52)**.

7.2.2.7 Near-Surface Piping Construction Traffic Impacts

Near-surface piping for water distribution would be required at some Program sites. Construction of these pipes would require traffic management measures, including lane closures, sidewalk closures, and detours.

Traffic impacts due to construction of the near-surface piping required for the UMass Property site (SDEIR Alternatives 3A and 4A) are described in **SDEIR Section 9.2.2.7, Near -Surface Piping Construction Traffic Impacts (pg. 9-48)**, and remain unchanged.

Traffic impacts due to construction of the near-surface piping required for the Lower 190 Trapelo Road Property receiving shaft site (Alternative 4B) were described in **SDEIR Section 9.2.2.7, Near Surface Piping Construction Traffic Impacts (pg. 9-48)**, as part of Alternative 10A. The impacts due to near-surface piping

construction for all other sites used in Alternative 4B remain the same as DEIR Alternative 4 (and SDEIR Alternative 4A), as described **DEIR Section 4.10.3.5, Surface Piping Construction Impacts (pg. 4.10-52)**.

7.2.2.8 Regional Highway Construction Period Traffic Impacts

The vehicle trips estimated at each shaft site were distributed onto the nearest highway access points. This section describes the maximum net new vehicle trips expected to travel through the highway access points during the morning, evening, and 24-hour volumes in comparison to existing volumes. Vehicle trips combine both construction worker trips and diesel truck trips. As shown in **Table 7-7**, the estimated Program-related vehicle trips at the highway access points are expected to temporarily have a less than 3.5 percent increase in peak hour traffic volumes and a less than 0.7 percent increase in peak 24-hour traffic volumes compared to existing conditions. Program-related vehicle traffic is anticipated to temporarily increase peak 24-hour traffic volumes along highways by approximately 0.2 percent to 0.7 percent for Alternatives 3A, 4A, and 4B. These ranges are consistent with those presented in the SDEIR.

Table 7-7 *Estimated Program-Related Vehicle Trips Compared to Existing Highway Volumes*

Program Site	Roadway	Location	MassDOT Loc ID	AM Peak Hour Trips				PM Peak Hour Trips ¹				24-Hour Trips			
				Existing	Alt 3A	Alt 4A	Alt 4B	Existing	Alt 3A	Alt 4A	Alt 4B	Existing	Alt 3A	Alt 4A	Alt 4B
UMass Property, Lower 190 Trapelo Road Property, Tandem Trailer/Park Road East, Bifurcation, Park Road West, School Street, Cedarwood Pumping Station	I-95	North of I-90	32	10,200	274 (2.7%)	250 (2.5%)	276 (2.7%)	10,900	400 (3.7%)	313 (2.9%)	339 (3.1%)	162,000	1,058 (0.7%)	794 (0.5%)	825 (0.5%)
Tandem Trailer/Park Road East, Bifurcation, Park Road West	I-90	West of I-95	AET10	8,350	188 (2.3%)	164 (2.0%)	164 (2.0%)	9,000	314 (3.5%)	227 (2.6%)	227 (2.6%)	134,000	866 (0.7%)	602 (0.5%)	602 (0.5%)
Highland Ave NE, Highland Ave NW, Hegarty Pumping Station, St. Mary Street Pumping Station, Newton Street Pumping Station	I-95	South of I-90	4165	9,800	178 (1.9%)	226 (2.4%)	226 (2.4%)	10,200	197 (2.0%)	352 (3.5%)	352 (3.5%)	149,000	622 (0.5%)	954 (0.7%)	954 (0.7%)
American Legion, Southern Spine Mains	I-93	South of Route 203	8932	8,700	72 (0.9%)	70 (0.9%)	70 (0.9%)	10,100	120 (1.2%)	106 (1.1%)	106 (1.1%)	169,000	334 (0.2%)	304 (0.2%)	304 (0.2%)

Existing traffic volumes are rounded up to the nearest 50 trips.

¹ Evening peak hour trips are conservative estimate since construction worker trips are not anticipated to occur in the evening peak hour as shift change is usually at approximately 3:00 PM and the evening peak hour generally occurs between 4:00 PM and 6:00 PM.

7.2.3 Transportation Final Conditions

As stated in the SDEIR, due to the nature of the Program, regular trip generation associated with the various sites is not anticipated to be significant once construction is complete. Post-construction (operational) activities are estimated to include an average of two vehicle trips per day at any given location (one trip entering the site and one trip exiting the site). The trips would support infrequent maintenance (e.g., snow clearing, mowing grassed areas, valve replacement) as needed. Therefore, operational analyses for the Final Condition were not evaluated as part of the TIA.

8 Mitigation and Draft Section 61 Findings

8.1 Introduction

The Massachusetts Environmental Policy Act (MEPA) regulations, at 301 Code of Massachusetts Regulations (CMR) 11.07(j), outline mitigation measures to be addressed in the Environmental Impact Report (EIR) process, including an “assessment of physical, biological and chemical measures and management techniques designed to limit negative environmental impacts or to cause positive environmental impacts during development and operation of a Project.” This chapter addresses the Executive Office of Energy and Environmental Affairs (EEA) Secretary’s Certificate on the Supplemental Draft Environmental Impact Report (SDEIR) for the Metropolitan Water Tunnel Program (the Program), which was issued on September 29, 2023. The Certificate on the SDEIR identified a Scope for the Final Environmental Impact Report (FEIR) that requested a separate “Mitigation and Draft Section 61 Findings” chapter summarizing all proposed mitigation measures. As articulated in the Certificate, the Secretary requested that the FEIR:

- Summarize all proposed mitigation measures including construction-period measures.
- Include a comprehensive list of all commitments made by the MWRA to avoid, minimize, and mitigate the impacts of the project.
- Contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.
- Provide the list of mitigation commitments in a tabular format organized by subject matter and identify the Agency Action or Permit associated with each category of impact.
- Include draft Section 61 Findings separately for each Agency Action for the Program.

Refer to **FEIR Chapter 9, Responses to Comments**, for the full list of delineated comments received on the SDEIR, along with a copy of the Secretary’s Certificate and the comment letters received.

Massachusetts General Law Chapter 30, Section 61 (M.G.L. c. 30, § 61) authorizes state agencies with permitting responsibilities to make an official determination regarding potential impacts from a proposed project and whether impacts have been avoided, minimized, and/or mitigated for appropriately. The law requires agencies of the commonwealth to issue a finding describing the environmental impact, if any, of the project, and a finding that all feasible measures have been taken to avoid or minimize that impact.

This chapter summarizes mitigation measures proposed by the MWRA and the Draft Section 61 Findings by Agency for the three Program Alternatives (Alternatives 3A, 4A, and 4B). As described in **FEIR Chapter 1, Program Description and Permitting**, Alternative 4B (the Preferred Alternative) is the same as Draft Environmental Impact Report (DEIR) Alternative 4 and SDEIR Alternative 4A with the exception of terminating the North Tunnel at the Lower 190 Trapelo Road Property near the Waverley Oaks Road entrance, as shown in **FEIR Figure 1-2 (pg. 1-7)**. The Lower 190 Trapelo Road Property site was previously

referred to as the “Lower Fernald Property” when used in and evaluated as part of SDEIR Alternative 10A, which is no longer being carried forward. FEIR Alternative 4B combines the preferred aspects of SDEIR Alternative 4A and 10A and incorporates the City of Waltham’s preferred northern terminus location. Alternative 4B introduces no new tunnel segments, tunnel alignments, shaft sites, shaft site usage (i.e., launching, receiving or large connection), construction methodology, construction schedule or duration as compared to those presented and evaluated in the DEIR and SDEIR.

Avoidance and minimization of impacts would be incorporated into Program design and construction methods, and are described for each environmental resource category in the SDEIR in the following chapters:

- **SDEIR Chapter 2, Alternatives**
- **SDEIR Chapter 3, Outreach and Environmental Justice**
- **SDEIR Chapter 4, Land Alteration and Article 97**
- **SDEIR Chapter 5, Wetlands and Waterways**
- **SDEIR Chapter 6, Water Supply and Water Management Act**
- **SDEIR Chapter 7, Climate Change**
- **SDEIR Chapter 8, Air Quality and Greenhouse Gas Emissions**
- **SDEIR Chapter 9, Transportation**
- **SDEIR Chapter 10, Rare Species and Wildlife Habitat**
- **SDEIR Chapter 11, Noise and Vibration**
- **SDEIR Chapter 12, Cultural and Historic Resources**
- **SDEIR Chapter 13, Hazardous Materials, Materials Handling, and Recycling**

State Agency Actions needed for the Program and Draft Section 61 Findings are described and tabulated in **FEIR Section 8.3**.

8.2 Summary of Mitigation by Resource

The MWRA strives to establish redundancy for the existing Metropolitan Tunnel System while appropriately balancing the direct and indirect impacts to resources and seeking effective mitigation strategies. This iterative process will continue to identify and incorporate additional avoidance and minimization strategies through design, construction, and operation. Impacts to resources are unavoidable for any of the Program Alternatives considered to provide redundancy for the existing Metropolitan Tunnel System.

This section describes the proposed mitigation for construction period and permanent impacts applicable to the following:

- Environmental Justice (EJ)
- Land Alteration, Open Space, and Article 97
- Wetlands and Waterways
- Water Supply and Water Management Act
- Climate Change

- Air Quality and Greenhouse Gas (GHG) Emissions
- Transportation
- Rare Species and Wildlife Habitat
- Noise and Vibration
- Cultural and Historic Resources
- Hazardous Materials

Where practicable, the MWRA will mitigate or compensate for unavoidable impacts. This section provides a summary of Program impacts and required mitigation. As the Program design advances, more site-specific mitigation measures would be identified, and a more defined implementation schedule would be developed.

The analysis in the following section describes efforts to provide mitigation for both construction period and permanent impacts. The proposed mitigation measures by environmental category are summarized in **FEIR Table 8-1**, as previously presented in **SDEIR Chapter 14, Mitigation, Section 14.2, Table 14-2 (pgs. 14-4 to 14-8)**, and updated to include Alternative 4B. The information provided is applicable to either of the three Alternatives: the Preferred Alternative (4B) or the two backup alternatives (3A and 4A).

Table 8-1 Proposed Mitigation Measures by Environmental Category

Environmental Category	Proposed Mitigation Measure	Responsible Party	Approximate Cost	Implementation Schedule
Environmental Justice (EJ)	No separate mitigation required. Mitigations to EJ populations is address through expanded outreach to EJ communities and mitigations of individual environmental categories, i.e., transportation. The Program will provide redundancy to water systems that serve populations including EJ populations and facilitate their continued access to safe drinking water and sewer service.	Not applicable	Not applicable	Not applicable
Land Alteration and Article 97	Revegetate/restore appearance of areas disturbed during construction activities; include fencing and signage as needed.	Contractors	TBD	Construction completion
	Comply with EEA Article 97 Land Disposition Policy process and the requirements of the Public Lands Preservation Act (PLPA) by providing compensatory land of equal or greater value to offset the disposal of land required for the Program and/or by complying with alternative mitigation provisions of the Policy. Obtain subterranean easements for the tunnel alignment where it crosses beneath Article 97 properties in accordance with Article 97 requirements (state review and 2/3 legislature vote).	MWRA	TBD	Prior to construction

Table 8-1 Proposed Mitigation Measures by Environmental Category

Environmental Category	Proposed Mitigation Measure	Responsible Party	Approximate Cost	Implementation Schedule
Wetlands and Waterways	Restore and revegetate areas disturbed by construction, including Bank, Bordering Vegetated Wetlands (BVW) / Vegetated Wetlands (VW), Bordering Land Subject to Flooding (BLSF), Land Under Waterways (LUW) / Waterway (WW) and Riverfront Area (RA).	Contractors	TBD	Construction completion
	Implement erosion control and sedimentation Best Management Practices (BMPs).	Contractors	TBD	During construction
Wetlands and Waterways	Conduct regular inspections and monitoring of discharges in accordance with National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and/or Dewatering and Remediation General Permit (DRGP) to avoid permanent and indirect effects due to construction.	Contractors	TBD	During construction
	Implement Stormwater Pollution Prevention Plan (SWPPP), including appropriate construction measures to prevent siltation.	Contractors	TBD	During construction
	Construct compensatory flood storage volume areas to offset fill for discharge structures within BLSF.	Contractors	TBD	During construction
	Construct stormwater management areas.	Contractors	TBD	During construction
Water Supply and Water Management Act	Conduct preconstruction survey to verify well locations and characteristics.	Contractors	TBD	Prior to construction
	Conduct probing and pre-excavation grouting of water-bearing features in advance of tunnel boring machine (TBM) under certain prescribed conditions.	Contractors	TBD	During construction
	Limit volumes of groundwater inflows to require initiation of pre-excavation and/or post-excavation grouting.	Contractors	TBD	During construction
	Monitor groundwater and implement post-excavation drilling and cut-off grouting in water-bearing features.	Contractors	TBD	During construction
	Monitor groundwater and implement of Water Supply Contingency Plan with alternative sources.	Contractors	TBD	During construction
Climate Change	Construct stormwater management areas that are sized to accommodate the latest recommended design standards.	Contractors	TBD	During construction

Table 8-1 Proposed Mitigation Measures by Environmental Category

Environmental Category	Proposed Mitigation Measure	Responsible Party	Approximate Cost	Implementation Schedule
	Revegetate sites disturbed during construction activities.	Contractors	TBD	Construction completion
Air Quality and Greenhouse Gas (GHG) Emissions	Use alternatively fueled equipment instead of diesel-fueled equipment as feasible.	Contractors	TBD	During construction
	Restrict vehicle idling.	Contractors	TBD	During construction
	Use ultra-low sulfur diesel fuel.	Contractors	TBD	During construction
	Deploy methods to contain dust and debris to the construction site.	Contractors	TBD	During construction
Transportation	When possible, conduct trucking during off-peak hours.	Contractors	TBD	During construction
	If necessary and where appropriate, coordinate with the Massachusetts Department of Transportation (MassDOT) or local municipal officials to adjust traffic signal timings at intersections subject to potential temporary traffic increases.	Contractors	TBD	During construction
	Where possible and as necessary, install near-surface pipelines during off peak hours or at night.	Contractors	TBD	During construction
	Accommodate bikes and pedestrians through on-street work zones.	Contractors	TBD	During construction
	Evaluate the use of trenchless technology construction methods where feasible to limit potential roadway impacts.	Final Design Engineers	TBD	Prior to construction
	Restripe crosswalks at select sites where near-surface piping is to be laid.	Contractors	TBD	During construction
	Maintain two-way traffic whenever possible and one lane traffic at a minimum.	Contractors	TBD	During construction
	Rare Species and Wildlife Habitat	Revegetate construction areas with native species.	Contractors	TBD
Comply with time of year restrictions for work within potential Northern Long-Eared Bat habitat.		Contractors	TBD	During construction
Noise and Vibration	Establish noise limits through preconstruction noise monitoring. Construction noise monitoring may be conducted at select locations to monitor compliance with established thresholds.	Final Design Engineers	TBD	Prior to construction

Table 8-1 Proposed Mitigation Measures by Environmental Category

Environmental Category	Proposed Mitigation Measure	Responsible Party	Approximate Cost	Implementation Schedule
	Conduct construction vibration monitoring, if necessary, at select locations to avoid no adverse impacts on nearby communities or structures.	Construction Manager	TBD	During construction
	Conduct controlled blasting and test blasts, if necessary, prior to beginning construction to demonstrate that no adverse vibration impacts are anticipated.	Contractors	TBD	During construction
	Outfit construction equipment with noise-control features such as mufflers.	Contractors	TBD	During construction
	Perform construction that generates high amounts of noise and vibration during less sensitive times of day (for example mid-day periods near residences).	Contractors	TBD	During construction
Noise and Vibration	Install temporary noise barriers and other acoustic barriers and enclosures.	Contractors	TBD	During construction
	Use quieter construction equipment and methods that would reduce construction noise such as drilling prior to pile driving.	Contractors	TBD	During construction
	Locate equipment away from sensitive receptors.	Contractors	TBD	During construction
	Maintain ongoing public communication.	MWRA	TBD	Ongoing
	Provide vibration monitoring for sensitive buildings during construction.	Contractor	TBD	During construction
	Provide site specific information about time and nature of construction to adjacent neighborhoods.	MWRA	TBD	Prior to Construction
	Require the contractor to implement and follow a Noise Control Plan (NCP).	MWRA	TBD	Prior to Construction
Cultural and Historic Resources	Provide vibration monitoring for sensitive buildings during construction.	Contractor	TBD	During construction
	Revegetation of construction areas with native species.	Contractors	TBD	Construction Completion
	Prepare an Inadvertent Discovery Plan for unanticipated finding of archaeological resources during construction.	Final Design Engineers	TBD	Prior to Construction
	Provide photo documentation, if requested by the Massachusetts Historical Commission (MHC).	MWRA	TBD	Prior to Construction
	Coordinate review of proposed plans for the affected historic resource, if requested by MHC.	MWRA	TBD	Prior to Construction

Table 8-1 Proposed Mitigation Measures by Environmental Category

Environmental Category	Proposed Mitigation Measure	Responsible Party	Approximate Cost	Implementation Schedule
	Prepare continuation sheets for existing inventoried forms with additional information and photographs of current conditions, if requested by MHC.	MWRA	TBD	Prior to Construction
Hazardous Materials	Assess excavation areas to identify impacted resources.	Final Design Engineer	TBD	Prior to construction
	Develop/implement a Soils and Materials Management Plan (SMMP) for materials handling, testing, and material reuse.	Final Design Engineer/ Contractors	TBD	Prior to construction
	Reuse building materials when possible.	Contractors	TBD	During construction
	Conduct special handling and management of contaminated soil and groundwater.	Contractors	TBD	During construction
Hazardous Materials	Manage fugitive dust through wet suppressions, truck wheel cleaning, covering of truck loads and monitoring siltation controls such as sediment basins, silt bags, or frac tanks, as well as more elaborate treatment systems, if necessary.	Contractors	TBD	During construction

The above table content summarizing mitigation measures by environmental category is from SDEIR Table 14-2, Mitigation Measures by Environmental Category, as previously presented in SDEIR Chapter 14, Mitigation, Section 14.2, Summary of Mitigation by Resource (pgs. 14-4 to 14-8).

TBD: To Be Determined

8.2.1 Environmental Justice

As demonstrated in **SDEIR Chapter 3, Outreach and Environmental Justice**, while the Program is anticipated to result in adverse impacts for some environmental resource areas, no EJ populations would be subject to disproportionate adverse effects in any of the three Alternatives. Refer to **SDEIR Section 3.4, Environmental Justice Impact Assessment (pgs. 3-11 to 3-135)**, for the analysis of potential construction period and final condition impacts on EJ populations. Where environmental impacts require mitigation, the MWRA will implement mitigation measures to address adverse Program impacts as described in the respective environmental resource categories (refer to the following **FEIR Sections 8.2.2 through 8.2.11**); mitigation measures will be implemented for both EJ and non-EJ communities to address impacts.

As described in **FEIR Chapter 2, Outreach and Environmental Justice, Section 2.4, EJ Impact Assessments (pg. 2-9)**, the improved water supply redundancy provided by the Program will benefit both EJ and non-EJ populations. As described in **FEIR Chapter 1, Program Description and Permitting**, the MWRA provides wholesale water and sewer services to 3.1 million people and more than 5,500 businesses in 61 communities in eastern and central Massachusetts, which includes several EJ communities as indicated by the Massachusetts Department of Public Health’s (DPH’s) EJ Tool and the EEA’s Massachusetts 2020 Environmental Justice Populations mapping tool (EJ Maps Viewer). The reliable delivery of water is

essential to protecting public health, providing sanitation and fire protection, and supporting a viable economy in these communities. Construction of the Program would allow the MWRA to take its aging existing water tunnel system offline to be rehabilitated without interrupting water service to over 2.5 million water customers in these communities.

8.2.2 Land Alteration, Open Space, and Article 97

Potential impacts associated with the Program would primarily be related to construction at the surface of the sites (where vertical shafts would connect the deep rock tunnel to the surface), management of material removed from the tunnel, and treatment of groundwater inflow. Construction activities at each shaft site would be contained within the temporary limit of disturbance (LOD) boundary to minimize the area of potential disruptions at the surface. Construction-related activities for the Program would take place primarily underground. The proposed tunnel excavation would use the tunnel boring machine (TBM) and drill-and-blasting excavation techniques to allow for tunnel excavation to occur below the surface with limited disruption to land uses at the surface above. The proposed valve chambers and connecting pipelines would be underground structures with no or minimal surface-level features visible.

The Program is anticipated to result in the creation of up to three acres of new impervious surface compared to existing conditions. The total construction area LOD would encompass up to 42 acres across up to 13 different Program sites, depending on the Alternative.

Some open space and community resources near Program sites would be subject to temporary increases in noise and vibration, traffic, and air quality and GHG emissions during construction activities. Permanent impacts on community resources and open space would be due to acquisition of land and easements. Three Program sites (common to the three Alternatives) would be located on land that may be protected under the EEA Article 97 Land Disposition Policy^{1,2} and may require Article 97 land disposition.³ The land would need to be disposed of to the MWRA following Article 97 legislation, which includes a 2/3 vote of the Legislature. Additionally, subterranean easements would need to be obtained for properties protected by Article 97 that the tunnel alignment passes beneath, which would also trigger Article 97 requirements. The permanent subterranean easements would not change the property use or aboveground conditions, and therefore would not be required to be disposed of, as discussed in **SDEIR Chapter 4, Land Alteration and Article 97**.

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- 1 Commonwealth of Massachusetts, Executive Office of Environmental Affairs, "Article 97 Land Disposition Policy," February 19, 1998, https://www.mass.gov/files/documents/2018/06/06/article97_LandDisposition_Policy.pdf (accessed February 6, 2024).
 - 2 Commonwealth of Massachusetts, "Guidance on Public Lands Preservation Act Implementation," February 2023, <https://www.mass.gov/doc/guidance-on-public-lands-preservation-act-implementation-january-2023/download> (accessed February 6, 2024).
 - 3 Per the Article 97 Land Disposition Policy, "an Article 97 land disposition is defined as a) any transfer or conveyance of ownership or other interests; b) any change in physical or legal control; and c) any change in use, in and to Article 97 land or interests in Article 97 land owned or held by the Commonwealth or its political subdivisions, whether by deed, easement, lease or any other instrument effectuating such transfer, conveyance or change."

8.2.2.1 Land Alteration, Open Space, and Article 97 Construction Period Impacts and Mitigation

Construction-period impacts would be temporary in nature. Trees and vegetation removed during construction activities would be replaced, where required and as appropriate. Estimated areas of impact and associated mitigation measures are summarized in **FEIR Table 8-2** and discussed in the following sections.

Table 8-2 Land Alteration, Open Space, and Article 97 Construction Period Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation
Construction Period Impacts				
Temporary construction area limits of disturbance, in acres (totals may not add due to rounding):				Revegetate areas disturbed during construction, including replacing removed trees where required and as appropriate.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
UMass Property	0.9	0.9	-	
Lower 190 Trapelo Road Property	-	-	2.3	
Tandem Trailer and Park Road East	5.5	5.5	5.5	
Bifurcation	12.2	-	-	
Park Road West	-	2.7	2.7	
Highland Avenue Northwest/Southwest	5.6	8.7	8.7	
Highland Avenue Northeast/Southeast	9.5	9.5	9.5	
American Legion	5.4	5.4	5.4	
School Street	0.6	0.6	0.6	
Cedarwood Pumping Station	0.7	0.7	0.7	
Hegarty Pumping Station	0.3	0.3	0.3	
St. Mary Street Pumping Station	0.6	0.6	0.6	
Newton Street Pumping Station	0.3	0.3	0.3	
Southern Spine Mains	0.5	0.5	0.5	
Hultman Aqueduct Isolation Valve	0.3	0.3	0.3	
Total	42.4	36.1	37.5	

8.2.2.2 Land Alteration, Open Space, and Article 97 Final Conditions Mitigation

Permanent above-ground infrastructure would be limited and include top-of-shaft structures, valve chambers, fencing, signage, vehicle access roads, and parking areas, where applicable and depending on the proposed site. Areas temporarily disturbed during construction activities would be revegetated with native species, where possible. Program sites would be located on state- or municipality-owned land, including sites adjacent to existing MWRA infrastructure and MassDOT right-of-way (ROW) land, and land owned by the Commonwealth of Massachusetts under care, custody, and control of the MWRA. Three sites may require the use of land protected under Article 97, which would require a disposition, and are

described in **SDEIR Section 4.2.3, Land Alteration and Article 97 Resources Final Conditions (pg. 4-42)** and summarized in **FEIR Table 8-3**.

In accordance with the Article 97 Land Disposition Policy, the disposition of Article 97 land can only occur when the following exceptional circumstances are met:

- All other options to avoid Article 97 disposition have been explored and no feasible and substantially equivalent alternatives exist (monetary considerations notwithstanding).
- The disposition of the subject parcel and its proposed use do not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation), as determined by EEA and its agencies.
- As part of the disposition, real estate of equal or greater fair market value or value in use of proposed use, whichever is greater, and significantly greater resource value as determined by EEA and its agencies, are granted to the disposing agency or its designee, so that the mission and legal mandate of EEA and its agencies and the constitutional rights of the citizens of Massachusetts are protected and enhanced.
- The minimum acreage necessary for the proposed use is proposed for disposition and, to the maximum extent possible, the resources of the parcel proposed for disposition continue to be protected.
- The disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies, and mandates of EEA and its appropriate department or division.
- The disposition of a parcel is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests therein to the Commonwealth.

As described in **SDEIR Section 4.2.4, Land Alteration and Article 97 Avoidance, Minimization, and Mitigation (pgs. 4-45 to 4-51)**, the MWRA will comply with the Article 97 Land Disposition Policy process and the requirements of the PLPA by identifying and providing compensatory land of equal or greater value to offset the disposal of land required for the Program and/or by complying with alternative mitigation provisions of the Policy. The MWRA will notify the Secretary of the EEA and the public by submitting the proposed disposition request within the PLPA portal and will perform additional notification as required. A brief alternatives analysis will be prepared in the EEA PLPA portal submission for site use and the MWRA will either select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, the MWRA may request to provide in-lieu funding for all or part of the replacement land.

Additionally, subterranean easements of Article 97 protected open space may be required for properties overlaying the tunnel alignment. As described in **SDEIR Section 4.2.3.3, Tunnel Alignment (pg. 4-43)**, a 1,000-foot corridor around the preliminary tunnel alignment (500 feet on either side) was used to identify existing Article 97 properties that may require a subterranean easement, depending on the final tunnel alignment. Properties that may require a subterranean easement are also listed in **FEIR Table 8-3**.

Table 8-3 Land Alteration, Open Space, and Article 97 Final Conditions Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation
Permanent Impacts				
New impervious area, in acres (totals may not add due to rounding):				An unpaved section of land on each Program site would serve as a stormwater management area and be designed in accordance with the latest Massachusetts Stormwater Handbook published by Massachusetts Department of Environmental Protection (MassDEP).
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
UMass Property	0.1	0.1	-	
Lower 190 Trapelo Road Property	-	-	0.1	
Tandem Trailer and Park Road East	0.2	0.2	0.2	
Bifurcation	0.7	-	-	
Park Road West	-	0.4	0.4	
Highland Avenue Northwest/Southwest	-	-	-	
Highland Avenue Northeast/Southeast	0.7	0.7	0.7	
American Legion	0.5	0.5	0.5	
School Street	-	-	-	
Cedarwood Pumping Station	0.1	0.1	0.1	
Hegarty Pumping Station	0.1	0.1	0.1	
St. Mary Street Pumping Station	0.1	0.1	0.1	
Newton Street Pumping Station	0.1	0.1	0.1	
Southern Spine Mains	0.1	0.1	0.1	
Hultman Aqueduct Isolation Valve	0.1	0.1	0.1	
Total Acres	2.7	2.4	2.4	
Permanent easement or acquisition area, in acres (totals may not add due to rounding):				Include fencing and proper signage surrounding shaft excavation areas, where appropriate. Upon completion of construction, restore the appearance of the sites similar to existing conditions apart from concrete slabs visible at the surface, where applicable.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
UMass Property	0.3	0.3	-	
Lower 190 Trapelo Road Property	-	-	1.4	
Tandem Trailer and Park Road East	1.1	1.1	1.1	
Bifurcation	1.5	-	-	
Park Road West	-	1.1	1.1	
Highland Avenue Northwest/Southwest	-	-	-	
Highland Avenue Northeast/Southeast	1.5	1.5	1.5	
American Legion	3.5	3.5	3.5	
Cedarwood Pumping Station	0.1	0.1	0.1	
Hegarty Pumping Station	0.1	0.1	0.1	
Southern Spine Mains	0.2	0.2	0.2	
Total Acres	8.4	8.0	9.1	

Table 8-3 Land Alteration, Open Space, and Article 97 Final Conditions Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation																																																																																																						
<p>Subterranean easements for the tunnel alignment where it crosses beneath Article 97 properties would be required. This would not be a disposition but would still require a state review and 2/3 legislature vote. The list below includes properties within a 1,000-foot corridor of the preliminary tunnel alignment (500 feet on either side of the alignment). Since the proposed tunnel would be up to approximately 12 feet in diameter, the 1,000-foot corridor represents a conservative estimate of properties that may require a subterranean easement. It is anticipated that a permanent subterranean easement approximately 50 feet wide and 50 feet high centered on the new tunnel would be required for the portion of properties located directly above the tunnel alignment. Subterranean easements will not extend to the ground surface. Depending on final design, properties may include:</p>	<p>While the properties overlaying the tunnel alignment would require a subterranean easement to be approved by 2/3 of the state legislature, this would constitute a disposition of the property. No impacts are expected to the use of the property due to the subterranean easement; the Article 97 goal of no net loss of open space would be maintained. Therefore, compensatory mitigation would not be needed.</p>																																																																																																						
<p>Article 97 Properties Within 1,000-Foot Corridor of Preliminary Tunnel Alignment</p> <table border="1"> <thead> <tr> <th></th> <th>Alt. 3A</th> <th>Alt. 4A</th> <th>Alt. 4B</th> </tr> </thead> <tbody> <tr><td>Cornelia Warren Field</td><td>X</td><td>X</td><td>N/A</td></tr> <tr><td>Waltham Agricultural Fields</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Waltham Woods</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Storer Conservation Area</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Square Pond Woods</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Thompson Playground ¹</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Bobby Connors Playground</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Charles River Reservation I</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>City of Cambridge Water ¹</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>River Road</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Summer Road</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>River Street</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Loring Road Covered Tanks</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Fitzgerald Well</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Hultman Aqueduct</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Nickerson Well</td><td>X</td><td>N/A</td><td>N/A</td></tr> <tr><td>Leo J. Martin Memorial Golf Course</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Hamilton Park/Lower Falls Playground ¹</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Charles River Reservation II</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Cochituate Aqueduct Trail</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Schofield Tennis Courts</td><td>N/A</td><td>X</td><td>X</td></tr> <tr><td>Ouellet Park</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Wellesley Water Supply Land</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>Hurd Brook CR ¹</td><td>X</td><td>X</td><td>X</td></tr> </tbody> </table>		Alt. 3A	Alt. 4A	Alt. 4B	Cornelia Warren Field	X	X	N/A	Waltham Agricultural Fields	X	X	X	Waltham Woods	X	X	X	Storer Conservation Area	X	X	X	Square Pond Woods	X	X	X	Thompson Playground ¹	X	X	X	Bobby Connors Playground	X	X	X	Charles River Reservation I	X	X	X	City of Cambridge Water ¹	X	X	X	River Road	X	X	X	Summer Road	X	X	X	River Street	X	X	X	Loring Road Covered Tanks	X	X	X	Fitzgerald Well	X	X	X	Hultman Aqueduct	X	X	X	Nickerson Well	X	N/A	N/A	Leo J. Martin Memorial Golf Course	X	X	X	Hamilton Park/Lower Falls Playground ¹	X	X	X	Charles River Reservation II	X	X	X	Cochituate Aqueduct Trail	X	X	X	Schofield Tennis Courts	N/A	X	X	Ouellet Park	X	X	X	Wellesley Water Supply Land	X	X	X	Hurd Brook CR ¹	X	X	X			
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Table 8-3 Land Alteration, Open Space, and Article 97 Final Conditions Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation								
Article 97 Properties Within 1,000-Foot Corridor of Preliminary Tunnel Alignment												
	Alt. 3A	Alt. 4A²	Alt. 4B									
Sudbury Aqueduct	X	X	X									
Chester F. Mills Field ¹	X	X	X									
Riverside Terrace ¹	X	X	X									
Charles River Reservation III	X	X	X									
Goddard Christina Conservation Area	X	X	X									
Nahanton Park ¹	X	X	X									
Gables Condominium CR ¹	X	X	X									
Baldpate Meadow	X	X	X									
Skyline Park ¹	X	X	X									
Robert T. Lynch Memorial Golf Course	X	X	X									
Newton Street Parcel	X	X	X									
Arnold Arboretum	X	X	X									
Arborway	X	X	X									
Southwest Corridor Park	X	X	X									
Total	37	37	36									
<p>1 Article 97 status unknown indicates that the Article 97 status of the property was listed as unknown by MassGIS and deed research. As design progresses the properties listed as unknown along the alignment will be confirmed through coordination with the appropriate agencies and municipalities.</p> <p>2 The total number of Article 97 Properties within the 1,000-foot corridor for Alternative 4A alignment has been revised since the SDEIR to correct a minor numerical error. There have been no changes to Alternative 4A or the associated Article 97 Properties.</p> <p>CR = Conservation Restriction</p>												
<p>Acquisition of sites that may be protected under the EEA Article 97 Land Disposition Policy is anticipated to be required, which would require a 2/3 majority vote by the Massachusetts State Legislature:</p> <table border="1"> <thead> <tr> <th>Proposed Site</th> <th>All Alternatives</th> </tr> </thead> <tbody> <tr> <td>American Legion</td> <td>3.5 acres at Morton Street Property</td> </tr> <tr> <td>Hegarty Pumping Station (Article 97 status TBD)</td> <td>0.1 acres of Ouellet Park</td> </tr> <tr> <td>Southern Spine Mains</td> <td>0.2 acres of Southwest Corridor Park/Arborway I</td> </tr> </tbody> </table>				Proposed Site	All Alternatives	American Legion	3.5 acres at Morton Street Property	Hegarty Pumping Station (Article 97 status TBD)	0.1 acres of Ouellet Park	Southern Spine Mains	0.2 acres of Southwest Corridor Park/Arborway I	<p>Comply with EEA Article 97 Land Disposition Policy process and the requirements of the Public Lands Preservation Act (PLPA) by providing compensatory land of equal or greater value to offset the disposal of land required for the Program and/or by complying with alternative mitigation provisions of the Policy.</p> <p>Prepare a brief alternatives analysis in the EEA PLPA portal submission for site use and select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, request to</p>
Proposed Site	All Alternatives											
American Legion	3.5 acres at Morton Street Property											
Hegarty Pumping Station (Article 97 status TBD)	0.1 acres of Ouellet Park											
Southern Spine Mains	0.2 acres of Southwest Corridor Park/Arborway I											

Table 8-3 Land Alteration, Open Space, and Article 97 Final Conditions Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation
	provide in-lieu funding for all or part of the replacement land.

8.2.3 Wetlands and Waterways

Unavoidable permanent impacts to federally jurisdictional Waterway (WW) and state-regulated Land Under Waterway (LUW), and Bordering Land Subject to Flooding (BLSF) would be required due to discharge pipes and associated riprap splash pads necessary for dewatering and to enable future tunnel maintenance at the Tandem Trailer and/or Bifurcation, and Highland Avenue sites.

Temporary and permanent impacts to federally jurisdictional Vegetated Wetland (VW) or WW resources, or state-regulated Bordering Vegetated Wetlands (BVW), LUW, Bank, Riverfront Areas (RA), or BLSF are described below:

- The Program would require temporary impacts to BVW and VW for connection to the existing water supply infrastructure at the American Legion site.
- The Program would require permanent and temporary impacts to LUW/WW, Bank, and BLSF for rip rap splash pads at permanent dewatering discharge locations (Tandem Trailer or Bifurcation and Highland Avenue), depending on the Alternative. Compensatory flood storage volume would be provided at appropriate elevations within the same floodplains.
- The Program would require temporary impacts to RA at the Highland Avenue site for the pipeline to the dewatering discharge location.
- The Program would require temporary impacts to LUW/WW, Bank, and RA at the American Legion site for the discharge pipe and rip rap splash pad at the temporary dewatering discharge location.
- The pipeline connection to Hegarty Pumping Station would require permanent and temporary impacts to RA.
- Permanent impacts to RA would be required for top of shaft/valve structures and associated paved access roads and parking at the Tandem Trailer site and at the Hultman Aqueduct Isolation Valve site.

In accordance with Wetlands Protection Act (WPA) and Clean Water Act (CWA) requirements, mitigation would be provided for all potential permanent and temporary wetland resource impacts. These impacts and associated mitigation measures are summarized in **FEIR Table 8-4** and discussed further in the following sections. The issuance of a Section 401 Water Quality Certification by MassDEP would be required for the discharges of fill into waters of the U.S. for splash pad and pipeline construction. Notice of Intent (NOI) filings pursuant to the WPA would be required for Program construction in Waltham, Weston, Wellesley, Needham, and Boston.

As described in **DEIR Chapter 4.6, Wetlands and Waterways, Section 4.6.7, Avoidance, Minimization, and Mitigation Measures (pg. 4.6-160)**, wetlands and waterways mitigation would include restoration and revegetation of disturbed areas outside the limits of the riprap for impacts to RA and provision of

compensatory flood storage volume within the same floodplain sufficient to offset the volume of flood water displaced by the permanent dewatering discharge infrastructure for impacts to BLSF.

8.2.3.1 Wetlands and Waterways Construction Period Mitigation

To minimize impacts, the following sedimentation and erosion control measures and construction methods would be used:

- The program would incorporate Best Management Practices (BMPs) specified by MassDEP and U.S. Environmental Protection Agency (USEPA) guidelines.
- Proper implementation of the erosion and sedimentation control program would minimize exposed soil areas through sequencing and temporary stabilization, place structures to manage stormwater runoff and erosion, and establish a permanent vegetative cover or other forms of stabilization as soon as practicable. Stabilization measures may include biodegradable and wildlife friendly erosion control blankets and native seed mixes for vegetative stabilization.
- The structural and non-structural practices proposed for the Program would comply with criteria contained in the 2022 National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), including inspection, monitoring, and implementation of corrective actions. Nonstructural practices include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping, and dust control.
- Structural practices would include erosion-control barriers, stabilized construction exits, temporary sediment basins, diversion swales, temporary check dams, catch basin inlet protection, and dewatering filters.
- Silt fence lines, staked straw bales, compost filter tubes and/or similar devices would be installed along the downgradient slopes at each of the limit-of-work lines to provide erosion and sedimentation controls and define the limits of disturbance for contractor(s).

Regular inspection and monitoring of discharges in accordance with the NPDES CGP or USEPA Dewatering and Remediation General Permit (DRGP) would be carried out by construction contractors to avoid permanent, temporary, and indirect effects due to construction site runoff and/or dewatering flows.

Mitigation measures for construction period impacts are summarized in **FEIR Table 8-4**. Mitigation measures identified below are consistent with the DEIR and SDEIR unless otherwise stated.

Table 8-4 Wetlands and Waterways Construction Period Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation
Construction Period Impacts				
Construction staging impact to state regulated Riverfront Areas (RA), in square feet:				Restore and revegetate areas disturbed by construction, including RA. Implement erosion and sedimentation Best Management Practices (BMPs).
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
Tandem Trailer and Park Road East	105,722	105,722	105,722	
Bifurcation	33,987	-	-	
Hegarty Pumping Station	5,757	5,757	5,757	
Hultman Aqueduct Isolation Valve	7,837	7,837	7,837	
Total	153,303	119,316	119,316	
Construction of a near-surface pipeline for a connection to existing water supply infrastructure would cause temporary impacts to state regulated Bordering Vegetated Wetland (BVW) and federally jurisdictional Vegetated Wetland (VW), in square feet:				Restore and revegetate areas disturbed by construction.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
American Legion	1,558	1,558	1,558	
Total	1,558	1,558	1,558	
Temporary Impacts to state regulated Bordering Land Subject to Flooding (BLSF) for construction of rip rap splash pads at dewatering discharge locations, in square feet:				Restore and revegetate areas disturbed by construction. Provide compensatory flood storage volume within the same floodplain sufficient to offset the volume of flood water displaced by the permanent dewatering discharge infrastructure.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
Tandem Trailer	300	300	300	
Bifurcation	250	-	-	
Highland Avenue Sites	1,340	1,340	1,340	
Total	1,890	1,640	1,640	
Construction of dewatering discharge pipes and rip rap splash pads would cause temporary impacts to Bank, in linear feet:				Restore and revegetate areas disturbed by construction.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
Tandem Trailer	8	8	8	
Bifurcation	8	-	-	
Highland Avenue Sites	8	8	8	
American Legion	19	19	19	
Total	43	35	35	

Table 8-4 Wetlands and Waterways Construction Period Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation
Construction Period Impacts				
Construction of dewatering discharge pipes and rip rap splash pads would cause temporary impacts to WW and Land Under Waterway (LUW), in square feet:				Restore the wetland in-place, in-kind upon completion of pipeline construction.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
Tandem Trailer	652	652	652	
Bifurcation	652	-	-	
Highland Avenue Sites	652	652	652	
American Legion	380	380	380	
Total	2,336	1,684	1,684	
Construction of dewatering discharge pipes would cause temporary impacts to RA, in square feet:				Restore the wetland in-place, in-kind upon completion of pipeline construction.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
Highland Avenue Sites	4,322	4,322	4,322	
American Legion	845	845	845	
Total	5,167	5,167	5,167	
Potential Construction Period Impacts				
Potential impacts on wetlands, surface waters on or adjacent to site to be impacted by erosion or sedimentation. All sites				Restore and revegetate areas disturbed by construction, including RA.
				Implement erosion and sedimentation control BMPs.
				Develop of Stormwater Pollution Prevention Plan (SWPPP), including appropriate construction measures to prevent siltation in wetlands and waterways.
Potential impact on surface water quality due to pollutants used in tunnel dewatering discharges, disinfection, and flushing. All sites				Conduct regular inspection and monitoring of treated discharges in accordance with NPDES Construction General Permit (CGP) or Dewatering and Remediation General Permit (DRGP) to avoid permanent and indirect effects due to construction.
Potential for groundwater drawdown due to tunnel inflows temporarily impacting surface water levels. All sites				Limit volumes of groundwater inflows to require initiation of probing and pre-excavation and/or post-excavation grouting.

8.2.3.2 Wetlands and Waterways Final Condition Mitigation

Mitigation would be provided for all proposed impervious cover created at all Program sites. As described in **DEIR Section 4.6.7.8, Compliance with MassDEP Stormwater Management Standards (pg. 4.6-179)**, sites would be designed to meet the Massachusetts Stormwater Standards, which are focused on protecting wetlands and water resources through maintenance of predevelopment conditions for such characteristics as recharge, peak flow rates, and water quality. Low Impact Development (LID) and/or

structural Stormwater Control Measures (SCMs) would be implemented at each site so that each site meets the Stormwater Standards.

The MWRA is committed to meeting state and federal requirements for stormwater and dewatering for the construction period and under the Program’s Final Condition. Mitigation measures for final condition impacts are summarized in **FEIR Table 8-5**. Mitigation measures identified below are consistent with the DEIR and SDEIR unless otherwise stated.

Table 8-5 Wetlands and Waterways Final Condition Impacts and Mitigation

Estimated Impact					Proposed Mitigation
Permanent Impacts					
Permanent impact to state regulated Riverfront Areas (RA), in square feet:					Restore, improve, and revegetate areas disturbed by construction.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
Tandem Trailer and Park Road East	1,685	1,685	1,685		
Hegarty Pumping Station	157	157	157		
Hultman Aqueduct Isolation Valve	2,989	2,989	2,989		
Total	4,831	4,831	4,831		
Impacts to state regulated Bordering Land Subject to Flooding (BLSF) rip rap splash pads at dewatering discharge locations, in square feet:					Provide compensatory flood storage volume equal to the volume occupied by the structure within the same floodplain. Comply with MassDEP Stormwater Management Standards.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
Tandem Trailer	368	368	468		
Bifurcation	368	-	-		
Highland Avenue Sites	660	660	660		
Total	1,396	1,028	1,028		
Permanent impacts to Bank for rip rap splash pads at dewatering discharge locations, in linear feet:					Restore and revegetate areas disturbed outside of the footprint of the splash pad.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
Tandem Trailer	26	26	26		
Bifurcation	26	-	-		
Highland Avenue Sites	26	26	26		
Total	78	52	52		

Table 8-5 Wetlands and Waterways Final Condition Impacts and Mitigation

Estimated Impact				Proposed Mitigation
Permanent Impacts				
Permanent impacts to Waterways (WW) and Land Under Waterway (LUW) for rip rap splash pads at dewatering discharge locations, in square feet:				Restore and revegetate areas disturbed outside of the footprint of the splash pad.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
Tandem Trailer	368	368	368	
Bifurcation	368	-	-	
Highland Avenue Sites	368	368	726	
Total	1,104	736	736	

8.2.4 Water Supply and Water Management Act

As discussed in **SDEIR Chapter 6, Water Supply and Water Management Act**, and **SDEIR Appendix C, Updated Draft Water Supply Contingency Plan**, there would be the potential for groundwater drawdown due to tunnel inflows to temporarily impact water levels in surface waters and wells during construction. Groundwater withdrawal volumes associated with dewatering are estimated to vary between less than 100,000 gallons per day (GPD) up to an estimated 8 million GPD, triggering the need for a WM03 Water Management Withdrawal Permit for construction period withdrawals only. There will be no permanent withdrawals. No impacts to groundwater resources would be anticipated in the Final Condition. The tunnel will convey water that is under higher pressure than the groundwater pressure, thus groundwater will not infiltrate and cannot cause a groundwater drawdown condition. Loss of annual recharge resulting from new impervious area at launching and receiving shaft sites, and connection and isolation valve sites would be minimized and mitigated in accordance with the Stormwater Management Standards as discussed in **SDEIR Section 6.2.3, Water Supply Final Conditions (pg. 6-14)**.

Mitigation would occur for construction period impacts to water supply as described in the following section. There are no permanent impacts associated with water supply. Mitigation measures and impacts are summarized in **FEIR Table 8-6**.

8.2.4.1 Water Supply and Water Management Construction Period Mitigation

In areas of concern, the TBM has the capability to simultaneously drill and pre-excitation grout the tunnel route, which would reduce the volume of groundwater inflow into the tunnel and help mitigate potential impacts to surface waters and water supply wells. These impacts are summarized in **FEIR Table 8-6** and described in detail in the following sections.

The contract documents would specify that the contractor must conduct a pre-construction survey to verify the locations of wells and document well characteristics. The updated Water Supply Contingency Plan (see **SDEIR Appendix C**) includes a summary of mitigation measures the contractor would implement if water supplies would be impacted during construction.

The mitigation to reduce the potential for groundwater inflow and resulting possible drawdown during construction would be probing from the tunnel heading in advance of the excavation to assess water inflows, followed by pre-excavation grouting (also from the tunnel heading) in the event the probing encounters water-bearing features. Probing and pre-excavation grouting would be implemented before the tunnel proceeds beneath select important areas of groundwater well production or beneath local water bodies; the determination for probing (both where this may be required and the number and relative position of probe holes) would be assessed during the final design phase. Construction contract specifications for hard-rock tunnels typically have limits for groundwater inflows into probe holes, which trigger the need for pre-excavation grouting. These limits would also be set during final design.

For cases where groundwater is affected by tunnel excavation even after implementation of the grouting programs, mitigation for disruption of water supply from groundwater wells is to provide users with an alternative water supply until groundwater levels can be restored. For impacted residential irrigation wells, the contractor could arrange for a landscaping service to provide watering of lawns and other outdoor uses. For impacted commercial irrigation wells, like a golf course, water could be provided by MWRA through its existing interconnection to the community. Although most geothermal wells today are closed circuit systems that would not be affected by the tunnel construction, if there are impacted geothermal wells that are non-closed systems, other heating sources, such as use of space heaters or existing oil, electric, or natural gas services could be utilized until the well has returned to pre-construction conditions and the geothermal well can be operated again. In the event of disruption to a surface water, an alternative water supply will be provided until surface water levels can be restored. These mitigation measures are described in the Water Supply Contingency Plan in **SDEIR Appendix C**.

Table 8-6 Water Supply Construction Period Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation
Potential Construction Period Impacts	
Potential for groundwater drawdown. All sites	Perform a pre-construction survey to verify well locations and characteristics. Conduct probing and pre-excavation grouting before the tunnel proceeds beneath select important areas of groundwater well production or beneath local water bodies. Limit the volumes of groundwater inflows to require initiation of pre-excavation and/or post-excavation grouting. Monitor groundwater and implement post-excavation drilling and cut-off grouting in water-bearing features.
Surface water impact or loss of potable or irrigation well along the tunnel alignment. All sites	Implement Water Supply Contingency Plan with alternate source of water.

As described in **DEIR Chapter 4.8, Hazardous Materials, Materials Handling, and Reuse, Section 4.8.5, Construction Period Impacts (pg. 4.8-51)**, the contractor would be responsible for finding suitable locations for reuse or disposal of excavated material from the tunnel excavation. Protocols developed during final design would be followed to identify excavated material that may contain contaminated

materials so that it can be handled appropriately and disposed of at suitable locations. Most of the excavated material from all three Alternatives is anticipated to be clean, crushed rock, which could be reused beneficially at other locations. The final design and contract documents will have testing requirements for disposed materials to comply with the reuse of rock cuttings and/or permit requirements for disposal. Approved disposal sites would comply with regulations to protect public water supplies.

Water management considerations have been made for coldwater fisheries that may be impacted during temporary construction activities. The Tandem Trailer site and the Bifurcation site have been identified as proposed locations for tunnel dewatering, which would discharge to the Seaverns Brook. Seaverns Brook is classified as a coldwater fishery. The MWRA will include language in the contract documents to monitor the ambient temperature of the water in the brook and the temperature of discharge water prior to entering Seaverns Brook. Contract provisions would specify the implementation of mitigation measures, such as underground storage, to lower the temperature of the water to meet the water quality standards before it is discharged.

Sampling and testing of receiving waters would be conducted prior to construction to determine natural background conditions and naturally occurring variations.

As described in **FEIR Chapter 5, Fisheries, Section 5.2 (pgs. 5-1 to 5-5)**, temporary water treatment facilities would be constructed at all launching sites, including the Tandem Trailer site. Contract documents will require that the contractor design and construct the treatment system to meet applicable surface water quality standards for the classification of the receiving water, as required by 314 CMR 4.05 and the associated limits for Dissolved Oxygen, Temperature, pH, Bacteria, Solids, Color and Turbidity, Oil and Grease, and Taste and Odor. Sampling and testing of dewatering flows prior to discharge would be required on an on-going basis to confirm that all criteria are being met. Prior to discharge, all flows would be treated as necessary to meet water quality standards for the receiving waterbody and any other requirements of environmental permits issued for the Program. The temporary water treatment facilities will likely include a variety of treatment means and methods to address the various water quality parameters (see **FEIR Section 5.2.1.1, Water Quality Treatment Measures (pg. 5-4)**).

If deemed appropriate by the Massachusetts Division of Marine Fisheries (DMF) or other regulatory agencies during the detailed design and permitting phase, a time-of-year restriction would be included in contract documents so that construction-period discharges would not involve in-water, silt-producing work from April 15 to July 15.

8.2.5 Climate Change

Although the Environmental Notification Form (ENF) was filed prior to the MEPA Interim Protocol on Climate Change Adaptation and Resiliency (the Interim Protocol)⁴ was issued, the MWRA voluntarily

4 Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, *Massachusetts Environmental Policy Act (MEPA) Interim Protocol on Climate Adaptation and Resiliency*, Effective October 1, 2021, <https://www.mass.gov/doc/mepa-interim-protocol-on-climate-change-adaptation-and-resiliency-effective-oct-1-2021/download>.

evaluated potential climate change-related risks and exposures for the Program as part of the DEIR and with updated sites for the SDEIR. The majority of sites in the Final Condition were identified as being exposed to extreme heat and extreme precipitation causing flooding and all are at risk for not effectively supplying water redundancy during a natural hazard event. These exposures and risk determinations were based on deploying the Resilient Massachusetts’s Action Team Climate Resilience Design Tool (RMAT Tool), which provides guidance to avoid, minimize, and mitigate the predicted impacts associated with climate change. These RMAT Best Practice Design Considerations are summarized in **FEIR Table 8-7**.⁵ These design elements will be considered as the Program proceeds into final design.

No construction-period climate change impacts associated with the Program are anticipated.

Table 8-7 *RMAT Best Practice Design Considerations*

Considerations	Best Practice
Site Suitability (SS)	1. Reduce exposure to climate hazards
	2. Mitigate adverse climate impacts and provide benefits
	3. Protect, conserve, and restore critical natural resources on-site and off-site
Regional Coordination (RC)	1. Assess regional context of vulnerability
	2. Evaluate impacts beyond site-specific design
	3. Optimize capital investment opportunities
	4. Prioritize services and assets that serve vulnerable populations
Flexible Adaptation Pathways (AP)	1. Embed future capacity and design for uncertainty
	2. Design for incremental change
	3. Encourage climate mitigation and other co-benefits
	4. Prioritize nature-based solutions
	5. Prepare for current and future operational and maintenance needs

8.2.5.1 Climate Change Final Condition Mitigation

The following section identifies methods that were outlined in the DEIR and SDEIR to minimize the Program’s exposure to extreme precipitation causing flooding and extreme heat. No climate-related impacts are anticipated to be caused by the Program. Potential climate-related impacts and associated mitigation are summarized in **FEIR Table 8-8** and described in the following sections.

5 Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Resilient Massachusetts Action Team (RMAT), *Climate Resilience Design Standards & Guidelines*, Climate Resilience Design Standards Tool, Version 1.2, *User Guide*, July 2022, https://eea-nescaum-dataservices-assets-prd.s3.amazonaws.com/cms/GUIDELINES/UserGuide_V1.2.pdf.

Table 8-8 Climate Change Impacts and Proposed Mitigation

Possible Climate-Related Impact ¹			Proposed Mitigation																																																
Permanent Impacts																																																			
<p>According to the RMA Tool, Program sites could be exposed to extreme precipitation causing urban or riverine flooding over the Program’s useful life.</p> <table border="1"> <thead> <tr> <th>Proposed Site</th> <th>Exposure to Urban Flooding</th> <th>Exposure to Riverine Flooding</th> </tr> </thead> <tbody> <tr> <td>UMass Property</td> <td>High</td> <td>Moderate</td> </tr> <tr> <td>Lower 190 Trapelo Road Property</td> <td>High</td> <td>Moderate</td> </tr> <tr> <td>Tandem Trailer/Park Road East</td> <td>High</td> <td>High/ Moderate</td> </tr> <tr> <td>Bifurcation</td> <td>High</td> <td>Moderate</td> </tr> <tr> <td>Park Road West</td> <td>High</td> <td>Moderate</td> </tr> <tr> <td>Highland Avenue Northwest/Southwest</td> <td>High</td> <td>Not Exposed</td> </tr> <tr> <td>Highland Avenue Northeast/Southeast</td> <td>High</td> <td>Not Exposed</td> </tr> <tr> <td>American Legion</td> <td>High</td> <td>Moderate</td> </tr> <tr> <td>School Street</td> <td>High</td> <td>Not Exposed</td> </tr> <tr> <td>Cedarwood Pumping Station</td> <td>High</td> <td>Moderate</td> </tr> <tr> <td>Hegarty Pumping Station</td> <td>High</td> <td>Moderate</td> </tr> <tr> <td>St. Mary Street Pumping Station</td> <td>High</td> <td>Not Exposed</td> </tr> <tr> <td>Newton Street Pumping Station</td> <td>High</td> <td>Not Exposed</td> </tr> <tr> <td>Southern Spine Mains</td> <td>High</td> <td>Not Exposed</td> </tr> <tr> <td>Hultman Aqueduct Isolation Valve</td> <td>High</td> <td>Moderate</td> </tr> </tbody> </table>			Proposed Site	Exposure to Urban Flooding	Exposure to Riverine Flooding	UMass Property	High	Moderate	Lower 190 Trapelo Road Property	High	Moderate	Tandem Trailer/Park Road East	High	High/ Moderate	Bifurcation	High	Moderate	Park Road West	High	Moderate	Highland Avenue Northwest/Southwest	High	Not Exposed	Highland Avenue Northeast/Southeast	High	Not Exposed	American Legion	High	Moderate	School Street	High	Not Exposed	Cedarwood Pumping Station	High	Moderate	Hegarty Pumping Station	High	Moderate	St. Mary Street Pumping Station	High	Not Exposed	Newton Street Pumping Station	High	Not Exposed	Southern Spine Mains	High	Not Exposed	Hultman Aqueduct Isolation Valve	High	Moderate	<p>Construct permanent infrastructure to accommodate future flooding conditions.</p> <p>Revegetate sites, including use of loam and seed.</p>
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Extreme Precipitation Causing Flooding

As described below, best practices to reduce potential impacts on critical infrastructure from flooding include incorporating designated stormwater management areas, designing stormwater management systems to manage runoff in accordance with the latest guidelines, and restoring areas disturbed during construction with loam and seed and/or other vegetation where appropriate.

Stormwater Management

Climate change-related risks, including increased precipitation events, would be considered in the design of the proposed stormwater management systems associated with each Program site. Stormwater management compliance is described in **DEIR Section 4.6.7.8, Compliance with MassDEP Stormwater Management Standards (pg. 4.6-179)**. Stormwater management system design and designated stormwater management areas would support the following RMA best practice guidelines:⁶

- SS-2: Mitigate adverse climate impacts and provide benefits.
- AP-1: Embed future capacity and design for uncertainty.
- AP-4: Prioritize nature-based solutions.

Revegetate Sites Including Loam and Seed

Upon completion of the proposed tunnel and near-surface valve vaults and connection piping, areas disturbed during construction would be restored with loam and seed and other native vegetation, which would help diminish flood risk by minimizing additional impervious areas and maintaining existing pervious areas to provide infiltration space for floodwater. It would also reduce erosion risks by providing greater soil cohesion. The School Street connection shaft site would experience a proposed net decrease in impervious surface since the existing paved site would be restored with loam and seed. Other sites would be revegetated after construction with native vegetation. The use of loam and seed and other native revegetation is consistent with the following RMA best practice guidelines:

- SS-2: Mitigate adverse climate impacts and provide benefits.
- SS-3: Protect, conserve, and restore critical natural resources on-site and off-site.
- AP-1: Embed future capacity and design for uncertainty.
- AP-4: Prioritize nature-based solutions.

Extreme Heat

The Program would remove some trees and vegetation during construction-related activities, which would reduce available shade cover at proposed sites. The addition of impervious areas may also increase heat absorption at the sites compared to existing conditions, contributing to the heat island effect.

6 Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Resilient Massachusetts Action Team (RMA), *Climate Resilience Design Standards & Guidelines*, Climate Resilience Design Standards Tool, Version 1.2, *User Guide*, July 2022, https://eea-nescaum-dataservices-assets-prd.s3.amazonaws.com/cms/GUIDELINES/UserGuide_V1.2.pdf.

The Program would replace trees and vegetation where required and as appropriate. Sites disturbed during construction would be restored with loam and seed, which would assist in reducing potential increases in extreme heat risk, as grass does not absorb and reflect as much heat as paved surfaces. The School Street connection site would experience a net decrease in impervious surface since some of the existing paved site would be restored with loam and seed upon completion of construction activities.

Planting trees and landscaping sites after construction, where required and as feasible, would help to recover lost shade and minimize potential increases in extreme heat. By minimizing tree clearing to the extent practicable, planting trees where possible and appropriate, and revegetating sites using loam and seed, the Program would seek to implement the following RMAT best practice guidelines:

- SS-2: Mitigate adverse climate impacts and provide benefits.
- SS-3: Protect, conserve, and restore critical natural resources on-site and off-site.
- AP-1: Embed future capacity and design for uncertainty.
- AP-4: Prioritize nature-based solutions.

8.2.6 Air Quality and Greenhouse Gas Emissions

Air quality and GHG emission impacts were identified from the use of construction equipment, trucks, and transportation during the construction period. There would be no permanent impacts on air quality and GHG emissions because the Final Condition of the Program would generate minimal emissions. A mesoscale analysis resulted in construction period impacts to be general and non-site specific. Mitigation measures are therefore general and would apply to all sites during the construction period.

8.2.6.1 Air Quality and Greenhouse Gas Emissions Construction Period Mitigation

As assumed in the DEIR and SDEIR, the MWRA intends to incorporate the following measures to reduce emissions from Program-related construction activities:

- Where feasible, the MWRA would use electrified construction equipment, including use of an electrified TBM instead of a TBM powered by fossil fuels, which would avoid direct pollutant emissions from one of the largest pieces of construction equipment.
- Contractors would limit vehicle idling time in compliance with the Massachusetts idling regulation (310 CMR 7.11). Idling restriction signs will be placed on the premises to remind drivers and construction personnel of the applicable regulations. Drivers and equipment operators would be trained accordingly.
- Contractors would use Ultra Low Sulfur Diesel fuel, and construction contracts would stipulate that all diesel-fuel construction equipment be fitted with after-engine emission controls. Any non-road diesel equipment would have to be rated 50 horsepower or greater to meet USEPA's Tier 4 emission limits or be retrofitted with appropriate emission-reduction equipment. Emission-reduction equipment could include USEPA-verified or California Air Resources Board (CARB)-verified diesel oxidation catalysts or diesel particulate filters.

- Contractors would be encouraged to use cleaner alternatively fueled equipment (natural gas or electric) rather than diesel-fueled equipment where available and feasible.
- Contractors would be required to implement measures to protect residents, visitors, passengers, and passers-by from off-site exposure to dust and debris.
- Dust control measures would be incorporated to minimize potential fugitive dust emissions associated with construction vehicles tracking dirt and debris offsite and to minimize the potential for strong winds to disperse dry layers of soils temporarily stored onsite. Appropriate methods of dust control would be determined according to the surfaces concerned (roadways or disturbed areas) and would include, as applicable, application of water during ground-disturbing activities; seeding of areas of exposed soils; wheel washing; using covered trucks; and regular sweeping of paved roadways (see also **SDEIR Chapter 9, Transportation**).

8.2.7 Transportation

Consistent with the DEIR and SDEIR, potential impacts to the transportation network may occur temporarily during the construction period, through an increase in vehicle trips to and from the construction sites and physical construction of near-surface pipelines in public roadways at some Program sites. No significant Program-related permanent transportation-related impacts are anticipated.

The primary source of traffic expected to be generated temporarily by the Program would be construction worker trips to and from the sites, as well as trucks hauling equipment and excavated material. Near-surface piping construction at some locations would require traffic management measures, including lane closures, sidewalk closures, and detours.

8.2.7.1 Transportation Construction Period Mitigation

If construction activities were to result in significant traffic congestion during the peak hour, work within the roadway may not be permitted during weekday peak hours, which normally occur from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM in accordance with local ordinances (construction worker trips are not anticipated to occur in the evening peak hour as shift change is approximately 3:00 PM). Coordination with the roadway owner is recommended if the proposed construction work needs to be completed during the weekday peak hours. On heavily traveled urban arterials, work within the roadway may primarily be permitted during off-peak, overnight hours. In some residential areas, work may be restricted to daytime hours to minimize potential disturbance to residents. In some areas, time restrictions also may be used to avoid impacts to routine street sweeping or other activities.

Measures that will be considered to mitigate potential traffic impacts associated with Program-related construction-period activities are summarized in **FEIR Table 8-9**. Most of the potential mitigation measures described in this section would require approval and/or permits from the MassDOT, DCR, or applicable municipalities. The applicability of these measures will be discussed with the municipalities or agencies prior to submitting permit applications. These potential impacts and associated mitigation measures considered are also detailed in **SDEIR Chapter 9, Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation (pg. 9-51)**.

Table 8-9 Potential Transportation Construction Period Impacts and Proposed Mitigation

Potential Construction Period Impact		Proposed Mitigation
Temporary increase in traffic at local intersections.		When possible and as necessary, conduct trucking during off-peak hours.
Town (Program Sites)	Intersections	
Waltham (UMass Property, Lower 190 Trapelo Road Property, School Street, and Cedarwood Pumping Station)	Trapelo Rd. at Lexington St. Waverley Oaks Rd. at Trapelo Rd. Beaver St. at Waverley Oaks Rd. Main St. at Linden St./Ellison Park Elm St. at Main St. Moody St. at Main St. Bacon St. at Main St. Weston St. at Main St. South St. at Weston St. Shakespeare Rd. at South St.	
Weston (Tandem Trailer, Park Road East, Bifurcation, Park Road West, and Hultman Aqueduct Isolation Valve)	River Rd. at South Ave. I-95 N Off Ramp at South Ave. Park Rd. at South Ave.	
Wellesley (Hegarty Pumping Station)	Worcester St. at Cedar St.	
Needham (Highland Avenue Sites, St. Mary Street Pumping Station)	Cedar Avenue at Cedar St.	
Brookline (Newton Street Pumping Station)	Grove Street at Newton St. Newton St. at Clyde St. Dudley Street at Lee St. Lee St. at Route 9 Chestnut Hill Avenue at Route 9 Hammond Street at Route 9	When possible, conduct trucking during off-peak hours.
Boston (Southern Spine Mains, and American Legion)	Canterbury Ln. at Morton St. Morton St. at Harvard St. Morton St. at Blue Hill Ave. Morton St. at Norfolk St. Morton St. at Corbet St. Morton St. at Gallivan Blvd. Gallivan Blvd. at Washington St. Gallivan Blvd. at Dorchester Ave. Gallivan Blvd. at Granite Ave./Adams St. Gallivan Blvd. at Hallet St. Gallivan Blvd. at Neponset Ave. Neponset Ave. at Morrissey Blvd. South St. at Washington St. South St. at Arborway Washington St. at Arborway Arborway at Circuit Dr.	
Temporary increase in traffic at intersections along construction vehicle routes:		

Table 8-9 Potential Transportation Construction Period Impacts and Proposed Mitigation

Potential Construction Period Impact		Proposed Mitigation
Town (Program Sites)	Intersections	
Waltham (UMass Property, Lower 190 Trapelo Road Property, School Street, and Cedarwood Pumping Station)	Trapelo Road at Waverly Oaks Road Main St. at Ellison Park/ Linden St.	
Weston (Tandem Trailer, Park Road East, Bifurcation, Park Road West, and Hultman Aqueduct Isolation Valve)	River Rd. at South Ave. Park Rd. at South Ave. (Alt. 4A and 4B) I-95 Northbound off-ramp at South Ave./Commonwealth	
Needham (Highland Avenue Sites, St. Mary Street Pumping Station)	Cedar Avenue at Cedar St.	
Newton (no sites, traffic from Newton Street Pumping Station)	Woodward St./Elliot St. at Route 9	
Brookline (Newton Street Pumping Station)	Newton St. at Clyde St.	
Boston (Southern Spine Mains, and American Legion)	Morton St. at Blue Hill Ave. Morton St. at Norfolk St. South St. at Washington St.	
Temporary impacts to bicycle and pedestrian pathways during installation of near-surface piping. Southern Spine Mains: temporary bicycle and pedestrian detour along the Arborway.		Accommodate bikes and pedestrians through on-street work zones. Maintain safe access at all times.
Installation of near-surface piping requiring traffic management and/or local detours.		Install during off-peak and overnight hours, where possible and as necessary, to minimize potential disturbance to traffic, bicyclists, and pedestrians.
Proposed Site	Location	
UMass Property	Beaver Street and Waverley Oaks Road	
Lower 190 Trapelo Road Property	Waverley Oaks Road	
Highland Avenue Sites	Brook Road, Wexford Road, and Freemont Street	Where possible and as appropriate, restripe crosswalks with high-visibility markings and construct Americans with Disabilities Act (ADA)-compliant curb ramps with detectable warning panels on each corner where existing crosswalks or curb ramps are impacted.
American Legion	American Legion Highway and Morton Street	
School Street	School Street	
Southern Spine Mains	Arborway	Maintain two-way traffic whenever possible and one lane traffic at a minimum. Provide temporary local detours where necessary.
Temporary increase in truck traffic: Routes along Program sites		When possible and as necessary, conduct trucking during off-peak hours.

Intersection Operations

Study Area intersections subject to potential temporary increases in delay associated with Program-related construction activities could be mitigated, if necessary and where appropriate, by adjusting the traffic signal timings.

The maximum amount of temporary Program-related traffic would occur at tunnel launching shaft sites where there is a shift change conservatively modeled to take place during the evening peak hour (construction worker trips are not expected to occur during the evening peak hour as shift change is usually at approximately 3:00 PM). Launching shaft locations (i.e., Tandem Trailer, Bifurcation, and Highland Avenue sites) are adjacent to highway ramps and are therefore not expected to cause a significant traffic impact to nearby local roadways.

Any alterations in the vicinity of the I-90/I-95 interchange in Weston will be closely coordinated with the MassDOT interchange reconstruction project (MassDOT Project No. 606783), which is expected to begin construction in 2023 and conclude in 2027.

Sensitive Receptors

Safe access to sensitive receptors will be maintained at all times (refer to **DEIR Appendix F.4, Transportation Impact Assessment, Section F.4.7.1, Sensitive Receptors [pg. F.4-16]**).

Bicycles and Pedestrians

Bicycles and pedestrians will be accommodated through all on-street work zones. Specific details will be worked out through the final design process.

Near-Surface Piping

Near-surface piping installed in public roadways would have potential temporary impacts on traffic and roadways. Details on roadways subject to potential impacts are provided in **FEIR Table 8-9**. Depending on the site, mitigation measures may include:

- Install near-surface piping during off-peak and/or overnight hours where possible and as necessary, to minimize potential disturbance to traffic, bicyclists, and pedestrians.
- Where possible and as appropriate, restripe crosswalks with high-visibility markings and construct Americans with Disabilities Act (ADA)-compliant curb ramps with detectable warning panels on each corner where existing crosswalks or curb ramps are impacted.
- Maintain two-way traffic whenever possible. If not possible, maintain at least one-way traffic.
- Evaluate and implement trenchless technologies where feasible.

8.2.8 Rare Species and Wildlife Habitat

Program-related construction-period impacts to rare species and wildlife habitat include potential impacts to habitat for the federally and state-endangered Northern Long-Eared Bat (NLEB), which is regulated by the federal Endangered Species Act (ESA) and the Massachusetts Endangered Species Act (MESA), and monarch butterflies, which are a federally listed candidate species. Additionally, tree clearing to accommodate construction activities may impact other wildlife. In the final conditions, ongoing inspection and maintenance activities at Program sites are not anticipated to impact listed species.

Consultation with the Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP) confirmed the Program would not be subject to review under MESA (MGL c131A) and its implementing regulations (321 CMR 10.00). As described in **FEIR Chapter 6, Rare Species, Section 6.2, Avoidance and Minimization of Impacts to State-Listed Species (pgs. 6-1 to 6-4)**, none of the proposed Program sites include any identified habitats for state-listed rare species. Consequently, potential impacts to state-listed species and their habitat due to surface construction have been avoided.

8.2.8.1 Rare Species and Wildlife Habitat Construction Period Mitigation

During construction, compliance with applicable time of year restrictions on tree cutting and other protective measures specified in the applicable U.S. Fish and Wildlife Service 4(d) Rule for the NLEB will be required at all sites with tree clearing. As recommended by the NHESP, the MWRA would require the contractor to check the latest ESA guidance at periodic intervals to ensure work remains in compliance with the ESA and MESA, including any potential changes to listed species or modifications to guidance.

Sites disturbed during construction would have vegetation restored with the planting of native trees and plants. In accordance with recommendations set forth by the NHESP, all plants and seed mixes used for landscaping or revegetation of areas disturbed during construction shall be composed of species native to the respective county in accordance with *The Vascular Plants of Massachusetts: A County Checklist First Revision*.⁷ Per the NHESP, state-listed plants and seeds shall not be used for landscaping or revegetation of areas disturbed during construction. The MWRA will require the contractor to carefully review seeds and plantings at the time of sourcing against the NHESP's latest listing of Endangered, Threatened, and Special Concern species protected under MESA to ensure they are not state-listed species.⁸

As described in **FEIR Section 6.2 (pgs. 6-1 to 6-4)** and as shown on **FEIR Figure 6-1**, one NHESP Priority Habitat of Rare Species/Estimated Habitat of Rare Wildlife polygon (PH 1301/EH 935) was identified within the 2,000-foot-wide Study Area corridor centered around the preliminary tunnel alignment. The polygon is associated with the Bald Eagle, a state-listed species of Special Concern. Given the existing vibration levels in the habitat polygon, the minimal vibration expected from Program construction at more than 600 feet away from the Cedarwood Pumping Station connection shaft site, located behind the

7 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, *The Vascular Plants of Massachusetts: A County Checklist*, First Revision, 2011 (Dow Cullina, M, B Connolly, B Sorrie, and P Somers), <https://www.mass.gov/doc/the-vascular-plants-of-massachusetts-a-county-checklist/download>.

8 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, "List of Endangered, Threatened, and Special Concern Species," updated January 10, 2020, <https://www.mass.gov/info-details/list-of-endangered-threatened-and-special-concern-species#list-of-species->.

Stanley Elementary School, and the preliminary tunnel alignment (where the tunnel would be approximately 300 feet below ground), and that construction near the polygon would be completed in less than three months, no significant impacts are anticipated. As described in **FEIR Section 8.2.9.1, Noise and Vibration Construction Period Mitigation**, best practices would be implemented to minimize the potential for perceptible vibration. Additionally, to protect wildlife such as the Bald Eagle, the MWRA will develop a rodent control plan that will include requirements to not use toxic Second Generation Anticoagulant Rodenticides (SCARs).

Potential impacts and associated mitigation measures are summarized in **FEIR Table 8-10**.

Table 8-10 Rare Species and Wildlife Habitat Construction Period Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation
Construction Period Impacts				
Tree clearing to accommodate construction activities (acres):				Revegetate areas disturbed during construction with native species, including replace removed trees where required and as appropriate.
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	
UMass Property	0.2	0.2	-	
Lower 190 Trapelo Road Property	-	-	1.1	
Tandem Trailer and Park Road East	0.9	0.9	0.9	
Bifurcation	6.1	-	-	
Park Road West	-	0.2	0.2	
Highland Avenue Northwest/Southwest	2.5	2.5	2.5	
Highland Avenue Northeast/Southeast	-	-	-	
American Legion	1.5	1.5	1.5	
School Street	-	-	-	
Cedarwood Pumping Station	0.1	0.1	0.1	
Hegarty Pumping Station	0.2	0.2	0.2	
St. Mary Street	-	-	-	
Newton Street Pumping Station	0.1	0.1	0.1	
Southern Spine Mains	0.3	0.3	0.3	
Hultman Aqueduct Isolation Valve	-	-	-	
Total	11.9	6.0	6.9	
Potential Construction Period Impacts				
Potential incidental take of federally and state-listed Northern Long-Eared Bat (<i>Myotis septentrionalis</i> ; NLEB) due to tree clearing. Changes in habitat characteristics due to construction activities. All sites				Revegetate construction areas with native species. Comply with time of year restrictions for work within potential NLEB habitat.

8.2.9 Noise and Vibration

Construction activities would cause temporary noise and vibration impacts to some sites requiring mitigation, as discussed in **SDEIR Chapter 11, Noise and Vibration**. There would be no permanent noise and vibration impacts on sensitive receptors in the Program’s Final Condition.

8.2.9.1 Noise and Vibration Construction Period Mitigation

Potential impacts and associated mitigation measures are summarized in **FEIR Table 8-11** and discussed in detail in the following sections. The MWRA will require that the contractor develop and follow a Noise Control Plan (NCP) for the duration of the Program. The NCP will include noise level criteria that the contractor will have to meet, as well as a construction noise monitoring program. Prior to the start of work, the contractor will submit the NCP to the MWRA for review and approval. The NCP will include preconstruction noise monitoring to help establish construction noise limits, estimates of construction noise levels during each phase of construction, alternative noise mitigation measures to be implemented by the contractor (as needed), procedures for noise measurements to confirm equipment noise emission levels, public outreach requirements, and an outline of a complaint resolution process. The NCP will detail the contractor's strategy and means to comply with contract-specific noise limits. Copies of the NCP would be maintained in each field office where work is being performed. See **SDEIR Section 11.2.4, Noise Avoidance, Minimization, and Mitigation (pgs. 11-20 to 11-21)**, for an example list of requirements that may be included in a NCP.

Construction noise avoidance, minimization, and mitigation measures would be implemented as practicable to minimize the potential for impacts to noise-sensitive receptors. The following are construction noise control methods and best practices that could be implemented at construction sites, as feasible and reasonable, where there would be potential construction noise impact:

- Outfit construction equipment with noise-control features such as mufflers.
- Deploy properly functioning equipment and schedule maintenance to avoid louder operation associated with mechanical issues.
- Locate especially noisy construction equipment, such as pumps and air compressors, away from sensitive receptor locations, as feasible.
- Use quieter equipment and methods, as feasible, such as smaller backhoes and excavators, predrilling in lieu of or prior to pile driving during support of excavation, electric power instead of diesel-generators, and concrete saws to breakup pavement prior to excavation rather than hoe rams or jackhammers.
- Where possible, perform certain construction activities during periods of the day that are less sensitive to noise (e.g., midday periods near residences or evening periods near schools).
- Install temporary noise barriers around the perimeter of the equipment at the construction site or along the sides of the construction site that are adjacent to noise-sensitive receptors. Temporary noise barriers are often constructed using 3- to 4-foot-tall concrete highway barriers with plywood (3/4-inch or thicker) installed on top or chain-linked fencing with acoustical curtains. Noise barriers up to approximately 12- or 15-foot tall can be constructed using these materials. When noise barriers break the line-of-sight between the construction equipment and the receptors, they can reduce noise by 10 dBA or more.
- Place smaller stationary equipment such as air compressors, generators, and pumps in portable acoustic enclosures. Enclosures around the shaft/tunnel pump system would be installed when no other construction activities are slated to occur during the evening/nighttime hours to mitigate impacts to nearby receptors.

- Maintain strong communication with the public regarding the Program and continue Program-specific public outreach to keep the public informed of the schedule of construction activities and to respond to potential concerns.
- Provide site-specific information about the time and nature of construction activities to adjacent neighbors.

No construction vibration impact associated with potential structural damage is anticipated, therefore, specific avoidance, minimization, and mitigation measures are not required. However, standard construction practices would be implemented to minimize the potential for perceptible vibration. These practices include:

- Performing pre-construction surveys for all nearby structures.
- Including limits for maximum allowable ground borne vibration in construction documents.
- Including an instrumentation and monitoring plan to continuously evaluate construction activities with proper mitigation plans.
- Performing construction activities that generate vibration during less sensitive periods of the day, where possible (e.g., mid-day periods near residences or evening periods near schools).
- Using construction methods that generate less vibration when adjacent to sensitive buildings, where possible (e.g., pre-drilling prior to pile driving, or drilling in lieu of pile driving).

Table 8-11 Noise and Vibration Construction Period Impacts and Proposed Mitigation

Potential Impact				Proposed Mitigation
Construction Period				
Exceedance of Housing and Urban Development (HUD) or Massachusetts Department of Environmental Protection (MassDEP) nighttime noise limits would occur prior to mitigation.				Install temporary noise barriers and other acoustic barriers.
				Locate equipment away from sensitive receptors.
		Night level	Day-night level	Perform construction that generates high amounts of noise and vibration during less sensitive times of day (for example mid-day periods near residences).
Proposed Site	Alt.			
UMass Property	3A, 4A		X	
Lower 190 Trapelo Road Property	4B		X	Use quieter construction equipment and methods that would reduce construction noise such as drilling prior to pile driving.
Tandem Trailer and Park Road East	All		X	
American Legion	All		X	Regularly service construction equipment to ensure proper function and outfit with noise control features.
School Street	All		X	
Cedarwood Pumping Station	All		X	Maintain ongoing public communication.
Hegarty Pumping Station	All		X	
St. Mary Street Pumping Station	All		X	
Newton Street Pumping Station	All		X	

Table 8-11 Noise and Vibration Construction Period Impacts and Proposed Mitigation

Potential Impact	Proposed Mitigation
<p>Potential for vibration damage or impact to interior conditions would be from impact pile driving that may occur during excavation.</p> <p>Southern Spine Mains site: The William A. Hinton State Laboratory Institute at the Massachusetts Department of Public Health (DPH) is approximately 400 feet from the proposed Southern Spine Mains site. Since the proposed shaft location would be approximately 400 feet or farther from the DPH building, both exterior and interior vibration levels would be below the applicable impact thresholds. Therefore, no potential vibration impact would be anticipated at the DPH building and there would be no need for mitigation measures.</p> <p>School Street site: The St. Mary’s Roman Catholic Church Complex is approximately 200 feet from the proposed limits of work associated with the School Street site and therefore not at risk of structural damage from vibration; no potential impacts to stained glass would be anticipated.</p>	<p>Construction noise and/or vibration monitoring may be conducted throughout the Program to monitor the noise and vibration levels in nearby communities. Should monitored levels be above the established thresholds for impact, mitigation may be required.</p> <p>The MWRA will direct the contractor to not deploy pile-driving measures during construction activities at the Southern Spine Mains site.</p>

8.2.10 Cultural and Historic Resources

Consistent with the DEIR and SDEIR, there would be no detrimental construction-period impacts on cultural and historic resources. In Alternative 4B, construction period disturbance and permanent impacts on cultural and historic resources would occur from the demolition of up to three contributing resources within the Walter E. Fernald State School (WLT.AB) and would lead to a direct adverse effect on the historic district. This impact, however, would be minimized by the specific location of the buildings proposed for demolition, which are away from the Walter E. Fernald State School and the core of the associated Historic District. Program-related activities would not jeopardize the listing of the Walter E. Fernald State School Historic District (WLT.AB) as described in **DEIR Appendix E, Historic/Cultural Resources Supporting Documentation, E.1, Agency Correspondence**.

8.2.10.1 Cultural and Historic Resources Construction Period Mitigation

For all Alternatives, the distance from the School Street connection shaft site to St. Mary’s Roman Catholic Church is beyond the area of potential impact; however, as needed, monitoring for vibration during connection shaft construction would be put in place to protect the integrity of the church’s stained-glass windows. The MWRA will also prepare an Inadvertent Discovery Plan, should anticipated archaeological resources be found during construction. See **FEIR Table 8-12** for anticipated construction period impacts. Revegetation of areas disturbed during construction activities would take place after construction at all Program sites.

Table 8-12 Cultural and Historic Resources Construction Period Impacts and Proposed Mitigation

Estimated Impact		Proposed Mitigation
Construction Period Impacts		
Town	All Alternatives	
Waltham	Lower 190 Trapelo Road Property site (site disturbance)	Revegetate disturbed areas, including loam and seed and tree and shrub plantings; specifics to be determined in cooperation with the municipality and/or landowner in final design.
Waltham	St. Mary's Roman Catholic Church (possible vibration)	Monitor vibration as necessary.
All sites		Prepare an Inadvertent Discovery Plan.

8.2.10.2 Cultural and Historic Resources Final Condition Mitigation

Prior to the demolition of the three resources at the Lower 190 Trapelo Road Property (Alternative 4B), the MWRA would continue to consult with the Massachusetts Historical Commission (MHC) regarding ways to avoid, minimize, or mitigate the adverse effects to the Walter E. Fernald State School Historic District (WLT.AB). Final condition mitigation measures are shown in **FEIR Table 8-13**.

Table 8-13 Cultural and Historic Resources Final Condition Impacts and Proposed Mitigation

Estimated Impact		Proposed Mitigation
Permanent Impacts		
Demolition of three contributing resources, which would result in a direct adverse effect on the historic district.		Provide photo documentation, if requested by the Massachusetts Historical Commission (MHC).
Proposed Site	All Alternatives	Coordinate review of proposed plans for the affected historic resource, if requested by MHC.
Lower 190 Trapelo Road Property (4B)	Two contributing resources within the Walter E. Fernald State School	Prepare continuation sheets for existing inventoried forms with additional information and photographs of current conditions, if requested by MHC.

8.2.11 Hazardous Materials

Due to the presence of documented releases of oil and/or hazardous materials near and/or within Program sites and considering the generally developed nature of the Program area, there is the potential to encounter oil and/or hazardous materials and urban fill that would require special handling and management during construction phases of all Alternatives. Spills and leaks associated with vehicles, concrete plants, and heavy machinery would be mitigated through spill response programs that would specify emergency response procedures for spill and leak events. In the unlikely event that a spill or discharge occurred during construction phases of the Program, it may also be necessary to contact regulatory agencies such as the National Response Center, the USEPA, or MassDEP. There would be no permanent hazardous materials impacts in the Program's Final Condition.

8.2.11.1 Hazardous Materials Construction Period Mitigation

Spills and leaks associated with vehicles, concrete plants, and heavy machinery would be mitigated through spill response programs that would specify emergency response procedures for spill and leak events. Depending on the nature of the spill or discharge to the environment, it may also be necessary to contact regulatory agencies such as the National Response Center, the USEPA, or MassDEP. There would be no permanent impacts from hazardous materials. These potential impacts and associated mitigation are summarized in **FEIR Table 8-14** and discussed in detail below. Details on the specific mitigation activities follow the table and include additional mitigation as well.

Table 8-14 Hazardous Materials Construction Period Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation
Potential Construction Impacts	
Potential of discovery of contaminated soil or groundwater during construction, however the Program would have a positive impact by reducing exposure to surrounding receptors. All sites	Assess excavation areas to identify impacted resources. Develop and implement a Soils and Materials Management Plan (SMMP) for materials handling, testing, and material reuse. Reuse building materials when possible. Conduct special handling and management of contaminated soil and groundwater. Manage fugitive dust through wet suppressions, truck wheel cleaning, covering of truck loads and monitoring siltation controls such as sediment basins, silt bags, or frac tanks, as well as more elaborate treatment systems, if necessary.

Management of Impacted Soil

A Program-wide Soils and Materials Management Plan (SMMP) would be developed during final design to manage all soil and excavated material including contaminated and uncontaminated materials encountered during construction. SMMPs provide procedures for materials handling during construction, including procedures for stored or containerized material, and testing procedures for sampling material prior to off-site disposal or on-site reuse. In addition, the contractor will implement BMPs for material storage and other BMPs developed specifically for construction sites to prevent the potential for cross-contamination and potential exposures to surrounding sensitive receptors such as surface water bodies, wetlands, and nearby residences. These BMPs will be detailed in the site-specific NPDES Stormwater Pollution Prevention Plan (SWPPP) to be developed and implemented by the contractors.

Properties with confirmed oil and hazardous materials (OHM) impacts will be managed in accordance with the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000; the Program-wide SMMP; and associated policies or guidance issued by MassDEP. Depending on the type and concentrations of OHM present at a property, however, other federal regulations implemented by the USEPA may apply (e.g., Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and/or Resource Conservation and Recovery Act).

Preliminary assessments would help identify the type and quantity of OHM-impacted media requiring management under these protocols and would help with selecting the optimal disposal methods and/or destination prior to generation. Based on the antidegradation policy and a pre-risk screening, which would be performed by the contractor to determine the risk associated with the current and foreseeable use of the property, it could be possible to reuse soil that is above the MCP standards within the Program, as long as regulatory endpoints could be met.

Under the MCP, notification to the MassDEP would be required if a reporting condition is identified, such as when OHM is detected in the soil and/or groundwater above the applicable standards, referred to as Reportable Concentrations. Contract documents and the Program-wide SMMP would state that the contractor hire a licensed site professional (LSP) who would:

- Verify that notification is required.
- Further assess and manage the site.
- Develop direct response actions.
- In accordance with the MCP, specify procedures for work, such as soil excavation, performed in the contaminated areas.
- Render appropriate opinions.
- Determine if risk-reduction measures are required.

Based on the concentrations of OHM in the soil, soil shipment documentation (e.g., Bill of Lading, manifest, Material Shipping Record) would be prepared for soil to be disposed of off-site at an appropriate disposal facility.

Soil and groundwater handling and management during construction would be conducted in accordance with the appropriate submittals (e.g., Release Abatement Measures, Immediate Response Actions, and/or Soil Management Plans), including appropriate permits and permissions. The MWRA would also work with the other responsible parties that oversee response actions at disposal sites within the Study Area to coordinate work.

Management of Hazardous Building Materials and Demolition Debris

Based on the age of the buildings proposed to be demolished at the Lower 190 Trapelo Road Property site (Alternative 4B), asbestos containing materials (ACMs), including roof flashing, tiles, and other materials, may be present. Lead-based paint, mercury, and polychlorinated biphenyl (PCBs) may also be present in building materials and/or fixtures. Prior to demolition, a licensed asbestos and hazardous materials contractor would sample the building material as well as suspected lead-based paint, mercury, and PCBs. If these hazardous materials were found to be present in the structures, they would be removed in accordance with state regulations by a licensed contractor and disposed of at a licensed receiving facility.

The MWRA will make every effort to reuse building materials, such as asphalt, brick, and concrete—as their reuse could reduce disposal costs and may not require a permit. The reuse would depend on whether they are coated with a contaminant or considered “contaminated” based on the concentrations of contaminants on the material.

The disposal of the ACMs outside the jurisdictional boundaries of the Commonwealth would comply with applicable laws and regulations of the state receiving the material. Pursuant to 310 CMR 16.05, ACMs, including asphaltic asbestos felts or shingles, may not be disposed of at a facility operating as a recycling facility.

Management of Impacted Groundwater

Contaminated groundwater encountered during construction would be managed in accordance with applicable regulations. An USEPA NPDES CGP or a USEPA Dewatering and Remediation General Permit (DRGP) to discharge to surface waters or authorization from the appropriate local authorities for discharge to a municipal stormwater management system would be obtained to manage dewatering effluent during construction.

A DRGP may be required during construction dewatering where groundwater is suspected or confirmed to be impacted. In locations where OHM-impacted groundwater is not anticipated to be encountered, there would be the potential for naturally occurring contaminants to be present in groundwater, which may require a USEPA NPDES DRGP to facilitate discharge.

In all cases, contract documents would require that groundwater collected at each construction site be treated prior to discharge to meet applicable regulatory requirements. Depending on site-specific conditions such as the existing groundwater quality and the dewatering methods selected by the contractor, groundwater management protocols would include siltation controls such as sediment basins, silt bags, or frac tanks, as well as more elaborate treatment systems, if necessary, to meet discharge state and federal permits requirements. Additional details on management of groundwater discharges, including triggers for using a NPDES DRGP rather than the 2022 CGP, are provided in **DEIR Section 4.6.5.4, Tunnel Dewatering and Disinfection (pg. 4.6-150)**.

Health and Safety Requirements

Health and safety procedures are governed by the Occupational Safety and Health Administration (OSHA). Construction workers involved in performing the response actions would have the appropriate health and safety training in accordance with OSHA, which mandates procedures that must be followed to protect them from exposure to contaminated media.

Mitigation measures during construction would include special handling, dust control, and management and disposal of contaminated soil and groundwater. These measures prevent construction delays and protect workers and nearby sensitive receptors.

Fugitive dust would be minimized using dust-related mitigation measures such as wet suppression, truck wheel cleaning, and covering of truck loads and stockpiles. Dust monitoring would be conducted during excavation, and a monitoring plan would be detailed in the contractor health and safety plans.

8.3 Draft Section 61 Findings

Massachusetts General Law Chapter 30, Section 61 (M.G.L. c. 30, § 61) authorizes state agencies with permitting responsibilities to make an official determination regarding potential impacts from a proposed project and whether impacts have been avoided, minimized, and/or mitigated for appropriately. The law requires agencies of the commonwealth to issue a finding describing the environmental impact, if any, of the project, and a finding that all feasible measures have been taken to avoid or minimize that impact.

In addition to compliance with MEPA, State Agency Actions would be needed for the Program by the following state agencies:

- Massachusetts Department of Environmental Protection (MassDEP)
- Massachusetts Department of Transportation (MassDOT)
- Massachusetts Department of Conservation and Recreation (DCR)
- Massachusetts Bay Transportation Authority (MBTA)

State Agency Actions needed for the Program are listed in **FEIR Table 8-15**. Permits and approvals that are site specific are noted were applicable. See **FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32)** for a list of all federal, state, and municipal permits and approvals the Program may require.

Table 8-15 Potential State Actions

Agency/Department	Permit/Approval/Action	Status
Commonwealth of Massachusetts		
Massachusetts Department of Environmental Protection (MassDEP)	Water Management Act Permit	To be obtained
	Chapter 91 Licenses	To be obtained, if needed
	Superseding Order of Conditions, upon appeal ¹	To be obtained, if needed
	Section 401 Water Quality Certificate ¹	To be obtained
	Distribution System Modification	To be obtained
Massachusetts Department of Transportation (MassDOT)	Land disposition/easements ¹	To be obtained
	Highway Access/Construction Access Permits ¹	To be obtained
Department of Conservation and Recreation (DCR)	Land disposition/easements ¹	To be obtained
	Construction/Access Permits ¹	To be obtained
Massachusetts Bay Transportation Authority (MBTA)	MBTA Right of Way Access License Agreement	To be obtained, if needed
Massachusetts Historical Commission (MHC)	Review pursuant to MGL Ch. 9, Section 26-27C (Section 61 Findings not applicable)	Underway through MEPA review process

¹ Indicates that the permit or approval is site specific.

Note: This is a preliminary list of state permits and approvals that may be sought for the Program. This list is based on current information about the Program and is subject to change as the design of the Program progresses.

The remaining sections of this chapter include the proposed draft Section 61 Findings for the applicable agencies listed above. Anticipated impacts, proposed mitigation measures, and site-specific information are included in the draft findings.

8.3.1 Draft Section 61 Finding: Massachusetts Department of Environmental Protection

Project Name: Metropolitan Water Tunnel Program

Project Location: Waltham, Weston, Newton, Wellesley, Needham, Brookline, Boston

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16355

Date Noticed in Monitor: December 22, 2023

Applicable State Action/Permits:

- Water Management Act Permit
- Chapter 91 Licenses
- Section 401 Water Quality Certificate
- Distribution System Modification

This Section 61 Finding for the Metropolitan Water Tunnel Program (EEA 16355) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the Program were characterized and quantified in the Metropolitan Water Tunnel Program Draft Environmental Impact Report (DEIR), Supplemental Draft Environmental Impact Report (SDEIR), and in this Final Environmental Impact Report (FEIR) and are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the MWRA has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the Program. Where impacts are not avoidable, the MWRA has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the Program to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Department of Environmental Protection (MassDEP) finds that there are no significant unmitigated impacts.

*The MWRA recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the Metropolitan Water Tunnel Program, is central to its responsibilities under MEPA. Accordingly, the MWRA has prepared a Table of Mitigation Commitments (see **FEIR Table 8-16** and **FEIR Table 8-17**) that specifies, for each potential state permit, the mitigation that the MWRA would provide. In the Table of Mitigation Commitments, the MWRA provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon Program phasing.*

MassDEP has reviewed the MEPA filings for the Metropolitan Water Tunnel Program and finds that the environmental impacts resulting from construction of the Metropolitan Water Tunnel Program are those impacts as described in the DEIR, SDEIR, and FEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, MassDEP finds that with the implementation of mitigation measures as identified in the Table

of Mitigation Commitments, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the Metropolitan Water Tunnel Program. In making this finding, MassDEP has considered reasonably foreseeable climate change impacts and environmental justice impacts.

Wetlands and Waterways

Unavoidable permanent impacts to federally jurisdictional Waterway (WW) and state-regulated Land Under Waterway (LUW), and Bordering Land Subject to Flooding (BLSF) would be required due to discharge pipes and associated riprap splash pads necessary for dewatering and to enable future tunnel maintenance at the Tandem Trailer and/or Bifurcation, and Highland Avenue sites.

As described in **FEIR Chapter 1, Program Description and Permitting, Section 1.5.3.10, MassDEP Chapter 91 License (pgs. 1-36 to 1-37)**, since the filing of the DEIR, the Program has determined that construction within waterways may be exempt from requiring a Chapter 91 License. All work being completed on, in, over, or under waterways would be installed in accordance with 310 CMR 9.05(3)(g), which states:

“(g) placement in a non-tidal river or stream subject to jurisdiction under 310 CMR 9.04(1)(e) of fill or structures for which a final Order of Conditions has been issued under M.G.L. c. 131, § 40 and 310 CMR 10.00: Wetlands Protection, and which does not reduce the space available for navigation; such fill or structures are limited to:

- overhead wires, conduits, or cables to be attached to an existing bridge, without substantial alteration thereof, or constructed and maintained in accordance with the National Electrical Safety Code;*
- fish ladders, fishways, and other devices which allow or assist fish to pass by a dam or other obstruction in the waterway;*
- pipelines, cables, conduits, sewers, and aqueducts entirely embedded in the soil beneath such river or stream; and*
- bulkheads, revetments, headwalls, storm drainage outfalls, and similar structures which do not extend into such river or stream, except as may be necessary for bank stabilization.”*

In accordance with 310 CMR 9.05(3)(g)(3) the tunnel would be entirely embedded in the soil (or bedrock) beneath the waterway. In accordance with 310 CMR 9.05(3)(g)(4), proposed outfalls and splash pads would not extend into the waterway or adjacent wetland. The placement of rip rap splash pads and tunneling of the structure below waterways would not reduce the space available for navigation and therefore may not require Chapter 91 authorization. See **SDEIR Chapter 5, Wetlands and Waterways, Table 5-15 (pgs. 5-51 to 5-56)**, for further details. Further consultation would be completed during final design to determine applicability of any Chapter 91 exemptions to proposed Program elements and/or requirements to comply with Chapter 91 regulations should the Program not meet exemption criteria.

Temporary and permanent impacts to federally jurisdictional Vegetated Wetland (VW) or WW resources, or state-regulated Bordering Vegetated Wetlands (BVW), LUW, Bank, Riverfront Areas (RA) or BLSF are described below:

- The Program would require temporary impacts to BVW and VW for connection to the existing water supply infrastructure at the American Legion site.
- The Program would require permanent and temporary impacts to LUW/WW, Bank, and BLSF for rip rap splash pads at permanent dewatering discharge locations (Tandem Trailer or Bifurcation and Highland Avenue), depending on the Alternative. Compensatory flood storage volume would be provided at appropriate elevations within the same floodplains.
- The Program would require temporary impacts to LUW/WW, Bank and RA at the American Legion site for rip rap splash pads at the temporary dewatering discharge location.
- The pipeline connection to Hegarty Pumping Station would require permanent and temporary impacts to RA.
- Permanent impacts to RA would be required for top of shaft/valve structures and associated paved access roads and parking at the Tandem Trailer site and at the Hultman Aqueduct Isolation Valve.

In accordance with Wetlands Protection Act (WPA) and Clean Water Act (CWA) requirements, mitigation would be provided for all proposed permanent and temporary wetland resource impacts. These impacts and associated mitigation measures are summarized in **FEIR Table 8-16**. The issuance of a Section 401 Water Quality Certification by MassDEP would be required for the discharges of fill into waters of the U.S. for splash pad and pipeline construction. Notice of Intent filings pursuant to the WPA would be required for Program construction in Waltham, Weston, Wellesley, Needham, and Boston.

Mitigation measures would remain the same as described in **DEIR Chapter 4.6, Wetlands and Waterways, Section 4.6.7, Avoidance, Minimization, and Mitigation Measures (pg. 4.6-160)**. Measures would include restoration and revegetation of disturbed areas outside the limits of the rip rap for impacts to RA and provision of compensatory flood storage volume within the same floodplain sufficient to offset the volume of flood water displaced by the permanent dewatering discharge infrastructure for impacts to BLSF.

Construction Period Mitigation

To minimize impacts, the following sedimentation and erosion control measures and construction methods would be used:

- The Program would incorporate BMPs specified by MassDEP and USEPA guidelines.
- Proper implementation of the erosion and sedimentation control program would minimize exposed soil areas through sequencing and temporary stabilization, place structures to manage stormwater runoff and erosion, and establish a permanent vegetative cover or other forms of stabilization as soon as practicable. Stabilization measures may include biodegradable and wildlife friendly erosion control blankets and native seed mixes for vegetative stabilization.
- The structural and non-structural practices proposed for the Program would comply with criteria contained in the 2022 National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), including inspection, monitoring, and implementation of corrective actions. Nonstructural practices include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping, and dust control.

- Structural practices include erosion-control barriers, stabilized construction exits, temporary sediment basins, diversion swales, temporary check dams, catch basin inlet protection, and dewatering filters.
- Silt fence lines, staked straw bales, compost filter tubes and/or similar devices would be installed along the downgradient slopes at each of the limit-of-work lines to provide erosion and sedimentation controls and define the limits of disturbance for contractor(s).

Regular inspection and monitoring of discharges in accordance with the NPDES CGP (or Dewatering and Remediation General Permit [DRGP]) would be carried out by construction contractors to avoid permanent, temporary, and indirect effects due to construction site runoff and/or dewatering flows.

Mitigation measures for construction period impacts are summarized in **FEIR Table 8-16**.

Table 8-16 State Wetland and Waterway Resources Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation	Responsible Party/Schedule
Construction Period Impacts					
Construction staging impact to state regulated Riverfront Areas (RA), in square feet:				Restore and revegetate areas disturbed by construction, including RA.	Contractor/Construction Completion
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
Tandem Trailer and Park Road East	105,722	105,722	105,722	Implement erosion and sedimentation Best Management Practices (BMPs).	Contractor/During Construction
Bifurcation	33,987	-	-		
Hegarty Pumping Station	5,757	5,757	5,757		
Hultman Aqueduct Isolation Valve	7,837	7,837	7,837		
Total	153,303	119,316	119,316		
Construction of a near-surface pipeline for a connection to existing water supply infrastructure would cause temporary impacts to state regulated Bordering Vegetated Wetland (BVW) and federally jurisdictional Vegetated Wetland (VW), in square feet:				Restore and revegetate areas disturbed by construction.	Contractor/Construction Completion
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
American Legion	1,558	1,558	1,558		
Total	1,558	1,558	1,558		

Table 8-16 State Wetland and Waterway Resources Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation	Responsible Party/Schedule																								
<p>Temporary Impacts to state regulated Bordering Land Subject to Flooding (BLSF) for construction of rip rap splash pads at dewatering discharge locations, in square feet:</p> <table border="1"> <thead> <tr> <th>Proposed Site</th> <th>Alt. 3A</th> <th>Alt. 4A</th> <th>Alt. 4B</th> </tr> </thead> <tbody> <tr> <td>Tandem Trailer</td> <td>300</td> <td>300</td> <td>300</td> </tr> <tr> <td>Bifurcation</td> <td>250</td> <td>-</td> <td>-</td> </tr> <tr> <td>Highland Avenue Sites</td> <td>1,340</td> <td>1,340</td> <td>1,340</td> </tr> <tr> <td>Total</td> <td>1,890</td> <td>1,640</td> <td>1,640</td> </tr> </tbody> </table>	Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	Tandem Trailer	300	300	300	Bifurcation	250	-	-	Highland Avenue Sites	1,340	1,340	1,340	Total	1,890	1,640	1,640	<p>Restore and revegetate areas disturbed by construction.</p> <p>Provide compensatory flood storage volume within the same floodplain sufficient to offset the volume of flood water displaced by the permanent dewatering discharge infrastructure</p>	<p>Contractor/Construction Completion</p> <p>Contractor/Construction Completion</p>				
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B																							
Tandem Trailer	300	300	300																							
Bifurcation	250	-	-																							
Highland Avenue Sites	1,340	1,340	1,340																							
Total	1,890	1,640	1,640																							
<p>Construction of dewatering discharge pipes and rip rap splash pads would cause temporary impacts to Bank, in linear feet:</p> <table border="1"> <thead> <tr> <th>Proposed Site</th> <th>Alt. 3A</th> <th>Alt. 4A</th> <th>Alt. 4B</th> </tr> </thead> <tbody> <tr> <td>Tandem Trailer</td> <td>8</td> <td>8</td> <td>8</td> </tr> <tr> <td>Bifurcation</td> <td>8</td> <td>-</td> <td>-</td> </tr> <tr> <td>Highland Avenue Sites</td> <td>8</td> <td>8</td> <td>8</td> </tr> <tr> <td>American Legion</td> <td>19</td> <td>19</td> <td>19</td> </tr> <tr> <td>Total</td> <td>43</td> <td>35</td> <td>35</td> </tr> </tbody> </table>	Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	Tandem Trailer	8	8	8	Bifurcation	8	-	-	Highland Avenue Sites	8	8	8	American Legion	19	19	19	Total	43	35	35	<p>Restore and revegetate areas disturbed by construction.</p>	<p>Contractor/Construction Completion</p>
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B																							
Tandem Trailer	8	8	8																							
Bifurcation	8	-	-																							
Highland Avenue Sites	8	8	8																							
American Legion	19	19	19																							
Total	43	35	35																							
<p>Construction of dewatering discharge pipes and rip rap splash pads would cause temporary impacts to Waterways (WW) and Land Under Waterway (LUW), in square feet:</p> <table border="1"> <thead> <tr> <th>Proposed Site</th> <th>Alt. 3A</th> <th>Alt. 4A</th> <th>Alt. 4B</th> </tr> </thead> <tbody> <tr> <td>Tandem Trailer</td> <td>652</td> <td>652</td> <td>652</td> </tr> <tr> <td>Bifurcation</td> <td>652</td> <td>-</td> <td>-</td> </tr> <tr> <td>Highland Avenue Sites</td> <td>652</td> <td>652</td> <td>652</td> </tr> <tr> <td>American Legion</td> <td>380</td> <td>380</td> <td>380</td> </tr> <tr> <td>Total</td> <td>2,336</td> <td>1,684</td> <td>1,684</td> </tr> </tbody> </table>	Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	Tandem Trailer	652	652	652	Bifurcation	652	-	-	Highland Avenue Sites	652	652	652	American Legion	380	380	380	Total	2,336	1,684	1,684	<p>Restore the wetland in-place, in-kind upon completion of pipeline construction.</p>	<p>Contractor/Construction Completion</p>
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B																							
Tandem Trailer	652	652	652																							
Bifurcation	652	-	-																							
Highland Avenue Sites	652	652	652																							
American Legion	380	380	380																							
Total	2,336	1,684	1,684																							
<p>Construction of dewatering discharge pipes would cause temporary impacts to RA, in square feet:</p> <table border="1"> <thead> <tr> <th>Proposed Site</th> <th>Alt. 3A</th> <th>Alt. 4A</th> <th>Alt. 4B</th> </tr> </thead> <tbody> <tr> <td>Highland Avenue Sites</td> <td>4,322</td> <td>4,322</td> <td>4,322</td> </tr> <tr> <td>American Legion</td> <td>845</td> <td>845</td> <td>845</td> </tr> <tr> <td>Total</td> <td>5,167</td> <td>5,167</td> <td>5,167</td> </tr> </tbody> </table>	Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B	Highland Avenue Sites	4,322	4,322	4,322	American Legion	845	845	845	Total	5,167	5,167	5,167	<p>Restore the wetland in-place, in-kind upon completion of pipeline construction.</p>	<p>Contractor/Construction Completion</p>								
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B																							
Highland Avenue Sites	4,322	4,322	4,322																							
American Legion	845	845	845																							
Total	5,167	5,167	5,167																							

Table 8-16 State Wetland and Waterway Resources Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation	Responsible Party/Schedule			
Potential Construction Period Impacts					
Potential impacts on wetlands, surface waters on or adjacent to site to be impacted by erosion or sedimentation. All sites	Restore and revegetate areas disturbed by construction, including RA.	Contractor/Construction Completion			
	Implement erosion and sedimentation control BMPs.	Contractor/During Construction			
	Develop Stormwater Pollution Prevention Plan (SWPPP), including appropriate construction measures to prevent siltation in wetlands and waterways.	Contractor/Prior to Construction			
Potential impact on surface water quality due to pollutants used in tunnel dewatering discharges, disinfection, and flushing. All sites	Regularly inspect and monitor discharges in accordance with NPDES Construction General Permit (CGP) or Dewatering and Remediation General Permit (DRGP) to avoid permanent and indirect effects due to construction.	Contractor/During Construction			
Potential for groundwater drawdown due to tunnel inflows temporarily impacting surface water levels. All sites	Limit volumes of groundwater inflows to require initiation of probing and pre-excavation and/or post-excavation grouting.	Contractor/During Construction			
Permanent Impacts					
Permanent impact to state regulated RA in square feet:	Restore, improve, and revegetate areas disturbed by construction.	Contractor/During Construction			
Proposed Site			Alt. 3A	Alt. 4A	Alt. 4B
Tandem Trailer and Park Road East			1,685	1,685	1,685
Hegarty Pumping Station			157	157	157
Hultman Aqueduct Isolation Valve			2,989	2,989	2,989
Total	4,831	4,831	4,831		

Table 8-16 State Wetland and Waterway Resources Impacts and Proposed Mitigation

Estimated Impact				Proposed Mitigation	Responsible Party/Schedule
Impacts to state regulated BLSF for rip rap splash pads at dewatering discharge locations, in square feet:				Provide compensatory flood storage volume equal to the volume occupied by the structure within the same floodplain.	Contractor/During Construction
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
Tandem Trailer	368	368	368	Comply with MassDEP Stormwater Management Standards	
Bifurcation	368	-	-		
Highland Avenue Sites	660	660	660		
Total	1,396	1,028	1,396		
Permanent impacts to Bank for rip rap splash pads at dewatering discharge locations, in linear feet:				Restore and revegetate areas disturbed outside of the footprint of the splash pad.	Contractor/Construction Completion
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
Tandem Trailer	26	26	26		
Bifurcation	26	-	-		
Highland Avenue Sites	26	26	26		
Total	78	52	52		
Permanent impacts to WW and for rip rap splash pads at dewatering discharge locations, in square feet:				Restore and revegetate areas disturbed outside of the footprint of the splash pad.	Contractor/Construction Completion
Proposed Site	Alt. 3A	Alt. 4A	Alt. 4B		
Tandem Trailer	368	368	368		
Bifurcation	368	-	-		
Highland Avenue Sites	368	368	368		
Total	1,104	736	736		

Water Supply

As discussed in **SDEIR Chapter 6, Water Supply and Water Management Act**, and **SDEIR Appendix C, Updated Draft Water Supply Contingency Plan**, there would be the potential for groundwater drawdown due to tunnel inflows that could temporarily impact water levels in surface waters and wells during construction. Groundwater withdrawal volumes associated with dewatering are estimated to vary between less than 100,000 gallons per day (GPD) up to an estimated 8 million GPD, triggering the need for a WM03 Water Management Withdrawal Permit. No impacts to groundwater resources would be anticipated in the Final Condition. Once online, the tunnels would convey water that is under higher pressure than the groundwater pressure, thus groundwater would not infiltrate and cannot cause a groundwater drawdown condition. Loss of annual recharge resulting from new impervious area at launching and receiving shaft sites, and connection and isolation valve sites would be minimized in accordance with the Stormwater Management Standards as discussed in **SDEIR Section 6.2.3, Water Supply Final Conditions (pg. 6-14)**.

In areas of concern, the TBM has the capability to simultaneously drill and pre-excitation grout the tunnel route, which would reduce the volume of groundwater inflow into the tunnel and help mitigate potential impacts to water supply wells. These potential impacts are summarized in **FEIR Table 8-17** and described in detail in the following sections.

The contract documents would require that the Contractor conduct a preconstruction survey to verify the locations of wells and document well characteristics. The Water Supply Contingency Plan (see **SDEIR Appendix C**) includes a summary of mitigation measures the Contractor would implement if water supplies were to be impacted during construction.

The mitigation to reduce the potential for groundwater inflow and resulting possible drawdown during construction would be probing from the tunnel heading in advance of the excavation to assess water inflows, followed by pre-excitation grouting (also from the tunnel heading) in the event the probing encounters water-bearing features. Probing and pre-excitation grouting would be implemented before the tunnel proceeds beneath select important areas of groundwater well production or beneath select local water bodies; the determination for probing (both where this may be required and the number and relative position of probe holes) would be assessed during the final design phase. Construction contract specifications for hard-rock tunnels typically have limits for groundwater inflows into probe holes, which trigger the need for pre-excitation grouting. These limits would also be set during final design.

For cases where groundwater is impacted by tunnel excavation after implementation of the grouting programs, mitigation for disruption of water supply from groundwater wells is to provide users with an alternative water supply until groundwater levels can be restored. This mitigation is described in the Water Supply Contingency Plan in **SDEIR Appendix C**.

Table 8-17 Potential Water Supply Construction Period Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation	Responsible Party/Schedule
Potential Construction Period Impacts		
Potential for groundwater drawdown All sites	Conduct pre-construction survey to verify well locations and characteristics.	Contractors/ During Construction
	Probe and pre-excavate grouting before the tunnel proceeds beneath select important areas of groundwater well production or beneath local water bodies.	Contractors/ Prior to Construction
	Limit volumes of groundwater inflows to require initiation of pre-excitation and/or post-excitation grouting.	Contractors/ During Construction
	Monitor groundwater and implement post-excitation drilling and cut-off grouting in water-bearing features.	Contractors/ During Construction
Surface water impact or loss of potable or irrigation well along tunnel alignment. All sites	Implement Water Supply Contingency Plan with alternate source of water.	MWRA prepares Contingency Plan/ Prior to construction. MWRA implements Contingency Plan/ During Construction.

8.3.2 Draft Section 61 Finding: Massachusetts Department of Transportation

Project Name: Metropolitan Water Tunnel Program

Project Location: Waltham, Weston, Newton, Wellesley, Needham, Brookline, Boston

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16355

Date Noticed in Monitor: December 22, 2023

Applicable State Action/Permits:

- Land disposition/easements
- Highway Access Permits
- Construction Access Permits

This Section 61 Finding for the Metropolitan Water Supply Tunnel Program (EEA 16355) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the Program were characterized and quantified in the Metropolitan Water Tunnel Program Draft Environmental Impact Report (DEIR), Supplemental Draft Environmental Impact Report (SDEIR), and in this Final Environmental Impact Report (FEIR) and are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the MWRA has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the Program. Where impacts are not avoidable, the MWRA has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the Program to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Department of Transportation (MassDOT) finds that there are no significant unmitigated impacts.

*The MWRA recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the Metropolitan Water Tunnel Program, is central to its responsibilities under MEPA. Accordingly, the MWRA has prepared a Table of Mitigation Commitments (see **FEIR Table 8-18**) that specifies the mitigation that the MWRA would provide. In the Table of Mitigation Commitments, the MWRA provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon Program phasing.*

MassDOT has reviewed the MEPA filings for the Metropolitan Water Tunnel Program and finds that the environmental impacts resulting from construction of the Metropolitan Water Tunnel Program are those impacts as described in the DEIR, SDEIR, and FEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, MassDOT finds that with the implementation of mitigation measures as identified in the Table of Mitigation Commitments, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and

operation of the Metropolitan Water Tunnel Program. In making this finding, MassDOT has considered reasonably foreseeable climate change impacts and environmental justice impacts.

Potential Transportation Construction Period Mitigation

If construction activities were to result in significant traffic congestion during the peak hour, work within the roadway may not be permitted during weekday peak hours, which normally occur from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM in accordance with local ordinances (construction worker trips are not anticipated to occur in the evening peak hour as shift change is approximately 3:00 PM). Coordination with the roadway owner is recommended if the proposed construction work needs to be completed during the weekday peak hours. On heavily traveled urban arterials, work within the roadway may primarily be permitted during off-peak, overnight hours. In some residential areas, work may be restricted to daytime hours to minimize potential disturbance to residents. In some areas, if necessary, time restrictions may also be used to avoid potential impacts to routine street sweeping or other activities.

Measures that will be considered to mitigate potential traffic impacts associated with Program-related construction-period activities are summarized in **FEIR Table 8-18**. Most of the potential mitigation measures described in this section would require approval and/or permits from the MassDOT, Massachusetts Department of Conservation and Recreation (DCR), or applicable municipalities. The applicability of these measures will be discussed with the municipalities or agencies prior to submitting permit applications. These potential impacts and associated mitigation measures considered are also detailed in **SDEIR Chapter 9, Transportation, Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation (pg. 9-51)**.

Construction activities relating to MassDOT’s planned Newton-Weston-Bridge Bundle Replacement and Rehabilitation Project at the I-90/I-95 Interchange in Newton and Weston (MassDOT Project No. 606783) will be coordinated with MassDOT.

Table 8-18 Potential Transportation Construction Period Impacts and Proposed Mitigation

Potential Construction Period Impact		Proposed Mitigation	Responsible Party/Schedule
Temporary increase in traffic at local intersections.		When possible and as necessary, conduct trucking during off-peak hours.	Contractors/ During construction
Town (Program Sites)	Intersections		
Waltham (UMass Property, Lower 190 Trapelo Road Property, School Street, and Cedarwood Pumping Station)	Trapelo Rd. at Lexington St. Waverley Oaks Rd. at Trapelo Rd. Beaver St. at Waverley Oaks Rd. Main St. at Linden St./Ellison Park Elm St. at Main St. Moody St. at Main St. Bacon St. at Main St. Weston St. at Main St. South St. at Weston St. Shakespeare Rd. at South St.		

Table 8-18 Potential Transportation Construction Period Impacts and Proposed Mitigation

Potential Construction Period Impact	Proposed Mitigation	Responsible Party/Schedule
Weston (Tandem Trailer/Park Road East, Bifurcation, Park Road West, and Hultman Aqueduct Isolation Valve)	River Rd. at South Ave. I-95 Northbound Off Ramp at South Ave. Park Rd. at South Ave.	
Wellesley (Hegarty Pumping Station)	Worcester St. at Cedar St.	
Needham (Highland Avenue Sites, St. Mary Street Pumping Station)	Cedar Avenue at Cedar St.	
Brookline (Newton Street Pumping Station)	Grove Street at Newton St. Newton St. at Clyde St. Dudley Street at Lee St. Lee St. at Route 9 Chestnut Hill Avenue at Route 9 Hammond Street at Route 9	
Boston (Southern Spine Mains, and American Legion)	Canterbury Ln. at Morton St. Morton St. at Harvard St. Morton St. at Blue Hill Ave. Morton St. at Norfolk St. Morton St. at Corbet St. Morton St. at Gallivan Blvd. Gallivan Blvd. at Washington St. Gallivan Blvd. at Dorchester Ave. Gallivan Blvd. at Granite Ave./Adams St. Gallivan Blvd. at Hallet St. Gallivan Blvd. at Neponset Ave. Neponset Ave. at Morrissey Blvd. South St. at Washington St. South St. at Arborway. Washington St. at Arborway Arborway at Circuit Dr.	

Table 8-18 Potential Transportation Construction Period Impacts and Proposed Mitigation

Potential Construction Period Impact	Proposed Mitigation	Responsible Party/Schedule														
<p>Temporary increase in traffic at intersections along construction vehicle routes:</p> <table border="1"> <thead> <tr> <th>Town (Program Sites)</th> <th>Intersections</th> </tr> </thead> <tbody> <tr> <td>Waltham (UMass Property, Lower 190 Trapelo Road Property, School Street, and Cedarwood Pumping Station)</td> <td>Trapelo Rd. at Waverly Oaks Rd. Main St. at Ellison Park/ Linden St.</td> </tr> <tr> <td>Weston (Tandem Trailer, Park Road East, Bifurcation, Park Road West, and Hultman Aqueduct Isolation Valve)</td> <td>River Rd. at South Ave. Park Rd. at South Ave. (Alt. 4A and 4B) I-95 Northbound off-ramp at South Ave./Commonwealth</td> </tr> <tr> <td>Needham (Highland Avenue Sites, St. Mary Street Pumping Station)</td> <td>Cedar Avenue at Cedar St.</td> </tr> <tr> <td>Newton (no sites, traffic from Newton Street Pumping Station)</td> <td>Woodward St./Elliot St. at Route 9</td> </tr> <tr> <td>Brookline (Newton Street Pumping Station)</td> <td>Newton St. at Clyde St.</td> </tr> <tr> <td>Boston (Southern Spine Mains, and American Legion)</td> <td>Morton St. at Blue Hill Ave. Morton St. at Norfolk St. South St. at Washington St.</td> </tr> </tbody> </table>	Town (Program Sites)	Intersections	Waltham (UMass Property, Lower 190 Trapelo Road Property, School Street, and Cedarwood Pumping Station)	Trapelo Rd. at Waverly Oaks Rd. Main St. at Ellison Park/ Linden St.	Weston (Tandem Trailer, Park Road East, Bifurcation, Park Road West, and Hultman Aqueduct Isolation Valve)	River Rd. at South Ave. Park Rd. at South Ave. (Alt. 4A and 4B) I-95 Northbound off-ramp at South Ave./Commonwealth	Needham (Highland Avenue Sites, St. Mary Street Pumping Station)	Cedar Avenue at Cedar St.	Newton (no sites, traffic from Newton Street Pumping Station)	Woodward St./Elliot St. at Route 9	Brookline (Newton Street Pumping Station)	Newton St. at Clyde St.	Boston (Southern Spine Mains, and American Legion)	Morton St. at Blue Hill Ave. Morton St. at Norfolk St. South St. at Washington St.	<p>When possible, conduct trucking during off-peak hours.</p>	<p>MWRA/ Contractors/ Construction period</p>
Town (Program Sites)	Intersections															
Waltham (UMass Property, Lower 190 Trapelo Road Property, School Street, and Cedarwood Pumping Station)	Trapelo Rd. at Waverly Oaks Rd. Main St. at Ellison Park/ Linden St.															
Weston (Tandem Trailer, Park Road East, Bifurcation, Park Road West, and Hultman Aqueduct Isolation Valve)	River Rd. at South Ave. Park Rd. at South Ave. (Alt. 4A and 4B) I-95 Northbound off-ramp at South Ave./Commonwealth															
Needham (Highland Avenue Sites, St. Mary Street Pumping Station)	Cedar Avenue at Cedar St.															
Newton (no sites, traffic from Newton Street Pumping Station)	Woodward St./Elliot St. at Route 9															
Brookline (Newton Street Pumping Station)	Newton St. at Clyde St.															
Boston (Southern Spine Mains, and American Legion)	Morton St. at Blue Hill Ave. Morton St. at Norfolk St. South St. at Washington St.															
<p>Temporary impacts to bicycle and pedestrian pathways during installation of near-surface piping. Southern Spine Mains: temporary bicycle and pedestrian detour along the Arborway.</p>	<p>Accommodate bikes and pedestrians through on-street work zones.</p>	<p>MWRA/ Contractors/ Construction period</p>														
	<p>Maintain safe access at all times.</p>	<p>MWRA/ Contractors/ Construction period</p>														
<p>Installation of near-surface piping requiring traffic management and/or local detours.</p> <table border="1"> <thead> <tr> <th>Proposed Site</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>UMass Property</td> <td>Beaver Street and Waverley Oaks Road</td> </tr> <tr> <td>Lower 190 Trapelo Road Property</td> <td>Waverley Oaks Road</td> </tr> <tr> <td>Highland Avenue Sites</td> <td>Brook Road, Wexford Road, and Freemont Street</td> </tr> </tbody> </table>	Proposed Site	Location	UMass Property	Beaver Street and Waverley Oaks Road	Lower 190 Trapelo Road Property	Waverley Oaks Road	Highland Avenue Sites	Brook Road, Wexford Road, and Freemont Street	<p>Install during off-peak and overnight hours, where possible and as necessary, to minimize potential disturbance to traffic, bicyclists, and pedestrians.</p>	<p>MWRA/ Contractors/ Construction period</p>						
Proposed Site	Location															
UMass Property	Beaver Street and Waverley Oaks Road															
Lower 190 Trapelo Road Property	Waverley Oaks Road															
Highland Avenue Sites	Brook Road, Wexford Road, and Freemont Street															

Table 8-18 Potential Transportation Construction Period Impacts and Proposed Mitigation

Potential Construction Period Impact		Proposed Mitigation	Responsible Party/Schedule
Proposed Site	Location	Where possible and as appropriate, restripe crosswalks with high-visibility markings and construct Americans with Disabilities Act (ADA)-compliant curb ramps with detectable warning panels on each corner where existing crosswalks or curb ramps are impacted.	MWRA/ Contractors/ Construction period
American Legion	American Legion Highway and Morton Street		
School Street	School Street		
Southern Spine Mains	Arborway		
		Maintain two-way traffic whenever possible and one lane traffic at a minimum.	MWRA/ Contractors/ Construction period
		Provide temporary local detours where necessary.	MWRA/ Contractors/ Construction period
Temporary increase in truck traffic: Routes along Program sites		When possible and as necessary, conduct trucking during off-peak hours.	MWRA/ Contractors/ Construction period

8.3.3 Draft Section 61 Finding: Massachusetts Department of Conservation and Recreation

Project Name: Metropolitan Water Tunnel Program

Project Location: Waltham, Weston, Newton, Wellesley, Needham, Brookline, Boston

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16355

Date Noticed in Monitor: December 22, 2023

Applicable State Action/Permits:

- Construction access permits
- Land disposition/easements
- Article 97 compliance

This Section 61 Finding for the Metropolitan Water Tunnel Program (EEA 16355) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the Program were characterized and quantified in the Metropolitan Water Tunnel Program Draft Environmental Impact Report (DEIR), Supplemental Draft Environmental Impact Report (SDEIR), and in this Final Environmental Impact Report (FEIR) and are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the MWRA has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the Program. Where impacts are not avoidable, the MWRA has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the Program to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Department of Conservation and Recreation (DCR) finds that there are no significant unmitigated impacts.

*The MWRA recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the Metropolitan Water Tunnel Program, is central to its responsibilities under MEPA. Accordingly, the MWRA has prepared a Table of Mitigation Commitments (**FEIR Table 8-19**) (that specifies the mitigation that the MWRA would provide. In the Table of Mitigation Commitments, the MWRA provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon Program phasing.*

DCR has reviewed the MEPA filings for the Metropolitan Water Tunnel Program and finds that the environmental impacts resulting from construction of the Metropolitan Water Tunnel Program are those impacts as described in the DEIR, SDEIR, and FEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, DCR finds that with the implementation of mitigation measures as identified in the Table of Mitigation Commitments, all practicable and feasible means and measures have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the

Metropolitan Water Tunnel Program. In making this finding, DCR has considered reasonably foreseeable climate change impacts and environmental justice impacts.

DCR Resources Mitigation

Arborway

Typical measures to mitigate the potential traffic impacts associated with construction-period activities would be applied to the Arborway. Most of the mitigation measures described in **FEIR Table 8-19** would require approval and/or permits from the DCR or applicable municipalities. The applicability of these measures would be discussed with the municipalities or agencies prior to submitting permit applications.

Article 97 Properties

Permanent impacts on community resources and open space would result from the proposed acquisition of land and/or easements on community resources and open space. Existing open space areas held for natural resources purposes in accordance with Article 97 of the Article of Amendment to the Constitution of the Commonwealth of Massachusetts (Article 97)⁹ and the Public Lands Preservation Act (PLPA)¹⁰ have been avoided to the greatest extent practicable.

Two proposed sites owned by the Commonwealth of Massachusetts under care, custody, and control of DCR would require the disposition of land protected under the EEA Article 97 Land Disposition Policy:

- 1) **Southwest Corridor Park/Arborway I (Southern Spine Mains site)** – Approximately 0.2 acres of fee simple land acquisition is anticipated to be required to accommodate the proposed Southern Spine Mains connection shaft site (to be confirmed in final design). Temporary use of up to 0.5 acres of Southwest Corridor Park/Arborway I is anticipated to be required during construction.
- 2) **Morton Street Property (American Legion site)** – To accommodate the proposed American Legion receiving shaft site, approximately 1.5 acres of fee simple land acquisition is anticipated to be required for the shaft and valve chamber and up to 2.0 acres of permanent easement would be required for the near-surface pipeline (to be confirmed in final design). Temporary use of up to 5.4 acres of the Morton Street Property is anticipated to be required during construction.

Portions of these two DCR sites would need to be disposed of to the MWRA following Article 97 legislation, which includes a 2/3 vote of the Massachusetts State Legislature (note the proposed Hegarty Pumping Station connection shaft site, which is owned by the Town of Wellesley, may also be subject to Article 97). Any transfer of an interest in Article 97 land would comply with the EEA Article 97 Land Disposition Policy. The MWRA will continue to work closely with DCR and other landowners.

The Arborway, a four-lane divided parkway that is a designated scenic road, is located within the temporary LOD associated with the Southern Spine Mains site. Permanent Program-related infrastructure within the Arborway would include a belowground near-surface pipeline connection to the existing

9 Commonwealth of Massachusetts, Executive Office of Environmental Affairs, , “Article 97 Land Disposition Policy,” February 19, 1998, www.mass.gov/files/documents/2018/06/06/article97_LandDisposition_Policy.pdf (accessed February 6, 2024).

10 Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs, “Article 97 & The Public Lands Preservation Act,” <https://www.mass.gov/info-details/article-97-the-public-lands-preservation-act> (accessed February 6, 2024).

MWRA transmission lines located within the Arborway and an associated meter chamber. A paved access road would be constructed to access the proposed shaft site from the Arborway as shown on **DEIR Figure 3.8-28 (pg. 3-147)**. Areas disturbed during construction would be restored to pre-construction conditions.

As described in **SDEIR Section 4.2.4, Land Alteration and Article 97 Avoidance, Minimization, and Mitigation (pgs. 4-45 to 4-51)**, the MWRA will comply with the Article 97 Land Disposition Policy process and the requirements of the PLPA by identifying and providing compensatory land of equal or greater value to offset the disposal of land required for the Program and/or by complying with alternative mitigation provisions of the Policy. The MWRA will notify the Secretary of the EEA and the public by submitting the proposed disposition request within the PLPA portal and will perform additional notification as required. A brief alternatives analysis will be prepared in the EEA PLPA portal submission for site use and the MWRA will either select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, the MWRA may request to provide in-lieu funding for all or part of the replacement land.

FEIR Table 8-19 describes impacts and associated mitigation for DCR properties.

Table 8-19 DCR Resources Impacts and Proposed Mitigation

Estimated Impact	Proposed Mitigation	Responsible Party/Schedule									
Construction Period Impacts											
Construction easement for shaft construction and for near-surface pipe installation <hr/> Boston (American Legion)	Comply with Article 97 land disposition process and the PLPA ¹ by providing compensatory land of equal or greater value to offset the disposal of land required for the Program and/or by complying with alternative mitigation provisions of the Policy.	MWRA/ Prior to construction									
Construction period activities on the Arborway Effecting Local Intersections <hr/> Boston (Southern Spine Mains and American Legion) <table border="0" style="display: inline-table; vertical-align: top; margin-left: 10px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">South St. at Arborway.</td> <td>Washington St. at Arborway</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">Arborway at Circuit Dr.</td> <td></td> </tr> </table>	South St. at Arborway.	Washington St. at Arborway	Arborway at Circuit Dr.		<table border="0" style="width: 100%;"> <tr> <td style="width: 100%;">Obtain DCR construction access permit.</td> </tr> <tr> <td>Install during off-peak and/or overnight hours only, to minimize disturbance to traffic, bicyclists, and pedestrians.</td> </tr> <tr> <td>Accommodate bikes and pedestrians separate from vehicles through on-street work zones and nighttime installation.</td> </tr> <tr> <td>Provide temporary detours for pedestrians and bicycles.</td> </tr> <tr> <td>Maintain safe access to sensitive receptors.</td> </tr> </table>	Obtain DCR construction access permit.	Install during off-peak and/or overnight hours only, to minimize disturbance to traffic, bicyclists, and pedestrians.	Accommodate bikes and pedestrians separate from vehicles through on-street work zones and nighttime installation.	Provide temporary detours for pedestrians and bicycles.	Maintain safe access to sensitive receptors.	MWRA/ Contractors/ Construction period
South St. at Arborway.	Washington St. at Arborway										
Arborway at Circuit Dr.											
Obtain DCR construction access permit.											
Install during off-peak and/or overnight hours only, to minimize disturbance to traffic, bicyclists, and pedestrians.											
Accommodate bikes and pedestrians separate from vehicles through on-street work zones and nighttime installation.											
Provide temporary detours for pedestrians and bicycles.											
Maintain safe access to sensitive receptors.											

Table 8-19 DCR Resources Impacts and Proposed Mitigation

Estimated Impact		Proposed Mitigation	Responsible Party/Schedule
Installation of near-surface piping impacting bikes and pedestrians		Install during off-peak and/or overnight hours only, to minimize disturbance to traffic, bicyclists, and pedestrians.	MWRA/ Contractors/ Construction period
Boston (Southern Spine Mains)	Detour along the Arborway	Accommodate bikes and pedestrians through on-street work zones and nighttime installation.	
		Provide temporary detours for pedestrians and bicycles.	
		Maintain safe access to sensitive receptors.	
Installation of near-surface piping causing local detours		Install during off-peak and overnight hours, where possible and as necessary, to minimize potential disturbance to traffic, bicyclists, and pedestrians.	MWRA/ Contractors/ Construction period
Boston (American Legion)	Installed in two phases on American Legion Highway and Morton Street	Where possible and as appropriate, restripe crosswalks with high-visibility markings and construct Americans with Disabilities Act (ADA)-compliant curb ramps with detectable warning panels on each corner where existing crosswalks or curb ramps are impacted.	
		Maintain two-way traffic whenever possible and one lane traffic at a minimum.	
		Provide temporary local detours where necessary.	
Permanent Impacts			
Boston		Comply with EEA Article 97 Land Disposition Policy process and PLPA requirements by providing compensatory land of equal or greater value to offset the disposal of land required for the Program and/or by complying with alternative mitigation provisions of the Policy. Prepare a brief alternatives analysis in the EEA PLPA portal submission for site use and select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, request to provide in-lieu funding for all or part of the replacement land.	MWRA/ Prior to construction
American Legion	Permanent Impact - top of shaft structure, parking, and access		
Southern Spine Mains	Permanent Impact - top of shaft structure		

¹ Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, "Article 97 & The Public Lands Preservation Act," <https://www.mass.gov/info-details/article-97-the-public-lands-preservation-act> (accessed February 6, 2024).

8.3.4 Draft Section 61 Finding: Massachusetts Bay Transportation Authority

Project Name: Metropolitan Water Tunnel Program

Project Location: Waltham, Weston, Newton, Wellesley, Needham, Brookline, Boston

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16355

Date Noticed in Monitor: December 22, 2023

Applicable State Action:

- MBTA Right of Way Access License Agreement

This Section 61 Finding for the Metropolitan Water Tunnel Program (EEA 16355) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the Program are characterized and quantified in the Metropolitan Water Tunnel Program Draft Environmental Impact Report (DEIR), Supplemental Draft Environmental Impact Report (SDEIR), and in this Final Environmental Impact Report (FEIR) and are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the MWRA has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the proposed Program. Where impacts are not avoidable, the MWRA has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the Program to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Bay Transportation Authority (MBTA) finds that there are no significant unmitigated impacts.

*The MWRA recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the Metropolitan Water Tunnel Program, is central to its responsibilities under MEPA. Accordingly, the MWRA has prepared a Table of Mitigation Commitments (**FEIR Table 8-20**) that specifies, for each potential state permit, the mitigation that the MWRA would provide. In the Table of Mitigation Commitments, the MWRA provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon Program phasing.*

The MBTA has reviewed the MEPA filings for Metropolitan Water Tunnel Program and finds that the environmental impacts resulting from construction of the Metropolitan Water Tunnel Program are those impacts as described in the DEIR, SDEIR, and FEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, the MBTA finds that with the implementation of mitigation measures as identified in the Table of Mitigation Commitments, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the Metropolitan Water Tunnel Program. In making this finding, the MBTA has considered reasonably foreseeable climate change impacts and environmental justice impacts.

MBTA Resources Mitigation

The MWRA will work with the MBTA through design development and where possible avoid the MBTA zone of influence along the tunnel alignment as noted in **FEIR Table 8-20**.

Table 8-20 MBTA Property Impacts and Proposed Mitigation

Estimated Impact		Proposed Mitigation	Responsible Party/Schedule
Permanent Impacts			
Potential right of way access		Avoid MBTA zone of influence	MWRA/Final Design
Waltham	All Alternatives		
Potential tunnel alignment	The North Tunnel, Segment 1 alignment passes under MBTA property		

9 Responses to Comments

9.1 Introduction

This chapter of the Final Environmental Impact Report (FEIR) includes responses to the Supplemental Draft Environmental Impact Report (SDEIR) Certificate issued by the Commonwealth of Massachusetts, Secretary of the Executive Office of Energy and Environmental Affairs (EEA) on September 29, 2023. The Certificate, along with each comment letter received on the SDEIR during the public review comment period, are listed in **FEIR Table 9-1**. The comments received from the Secretary of the EEA in the SDEIR Certificate are assigned a letter (“C”) and all other comment letters are assigned a number. Each individual comment is assigned a comment code (e.g., “C-20” or “1-2”) that corresponds to how the comment is delineated in the SDEIR Certificate or referenced comment letter. Technical responses to Certificate comments are also included in the FEIR chapters where applicable (i.e., **FEIR Chapter 3, Land Alteration, Open Space, and Article 97; FEIR Chapter 4, Wetlands and Waterways; FEIR Chapter 5, Fisheries; and FEIR Chapter 6, Rare Species**).

Table 9-1 *Certificate and Comment Letters Received on the SDEIR*

Letter No.	Affiliation	Commenter	Date
Certificate (C)	Commonwealth of Massachusetts, Secretary of the Executive Office of Energy and Environmental Affairs (EEA)	Secretary Rebecca L. Tepper	September 29, 2023
Letter 1	Commonwealth of Massachusetts, Department of Environmental Protection, Northeast Regional Office (MassDEP-NERO)	John D. Viola, Deputy Regional Director	September 22, 2023
Letter 2	City of Cambridge Water Department (CWD)	David Kaplan, Watershed Manager	September 22, 2023
Letter 3	Charles River Watershed Association (CRWA)	Zeus Smith, Esq., Associate Attorney	September 22, 2023
Letter 4	Waltham Land Trust (WLT)	Sonja Wadman, Executive Director	September 22, 2023
Letter 5	Commonwealth of Massachusetts, Department of Environmental Protection (MassDEP), Waterways Regulation Program (WRP)	Alice Doyle, Waterways Reviewer	September 25, 2023
Letter 6	Commonwealth of Massachusetts, Water Resources Commission (WRC)	Vandana Rao, PhD, Executive Director	September 25, 2023
Letter 7	Commonwealth of Massachusetts, Department of Conservation and Recreation (DCR)	Brian Arrigo, Commissioner	September 28, 2023
Letter 8	Commonwealth of Massachusetts, Division of Marine Fisheries (DMF)	Daniel J. McKiernan, Director	September 29, 2023
Letter 9	Commonwealth of Massachusetts, Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program (NHESP)	Misty-Anne R. Marold, Senior Endangered Species Review Biologist	September 29, 2023

A copy of the Certificate and of each comment letter received are provided prior to the Massachusetts Water Resources Authority’s (MWRA’s) responses. **FEIR Table 9-2** includes the comments received on the SDEIR in the Secretary’s Certificate and the MWRA’s responses. **FEIR Tables 9-3** through **9-11** include the comments received on the SDEIR in comment letters from other parties and the MWRA’s responses. In total, nine comment letters were received on the SDEIR, as shown in **FEIR Table 9-1**.

9.2 EEA Secretary's Certificate on the SDEIR

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The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
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Maura T. Healey
GOVERNOR

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September 29, 2023

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Metropolitan Water Tunnel Program
PROJECT MUNICIPALITY : Waltham, Belmont, Watertown, Weston, Newton, Wellesley,
Needham, Brookline, Boston, Dedham
PROJECT WATERSHED : Charles River and Boston Harbor
EEA NUMBER : 16355
PROJECT PROPONENT : Massachusetts Water Resources Authority (MWRA)
DATE NOTICED IN MONITOR : August 9, 2023

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62L) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Supplemental Draft Environmental Impact Report (SDEIR) and hereby determine that it **adequately and properly** complies with MEPA and its implementing regulations. The Proponent may prepare and submit for review a Final Environmental Impact Report (FEIR). As directed by the prior Scope, the SDEIR addresses substantive issues related to the viability of the proposed receiving shaft site¹ at the Fernald Property in the City of Waltham, which was common to all alternatives considered for the project for the northern alignment in the Draft Environmental Impact Report (DEIR). The SDEIR identifies potential alternative receiving locations that could replace the Fernald Property and analyzes associated impacts. The SDEIR has identified a new Preferred Alternative that avoids use of the Fernald Property identified in the DEIR, and this alternative will be carried through to the FEIR.

Project Description

As described in the SDEIR, the Massachusetts Water Resources Authority (MWRA) is proposing to construct two new deep rock water supply tunnels (north and south alignments totaling

¹ Shafts sites are locations where vertical concrete lined tunnels will connect the deep rock tunnel to the surface and/or water distribution infrastructure.

±14.6) that will provide redundancy for MWRA's existing Metropolitan Tunnel System, which includes the City Tunnel (constructed in 1950), City Tunnel Extension (constructed in 1963) and Dorchester Tunnel (constructed in 1976). This tunnel system has been in continuous service since construction. While the concrete lined deep rock tunnels have a long design life, some of the associated valves and piping have exceeded their design life and are currently in poor condition. A redundant system is needed to maintain and/or replace some of these valves and piping without interruption to water supply. The project will provide the redundancy to allow for system maintenance and repair, without disrupting service to over 2.5 million water customers. Under current conditions, if the Metropolitan Tunnel System is shut down, water must be supplied from open reservoirs containing nonpotable water, backup aqueducts, and undersized surface mains to distribute the nonpotable water with inadequate pressure. These backup options require use of emergency chlorination and issuance of a boil water order to customers. The project will support MWRA's responsibility to protect public health, provide sanitation, and provide fire protection through adequate water supply.

Water from the Quabbin Reservoir and Wachusett Reservoir is conveyed to the John J. Carroll Water Treatment Plant (WTP) in Marlborough. Treated water is conveyed from the WTP through the MetroWest Water Supply Tunnel (MWWST) and the Hultman Aqueduct (Shaft 5/5A). From there, the existing Metropolitan Tunnel System conveys ±60 percent of the metropolitan Boston area's daily demand. The new, redundant deep rock tunnels will originate near the convergence of MWWST and the Hultman Aqueduct (Shaft 5/5A) at a site located at the western most portion of the Metropolitan Tunnel System generally in the vicinity of the Interstate 95 (I-95)/Interstate 90 (I-90) Interchange. From this point, one tunnel would take a northerly route toward Waltham (North Tunnel) and the other a southerly route toward Boston and Dorchester (South Tunnel). Each tunnel will connect to existing water supply infrastructure at key locations to provide water supply redundancy to the existing system.

The SDEIR evaluated and ranked numerous alternatives to ultimately determine the Preferred Alternative and two backup alternatives. As discussed below, the SDEIR contained a supplemental alternatives analysis (Alternatives 3A, 4A, and 10A) that revised prior alternatives to relocate the terminus of the North Tunnel, Segment 1, to locations other than the City-owned Fernald Property site previously identified in the DEIR. This analysis resulted in selection of a new Preferred Alternative (Alternative 4A) that proposes to use a parcel owned by the University of Massachusetts (UMass) as the terminus for North Tunnel, Segment 1. The Preferred Alternative is otherwise substantially similar to the preferred alternative identified in the DEIR. Specifically, it would propose tunnel construction in three segments including the North Tunnel (Segment 1) and the South Tunnel (Segments 2 and 3) with the South Tunnel proceeding first. Both tunnels are proposed to begin in the Town of Weston near the terminus of the Hultman Aqueduct and MWWST. The North Tunnel Alternative would extend ±4.5 miles to the north, ending near the Waltham/Belmont line with a connection to the existing 60-inch diameter Weston Aqueduct Supply Main Number Three (WASM3). The South Tunnel Alternative would extend ±10.1 miles to the south, with a connection to the distribution pipes near Shaft 7C of the Dorchester Tunnel and ending in Boston (Dorchester).

After preliminary and final design are complete, construction is estimated to take ±8 to 12 years and is planned to occur between 2027 and 2040, with the new deep-rock tunnel system placed into service before or around 2040 (useful life of more than 100 years). When sizing proposed facilities, MWRA considered projected future water demands due to population and employment increases within the service area as well as increased water use efficiency. The intent of the project is not to increase total capacity of the system, but to ensure redundancy by providing a backup to the existing Metropolitan Tunnel System if it were ever out of service for planned or unplanned reasons. Temporary construction

impacts will be associated with construction of the deep rock tunnels, associated construction shaft sites and intermediate shaft sites, as well as management of material removed from the tunnel and treatment of groundwater inflow (i.e., dewatering excavated material).

Study Area

The MWRA is a Massachusetts public authority established by an act of the Legislature in 1984 to provide wholesale water and sewer services to 3.1 million people and more than 5,500 businesses in 61 communities in eastern and central Massachusetts. The MWRA water transmission system consists of Quabbin and Wachusett Reservoirs, the Ware River intake, and the deep rock tunnels and surface aqueducts that deliver water by gravity. The overall transmission and distribution system consists of ± 100 miles of tunnels and aqueducts and 280 miles of surface pipeline that carry water from the source reservoirs to communities. The Quabbin and Wachusett Reservoirs, which are the main water supply sources, are located 65 and 35 miles west of Boston, respectively. Water from the reservoirs is treated at the John J. Carroll WTP in Marlborough before being conveyed to the metropolitan Boston area through the Hultman Aqueduct and the MWWST completed in 2003 which provides redundancy for the Hultman Aqueduct. Water from the Hultman Aqueduct and MWWST is then conveyed to the existing Metropolitan Water Tunnel System, which does not have a redundant system (east of Shaft 5/5A).

Each tunnel comprising the Metropolitan Tunnel System (City Tunnel, City Tunnel Extension, and Dorchester Tunnel) consists of concrete-lined deep rock tunnel sections linked to the surface through steel and concrete vertical shafts. At the top of each shaft, cast iron or steel pipe and valves connect to the MWRA surface pipe network. These pipes and valves are accessed through subsurface vaults and chambers. The tunnel and shafts themselves require little or no maintenance and represent a low risk of failure however, many of the valves and piping are in poor condition.

The project Study Area encompasses ± 15 miles of deep rock tunnels and connections to existing water supply infrastructure (± 200 -400 ft) below the surface of several communities. Potential impacted areas in the Study Area include the communities of Boston, Belmont, Brookline, Dedham, Needham, Newton, Watertown, Waltham, Wellesley, and Weston. The Study Area includes wetlands, Areas of Critical Environmental Concern (ACECs), Outstanding Resource Waters (ORWs), historic resources, and mapped habitats for endangered species. As discussed below, the 13 shaft site locations² within the Study Area are within 1 mile of several Environmental Justice (EJ) Populations.³ While the project was originally filed prior to January 1, 2022, when new MEPA protocols related to EJ outreach and analysis took effect, the SDEIR voluntarily provides a description of public outreach activities and analysis of impacts over the 1-mile area around the 13 shaft site locations.

Changes Since Filing of the DEIR

As noted, since the DEIR was filed, the MWRA identified other sites for the terminus of the North Tunnel, Segment 1, which would serve as the end point of the North Tunnel. The SDEIR describes the site selection process to identify alternative sites for the terminus of the North Tunnel, Segment 1. A property owned by UMass located at 240 Beaver Street (UMass Property site) and a

² The DEIR identified 14 site locations. The FEIR notes that the Tandem Trailer launching shaft site would include a connection tunnel to the Park Road East large connection shaft in SDEIR Alternatives 3A and 4A to provide the required connection to the Hultman Aqueduct.

³ "Environmental Justice Population" is defined in M.G.L. c. 30, § 62 under four categories: Minority, Income, English Isolation, and a combined category of Minority and Income.

different area of the former Walter E. Fernald State School property that is owned by the City of Waltham (Lower Fernald Property site) closer to Waverley Oaks Road were identified as candidate sites in place of the Fernald Property site previously considered in the DEIR. The UMass Property site would serve as the end point for SDEIR Alternatives 3A and 4A,⁴ as described further below. The UMass Property would be a large connection shaft site and unlike under the DEIR scenario, would not be a receiving shaft location for the Tunnel Boring Machine (TBM). The SDEIR outlines several options for removal of the TBM from the tunnel, as further described below. The Lower Fernald Property site would serve as the end point for SDEIR Alternative 10A⁵. The Lower Fernald Property site would be a receiving shaft site for the TBM and would have a larger shaft site diameter than the large connection for the UMass Property site. As discussed below, the Preferred Alternative (Alternative 4A), which is similar to Alternative 4 in the DEIR, proposes to use the UMass Property site as the terminus for the North Tunnel, Segment 1. As in the DEIR, Alternatives 3A and 10A (similar to Alternatives 3 and 10 in the DEIR) are retained as “backup alternatives” that will be carried through to the FEIR.

The SDEIR describes revisions to the alignment of the tunnel associated with this change in the proposed site for the terminus of the North Tunnel, Segment 1. The revised alternatives identified above (Alternatives 3A, 4A, and 10A) were then assessed in relation to wetlands and waterways, water supply, and Article 97 of the Amendments to the Constitution of the Commonwealth (Article 97) resources.

Environmental Impacts and Mitigation

Proposed shaft chambers and connecting pipelines would be underground structures. Permanent above-ground features, such as concrete slabs and concrete vaults or top of shafts, would not extend more than three feet above finished grade. The SDEIR provided revised estimates of project impacts for the Preferred Alternative and two back up alternatives, which include (depending on the alternative) alteration of up to a maximum of 42.4 acres of land (surface impacts); creation of up to 2.7 acres of new impervious surface; up to 8.4 acres of permanent easement or land acquisition to support shaft and valve chambers; 3.8 acres of Article 97 land for which a land disposition may be required; and temporary and permanent alteration of wetlands including 1,558 square feet (sf) of Bordering Vegetated Wetlands (BVW)/Isolated Vegetated Wetlands (IVW), up to 121 sf of Bank, up to 3,286 sf of Bordering Land Subject to Flooding (BLSF), up to 3,440 sf of Land Under Water (LUW), and up to 163,301 sf of Riverfront Area (RFA). Greenhouse Gas (GHG) emissions and other air pollutants will be generated during construction period activities, including the use of heavy equipment, trucks and other emitting sources employed during construction. Table 2-8 of the SDEIR provides a qualitative summary of environmental impacts associated with the Preferred Alternative and two backup alternatives.

Specific shaft site locations have been selected with the intent to avoid resource areas and sensitive receptors to the greatest extent practicable. Measures to avoid, minimize, and mitigate Damage to the Environment include avoiding direct impacts to BVW/IVW; revegetating areas disturbed during construction with native species including replacing removed trees; providing compensatory storage for loss of flood storage; identifying and providing compensatory land for parcels protected by Article 97 that would be disposed to MWRA; monitoring construction noise and vibration with implementation of mitigation if established thresholds are exceeded; implementation of a Water Supply Contingency Plan

⁴ SDEIR Alternatives 3A and 4A are similar to DEIR Alternatives 3 and 4, respectively, but would use the UMass Property in place of the Fernald Property for the terminus of North Tunnel, Segment 1. All other sites remain the same.

⁵ SDEIR Alternative 10 is similar to DEIR Alternative 10 but would use the Lower Fernald Property instead of the Fernald Property for the terminus of North Tunnel, Segment 1. All other sites remain the same.

with alternate sources of water as required (Appendix C); and implementation of comprehensive construction-period Best Management Practices (BMPs) including erosion and sedimentation controls.

Jurisdiction and Permitting

The project is undergoing MEPA review and is subject to a Mandatory EIR pursuant to 301 CMR 11.03(4)(a)(3) because it requires Agency Actions and involves the construction of one or more new water mains ten or more miles in length. It also exceeds the Environmental Notification Form (ENF) review thresholds pursuant to 301 CMR 11.03(1)(b)(1) for alteration of 25 or more acres of land; 301 CMR 11.03(1)(b)(3) for the disposition or change in use of land or an interest in land subject to Article 97; and 301 CMR 11.03(3)(b)(1)(f) for alteration of one-half or more acres of other wetlands (RFA). The SDEIR identifies that the project will exceed the ENF review threshold pursuant to 301 CMR 11.03(6)(b)(2)(b) for construction, widening or maintenance of a roadway or its right-of-way that will cut five or more living public shade trees of 14 or more inches in diameter at breast height.

The project requires or potentially requires Highway Access/Construction Access Permits and land disposition/easements from the Massachusetts Department of Transportation (MassDOT); Right of Way Access License Agreement from the Massachusetts Bay Transportation Authority (MBTA); Construction and Access Permits (CAP) and land disposition/easements from the Massachusetts Department of Conservation and Recreation (DCR); Water Management Act (WMA) Water Withdrawal Permit (WM03), Section 401 Water Quality Certificate (WQC), Chapter 91 (c. 91) License and a Distribution System Modification Permit (BRPWS32) from the Massachusetts Department of Environmental Protection (MassDEP); review by the Natural Heritage and Endangered Species Program (NHESP); review by the Massachusetts Historical Commission (MHC) pursuant to MGL c. 9 Section 23-27C; review by the Water Resources Commission (WRC) pursuant to the WMA; and Article 97 Land Disposition legislation from the Massachusetts Division of Capital Asset Management and Maintenance (DCAMM). The project is subject to review under the May 2010 MEPA GHG Emissions Policy and Protocol (GHG Policy).

The project will also require an Order of Conditions from the Conservation Commissions in Waltham, Weston, Needham, Wellesley, and Boston (or in the case of an appeal, a Superseding Order of Conditions (SOC) from MassDEP) depending on the specific site selected; a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and Dewatering and Remediation General Permit (DRGP) (potentially) from the U.S. Environmental Protection Agency (EPA); and Section 404 review from the U.S. Army Corps of Engineers (ACOE).

Because the project is being undertaken by MWRA, an Agency as defined in MEPA regulations, MEPA jurisdiction is broad in scope and extends to all aspects of the project that may cause Damage to the Environment.

Review of the SDEIR

The SDEIR identifies changes since the filing of the DEIR. It provides a detailed and updated description of the project, existing conditions for the two new alternative terminus sites for the North Tunnel, Segment 1 (UMass Property site and Lower Fernald Property site), supplemental analysis of alternatives with the new terminus locations, and assessment of environmental impacts (temporary and permanent) for the Preferred Alternative and two backup alternatives including land alteration (including protected open space), wetlands and waterways, rare species and wildlife habitat, cultural and historic

resources, hazardous materials/materials handling/recycling, transportation, air quality, noise, and community resources. It identifies measures to avoid, minimize and mitigate impacts and provides draft Section 61 Findings. The SDEIR responds to the comments raised in the Certificate on the DEIR, along with each comment letter received on the DEIR. It identifies and describes state, federal and local permitting and review requirements associated with the project and provides an update on the status of each of these pending actions. It includes a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards. The SDEIR identifies an additional MEPA threshold that will be exceeded.

The SDEIR provides updated site plans depicting the two alternative sites considered for the terminus of the proposed North Tunnel, Segment 1. Figure 2-2 provides a schematic layout of the UMass Property site that identifies the temporary construction area limits of disturbance (LOD), and Figure 2-3 provides the proposed post-development final conditions. Similarly, for the Lower Fernald Property site, a schematic layout with the LOD depicted is provided in Figure 2-4, and the proposed post-development conditions are shown in Figure 2-5. Environmental resources in the Study Area associated with the UMass Property site and the Lower Fernald Property site are depicted for wetlands and waterways, protected open space (Article 97), c.91 jurisdictional limits, stormwater, wastewater and water supply infrastructure (including private wells), rare species and wildlife habitat, cultural and historic resources, land use including land ownership, transportation, noise, and community resources. The SDEIR describes the components that will be included in a Construction Management Plan, specifically those that will be required to limit potential impacts to EJ populations.

Alternatives Analysis

The DEIR provided a comprehensive analysis of alternatives; however, it relied exclusively on one receiving shaft site for all North Tunnel routing options (Fernald Property) which appeared to be uncertain based on comments from the City of Waltham. It did not consider alternate locations in Waltham or Belmont. The SDEIR documents the continued study of alternatives for the northern tunnel alignment in light of comments received. In place of the DEIR Fernald Property site, MWRA identified several potential sites within the vicinity of WASM3 (a critical connection point) in Waltham and Belmont. Sites were also considered where the TBM would not be retrieved at the end of the tunnel but would be 1) disassembled in the tunnel with parts transported and removed through the launch shaft, with the shell of the TBM left abandoned in the ground, or 2) backed out the whole length to the launching site at Tandem Trailer. In addition, the MWRA reevaluated potential sites near WASM3 that were previously considered earlier in the design. The study area for the additional potential sites considered that critical connection points to the existing water distribution system must be located within a reasonable distance to the supply main for a near-surface piping connection. MWRA determined that sites in Belmont were not available for use in the project, and therefore not viable alternatives to the DEIR Fernald Property site.

Based on conversations with respective property owners and other factors (i.e., availability of land, ownership, proximity to WASM3, size, existing conditions, accessibility, environmental impacts, etc.), two sites were identified as potentially viable options for the terminus of the North Tunnel in place of the DEIR Fernald Property site as discussed below:

1. The UMass Property site (Waltham) is owned by the Commonwealth of Massachusetts under care, custody, and control of UMass. The site is ±1,000 feet southwest of the DEIR Fernald Property site, south of the former Walter E. Fernald State School, and north of Beaver Street.

It consists of vacant/unpaved open space within Lawrence Meadow, a ±31-acre area that surrounds the Samuel D. Warren Estate. The site would accommodate a large connection shaft in SDEIR Alternatives 3A and 4A and is located ±800 feet west of WASM3 in Waverley Oaks Road. Temporary construction area LOD is ±0.9 acres.

2. The Lower Fernald Property site (Waltham) is owned by the City of Waltham. It is ±1,000 feet southeast of the DEIR Fernald Property site and located on property associated with the former Walter E. Fernald State School. The site is near the intersection of Waverley Oaks Road and Chapel Road, adjacent to WASM3. The site would accommodate a TBM receiving shaft in SDEIR Alternative 10A. Temporary construction area LOD is ±2.3 acres with ±1.4 acres reserved for permanent MWRA facilities.

Use of either of these two sites in place of the DEIR Fernald Property site would alter the northernmost portion of the North Tunnel Segment 1 alignment described in the DEIR. This change includes the alignment from the proposed School Street connection site (common to all SDEIR Alternatives) to the northern terminus site (UMass Property site in SDEIR Alternatives 3A and 4A, or Lower Fernald Property site in SDEIR Alternative 10A). South of the School Street connection site, the preliminary alignment of North Tunnel Segment 1 would remain the same as described in the DEIR. South Tunnel Segment 2 and South Tunnel Segment 3 would remain the same as described in the DEIR.

The SDEIR updates the environmental resource analysis for each SDEIR Alternative incorporating the new alternative sites and the refined tunnel alignment. The table below identifies the tunnel segments in each of the SDEIR Alternatives, updating the northern terminus for North Tunnel, Segment 1, in place of the DEIR Fernald Property site.

Alter- native	North Tunnel Segment 1		South Tunnel Segment 2		South Tunnel Segment 3		Total Approx. Length (miles)
	Description	Approx. Length (miles)	Description	Approx. Length (miles)	Description	Approx. Length (miles)	
3A	<i>Tandem Trailer/ Park Road East Launching to UMass Property Large Connection</i>	4.5	<i>Bifurcation Launching to Highland Avenue Northwest Receiving</i>	3.3	<i>Highland Avenue Northeast/Southeast Launching to American Legion Receiving</i>	6.8	14.6
4A	<i>Tandem Trailer/ Park Road East Launching to UMass Property Large Connection</i>	4.5	<i>Highland Avenue Northwest/ Southwest Launching to Park Road West Receiving</i>	3.3	<i>Highland Avenue Northeast/Southeast Launching to American Legion Receiving</i>	6.8	14.6
10A ¹	<i>Highland Avenue Northwest to Park Road West to Lower Fernald Property Receiving</i>			8.3	<i>Highland Avenue Northeast/Southeast Launching to American Legion Receiving</i>	6.8	15.1

Note: 1 One TBM would mine the tunnel for both Tunnel Segment 1 and Segment 2 in Alternative 10A.

High-level evaluation criteria included: engineering/constructability; land availability; environmental; social/community; operations; cost; and schedule. All three alternatives provide the required hydraulic, redundancy and operational features to meet project goals and were considered to have similar potential environmental impacts. The assessment reaffirmed that SDEIR Alternative 4A

(similar to DEIR Alternative 4, with the exception of the terminus of North Tunnel, Segment 1) is the Preferred Alternative based on the engineering/constructability, land availability, social/community, cost differential, and contract packaging flexibility evaluation criteria, and that the two-back up alternatives are SDEIR Alternative 3A and 10A. As shown in Table 2-7, Alternative 4A received a “Preferred” rating (score of 3) in each of the seven evaluation criteria and a resulting total score of 21. Alternative 3A received the second highest total score (18), followed by Alternative 10A (12).

Table 2-8 in the SDEIR provides a comparison of alternatives and associated impacts. SDEIR Alternatives 3A and 4A are anticipated to have fewer potential impacts related to historic resources. SDEIR Alternative 10A, given it would include two launching sites compared to three in Alternatives 3A and 4A, is more favorable in terms of groundwater management and potential impact on surface water bodies. The SDEIR emphasizes that the potential environmental impacts associated with each of the three alternatives are generally similar, with mitigation measures incorporated where necessary, and were not a determining factor in identifying the Preferred Alternative.

The SDEIR was required to clarify if any of the other seven alternatives that were dismissed would include less environmental impacts. According to the SDEIR, potential environmental impacts were generally the same across alternatives given that the 10 DEIR Alternatives use the same launching, receiving, and large connection sites but in different configurations, except for DEIR Alternative 8. DEIR Alternative 8, which was dismissed as the least favorable alternative, scored lower in the environmental category because it included an active recreational parcel at Riverside Park (an Article 97 property within the Charles River Reservation); is within the flood zone of the Charles River; would require shared access; and would require a connecting pipeline to be built beneath MBTA tracks. DEIR Alternative 7 includes a double launching site from Highland Avenue Northeast, which could increase the intensity of environmental impacts at that location. The remaining DEIR Alternatives are made up of the same set of sites, in various different combinations and with varying functions, and thus have similar environmental impacts. DEIR Alternatives were comparable in terms of potential impacts to rare species, Article 97 lands, and MCP sites, and would have similar potential impacts on wetlands, wells, or surface water bodies along the tunnel alignment.

The three shortlisted alternatives were also more favorable or neutral compared to the other seven DEIR Alternatives in the social/community category except DEIR Alternative 2, which scored more favorably than DEIR Alternatives 3 and 4. DEIR Alternative 2 avoids TBM launching and receiving at the Hultman Aqueduct node (in favor of the Highland Avenue sites), thus reducing the possible risk associated with the timing of MassDOT Project No. 606783. However, DEIR Alternative 2 was less favorable than DEIR Alternatives 3 and 4 due to scheduling and engineering/constructability.

Environmental Justice

The SDEIR provides a table (Table 3-7) that summarizes each of the proposed sites (Waltham, Weston, Needham, Boston, Wellesley, and Brookline) and the presence of EJ populations near those sites or within the LOD. It summarizes MWRA’s public outreach that has occurred since the DEIR was submitted. MWRA has implemented a robust community outreach initiative. The SDEIR outlines the updated outreach plan (Table 3-3) that MWRA will follow after issuance of the Certificate on the SDEIR. The outreach strategy includes meetings within each community in the Study Area as requested with notification provided through different outlets, offering interpretation services during meetings, translation of public meeting minutes, posting minutes on the project website, sharing minutes with municipal and other contacts in project communities, and incorporating feedback into draft FEIR prior

to submission to MEPA. Furthermore, MWRA is participating as a member of an EJ task force led by the Executive Office of Energy and Environmental Affairs (EEA) and will follow EEA guidelines pertaining to outreach to and inclusion of EJ populations in decision-making about the project.

The SDEIR analysis identifies EJ communities within the Study Area for each of the 13 proposed sites. MWRA has and will continue to tailor outreach to EJ communities and use a combination of methods to facilitate participation in the environmental review process. Each of the 13 proposed sites has its own Designated Geographic Area (DGA), which is the 1-mile radius or buffer around the site. The SDEIR presents an analysis of impacts on EJ populations within each of these DGAs (collectively, the EJ Study Area). Outreach methods will include translating outreach materials to languages prevalent in EJ communities within the EJ Study Areas, publishing notices in foreign language local newspapers, and using various social media platforms and media outlets to reach the intended population. MWRA will hold public information sessions or workshops as requested. Interpretation services will automatically be provided for communities where at least 5% of census tract population in each community speak a specific language; MWRA will provide interpreters as requested for all other communities.

The SDEIR includes additional EJ analysis to assess potential traffic and air quality impacts from anticipated construction vehicle routes between each project site and the interstate highway. Table 3-12 lists those EJ populations (total of 58) located within 0.5 mile of construction truck routes, and are identified as exhibiting “vulnerable health EJ criteria” by the DPH EJ Tool. The DGAs around the UMass Property site, Lower Fernald Property site, American Legion site, School Street site, St. Mary’s Street Pumping Station site, Newton Street Pumping Station site, and Southern Spine Mains site include EJ populations located adjacent to construction vehicle routes. The SDEIR indicates that most construction traffic is expected to be generated at proposed shaft sites due to construction workers driving to and from the sites. The maximum amount of temporary project-related traffic would occur at launching shaft sites where there is a shift change conservatively modeled to take place during the evening peak hour.⁶ Launching shaft sites (i.e., Tandem Trailer, Bifurcation, and Highland Avenue sites) are adjacent to highway ramps and are therefore not expected to cause a significant traffic impact to nearby local roadways. For all other launching shaft sites, the SDEIR indicates that the most direct route to nearby highways was selected for construction vehicle traffic, and that no construction vehicle routes between these launching shaft sites and the highway travel through EJ block groups.

Since project sites are separated geographically and intersect distinct EJ populations, MWRA conducted a conservative analysis of net new average daily trips (adt) of diesel vehicle traffic over one year or more at each site instead of analyzing cumulative adt across all sites. The DEIR estimated the potential for up to 156 adt of diesel trucks at launching sites in the worst-case scenario including Tandem Trailer (Alternatives 3A and 4A), Bifurcation (Alternative 3A), Highland Avenue Northwest/Southwest (Alternatives 4A and 10A), and Highland Avenue Northeast/Southeast (all alternatives). According to the SDEIR, the 156 adt value was calculated only over the number of days of construction per year, not the annual average. The annual adt generated by the project during construction activities would be ± 111 adt per year⁷ which is below the 150 adt threshold for expanding the assessment to 5 miles. The worst-case analysis assumes ± 70 feet excavation per day by a TBM and construction only occurring on business days. The average rate for excavation is likely to be less than 60

⁶ Construction worker trips are usually at 3:00 PM; the evening peak hour generally occurs between 4:00 PM and 6:00 PM.

⁷ According to the SDEIR, the annual adt is reached by taking the maximum number of daily truck trips (156) multiplied by the typical workdays in a year (260) and dividing that amount over a full 365 days.

feet per day, translating to fewer than 150 additional adt by diesel trucks. Although the excavation in some days may reach or exceed 70 feet a day, the likelihood of exceeding 60 feet a day continuously over one year is extremely low. Accordingly, the estimated number of trucks is a conservative estimate considering the full duration of construction. The SDEIR asserts that this conservative estimate of adt can be accommodated on roadways with no need for mitigation. A supplemental air quality analysis was also provided, as described below.

As shown in Table 3-23, some of the permanent, above ground easements and land acquisitions would include portions of existing community resources and open space, including portions of three Article 97 properties. These areas would be small in overall property size (acreage) in relation to the total area and would contain only the critical infrastructure needed for operation and maintenance of the tunnel system. Use of the sites is not anticipated to significantly interfere with or detract from the existing use. Subterranean easements of land that the tunnel runs underneath are not anticipated to impact future property use. The 0.1-acre acquisition at the 7.3-acre Ouellet Park (Hegarty Pumping Station connection shaft site) is not anticipated to impede the existing recreational amenities or public access. The 0.2-acre portion of Southwest Corridor Park/Arborway I is not anticipated to interfere with the existing recreational use of the Greenway nor the adjacent community garden. DCR's Morton Street property (American Legion receiving shaft site) does not provide recreational activities. For the UMass Property site (Lawrence Meadow), Hegarty Pumping Station connection shaft site (Ouellet Playground), and Southern Spine Mains connection shaft site (Southwest Corridor Park/Arborway I), the proposed acquisition is not anticipated to change the existing recreational amenities or public access. For the Lower Fernald Property site (Walter E. Fernald State School Property) and American Legion site (Morton Street), the property does not have existing public access or recreational amenities.

Construction period impacts on existing floodplains for all alternatives were evaluated by comparing the flow rates of dewatering discharges at each site to those of the potential receiving water bodies. Proposed discharge volumes would be a small percentage of the projected storm flow volumes from all storm events in all alternatives. Based on flow estimates, it is anticipated that construction period dewatering discharges from all sites would not contribute significantly to existing flood impacts. Project activities would not exacerbate flood risk to proximal EJ populations or existing environmental and health burdens. No disproportionate adverse effects are anticipated due to stormwater or other flood impacts. Drilling and excavation of contaminated soil, and construction dewatering of contaminated groundwater or surface water has the potential to exacerbate elevated blood lead health vulnerabilities. In the event that soil or water contaminated with lead is discovered during drilling, excavation, or dewatering, the MWRA will work with municipal entities to establish appropriate mitigation.

Land Alteration, Open Space and Article 97

The SDEIR provides an updated assessment of land use, community resources, open space, and Article 97 resources to incorporate the two new alternative sites that are considered for the terminus of the North Tunnel, Segment 1, in place of the Fernald Property site that was previously evaluated in the DEIR. Table 4-1 of the SDEIR provides a summary comparison of land use characteristics associated with the Alternatives 3A, 4A, and 10A including proposed changes in impervious surface compared to existing conditions (up to 2.7 acres), temporary construction area LOD (up to 42.4 acres), permanent easements or land acquisition (at least seven), and estimated Article 97 land disposition anticipated to be required. MWRA has consulted with DCR regarding the project design and compliance with the Public Lands Preservation Act (PLPA) and the EEA Article 97 Land Disposition Policy.

The SDEIR provides an update on the project's consistency with the Article 97 Policy. Three sites may require disposition of land protected under Article 97 (not under the care, custody and control of MWRA) totaling 3.8 acres: the Hegarty Pumping Station (0.1 acres of Ouellet Park) (Article 97 status to be determined) in Wellesley; Southern Spine Mains (0.2 acres of Southwest Corridor Park/Arborway I) on DCR land; and the American Legion (3.5 acres of Morton Street Property) on DCR land. The SDEIR describes how MWRA will minimize the size and extent of impacts to DCR land. MWRA has continued to work closely with DCR to identify mitigation for the loss of Article 97 conservation land. The SDEIR provides a summary of the outcome of consultations with DCR regarding Article 97 protection and mitigation.

It appears that up to five acres of DCR property will also be needed as staging locations for construction over several years, which will require temporary easements and a DCR CAP. The SDEIR also describes locations where the tunnel construction is proposed beneath these and several other DCR properties, including the Leo J. Martin Memorial Golf Course in Weston and Newton, and portions of the Charles River Reservation in Weston. Tunnel construction beneath DCR property will require permanent easements triggering Article 97. DCR comments on the DEIR identified support for granting of a CAP for temporary tunnel staging sites and permanent easements on and under DCR land.

The SDEIR provides an update on the borings and geotechnical analysis underway, including presenting the results of analyses completed by the time of the SDEIR filing. Eighteen deep test borings were drilled as part of the preliminary design, most of which are located at shaft sites; surface geophysical surveys were conducted at 43 locations along the preliminary tunnel alignment; and bedrock outcrop mapping was conducted at 25 locations in the Study Area where bedrock is exposed and accessible. This and other data collected as part of past projects by MWRA, MassDOT, etc. was analyzed to understand the geologic and hydrological setting for the Study Area, and the conditions which influence shaft and tunnel design and construction methods (e.g., top of rock elevation, location and limits of geologic faults, permeability, strength, abrasiveness, mineralogy, lithology, stability, etc.). This data, as well as other factors, including hydraulic connections to critical infrastructure, land availability and land use, and environmental impacts was used to select shaft sites and the preliminary tunnel alignment, which will be further refined throughout the design phases of the project. The results of these investigations and analysis are currently being compiled and will be incorporated into the final design and/or included in the construction documents.

Up to 40 additional deep test borings will be drilled during the next phase of design at the remaining shaft sites and along the preliminary tunnel alignment. These investigations will build on those conducted as part of the preliminary design to further inform the design including locations of discrete sections of tunnel alignment between shaft sites (e.g., between School Street and the end of the North Tunnel in Waltham), extent and type of initial tunnel support type or final liner, etc. This additional data will also help estimate tunnel construction production rates and project costs. During final design of each tunnel segment, the tunnel alignment (both horizontal and vertical) between shaft sites will be finalized. Subterranean easements along the tunnel alignment will be required, which will consist of a zone surrounding the tunnel horizon but will not extend to, or affect, land use at the ground surface. Easements will be obtained from each landowner prior to construction and recorded. Geotechnical analyses conducted during construction are not expected to change the tunnel alignment. Unforeseen geotechnical conditions at a shaft site revealed during later investigation phases is not expected to warrant modifications of a shaft site location considering that most of the preliminary design phase investigations and significant geotechnical and geologic data collected as part of past projects borings were gathered at shaft sites. If a geologic condition is revealed during later investigations that

warrants an adjustment to the tunnel alignment between shaft sites, the tunnel and corresponding subterranean easements will be modified prior to construction. If landowner opposition to a subterranean easement were to occur, an evaluation of the impacts of modifying the tunnel alignment or exercising eminent domain as allowed by MWRA’s enabling act will be made.

Wetlands and Stormwater

The SDEIR provides an update on temporary and permanent impacts to wetland resource areas. The project will temporarily and permanently impact BVW, IVW, Bank, BLSF, LUW, and RFA, and associated buffer zones. Table 5-6 provides a summary of wetland impacts by municipality for Alternatives 3A, 4A and 10A (a portion of Table 5-6 is included below which identifies total impacts).

Table 5-6 Summary of Wetland Impacts by Municipality Alternatives 3A, 4A, 10A

Sites by Municipality	Resource Area(s) Affected	Alternative 3A			Alternative 4A			Alternative 10A		
		Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)	Temporary Impacts (sf/lf)	Permanent Impacts (sf/lf)	Total Impacts (sf/lf)
GRAND TOTAL	BVW/VW (sf)	1,558	0	1,558	1,558	0	1,558	1,558	0	1,558
	Bank (sf)	43	78	121	35	52	87	27	36	63
	BLSF (sf)	1,890	1,396	3,286	1,640	1,028	2,668	1,340	660	2,000
	LUW/WW (sf)	2,336	1,104	3,440	1,684	736	2,420	1,414	726	2,140
	RA (sf)	158,470	4,831	163,301	124,483	4,831	129,314	18,761	3,146	21,907

The Conservation Commissions will review the project for its consistency with the Wetlands Protection Act (WPA), Wetlands Regulations (310 CMR 10.00) and associated performance standards including stormwater management standards (SMS). MassDEP will review the project for its consistency with the 401 WQC regulations (314 CMR 9.00) and the c. 91 Waterways Regulations (310 CMR 9.00).

Key findings of impacts of the project regarding wetland resource areas are summarized below (the majority of potential impacts would occur during construction with those areas restored and revegetated):

- no permanent impacts to BVW or IVW associated with construction or operation
- temporary impacts to BVW and IVW for pipeline connection at American Legion site
- permanent and temporary impacts to LUW, Bank, BLSF, and RFA for rip rap splash pads at permanent and temporary dewatering discharge locations with compensatory flood storage volume provided
- permanent and temporary impacts to RFA for pipeline connection (Hegarty Pumping Station)
- permanent impacts to RFA for top-of-shaft and/or valve structures and associated pavement at Tandem Trailer site and Hultman Aqueduct Isolation Valve site
- temporary impacts to RFA due to construction staging at up to six sites
- implementation of appropriate BMPs in accordance with the Stormwater Pollution Prevention Plan (SWPPP) required under the NPDES CGP
- prior to discharge related to tunnel activities, all flows would be treated to meet water quality standards for the receiving water body and any other requirements of environmental permits

- grouting of water-bearing rock features in advance of TBM excavation activities and after its passage to reduce groundwater inflows to avoid and minimize impacts of groundwater drawdown which may temporarily impact water levels in surface waters and wells (if necessary, alternative water supplies would be provided as described in the updated draft Water Supply Contingency Plan (Appendix C))
- no impacts to surface or groundwater resources is anticipated post-construction (completed tunnel will be lined and under higher pressure than surrounding groundwater to prevent groundwater inflow)
- no impacts to water quality are anticipated post-construction; stormwater runoff from impervious surfaces would be treated and managed in accordance with the SMS

The SDEIR addresses MassDEP comments regarding the impacts of increased volume and velocities of dewatering discharges to several waterways associated with construction of the new tunnels (discharge to Canterbury Brook at the American Legion site and discharge to Seavern's Brook for the launching and receiving shafts for the Bifurcation site). The SDEIR clarifies that installation of splash pads and culvert outlets will permanently and temporarily impact LUW, BLSF and Bank. Temporary impacts would result from pipe trenching and excavation and stabilization for construction of the flared end-sections and riprap splash pads (vegetation and shorelines would be restored post-construction). Permanent impacts would include only the flared end-sections and associated riprap splash pads, providing scour protection and erosion control for dewatering discharges within the waterways. Impacts to BVW described in the DEIR due to the discharge structures at the Fernald Property site have been eliminated due to inclusion of the alternative sites, which do not require impacts to BVW for the discharges. According to the SDEIR, it is not feasible to eliminate proposed impacts to Bank, LUW and BLSF because to mitigate potential scour impacts to existing resource areas, the discharge must be in proximity to the associated receiving waterbody.

The SDEIR provides calculations (Appendix B) demonstrating that proposed pipes and splash pads, intended to dissipate velocity to avoid eroding effects on the resource areas, have been properly sized to regulate flows and prevent scour. The SDEIR notes that the SWPPP will be prepared to document stormwater management during construction including a description of dewatering practices and inspection schedule to monitor for scouring and erosion resulting from dewatering practices. Corrective action procedures would include a contingency plan to address any unexpected impacts of construction dewatering activities that may be observed during inspection and monitoring (i.e., splash pad maintenance measures, modifications to pipe sizing, treatment of discharges, or implementation of additional velocity dissipation measures).

The SDEIR confirms that stormwater runoff as a result of any increase in impervious areas, however small, will be treated in accordance with the SMS. MWRA should continue to reduce impervious area through incorporation of pervious surfaces and landscaped areas.

Waterways

The proposed tunnels and dewatering discharge locations will all 'intersect' waterways in several locations. In addition, several dewatering discharge locations are proposed within waterways that are subject to c. 91 jurisdiction pursuant to 310 CMR 9.04. Dewatering sites will include placement of structures and fill consisting of outlet pipes with riprap splash pads to mitigate potential scour. All structures and fill and any associated dredging that will be located waterward of the ordinary high water

mark will require c. 91 authorization. The tunnels and associated infrastructure installations underneath jurisdictional waterways are potentially exempt from licensing pursuant to 310 CMR 9.05(3)(g)(3) “pipelines, cables, conduits, sewers, and aqueducts entirely embedded in the soil beneath such river or stream”, provided that they are consistent with all criteria in the referenced section of the regulations.

The SDEIR includes Table 5-15 which identifies waterbodies where work will occur in, on, over, or under the waterway, indicates whether the waterway is jurisdictional pursuant to the regulations at 310 CMR 9.00, and identifies the associated scope of work. Work is expected to occur on, in, over, or under the following waterbodies: Clematis Brook; Chester Brook; Unnamed Tributary (Stony Brook); Seaverns Brook; Charles River; Rosemary Brook; Hurd Brook; and Canterbury Brook/Stony Brook. The SDEIR describes the project’s consistency with c. 91 regulations. It explains how tunnels and associated infrastructure installations underneath jurisdictional waterways will be constructed consistent with all criteria pursuant to 310 CMR 9.05(3)(g)(3) to demonstrate these project elements will be exempt from licensing. In addition, proposed outfalls and splash pads would not extend into the waterway or adjacent wetland in accordance with 310 CMR 9.05(3)(g)(4). The placement of rip rap splash pads and tunneling of the structure below waterways would not reduce the space available for navigation and therefore may not require c. 91 authorization. MassDEP Waterways Regulatory Program (WRP) comments concur that the proposed work may be exempt from pursuant to 310 CMR 9.05(3)(g)4, provided the project complies with the regulatory prerequisites. Further coordination with MassDEP will be completed during final design to determine applicability of any c. 91 exemptions to proposed project elements and/or requirements to comply with c. 91 regulations if the project does not meet exemption criteria.

Water Management Act/Water Supply

The project will require a Distribution System Modification Permit (BRPWS32) from the MassDEP Drinking Water Program. It will also require a Water Withdrawal Permit (WM03) in accordance with the WMA. According to MassDEP comments, dewatering at launch sites and tunnel shafts is not likely to affect any public water supply.

MWRA’s water supply sources are in the Chicopee River Basin and the Nashua River Basin. According to WRC comments, the current transfer of water supply from these basins to communities in eastern Massachusetts in different basins would be considered an existing interbasin transfer and includes transfers that occurred prior to 1984 and any subsequent transfers that received interbasin transfer approval by the WRC. The Interbasin Transfer Act (ITA; 313 CMR 4.00) regulates the transfer of water supply or wastewater across major basin boundaries. ITA regulations (313 CMR 4.05(5)) exempt projects whose “sole purpose is to provide redundancy, provided that any increase in capacity cannot be used to increase the ability to transfer water out of the Donor Basin and provided further that streamflow in the Donor Basin is not adversely affected.” The SDEIR indicates that this provision would apply to exempt this project (a water tunnel to be constructed solely for redundancy purposes) from the need for approval under the TIA. The project is not subject to the ITA and will not require approval from the WRC, as discussed below. In addition, the ITA would not apply to the dewatering portion of the project if all bedrock infiltration will occur from and be discharged to the Charles River Basin and will not cross a basin boundary.

The SDEIR responds to requests for additional information by WRC in their comments on the DEIR including capacities of the City Tunnel, City Tunnel Extension and Dorchester Tunnel, and the proposed capacity of each of the two new deep rock tunnels. WRC seeks this information to confirm that water withdrawals through the redundancy tunnel would not exceed currently permitted levels under the

ITA. It affirms that the existing capacity will not be exceeded and describes steps that will be taken to limit flow to the present rate of interbasin transfer. The SDEIR reiterates that the project is proposed to ensure redundancy by providing a backup to the existing Metropolitan Tunnel System if it were ever out of service for planned or unplanned reasons and not to increase the total capacity of the MWRA water supply system. MWRA anticipates that it will take segments of the existing City Tunnel system offline for maintenance and repair once the North and South Tunnel are completed and rely primarily on them to provide water to the metro-Boston area communities. Therefore, the new tunnels must be able to provide water supply capacities that are equivalent to the existing tunnel system.

MWRA modeled the water distribution system with 1) the existing tunnel system in operation only and 2) the proposed tunnels in operation only under the same flow conditions to estimate capacities under the same operating conditions. This comparison used the 2060 High Day Demand of 283 million gallons per day (MGD), which is the design flow used when sizing the new tunnels and evaluating ability of the water system to meet required hydraulic conditions. Modeling indicates that the maximum flows through the existing tunnels are as follows: City Tunnel ± 210 MGD (acts as the limiting factor in supply); City Tunnel Extension ± 90 MGD; and Dorchester Tunnel ± 95 MGD. The modeled maximum flows with the new tunnels only in operation are North Tunnel ± 80 MGD and South Tunnel ± 125 MGD (combined capacity of 205 MGD). The volume of water conveyed through the new deep rock tunnels, as well as existing tunnels, is limited by existing aqueducts and tunnels upstream (the Hultman Aqueduct and MetroWest Water Supply Tunnel), which are limited by the Norumbega Reservoir, which sets the hydraulic grade for the system and new tunnels, thereby regulating flows downstream. Additionally, at the downstream end of the tunnels, the surface piping restricts how much water can be conveyed to communities.

The combined capacity of the proposed tunnels in the modeled condition is 205 MGD, which is slightly less than the modeled capacity of the City Tunnel at 210 MGD. WRC comments state that, accordingly, the project is not subject to the ITA and will not require approval from the WRC, provided that the combined transfer through both the proposed North and South Tunnels and the City Tunnel do not exceed the current hydraulic capacity of the City Tunnel. MWRA already provides an annual report detailing the volumes transferred through the Hultman and Sudbury Aqueducts. In the future, this annual report will also include the City Tunnel and North and South Tunnel volumes (once operational) to ensure that the project does not result in an increase in capacity. All proposed construction, including tunnel boring, launching, receiving, large connection, and connection shaft site construction, is proposed to occur only within the Charles River Basin. No dewatering activities will cross major basin boundaries. Due to estimated withdrawals over 100,000 gallons per day (GPD), a WMA permit for construction period withdrawals only will be required. There will be no permanent withdrawals. While the tunnel is being constructed, groundwater will infiltrate into the tunnel and will ultimately be discharged at certain locations.

Greenhouse Gas Emissions and Air Quality

The SDEIR supplements the climate change and GHG/air quality analyses provided in the DEIR to clarify how the anticipated emissions associated with the peak construction year compare to Existing and future No Build conditions (both as tpy and % increases/decrease). Both the Existing and future No-Build condition assume the project would not be constructed and there would be no emissions associated with either construction or operations, nor with transportation or mobilization of any equipment (i.e., 0 tons of emissions). Emissions estimates provided for project alternatives represent absolute increases from the Existing/No-Build conditions. MWRA conducted an estimate of existing emissions on assumed

transportation Study Area routes⁸ to be used by construction vehicles and equipment for emissions of NOx, VOC, and GHG using 2023 emission factors for Middlesex County from the EPA’s MOVES3 model, and existing traffic estimates and distances used in the transportation analysis. Due to improvements in vehicle technology, lower- and zero-emission vehicles, and investment in public transportation, baseline future roadway emissions are expected to continue to decrease from existing levels. The SDEIR (Table 8-10 below) compares calculated GHG emissions for the project during the peak 12-month period of construction emissions (6,150 to 6,210 tons per year (tpy), depending on the alternative) to the statewide GHG emissions totals (73.5 million tpy of CO₂e in 2018). Project-related construction emissions were compared to the U.S. EPA’s “General Conformity” de minimis emissions thresholds for precursors of ozone (100 tpy), NOx (100 tpy), and VOC (50 tpy). Peak 12-month period emissions shown in Table 8-10 below are shown to be below the de minimis thresholds.⁹

Table 8-10 Summary Comparison of Emissions (Tons) Among Alternatives

Alternative	NOx Emissions (Tons)				VOC Emissions (Tons)				GHG Emissions (Tons)		
	General Conformity de minimis threshold (Tons Per Year)	MA 2017 Inventory Total On- and Off-Highway Vehicles	Peak 12-Month Period	Total 10-Year Modeled Duration	General Conformity de minimis threshold (Tons Per Year)	MA 2017 Inventory Total On- and Off-Highway Vehicles	Peak 12-Month Period	Total 10-Year Modeled Duration	2018 MA GHG Emissions (Tons CO ₂ e)	Peak 12-Month Period	Total 10-Year Modeled Duration
3A	100.0	67,598	33.7	122.8	50.0	44,177	2.5	9.1	73,500,000	6,210.1	25,738.8
4A	100.0	67,598	33.7	122.6	50.0	44,177	2.5	9.0	73,500,000	6,209.7	25,669.9
10A	100.0	67,598	33.4	123.0	50.0	44,177	2.6	9.1	73,500,000	6,149.5	25,158.3

Regarding comparison to future No-Build traffic conditions, the project is expected to add ±0.1% to 2.0% additional vehicles to local roadways on the peak day. The SDEIR maintains that this minor increase would not be expected to materially affect any ambient pollutant concentrations and their comparison to any air quality standards. Regarding existing project-related traffic outside the Study Area, which primarily includes traffic along the interstate highways, project-related traffic (and associated emissions) is anticipated to comprise less than 0.1% to 0.7% of total daily volumes on the modeled peak day, which conservatively assumes that construction would occur at all shafts simultaneously.

Project construction is estimated to take ±8 to 12 years to complete and is planned to occur between 2027 and 2040. For emission modeling purposes, construction activities in each of the SDEIR Alternatives were modeled to take place for a total of 10 years (beginning at the start of Year 1 Quarter 1 and ending at the conclusion of Year 10 Quarter 4); emissions were calculated for each quarter for the modeled 10-year duration and illustrated in Figures 8-1 through 8-3 which show how emissions increase and decrease over the course of construction. Tables 8-11 (Alternative 3A), 8-12 (Alternative 4A), and 8-13 (Alternative 10A) provide the estimated percent decline in emissions compared to the peak calendar year. The peak calendar year of estimated NOx and VOC emissions in SDEIR Alternatives 3A

⁸ As discussed above, the project Study Area encompasses ±15 miles of deep rock tunnels and connections to existing water supply infrastructure (±200-400 ft) below the surface of several communities. Thirteen (13) shaft site locations within the Study Area are located within 1 mile of EJ populations. However, a smaller transportation Study Area was used to calculate the total air emissions summarized below.

⁹ The SDEIR cites to the U.S. Environmental Protection Agency (EPA), General Conformity, “De Minimis Tables,” updated July 20, 2022, as the source of the “de minimis” thresholds. See <https://www.epa.gov/general-conformity/de-minimis-tables> (accessed June 12, 2023). According to EPA fact sheets, the relatively high thresholds in the General Conformity rule are used to help states and tribes improve air quality in areas that are in “nonattainment” with national air quality standards. Nonetheless, they provide some basis for comparison to the overall air emissions impacts of the project.

and 4A is Year 3. For all SDEIR Alternatives, the estimated peak calendar year for GHG emissions is Year 6.

The traffic study includes local roadway routes to and from construction locations to the nearest highway interchanges, generally with I-93 and I-95. Air pollutant emissions were calculated along these local routes, which traverse both EJ and non-EJ areas. On the modeled peak day, the project is expected to temporarily add 0.1% to 2.0% additional vehicles to local roadways. Project-related traffic outside the Study Area would primarily include construction-related trucks and employee vehicles along the interstate highways. Given the existing volumes of traffic on I-93 and I-95, project-related traffic (and associated generated emissions) is anticipated to be a small percentage of the total highway traffic (and emissions) and any increases outside the Study Area attributable to the project would be minimal. The SDEIR defines the transportation Study Area used to calculate the emissions presented in the mesoscale analysis (summarized above) and identifies the roadway intersections analyzed in both the transportation and air quality analyses. It identifies which of the intersections in the analysis include U.S. Census block groups containing potential EJ populations. Table 8-14 presents the peak 12-month period of construction emissions of NOx and particulates from project-related construction vehicles and identifies how the emissions are distributed on local roads adjacent to block groups identified as containing EJ populations versus non-EJ block groups. Emissions of NOx, PM10, PM2.5, and diesel particulate matter (DPM) are all expected to be below 0.5 tpy, and well below the EPA’s “de minimis” thresholds of 100 tpy for NOx, 100 tpy for PM10, and 100 tpy for PM2.5 (there are no thresholds for DPM). Lead is no longer used in gasoline and is not used in diesel fuel. Therefore, the Program is expected to have no lead emissions.

Table 8-14 Program-Related On-Road Emissions in Proximity to EJ Block Groups) (Tons)

Alternative	Nitrogen Oxides (NOx) Peak 12-Month Period		Particulate Matter (PM ₁₀) Peak 12-Month Period		Fine Particulate Matter (PM _{2.5}) Peak 12-Month Period		Diesel Particulate Matter (DPM) Peak 12-Month Period	
	EJ Block Groups	Non-EJ Block Groups	EJ Block Groups	Non-EJ Block Groups	EJ Block Groups	Non-EJ Block Groups	EJ Block Groups	Non-EJ Block Groups
Alternative 3A	0.28	0.14	0.04	0.02	0.01	0.01	0.01	0.00
Alternative 4A	0.26	0.13	0.03	0.02	0.01	0.00	0.01	0.00
Alternative 10A	0.30	0.14	0.04	0.02	0.01	0.00	0.01	0.00

Calculations show that emissions are small, however more pollutants are emitted in EJ areas than in non-EJ areas due to the proximity of EJ neighborhoods to construction sites and the main state and local thoroughfares used to get to the interstate highways, especially for the American Legion site, and the most direct route along State Road 203 to I-93. Construction vehicle routes between the interstate highways and construction sites are anticipated to take place on local roads, some of which abut EJ communities, assuming that the most direct local routes would be used. Any rerouting of construction vehicles would increase travel times and/or mileage, thus increasing regional emissions totals in both EJ and non-EJ communities. The SDEIR states the least impactful routing to all populations is using the most direct routes to/from the interstate highway and minimizing traffic on local roads. Program launching shaft locations (i.e., Tandem Trailer, Bifurcation, and Highland Avenue sites) are adjacent to highway ramps and are therefore not expected to cause a significant traffic impact to nearby local roadways. None of the launching shaft sites considered in either of the SDEIR Alternatives are in EJ

block groups and given their proximity to highway ramps, no construction vehicle routes between these launching shaft sites and the highway travel through EJ block groups.

Adaptation and Resiliency

Permanent aboveground infrastructure proposed to be sited within the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area (SFHA) (area subject to inundation by the 1% annual chance flood) would be limited to dewatering discharge pipes and associated splash pads. Three project sites would have discharge pipes and splash pads within floodplain (Zone AE or A): the Highland Avenue Northeast/Southeast launching site (Alternatives 3A, 4A, and 10A), Bifurcation launching site (Alternative 3A), and Tandem Trailer/Park Road East launching site (Alternatives 3A and 4A). According to the SDEIR, it is not feasible to locate the structures outside of floodplain because it overlaps the areas required to be protected from potential scour. To minimize the risk of flooding, permanent shaft structures will be sited outside of floodplain and would be designed as watertight structures to provide continuous access to the tunnel throughout storm events. Discharge pipes and splash pads would be designed with scour protection and erosion control to minimize impacts to existing waterways.

SCOPE

General

The FEIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent feasible.

C-1

Project Description and Permitting

The FEIR should include a detailed and updated description of the project and identify any changes since the filing of the SDEIR. The FEIR should include an updated description of the project’s temporary and permanent impacts to environmental resources, including but not limited to the following: land alteration (including protected open space), wetlands, rare species habitat, cultural and historic resources and open space. The FEIR should identify methods that will be undertaken to avoid, minimize and mitigate Damage to the Environment.

C-2

C-3

The FEIR should include updated site plans for existing and post-development conditions for each project alternative (preferred and backup) that clearly identify environmental resources, either existing land ownership or acquisitions, easements and associated rights (e.g., rail operations, sewer lines, drainage culverts, etc.) required for project construction, and roadway and intersection jurisdictions. The FEIR should identify and describe state, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions. It should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project’s consistency with those standards. The FEIR should clearly describe the permits and/or regulatory approvals required for each component of the project.

C-4

C-5

Comments from Charles River Watershed Association (CRWA) identify a number of concerns which should be addressed in the FEIR regarding construction period impacts, tree removal, land alteration and Article 97, community outreach, EJ impact assessments, wetlands, waterways, water supply, and climate change. The FEIR should also address comments from the Waltham Land Trust as they relate to their environmental and public access goals for the Lawrence Meadow parcel, which is adjacent to the to the UMass Property site.

C-6
C-7

The information and analyses identified in this Scope should be addressed within the main body of the FEIR and not in appendices. In general, appendices should be used only to provide raw data, such as drainage calculations, traffic counts, capacity analyses and energy modelling, that is otherwise adequately summarized with text, tables and figures within the main body of the FEIR. Information provided in appendices should be indexed with page numbers and separated by tabs, or, if provided in electronic format, include links to individual sections. Any references in the FEIR to materials provided in an appendix should include specific page numbers to facilitate review.

C-8

Environmental Justice

I expect that the MWRA will continue to actively seek public input and work closely with the Stakeholder Working Group(s) and other stakeholders in developing the FEIR for this project. The FEIR should provide an overview of outreach activities that have taken place since the SDEIR was submitted. The FEIR should address the comments from the CRWA regarding active outreach to EJ populations, and should circulate a copy of the FEIR or summary thereof to the EJ Reference List prior to filing. It should identify measures to avoid, minimize and mitigate impacts to EJ populations from project-related activities during and post-construction including working with Departments of Public Works (DPWs) and transportation departments in each municipality to implement mitigation measures in all areas with EJ populations. The FEIR should clarify the precise extent of the “transportation Study Area” used to calculate air emissions for the project, as contrasted with the “Study Area” for the project as a whole.

C-9
C-10
C-11
C-12
C-13

Land Alteration, Open Space, and Article 97

According to DCR comments, the SDEIR does not provide an estimate of the total tunnel alignment area on DCR properties; however, during consultation, MWRA indicated that a permanent easement ±30 feet wide would be required, which would also trigger Article 97 requirements. DCR will continue to work with MWRA to ensure that there are no feasible alternatives to the fee simple and permanent easement interests identified within the limit of work for the project and, if no alternatives exist, that the minimum amount of interest in DCR land is being disposed of for the purpose of the project. MWRA will be responsible for meeting the obligations of the PLPA, including public notification, an alternatives analysis, the identification and dedication of replacement land to Article 97 purposes, an appraisal, requests for the Secretary to waive or modify the replacement land requirement or make findings relative to funding in lieu of replacement land, if applicable, and Article 97 legislation. The FEIR should provide a summary of the outcome of further consultations with DCR regarding Article 97 protection and mitigation. It is my expectation that mitigation commitments relative to Article 97 dispositions will be finalized in conceptual fashion by the time of the FEIR.

C-14
C-15
C-16

Wetlands

The FEIR should provide an update on temporary and permanent impacts to wetland resource areas. It should address MassDEP comments which note that permanent alterations to BVW and Bank

C-17

will occur due to the installation of splash pads and culvert outlets. It should confirm that these structures are located as far from BVW as possible. According to MassDEP comments, the SDEIR appears to assume that splash pads will be adequate to dissipate velocity to avoid erosion and/or sedimentation in resource areas. The FEIR should confirm with calculations that the pipes and splash pads have been properly sized to regulate flows to prevent scour. The FEIR should confirm that MWRA will develop a plan to monitor the outfalls during dewatering activities to ensure that scour and erosion does not occur, that includes a contingency plan to address any unexpected impacts.

C-17
(cont'd)

C-18

C-19

The FEIR should verify that none of the waterbodies proposed for discharge are identified as ORWs because discharges to ORWs are ineligible for coverage under the NPDES DRGP unless an authorization is granted by the MassDEP pursuant to 314 CMR 4.04(3)(b). If authorization is needed from MassDEP it must be obtained prior to seeking coverage under the DRGP.

C-20

Fisheries

During construction at the launching and receiving sites, construction water will be generated, primarily from groundwater inflows into the tunnel excavation. One of the primary dewatering discharge sites (Tandem Trailer) is located near the I-90/I-95 interchange; flows will discharge into Seaverns Brook which discharges into the Charles River, which supports diadromous fish including American shad, rainbow smelt, white perch, Atlantic tomcod, and American eel. Additionally, the area between the Moody Street Dam and I-90/I-95 provides important spawning habitat for River Herring.

C-21

The FEIR should address comments from the Massachusetts Division of Marine Fisheries (DMF) regarding proposed dewatering work, which will potentially impact river herring spawning and migration in the Charles River based on changes in water velocity and volume, increased turbidity, and potential changes in temperature. It should confirm that the project will implement a time-of-year restriction of no in-water, silt-producing work from April 15 to July 15 to minimize this impact. The FEIR should include additional information about the temporary water-treatment facility proposed at the Tandem Trailer shaft site and regarding noise and vibration impacts caused by tunneling, which may impact fish migration and spawning.

C-22

C-23

C-24

C-25

Rare Species

According to comments from NHESP, a portion of the project under all alternatives is proposed within Priority or Estimated Habitat of rare species. Work within or immediately adjacent to existing paved roads is likely exempt from Massachusetts Endangered Species Act (MESA, MGL c131A) and its implementing regulations (321 CMR 10.00) pursuant to 321 CMR 10.14 under exemptions 6, 7, 8, 10, 12. However, project components and work adjacent to or within unpaved roads (e.g., gravel, dirt, sand), or beyond 10 feet from a paved road are unlikely to qualify as exempt from review. Therefore, some aspects of the project may require review through a direct filing with NHESP for compliance with MESA. MWRA should consult with NHESP prior to filing the FEIR to address state-listed species concerns, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review. The FEIR should provide an update on any consultations with NHESP and identify avoidance, minimization, and mitigation measures, as appropriate.

C-26

Mitigation and Draft Section 61 Findings

The FEIR should include a separate chapter summarizing all proposed mitigation measures

C-27

including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the impacts of the project. The FEIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, EJ, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project.

C-27
(cont'd)
C-28
C-29

Responses to Comments

The FEIR should contain a copy of this Certificate and a copy of each comment letter received. It should include a comprehensive response to comments on the SDEIR that specifically address each issue raised in the comment letter; references to a chapter or sections of the FEIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response. This directive is not intended to, and shall not be construed to, enlarge the Scope of the FEIR beyond what has been expressly identified in this certificate.

C-30

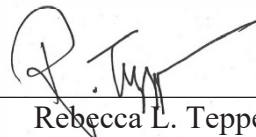
Circulation

The Proponent should circulate the FEIR to the same distribution list the ENF, DEIR and SDEIR were sent to, including all community contacts identified for the Study Area; any additional stakeholders identified during MWRA’s public outreach program; to any Agencies from which MWRA will seek Permits, Land Transfers or Financial Assistance; and to any parties specified in Section 11.16 of the MEPA regulations. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the FEIR to commenters in a digital format (e.g., CD-ROM, USB drive) or post to an online website. However, the Proponent must make available a reasonable number of hard copies to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. The Proponent should send correspondence accompanying the digital copy or identifying the web address of the online version of the FEIR indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. A copy of the FEIR should be made available for review at public libraries of the Study Area communities.

C-31

September 29, 2023

Date



Rebecca L. Tepper

Comments received:

- 09/22/2023 Massachusetts Department of Environmental Protection (MassDEP) – Northeast Regional Office (NERO)
- 09/22/2023 City of Cambridge Water Department
- 09/22/2023 Charles River Watershed Association (CRWA)
- 09/22/2023 Waltham Land Trust
- 09/25/2023 MassDEP Waterways Regulation Program (WRP)

09/25/2023 Massachusetts Water Resources Commission (MWRC)
09/28/2023 Massachusetts Department of Conservation and Recreation (DCR)
09/29/2023 Massachusetts Division of Marine Fisheries (DMF)
09/29/2023 Massachusetts Natural Heritage and Endangered Species Program (NHESP)

RLT/PPP/ppp

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-1	<p>The FEIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent feasible.</p>	<p>The organizational framework, methodology, analysis, and content contained in this FEIR were prepared in accordance with the Massachusetts Environmental Policy Act (MEPA) regulations set forth in 301 Code of Massachusetts Regulations (CMR) Section 11.00 et seq., including 301 CMR Section 11.07, “EIR Preparation and Filing.” The FEIR contains the information and analyses required per the Scope identified in the Secretary’s Certificate on the Supplemental Draft Environmental Impact Report (SDEIR), which was issued on September 29, 2023. FEIR Chapter 8, Mitigation and Draft Section 61 Findings, provides a summary of mitigation commitments and draft Section 61 Findings for each applicable state agency.</p> <p>The FEIR includes a separate chapter for each of the sections the Secretary identified in the Scope and is organized as follows:</p> <ul style="list-style-type: none"> • Chapter 1, Program Description and Permitting • Chapter 2, Outreach and Environmental Justice • Chapter 3, Land Alteration, Open Space, and Article 97 • Chapter 4, Wetlands and Waterways • Chapter 5, Fisheries • Chapter 6, Rare Species • Chapter 7, Transportation • Chapter 8, Mitigation and Draft Section 61 Findings • Chapter 9, Responses to Comments • Chapter 10, Circulation

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-2	<p>The FEIR should include a detailed and updated description of the project and identify any changes since the filing of the SDEIR.</p>	<p>FEIR Section 1.1.1, Summary of Program Changes (pg. 1-5), details changes since the filing of the SDEIR. Most notably, this FEIR includes Alternative 4B (instead of SDEIR Alternative 10A) as well as Alternatives 3A and 4A. Alternative 4B now serves as the preferred alternative. The chapters included in the FEIR provide further details regarding Alternative 4B as well as clarifications in response to comments received in the Secretary’s Certificate on the SDEIR and in the associated comment letters. The FEIR also republishes summary information on the Program as directed in the Certificate.</p> <p>FEIR Chapter 1, Program Description and Permitting, includes a detailed description of the Program. A summary of the Program Alternatives is also provided in FEIR Section 1.3, Summary of Program Alternatives (pgs. 1-11 to 1-28).</p>
C-3	<p>The FEIR should include an updated description of the project’s temporary and permanent impacts to environmental resources, including but not limited to the following: land alteration (including protected open space), wetlands, rare species habitat, cultural and historic resources and open space.</p> <p>The FEIR should identify methods that will be undertaken to avoid, minimize and mitigate Damage to the Environment.</p>	<p>Alternatives 3A and 4A, and hence the temporary and permanent impacts to environmental resources associated with these alternatives, remain the same as described in the SDEIR. FEIR Alternative 4B is comprised of tunnel segments, tunnel alignments, shaft sites, shaft site usage, construction methodologies, construction schedules, and durations as previously presented in the DEIR and SDEIR. Alternative 4B utilizes the Lower 190 Trapelo Road Property (previously referred to as the “Lower Fernald Property” in the SDEIR) receiving shaft site as the terminus for its North Tunnel, Segment 1. All other Alternative 4B sites are the same as those in Alternative 4A. No new sites are presented in this FEIR, and the site-specific information presented in the SDEIR remains current and consistent with the Program design at the time of this FEIR. To provide details related to potential impacts of Alternative 4B and clarification in response to comments received on the SDEIR, applicable technical chapters were updated in the FEIR as they relate to the Scope identified in the Secretary’s Certificate.</p> <p>Methods that will be undertaken to avoid, minimize and mitigate Damage to the Environment are documented for each environmental resource category in FEIR Chapter 8, Mitigation and Draft Section 61 Findings.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-4	The FEIR should include updated site plans for existing and post-development conditions for each project alternative (preferred and backup) that clearly identify environmental resources, either existing land ownership or acquisitions, easements and associated rights (e.g., rail operations, sewer lines, drainage culverts, etc.) required for project construction, and roadway and intersection jurisdictions.	The site plans provided in the DEIR and updated in the SDEIR to include the revised northern terminus site for the North Tunnel, Segment 1, in place of the DEIR Fernald Property receiving shaft site (University of Massachusetts (UMass) Property large connection shaft site in Alternatives 3A and 4A or the Lower 190 Trapelo Road Property (previously the “Lower Fernald Property”) receiving shaft site now in Alternative 4B), remain current and consistent with the Program design at the time of this FEIR.
C-5	The FEIR should identify and describe state, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions. It should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project’s consistency with those standards. The FEIR should clearly describe the permits and/or regulatory approvals required for each component of the project.	The permits, approvals, and actions anticipated to be required for the Program are summarized in FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32) . Included is the status of each permit, approval, or action at the time of the FEIR. A description of the applicable standards and requirements for various Program components are described for the federal context in FEIR Section 1.5.2, Regulatory Context – Federal (pg. 1-33) , state in FEIR Section 1.5.3, Regulatory Context – State (pgs. 1-34 to 1-38) , and municipal in FEIR Section 1.5.4, Regulatory Context – Municipal (pg. 1-38) .
C-6	Comments from Charles River Watershed Association (CRWA) identify a number of concerns which should be addressed in the FEIR regarding construction period impacts, tree removal, land alteration and Article 97, community outreach, EJ impact assessments, wetlands, waterways, water supply, and climate change.	Comments raised by the CRWA are addressed in this chapter in FEIR Table 9-5 . A copy of the CRWA’s comment letter is included in FEIR Section 9.5, Letter 3: Charles River Watershed Association .
C-7	The FEIR should also address comments from the Waltham Land Trust as they relate to their environmental and public access goals for the Lawrence Meadow parcel, which is adjacent to the to the UMass Property site.	The comments raised by the Waltham Land Trust (WLT) are addressed in this chapter in FEIR Table 9-6 . A copy of the WLT’s comment letter is included in FEIR Section 9.6, Letter 4: Waltham Land Trust .

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-8	The information and analyses identified in this Scope should be addressed within the main body of the FEIR and not in appendices. In general, appendices should be used only to provide raw data, such as drainage calculations, traffic counts, capacity analyses and energy modelling, that is otherwise adequately summarized with text, tables and figures within the main body of the FEIR. Information provided in appendices should be indexed with page numbers and separated by tabs, or, if provided in electronic format, include links to individual sections. Any references in the FEIR to materials provided in an appendix should include specific page numbers to facilitate review.	The FEIR is structured in accordance with these requirements and contains the information and analyses required per the Scope issued by the EEA. No appendices are included as part of the FEIR. The chapters included in the FEIR provide clarifications in response to comments received in the Secretary’s Certificate on the SDEIR and in the associated comment letters. The FEIR also republishes summary information on the Program as directed in the Certificate.
C-9	Continue to actively seek public input and work closely with the Stakeholder Working Group(s) and other stakeholders in developing the FEIR for this project. The FEIR should provide an overview of outreach activities that have taken place since the SDEIR was submitted.	The MWRA continues to implement a robust outreach initiative and continues to seek public input and work closely with the Stakeholder Working Group and other stakeholders. As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.2.1, Working Group (pg. 2-3) , the Working Group meetings have provided a collaborative and transparent process for evaluating alternatives and yielding more informed comments during the MEPA process. The Working Group meetings will continue to provide a mechanism for ongoing updates regarding fieldwork and other Program-related activities planned in the communities. Additional presentations to community representatives will continue as design of the Program progresses. FEIR Section 2.2, Outreach Activities Since the SDEIR, Table 2-1 (pg. 2-2) provides a list of outreach activities conducted by the MWRA since the SDEIR filing (July 31, 2023).
C-10	The FEIR should address the comments from the CRWA regarding active outreach to EJ populations.	Responses to comments received on the SDEIR from the CRWA regarding active outreach to EJ populations are provided in this chapter in FEIR Section 9.5, Letter 3: Charles River Watershed Association, Table 9-5 , along with a copy of the CRWA’s comment letter. FEIR Chapter 2, Outreach and Environmental Justice , clarifies information related to the EJ analysis and provides additional information on outreach efforts.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-11	Circulate a copy of the FEIR or summary thereof to the EJ Reference List prior to filing.	<p>The MWRA circulated a summary of the FEIR to the EJ Reference List prior to the FEIR filing. The summary was included as part of the Advance Notification Form (EJ Screening Form), which was provided to community-based organizations (CBOs) and tribes based on a recommended list provided by the EEA EJ Director.</p> <p>The EJ Screening Form included accompanying figures and was translated into Spanish, Chinese, and Haitian Creole. A copy of the EJ Screening Form is available on the MWRA’s website (https://www.mwra.com/mwtp/resources.html).</p>
C-12	Identify measures to avoid, minimize and mitigate impacts to EJ populations from project-related activities during and post-construction including working with Departments of Public Works (DPWs) and transportation departments in each municipality to implement mitigation measures in all areas with EJ populations.	<p>The MWRA is committed to protecting residents and minimizing Program-related impacts on communities. The MWRA will implement mitigation measures to address adverse Program impacts as described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Sections 8.2.1 through 8.2.11. Mitigation measures will be implemented for both EJ and non-EJ communities. As demonstrated in SDEIR Chapter 3, Outreach and Environmental Justice, while the Program is anticipated to result in adverse impacts for some environmental resource areas, no EJ populations would be subject to disproportionate adverse effects in any of the three Alternatives. See SDEIR Section 3.4, Environmental Justice Impact Assessment (pgs. 3-11 to 3-135), for the analysis of potential construction period and final condition impacts on EJ populations.</p> <p>No significant Program-related permanent transportation impacts are anticipated as described in SDEIR Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation Measures (pg. 9-51) and FEIR Section 8.2.7, Transportation (pg. 8-26 to 8-29). Temporary impacts to the transportation network may occur during the construction period due to a temporary increase in truck trips to and from the construction sites, transportation of contractors, and physical construction of near-surface pipelines in public roadways at some sites.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
		<p>As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.6, Mitigation and Collaboration with DPWs and Transportation Departments (pgs. 2-10 to 2-11), the MWRA will work with the DPWs and transportation departments of each affected municipality to establish appropriate transportation-related mitigation measures, as needed and where appropriate. Measures that would be considered to mitigate potential traffic impacts, if necessary and where appropriate, are described in SDEIR Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation Measures (pgs. 9-51 to 9-54) and are summarized in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.7 (pgs. 8-26 to 8-29).</p> <p>As design progresses, the MWRA will develop requirements for traffic routes and work hour restrictions based on permit conditions and community coordination. These requirements will be included in the contract documents and serve as the basis for a Construction Management Plan (CMP) to be prepared by the contractor(s). The CMP will further detail measures to avoid, minimize, and mitigate potential traffic disruptions, and potential air quality and noise impacts. The CMP will document requirements for the contractor(s) to accept and follow prior to the start of construction activities. Consideration will be given to the community including EJ populations and public housing residents.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-13	The FEIR should clarify the precise extent of the “transportation Study Area” used to calculate air emissions for the project, as contrasted with the “Study Area” for the project as a whole.	<p>As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.7, Transportation Study Area Used to Calculate Air Emissions (pgs. 2-11 to 2-13), the Study Area used to model air emissions was the same as the Study Area used to assess potential transportation-related impacts (i.e., the “Transportation Study Area”). The Study Area used to calculate Program-related air emissions included construction activity at the Program sites and the anticipated construction vehicle routes along local roadways to and from Program sites to the nearest major highway (i.e., Interstate 93 (I-93) and Interstate 95 (I-95)). Vehicle trips estimated to/from each Program site were distributed onto the surrounding roadway network based on the most direct route along main State and local roadways to/from the nearest highway. Construction period air pollutant emissions were then modeled along these local routes for on-road construction trucks and employee trips. FEIR Section 7.2.1, Transportation Existing Conditions, Table 7-2 (pgs. 7-5 to 7-7) lists the Study Area roadways associated with each Program site. Emissions for off-road mobile sources (nonroad construction equipment used at the Program sites) were quantified by Program site for each Alternative. As described in SDEIR Chapter 8, Air Quality and Greenhouse Gas Emissions, Program-related construction-period emissions would be primarily associated with off-road equipment and, more specifically, construction equipment temporarily used at launching shaft sites. SDEIR Chapter 3, Outreach and Environmental Justice, Figures 3-3 to 3-19 depict the anticipated construction vehicle routes to be used during temporary Program-related construction activities. Study Area intersections along the anticipated routes are also identified in SDEIR Figures 3-3 to 3-19.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
		<p>As described in FEIR Section 2.7, Transportation Study Area Used to Calculate Air Emissions (pgs. 2-11 to 2-13), to assess potential impacts associated with the Program sites and the tunnel alignment, a specific Study Area was defined for each environmental resource category. For example, the Cultural and Historic Resources Study Area established a 400-foot distance around the temporary construction area limits of disturbance to account for potential Program-related visual effects on aboveground properties while the Land Alteration and Article 97 Study Area encompassed a larger area to also evaluate which properties within a 1,000-foot-wide corridor along the tunnel alignment may require a subterranean easement. FEIR Table 2-3 (pgs. 2-12 to 2-13) summarizes the Study Area used to evaluate each environmental resource category.</p>
C-14	<p>According to DCR comments, the SDEIR does not provide an estimate of the total tunnel alignment area on DCR properties; however, during consultation, MWRA indicated that a permanent easement ±30 feet wide would be required, which would also trigger Article 97 requirements.</p>	<p>As described in SDEIR Section 4.2.3, Land Alteration and Article 97 Resources Final Conditions (pg. 4-42), properties protected by Article 97 within a 1,000-foot corridor centered around the preliminary tunnel alignment (500 feet on either side of the alignment) were identified for each Alternative. The 1,000-foot corridor was used to identify Article 97 resources that may require a subterranean easement should the tunnel be located directly underneath a given property. Since the proposed tunnel would be up to approximately 12 feet in diameter, the 1,000-foot corridor tunnel alignment Study Area represents a conservative estimate of properties that may require a subterranean easement. Article 97 properties located within a 1,000-foot corridor of the preliminary tunnel alignment are listed by Program Alternative in FEIR Table 3-8 as presented in FEIR Section 3.5.4.3, Tunnel Alignment (pgs. 3-32 to 3-33).</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
		<p>Properties that are protected under Article 97 and located within the 1,000-foot corridor of the preliminary tunnel alignment are shown in DEIR Figure 4.13-17 to DEIR Figure 4.13-22. SDEIR Figure 4-3 to Figure 4-4 and FEIR Figure 3-1 (pg. 3-21) provide the updated alignment associated with North Tunnel, Segment 1, for Alternatives 3A, 4A, and 4B (all other tunnel segments are the same).^{1,2,3}</p> <p>As described in FEIR Chapter 1, Program Description and Permitting (pg. 1-2), the depth of the tunnel would range from approximately 200 feet to 400 feet below ground surface. Thus, the tunnel alignment would be below ground and would not disrupt open space or community resources at the surface; however, as discussed with the DCR, it is anticipated that a permanent subterranean easement approximately 50 feet wide and 50 feet high, centered on the tunnel, would be required for the portion of properties located directly above the tunnel alignment. Subterranean easements will not extend to the ground surface. Article 97 mitigation would be required for properties located above the tunnel alignment that are protected by Article 97. MWRA will obtain easements from each landowner prior to construction.</p>

- 1 **DEIR Figure 4.13-17** (Alternative 3 – Tunnel Segment 1) is superseded by **SDEIR Figure 4-3** (Alternative 3A – Tunnel Segment 1) and **DEIR Figure 4.13-20**, (Alternative 4 – Tunnel Segment 1) is superseded by **SDEIR Figure 4-4** (Alternative 4A – Tunnel Segment 1).
- 2 As described in **SDEIR Section 4.2.1.3, Tunnel Alignment Existing Conditions (pg. 4-17)**, use of the UMass Property large connection shaft site in SDEIR Alternatives 3A and 4A revises the tunnel alignment from the School Street connection shaft site to the northern terminus site. South of the School Street connection shaft site, the preliminary alignment of the North Tunnel, Segment 1, would remain the same as described in the DEIR. South Tunnel, Segment 2, and South Tunnel, Segment 3, remain the same as previously described in the DEIR.
- 3 As described in **FEIR Section 3.5.2.3, Tunnel Alignment Existing Conditions (pg. 3-19 to 3-23)**, Alternative 4B is the same as Alternative 4A except for its use of the Lower 190 Trapelo Road Property (previously the “Lower Fernald Property”) receiving shaft site as the terminus of the North Tunnel, Segment 1. **FEIR Figure 3-1** presents Alternative 4B north of the School Street connection shaft site. South of the School Street connection shaft site, the preliminary alignment of the Alternative 4B North Tunnel, Segment 1, would remain the same as Alternative 4A. South Tunnel, Segment 2, and South Tunnel, Segment 3, for Alternative 4B remain the same as Alternative 4A.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
		<p>As described in FEIR Chapter 3, Land Alteration, Open Space, and Article 97, Section 3.2.1, Total Tunnel Alignment Area on DCR Properties (pgs. 3-3 to 3-4), the tunnel alignment between shaft sites will be further refined as design for the Program is finalized. Geotechnical and geologic data from borings, surface geophysical surveys, and bedrock outcrop mapping, along with data collected as part of past projects (e.g., past MWRA projects, MassDOT work, etc.), will continue to be analyzed to characterize the geologic and hydrological setting for the Program area and to understand conditions which influence shaft and tunnel design and construction methods (e.g., top of rock elevation, location and limits of geologic faults, permeability, strength, abrasively, mineralogy, lithology, stability, etc.). The results of these investigations and analyses, along with other factors such as hydraulic connections to critical infrastructure, will dictate the final tunnel alignment and the resulting parcels that would require permanent subterranean easements. As design progresses, the MWRA will finalize which parcels require subterranean easements and the acreages required.</p>
C-15	<p>MWRA will be responsible for meeting the obligations of the PLPA, including public notification, an alternatives analysis, the identification and dedication of replacement land to Article 97 purposes, an appraisal, requests for the Secretary to waive or modify the replacement land requirement or make findings relative to funding in lieu of replacement land, if applicable, and Article 97 legislation.</p>	<p>As described in FEIR Chapter 3, Land Alteration, Open Space, and Article 97, Section 3.2.2, Commitment to Article 97 Land Disposition Policy and PLPA Obligations (pgs. 3-5 to 3-9), the MWRA is committed to working with the DCR and other agencies to meet the requirements for the transfer of Article 97 property in accordance with the EEA Article 97 Land Disposition Policy, the Public Lands Preservation Act (PLPA), and the Commonwealth’s “Guidance on Public Lands Preservation Act Implementation.”</p> <p>As described in SDEIR Chapter 4, Land Alteration and Article 97, Section 4.1.1, Summary of Findings (pg. 4-1), existing open space areas protected by Article 97 through the EEA Article 97 Land Disposition Policy would be avoided to the greatest extent practicable. Use of open space land and community resources has been minimized during the site-selection process and alternatives analysis as described in FEIR Section 1.3.4, Evaluating the Preferred Alternative (pgs. 1-17 to 1-20) and SDEIR Chapter 2, Alternatives. As previously assumed in the DEIR and the SDEIR, three Program sites (common to the three Alternatives) may require the disposition of land protected under Article 97 (not under the care, custody, and control of MWRA):</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
		<ul style="list-style-type: none"> • The Hegarty Pumping Station connection shaft site (Ouellet Park; Article 97 status to be determined) • Southern Spine Mains connection shaft site (Southwest Corridor Park/Arborway I) • The American Legion receiving shaft site (Morton Street Property) <p>FEIR Table 3-1 (pgs. 3-7 to 3-9), as previously presented in SDEIR Section 4.2.4.2, Table 4-13 (pgs. 4-49 to 4-51), summarizes how the MWRA would seek to comply with the conditions outlined in the Article 97 Land Disposition Policy.</p> <p>In accordance with the requirements of the PLPA, the MWRA will notify the Secretary of the EEA and the public by submitting the proposed disposition request within the PLPA portal and perform additional notification as required by the EEA. Prior to the submission, the MWRA will coordinate with the owner/maintainer of the parcel of interest, as required by the PLPA.</p> <p>As outlined in the PLPA and as described in SDEIR Section 4.3, Technical Analysis to Respond to Certificate Comments (pgs. 4-52 to 4-55), the MWRA will prepare a brief alternatives analysis for submission to the EEA portal for site use and select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, the MWRA may request to provide in-lieu funding for part or all of the replacement land. The MWRA will continue to work with the appropriate agencies regarding the most appropriate option for each applicable site subject to the PLPA and the Article 97 Policy.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-16	<p>The FEIR should provide a summary of the outcome of further consultations with DCR regarding Article 97 protection and mitigation. It is my expectation that mitigation commitments relative to Article 97 dispositions will be finalized in conceptual fashion by the time of the FEIR.</p>	<p>As described in FEIR Chapter 3, Land Alteration, Open Space, and Article 97, Section 3.2, Summary of Consultation with DCR Since SDEIR Filing (pgs. 3-2 to 3-9), and as the DCR noted in its SDEIR comment letter (refer to FEIR Section 9.9, Letter 7: Massachusetts Department of Conservation and Recreation), the MWRA and DCR will continue to work together to identify appropriate mitigation to compensate for the disposition of land protected under Article 97. This includes the disposition of approximately 3.5 acres of land at the DCR’s Morton Street Property to accommodate the American Legion receiving shaft site (common to all Alternatives), as well as the permanent easements (subterranean) that would be required for the tunnel alignment area beneath DCR properties, which are also subject to Article 97 requirements.</p> <p>FEIR Table 3-1 (pgs. 3-7 to 3-9), as previously presented in SDEIR Section 4.2.4, Land Alteration and Article 97 Avoidance, Minimization, and Mitigation, Table 4-13 (pgs. 4-49 to 4-51), describes that the minimum amount of interest in DCR land is being disposed to meet the purpose and need for the Program. The MWRA will continue consultation and coordination with the DCR during the final design phase to identify and implement appropriate mitigation.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-17	<p>The FEIR should provide an update on temporary and permanent impacts to wetland resource areas. It should address MassDEP comments which note that permanent alterations to BVW and Bank will occur due to the installation of splash pads and culvert outlets. It should confirm that these structures are located as far from BVW as possible.</p>	<p>FEIR Chapter 4, Wetlands and Waterways, Table 4-1 (pgs. 4-3 to 4-5) provides the estimated temporary and permanent impacts to wetland resource areas at each of the proposed Program sites by municipality for each Alternative.</p> <p>With the introduction of SDEIR Alternatives 3A and 4A which use the UMass Property site (in Alternatives 3A and 4A) and FEIR Alternative 4B, which uses the Lower 190 Trapelo Road Property site in place of the DEIR Fernald Property site (Alternatives 3, 4, and 10), impacts to Bordering Vegetated Wetland (BVW) due to installation of splash pads and culvert outlets are avoided because BVW is not present within the limit of disturbance at the proposed discharge locations as described in the DEIR (refer to DEIR Section 4.6.7.1, pgs. 4.6-161 to 4.6-162) and repeated in FEIR Section 4.2.1, Splash Pad and Culvert Outlet Wetland Resource Impacts (pg. 4-6).</p> <p>The only impact to BVW (which would be temporary) is associated with the surface connection to the existing water distribution infrastructure near the American Legion site (see FEIR Table 4-1). Construction period impacts to Bank, Land Under Water (LUW), and Bordering Land Subject to Flooding (BLSF) would occur due to installation of splash pads at dewatering discharge pipe outlets but have been minimized to the maximum extent practicable by locating them outside of BVW and sizing them appropriately to manage anticipated flows without excess footprint. However, these impacts are unavoidable and moving these structures farther from the BVW (and other resource areas) is not feasible because the dewatering discharge must be in proximity to a receiving water body. Options to reduce the impacts associated with dewatering discharge infrastructure would be further developed during the final design phase and detailed in the permit application materials to be filed and may include a rock-lined sedimentation basin with level spreader, filter bags or frac tanks.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-18	According to MassDEP comments, the SDEIR appears to assume that splash pads will be adequate to dissipate velocity to avoid erosion and/or sedimentation in resource areas. The FEIR should confirm with calculations that the pipes and splash pads have been properly sized to regulate flows to prevent scour.	As noted by the Secretary in page 13 of the Certificate, “the SDEIR provides calculations (Appendix B) demonstrating that proposed pipes and splash pads, intended to dissipate velocity to avoid eroding effects on resource areas, have been properly sized to regulate flows and prevent scour.” The MWRA has reconfirmed that the splash pads have been properly sized to regulate flows and to prevent scour. By e-mail dated October 31, 2023, MassDEP confirmed regarding the calculations in SDEIR Appendix B, Wetlands and Waterways Supporting Documentation , “that the additional information in the SDEIR sufficiently addresses the comments and no further information on that is needed.”
C-19	The FEIR should confirm that MWRA will develop a plan to monitor the outfalls during dewatering activities to ensure that scour and erosion does not occur, that includes a contingency plan to address any unexpected impacts.	As indicated in DEIR Section 4.6.5.4 Tunnel Dewatering and Disinfection (pg. 4.6-151) , the MWRA will require the contractor to develop plan to monitor the dewatering discharge outfalls during dewatering activities to ensure that scour and erosion does not occur, which will be developed during the final design phase. The monitoring plan will include corrective action contingencies to address unanticipated impacts. These corrective actions would include procedures such as modifications to discharge pipe sizes, changes to splash pad configurations or implementation of additional discharge velocity dissipation measures.
C-20	The FEIR should verify that none of the waterbodies proposed for discharge are identified as ORWs because discharges to ORWs are ineligible for coverage under the NPDES DRGP unless an authorization is granted by the MassDEP pursuant to 314 CMR 4.04(3)(b). If authorization is needed from MassDEP it must be obtained prior to seeking coverage under the DRGP.	The MWRA has verified that none of the waterbodies proposed for discharge are identified as Outstanding Resource Waters (ORWs) as shown in the most recent MassGIS Data layer for ORWs, dated March 2010. ⁴ The ORW data layer in proximity to the tunnel alignment alternatives and Program sites is provided for reference ⁵ in FEIR Figure 4-1, Study Area Outstanding Resource Waters (pg. 4-9) . As shown in FEIR Figure 4-1 , one ORW is within the Study Area: Stony Brook Reservoir, which is not proposed to receive dewatering discharges.

4 Commonwealth of Massachusetts, Executive Office of Technology Services and Security, “MassGIS Data: Outstanding Resource Waters,” March 2010, <https://www.mass.gov/info-details/massgis-data-outstanding-resource-waters>.

5 The MassGIS data layer for ORWs provided in **FEIR Figure 4-1** is the same as previously presented in **DEIR Figures 4.6-17 to 4.6-49** and **SDEIR Figures 5-3 to 5-6**.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-21	One of the primary dewatering discharge sites (Tandem Trailer) is located near the I-90/I-95 interchange; flows will discharge into Seaverns Brook which discharges into the Charles River, which supports diadromous fish including American shad, rainbow smelt, white perch, Atlantic tomcod, and American eel. Additionally, the area between the Moody Street Dam and I-90/I-95 provides important spawning habitat for River Herring.	<p>As noted in the DEIR Section 4.5.4, Existing Conditions (pg. 4.5-5), the MWRA is aware that the Study Area waterways support a wide variety of fish, including coldwater, warmwater, anadromous and diadromous species. As described in FEIR Chapter 5, Fisheries, Section 5.2, Proposed Dewatering at the Tandem Trailer Site (pgs. 5-1 to 5-2), all Program work sites are within the Charles River Basin. Study Area waterways are all Class B warmwater fisheries, with the exception of Seaverns Brook, which is designated by the DMF as a coldwater fish resource.⁶ As described in DEIR Section 4.5.4, Existing Conditions (pg. 4.5-5), the Charles River is known to include at least 25 different fish species, with the most prevalent being bluegill (<i>Lepomis macrochirus</i>), redbfin pickerel (<i>Esox americanus americanus</i>), largemouth bass (<i>Micropterus salmoides</i>), American eel (<i>Anguilla rostrata</i>), and redbreast sunfish (<i>Lepomis auritus</i>).</p> <p>FEIR Chapter 5, Fisheries, Table 5-1 (pg. 5-2), as previously presented in SDEIR Section 10.2.1 (pgs. 10-3 to 10-4), summarizes the presence or absence of fisheries habitat in waterways within the limit of disturbance at or adjacent to each Program site.</p> <p>The required mitigation measures to protect water quality as it pertains to preventing impacts to fish spawning will be included in the final design and may include sediment control and filtration, temperature control (i.e., preventing temperature extremes by shading or insulating), pH adjustment, chemical monitoring, maintaining dissolved oxygen levels adequate to support aquatic life (including fish), and avoiding sudden changes in flow rates. Additional information on implementing these mitigation measures is provided in the response to Certificate Comment C-24.</p>

⁶ Commonwealth of Massachusetts, Massachusetts Environmental Policy Act Office, Title 321 of the Code of Massachusetts Regulations, Section 5.00: Coldwater Fish Resources, December 5, 2014, <https://www.mass.gov/regulations/321-CMR-500-coldwater-fish-resources>.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-22	The FEIR should address comments from the Massachusetts Division of Marine Fisheries (DMF) regarding proposed dewatering work, which will potentially impact river herring spawning and migration in the Charles River based on changes in water velocity and volume, increased turbidity, and potential changes in temperature.	<p>As described in FEIR Chapter 5, Fisheries, Section 5.2.2, Time-of-Year Restriction (pgs. 5-4 to 5-5), the MWRA will continue consultation and coordination with the DMF during the final design phase. Responses to comments from the DMF are included in this chapter in FEIR Section 9.10, Table 9-10.</p> <p>It was acknowledged in DEIR Section 4.6.5.4, Tunnel Dewatering and Disinfection (pg. 4.6-150) that during construction, there would be the potential for water quality in surface waters to be impacted by pollutants in tunnel dewatering discharges and in discharges related to tunnel cleaning, disinfection, and flushing. Prior to discharge, all flows would be treated as necessary to meet water quality standards for the receiving water body, including as required by the MassDEP Water Quality Standards in 314 CMR 4.00. The Program would provide adequate treatment to meet the criteria and requirements included under 314 CMR 4.05 for the classification of the receiving waters, which are all designated Class B. The requirements for Class B waterways included under 314 CMR 4.05(3)(b) set limits for Dissolved Oxygen, Temperature, pH, Bacteria, Solids, Color and Turbidity, Oil and Grease, and Taste and Odor. These standards and requirements and any other requirements of environmental permits issued for the Program would be included in contract documents so that construction-period discharges would not adversely impact surface water quality.</p>
C-23	Confirm that the project will implement a time-of-year restriction of no in-water, silt-producing work from April 15 to July 15 to minimize this impact [<i>river herring spawning and migration in the Charles River</i>].	The MWRA confirms that if deemed appropriate by DMF or other regulatory agencies during the detailed design and permitting phase, the time-of-year restriction on in-water, silt-producing work from April 15 to July 15 would be included in contract documents so that construction-period discharges would not involve in-water, silt-producing work from April 15 to July 15. The MWRA will continue consultation and coordination with DMF during the final design phase to determine what time-of-year restrictions are warranted.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-24	The FEIR should include additional information about the temporary water-treatment facility proposed at the Tandem Trailer shaft site, which may impact fish migration and spawning.	<p>As indicated in DEIR Section 4.6.5.4, Tunnel Dewatering and Disinfection (pg. 4.6-150), temporary water treatment facilities would be constructed at all launching shaft sites, including the Tandem Trailer site. Contract documents will require that the contractor design and construct the treatment system to meet applicable surface water quality standards for the classification of the receiving water, as required by 314 CMR 4.05. All proposed receiving waters are designated Class B. The requirements for Class B waterways included under 314 CMR 4.05(3)(b) set limits for Dissolved Oxygen, Temperature, pH, Bacteria, Solids, Color and Turbidity, Oil and Grease, and Taste and Odor. Sampling and testing of dewatering flows prior to discharge would be required on an on-going basis to confirm that all criteria are being met.</p> <p>The water treatment facility will likely include a variety of treatment means and methods to address the various water quality parameters as follows:</p> <p>Dissolved oxygen concentration can be increased using aeration devices.</p> <p>The temperature of the water may be controlled using natural shading or insulation of tanks (to minimize heat exchange with the surrounding environment), circulation systems, and limiting exposure to direct sunlight.</p> <p>The pH of the water can be adjusted using a base to raise the pH (e.g., lime) or using an acid to lower the pH with thorough mixing.</p> <p>Bacteria can be removed by filtration, chlorination, ultra-violet sterilization, or other techniques.</p> <p>Solids, color, and turbidity can be addressed by using clarification and sedimentation. Testing will indicate if the water is suitable for discharge (i.e., meets regulatory requirements).</p> <p>See FEIR Chapter 5, Fisheries, Section 5.2, Proposed Dewatering at the Tandem Trailer Site (pgs. 5-1 to 5-5), for more information.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-25	The FEIR should include additional information regarding noise and vibration impacts caused by tunneling, which may impact fish migration and spawning.	<p>As described in FEIR Chapter 5, Fisheries, Section 5.3, Noise and Vibration from Tunneling (pg. 5-5), the proposed tunnels will be excavated using a tunnel boring machine (TBM), with an average advance rate of 50-60 feet per day. As a result, any noise and/or vibration will be temporary in nature. The tunnel excavation below water bodies will be completed within days and at a depth of approximately 300 feet underground. At such distances to the river, TBM operations have the potential to induce vibrations in the river substrate, which could have potential impacts on species residing in, on, or near the substrate for activities such as feeding or spawning.</p> <p>Based on the vibration data provided in DEIR Section 4.12.3.1 Vibration Methodology (pg. 4.12-60) and the propagation model outlined in the Federal Transit Administration (FTA) documentation⁷, it is reasonable to anticipate that the peak particle velocity (PPV) of the TBM will be approximately 0.003 inches per second (in/s) at the river.</p> <p>Furthermore, the transmission of TBM-induced vibrations through the geological strata into the river substrate would result in additional reduction in the vibration. Although quantification of the attenuation factor depends on the material properties including density, stiffness, and damping for both mediums, it is reasonable to assume that the relatively low vibration levels, coupled with the attenuation through the rock into the river substrate, are unlikely to result in significant behavioral alterations, such as migration, spawning or feeding disruptions, among the fish population within the river.</p>
C-26	Some aspects of the project may require review through a direct filing with NHESP for compliance with MESA. MWRA should consult with NHESP prior to filing the FEIR to address state-listed species concerns, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review. The FEIR should provide an update on any consultations with NHESP and identify avoidance, minimization, and mitigation measures, as appropriate.	<p>Since the Program does not propose work within any NHESP Priority or Estimated Habitat polygons, review pursuant to the Massachusetts Endangered Species Act (MESA, MGL c131A) and its implementing regulations (321 CMR 10.00) would not be required. The tunnel alignment in the vicinity of the Cedarwood Pumping Station connection shaft site, located behind the Stanley Elementary School, is the only Program site where construction work would take place near a habitat polygon, under any of the Program Alternatives. As discussed in FEIR Chapter 6, Rare Species, Section 6.2, Avoidance and Minimization of Impacts to State-Listed Species (pgs. 6-1 to 6-2), and as shown on FEIR Figure 6-1 (pg. 6-7) (previously presented as</p>

⁷ U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, September 2018, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
		<p>DEIR Figure 4.6-19), the habitat polygon is more than 600 feet horizontally from the centerline of the preliminary tunnel alignment, where the tunnel would be at a depth of approximately 300 feet below the ground surface. Consequently, NHESP review is not warranted or required.</p> <p>The MWRA consulted with the NHESP via email during preparation of the FEIR. As recommended by the NHESP, the MWRA would require the contractor to check the latest federal Endangered Species Act (ESA) guidance at periodic intervals to ensure that work remains in compliance with the federal ESA and MESA, including any potential changes to listed species or modifications to guidance. Sites disturbed during construction activities would have vegetation restored with the planting of native trees and plants. In accordance with recommendations set forth by the NHESP, all plants and seed mixes used for landscaping or revegetation of areas disturbed during construction shall be composed of species native to the respective county in accordance with <i>The Vascular Plants of Massachusetts: A County Checklist First Revision</i>.⁸ Per the NHESP, state-listed plants and seeds shall not be used for landscaping or revegetation of areas disturbed during construction. The MWRA will require the contractor(s) to carefully review seeds and plantings at the time of sourcing against the NHESP’s latest listing of Endangered, Threatened, and Special Concern species protected under MESA to ensure they are not state-listed species.⁹ The MWRA will continue consultation and coordination with NHESP during the final design phase as project elements move forward to confirm that circumstances and regulatory requirements have not changed.</p>

8 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, *The Vascular Plants of Massachusetts: A County Checklist*, First Revision, 2011 (Dow Cullina, M, B Connolly, B Sorrie, and P Somers), <https://www.mass.gov/doc/the-vascular-plants-of-massachusetts-a-county-checklist/download>.

9 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, “List of Endangered, Threatened, and Special Concern Species,” updated January 10, 2020, <https://www.mass.gov/info-details/list-of-endangered-threatened-and-special-concern-species#list-of-species->.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-27	The FEIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the impacts of the project. The FEIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.	<p>FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2, Summary of Mitigation by Resource (pgs. 8-2 to 8-38), summarizes measures to avoid, minimize, and/or mitigate potential impacts for each environmental resource category.</p> <p>FEIR Table 8-1 (pg. 8-3 to 8-7) summarizes the proposed mitigation measures by environmental category in a consolidated table. Commitments to implement these mitigation measures are described as well as the parties responsible for implementation, and the implementation timing. The Program is in the preliminary design phase, and it is thus difficult to estimate the cost of specific mitigation measures. Mitigation cost estimates will be developed during the final design phase and included in construction costs.</p>
C-28	The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, EJ, etc.) and identify the Agency Action or Permit associated with each category of impact.	<p>Measures to avoid, minimize, and/or mitigate potential impacts organized by environmental resource category are summarized in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2, Summary of Mitigation by Resource (pgs. 8-2 to 8-38).</p> <p>FEIR Table 8-1 (pg. 8-3 to 8-7) summarizes mitigation commitments by environmental category in a consolidated table. Potential impacts are identified by Alternative and Program site where applicable.</p> <p>The permits anticipated to be required for the Program are summarized by agency in FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32). Included is the status of each permit, approval, or action at the time of the FEIR.</p>

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-29	Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project.	<p>FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.3, Draft Section 61 Findings (pgs. 8-39 to 8-59), includes separate draft Section 61 Findings for each of the agencies for which an agency action is required. State Agency Actions would be needed for the Program by the following state agencies:</p> <ul style="list-style-type: none"> • Massachusetts Department of Environmental Protection (MassDEP) <ul style="list-style-type: none"> ○ See FEIR Section 8.3.1 (pgs. 8-40 to 8-47) • Massachusetts Department of Transportation (MassDOT) <ul style="list-style-type: none"> ○ See FEIR Section 8.3.2 (pgs. 8-48 to 8-52) • Massachusetts Department of Conservation and Recreation (DCR) <ul style="list-style-type: none"> ○ See FEIR Section 8.3.3 (pgs. 8-53 to 8-56) • Massachusetts Bay Transportation Authority (MBTA) <ul style="list-style-type: none"> ○ See FEIR Section 8.3.4 (pgs. 8-57 to 8-58)

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-30	The FEIR should contain a copy of this Certificate and a copy of each comment letter received. It should include a comprehensive response to comments on the SDEIR that specifically address each issue raised in the comment letter; references to a chapter or sections of the FEIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response.	<p>A copy of the Secretary’s Certificate on the SDEIR and each of the nine comment letters received is included herein in FEIR Chapter 9, Responses to Comments. FEIR Table 9-1 (pg. 9-2) included at the beginning of this chapter, lists the Certificate and comment letters received on the SDEIR, which include:</p> <ul style="list-style-type: none"> • FEIR Section 9.2, Secretary’s Certificate on the SDEIR <ul style="list-style-type: none"> ○ Responses to Certificate comments are included in this table, FEIR Table 9-2. • FEIR Section 9.3, Letter 1: MassDEP Northeast Regional Office (MassDEP NERO) <ul style="list-style-type: none"> ○ Responses to Letter 1 comments are included in FEIR Table 9-3. • FEIR Section 9.4, Letter 2: City of Cambridge Water Department (CWD) <ul style="list-style-type: none"> ○ Responses to Letter 2 comments are included in FEIR Table 9-4. • FEIR Section 9.5, Letter 3: Charles River Watershed Association (CRWA) <ul style="list-style-type: none"> ○ Responses to Letter 3 comments are included in FEIR Table 9-5. • FEIR Section 9.6, Letter 4: Waltham Land Trust (WLT) <ul style="list-style-type: none"> ○ Responses to Letter 4 comments are included in FEIR Table 9-6. • FEIR Section 9.7, Letter 5: MassDEP Waterways Regulation Program (WRP) <ul style="list-style-type: none"> ○ Responses to Letter 5 comments are included in FEIR Table 9-7. • FEIR Section 9.8, Letter 6: Massachusetts, Water Resources Commission (WRC) <ul style="list-style-type: none"> ○ Responses to Letter 6 comments are included in FEIR Table 9-8. • FEIR Section 9.9, Letter 7: Massachusetts Department of Conservation and Recreation (DCR) <ul style="list-style-type: none"> ○ Responses to Letter 7 comments are included in FEIR Table 9-9. • FEIR Section 9.10, Letter 8: Massachusetts Division of Marine Fisheries (DMF) <ul style="list-style-type: none"> ○ Responses to Letter 8 comments are included in FEIR Table 9-10. • FEIR Section 9.11, Letter 9: Massachusetts Division of Fisheries and Wildlife, NHESP <ul style="list-style-type: none"> ○ Responses to Letter 9 comments are included in FEIR Table 9-11.

Table 9-2 Responses to Comments Received in the EEA Secretary’s Certificate on the SDEIR

#	Comment	Response
C-31	<p>The Proponent should circulate the FEIR to the same distribution list the ENF, DEIR and SDEIR were sent to, including all community contacts identified for the Study Area; any additional stakeholders identified during MWRA’s public outreach program; to any Agencies from which MWRA will seek Permits, Land Transfers or Financial Assistance; and to any parties specified in Section 11.16 of the MEPA regulations. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the FEIR to commenters in a digital format (e.g., CD-ROM, USB drive) or post to an online website. However, the Proponent must make available a reasonable number of hard copies to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. The Proponent should send correspondence accompanying the digital copy or identifying the web address of the online version of the FEIR indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. A copy of the FEIR should be made available for review at public libraries of the Study Area communities.</p>	<p>The distribution list for this FEIR includes all parties within the ENF, DEIR, and SDEIR distribution lists, state agencies that permits or approvals are required from, as well as additional stakeholders identified during the development of the EIR. The FEIR distribution list is included in FEIR Chapter 10, Circulation, Table 10-1 (pg. 10-1).</p> <p>Notices of Availability have been mailed, or emails have been sent, to all parties indicating the filing location on the MWRA’s website (https://www.mwra.com/mwtp/resources.html). Printed copies of the FEIR have been mailed to the public libraries of the Study Area communities listed in FEIR Table 10-1 (pg. 10-1), the Massachusetts Historical Commission, and have been made available by request.</p>

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9.3 Letter 1: MassDEP Northeast Regional Office

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Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 150 Presidential Way Woburn, MA 01801 • 978-694-3200

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

September 22, 2023

Rebecca L. Tepper, Secretary
Executive Office of
Energy & Environmental Affairs
100 Cambridge Street
Boston MA, 02114

RE: Boston and Several Communities
Metropolitan Water Tunnel Program
EEA# 16355

Attn: MEPA Unit

Dear Secretary Tepper:

The Massachusetts Department of Environmental Protection Northeast Regional Office (MassDEP-NERO) has reviewed the Supplemental Draft Environmental Impact Report (SDEIR) for the proposed Metropolitan Water Tunnel Program in Boston and several communities. MassDEP provides the following comments.

Wetlands

A Supplemental Draft Environmental Impact Report (SDEIR) has been filed with the Executive Office of Energy and Environmental Affairs by CDM Smith in association with VHB and Jacobs, on behalf of the Massachusetts Water Resources Authority (MWRA). The project proposes to construct approximately 14 miles of two (2) new, deep rock tunnels that will provide redundancy for MWRA's existing Metropolitan Tunnel System, which includes the City Tunnel, City Tunnel Extension, and Dorchester Tunnel. The Program will also allow MWRA's existing tunnel system to be rehabilitated without interrupting service.

The Secretary's Certificate issued for the DEIR on December 16, 2022, required that MWRA file an SDEIR to address concerns related to the viability of the proposed receiving shaft site at the Fernald Property in Waltham. The Certificate requested that potential alternative receiving locations be explored and that the impacts of those locations be analyzed. This SDEIR analyzed two additional locations for the receiving site.

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

The first location is a property owned by the University of Massachusetts (UMASS), noted as Alternative 4A; and the second location is at 240 Beaver Street at a different location of the former Walter Fernald State School Property (Lower Fernald site) closer to Waverley Oaks Road. The UMASS site would not be a receiving site but would rather be a large connection site where the Tunnel Boring Machine would be disassembled in the tunnel and the Lower Fernald Site would serve as the end point for SDEIR Alternative 10A.

The SDEIR explains in section 5.1.1 that there would be no direct impacts to wetland resource areas anticipated with either the UMASS property or the Lower Fernald Property sites. The project would require temporary and permanent impacts to Bordering Vegetated Wetland (BVW) and federally jurisdictional Vegetated Wetlands for connection to the existing water supply infrastructure at the American Legion Site. The project would also require temporary and permanent impacts to Riverfront Area, Land Under Water, Bank, and Bordering Land Subject to Flooding for the installation of rip rap splash pads located at permanent and temporary dewatering discharge locations, and for paved access ways.

Construction of the new tunnels will result in dewatering discharges to several waterways, which raises concern about the impacts of increased volume and velocities of the discharges. At the American Legion site there will be a discharge to Canterbury Brook. The launching and receiving shafts for the bifurcation will discharge to Seaverns Brook. Permanent alterations to BVW and inland Bank will occur due to the installation of splash pads and culvert outlets. MassDEP recommends that the applicant examine the possibility of moving these structures farther from the BVW if possible.

1-1

The SDEIR discusses impacts from the increased volume of discharges to the waterways but appears to assume that the splash pads will be adequate to dissipate velocity in order to avoid erosion and/or sedimentation in the resource areas. The applicant should provide calculations demonstrating that the pipes and splash pads have been properly sized to regulate flows in order to prevent scour. In addition, MassDEP recommends that the applicant develop a plan to monitor the outfalls during dewatering activities to ensure that scour and erosion does not occur, as well as include a contingency plan to address any unexpected negative impacts.

1-2

1-3

Drinking Water

MWRA provided redundancy for the Hultman Aqueduct when it constructed the MetroWest Tunnel, which went on-line in 2003; however, it presently does not have any redundancy for the older “Metropolitan Tunnel System” located to the east of Route I-95. Some of the tunnels, valves, associated surface piping, and equipment that have been in use for more than 60 years are now in need of regular inspections, and possibly repairs; but, cannot be shut down for inspection or repair because there is no way to provide the necessary water throughout the system while it is shut down. Some valves are not exercised because there would be an interruption in the water supply if one got stuck in the closed position. The need for redundancy was highlighted when a break in a pipe connection during May 2010 resulted in a service interruption and subsequent Boil Water Order for much of the Boston metropolitan area.

In the ENF, MWRA evaluated 28 alternatives to provide redundancy via construction of deep rock tunnels, near-surface mains, and improvements to the existing infrastructure. All of these alternatives began in the vicinity of Shaft 5 and 5A in Weston, near the Route I-90 and I-95 intersection. Of these alternatives, there were 13 “north” alternatives that extended to the northeast from Weston, providing improvements or redundancy for Weston Aqueduct Supply Main 3 (WASM 3). There were 15 “south” alternatives that extended to the east-southeast from Weston to the Dorchester Tunnel. MWRA’s evaluation sought a combination of a north and south alternative that would work together.

The alternatives that MWRA determined preferable were north Alternative 8N and south Alternative 20S. Alternative 8N would involve construction of a 10 to 12-foot diameter rock tunnel 4.5 miles long, from the Shaft 5/5A area in an alignment roughly parallel to WASM 3, and ending in Waltham near the Belmont town line. Alternative 20S would involve construction of a 10-foot diameter rock tunnel extending from the Hultman Aqueduct near Shaft 5/5A, to first the end of the Section 80 main in Needham, then to the Newton Street Pumping Station in Brookline, and ending near Shaft 7C of the Dorchester Tunnel. For improved redundancy, MWRA intended to connect the tunnels to some existing pump stations near the planned routes for the tunnels.

In the DEIR, MWRA went on to evaluate 10 alternative ways to construct the deep tunnels along the routes of Alternatives 8N/20S. These alternatives primarily involved where the launching (entry) and receiving (exit) points would be sited for the tunnel boring machine(s), and whether the tunnels would be constructed in two or three segments. The preferred alternative among these was Alternative 4, in which three tunnel segments would be constructed. Two of these would be launched to the northwest and east from the Highland Road property in Needham, and one launched to the northeast from a location in Weston referred to as the Tandem Trailer site. Each of the three tunnel segments would have connections to the MWRA water system at two additional tunnel shafts along their courses. Section 1.1 of the DEIR stated that construction of the tunnels is expected to take 8 to 12 years, during the period of 2027 to 2040.

Comments on the DEIR from the City of Waltham opposed use of the Fernald Property for construction of one of the tunnel shafts. The SDEIR evaluates alternative locations for the shaft. The preferred alternative in the SDEIR is stated as Alternative 4A, in which the shaft would be located on a parcel owned by the University of Massachusetts.

MassDEP has assumed in its SDEIR review that the Alternatives locations for the shaft identified as 3A, 4A, and 10A are the same alternatives that were termed 3, 4, and 10 in the DEIR. However, MassDEP could not find any language in the SDEIR where this is confirmed.

1-4

As stated in the previous MEPA reviews for this project, the project will require a Distribution System Modification permit (MassDEP Permit Category BRPWS32) from the MassDEP Drinking Water Program. The groundwater withdrawal volumes associated with dewatering will require a Water Withdrawal Permit (MassDEP Permit Category WM03) in accordance with the Water Management Act. The SDEIR states that all of the dewatering will occur in the Charles River Basin, so a Water Withdrawal Permit will only be required for the Charles River Basin.

1-5

1-6

As MassDEP stated in the DEIR comments, dewatering at the launch sites and tunnel shafts is not likely to affect any public water supply. These locations are all downstream of the Dedham-Westwood Water District's Bridge Street Wells, which are adjacent to the Charles River. The Bridge Street Wells are the farthest downstream of any public water supply sources along the Charles River. The City of Cambridge's Stony Brook Reservoir is just upstream of Stony Brook's confluence with the Charles River, so the discharges to the Charles River and Seaverns Brook will not affect the reservoir.

Wastewater

The project proponent has correctly identified that they will need to seek coverage under the National Pollutant Discharge Elimination System (NPDES) Dewatering and Remediation General Permit (DRGP). The proponent should verify that none of the proposed waterbodies for discharge are identified as Outstanding Resource Waters (ORW). Per the DRGP, discharges to ORWs, as defined in 314 CMR 4.06, are ineligible for coverage unless an authorization is granted by the MassDEP pursuant to 314 CMR 4.04(3)(b). If authorization is needed from MassDEP it must be obtained prior to seeking coverage under the DRGP.

1-7

The MassDEP appreciates the opportunity to comment on this proposed project. Please contact Kristin.Divris@mass.gov at (508) 887-0021 for further information on wetlands issues. If you have any general questions regarding these comments, please contact me at John.D.Viola@mass.gov or at (857) 276-3161.

Sincerely,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

John D. Viola
Deputy Regional Director

cc: Brona Simon, Massachusetts Historical Commission,
Eric Worrall, Kristin Divris, Jill Provencal, Kyle Lally, MassDEP-NERO
Jim Persky, Melissa Balcourt, MassDEP NERO

Table 9-3 Responses to Comments from the MassDEP Northeast Regional Office

#	Comment	Response
1-1	<p>Construction of the new tunnels will result in dewatering discharges to several waterways, which raises concern about the impacts of increased volume and velocities of the discharges. At the American Legion site there will be a discharge to Canterbury Brook. The launching and receiving shafts for the bifurcation will discharge to Seaverns Brook. Permanent alterations to BVW and inland Bank will occur due to the installation of splash pads and culvert outlets. MassDEP recommends that the applicant examine the possibility of moving these structures farther from the BVW if possible.</p>	<p>FEIR Chapter 4, Wetlands and Waterways, Table 4-1 (pgs. 4-3 to 4-5) provides the estimated temporary and permanent impacts to wetland resource areas at each of the proposed Program sites by municipality for Alternatives 3A, 4A, and 4B.</p> <p>With the introduction of SDEIR Alternatives 3A and 4A and FEIR Alternative 4B, which use the UMass Property site (in Alternatives 3A and 4A) or the Lower 190 Trapelo Road Property site (Alternative 4B) in place of the DEIR Fernald Property site (Alternatives 3, 4, and 10), impacts to Bordering Vegetated Wetland (BVW) due to installation of splash pads and culvert outlets are avoided because BVW is not present within the limit of disturbance at the proposed discharge locations as described in the DEIR (refer to DEIR Section 4.6.7.1, pgs. 4.6-161 to 4.6-162) and repeated in FEIR Section 4.2.1, Splash Pad and Culvert Outlet Wetland Resource Impacts (pg. 4-6).</p> <p>The only impact to BVW (which would be temporary) is associated with the surface connection to the existing water distribution infrastructure near the American Legion site (see FEIR Table 4-1). Construction period impacts to Bank, Land Under Water (LUW), and Bordering Land Subject to Flooding (BLSF) would occur due to installation of splash pads at dewatering discharge pipe outlets but have been minimized to the maximum extent practicable by locating them outside of BVW and sizing them appropriately to manage anticipated flows without excess footprint. However, these impacts are unavoidable and moving these structures farther from the BVW (and other resource areas) is not feasible because the dewatering discharge must be in proximity to a receiving water body. Options to reduce the impacts associated with dewatering discharge infrastructure would be further developed during the final design phase and detailed in the permit application materials to be filed and may include a rock-lined sedimentation basin with level spreader, filter bags or frac tanks.</p>

Table 9-3 Responses to Comments from the MassDEP Northeast Regional Office

#	Comment	Response
1-2	The SDEIR discusses impacts from the increased volume of discharges to the waterways but appears to assume that the splash pads will be adequate to dissipate velocity in order to avoid erosion and/or sedimentation in the resource areas. The applicant should provide calculations demonstrating that the pipes and splash pads have been properly sized to regulate flows in order to prevent scour.	As noted by the Secretary in page 13 of the Certificate, “the SDEIR provides calculations (Appendix B) demonstrating that proposed pipes and splash pads, intended to dissipate velocity to avoid eroding effects on resource areas, have been properly sized to regulate flows and prevent scour.” The MWRA has reconfirmed that the splash pads have been properly sized to regulate flows and to prevent scour. By e-mail dated October 31, 2023, MassDEP confirmed regarding the calculations in SDEIR Appendix B, Wetlands and Waterways Supporting Documentation , “that the additional information in the SDEIR sufficiently addresses the comments and no further information on that is needed.”
1-3	MassDEP recommends that the applicant develop a plan to monitor the outfalls during dewatering activities to ensure that scour and erosion does not occur, as well as include a contingency plan to address any unexpected negative impacts.	As indicated in DEIR Section 4.6.5.4 Tunnel Dewatering and Disinfection (pg. 4.6-151) , the MWRA will require the contractor to develop a plan to monitor the dewatering discharge outfalls during dewatering activities to ensure that scour and erosion does not occur, which will be developed during the final design phase. The monitoring plan will include corrective action contingencies to address unanticipated impacts. These corrective actions would include procedures such as modifications to discharge pipe sizes, changes to splash pad configurations, or implementation of additional discharge velocity dissipation measures.

Table 9-3 Responses to Comments from the MassDEP Northeast Regional Office

#	Comment	Response
1-4	MassDEP has assumed in its SDEIR review that the Alternatives locations for the shaft identified as 3A, 4A, and 10A are the same alternatives that were termed 3, 4, and 10 in the DEIR. However, MassDEP could not find any language in the SDEIR where this is confirmed.	<p>The difference between the Program sites evaluated in DEIR Alternatives 3 and 4, SDEIR Alternatives 3A and 4A and FEIR Alternative 4B is summarized below as explained in SDEIR Chapter 2, Alternatives, Section 2.7.1, Tunnel Alignment Alternatives Evaluated in the SDEIR (pgs. 2-29 to 2-32) and FEIR Section 1.3, Summary of Program Alternatives (pgs. 1-11 to 1-28). All Program sites associated with Alternatives 3A, 4A, and 4B are the same as those evaluated in DEIR Alternatives 3 and 4, except for the northernmost site that is the northern terminus of the North Tunnel, Segment 1. DEIR Alternative 10/SDEIR Alternative 10A is no longer being carried forward.</p> <ul style="list-style-type: none"> • Alternative 3A – Similar to DEIR Alternative 3 but would use the UMass Property site in place of the DEIR Fernald Property site for the terminus of North Tunnel, Segment 1. All other sites in Alternative 3A remain the same as in DEIR Alternative 3. <ul style="list-style-type: none"> ○ The preliminary tunnel alignment for Alternative 3A is depicted in FEIR Figure 1-3 (previously presented as SDEIR Figure 2-6). • Alternative 4A – Similar to DEIR Alternative 4 but would use the UMass Property site in place of the DEIR Fernald Property site for the terminus of North Tunnel, Segment 1. All other sites in Alternative 4A remain the same as in DEIR Alternative 4. <ul style="list-style-type: none"> ○ The preliminary tunnel alignment for Alternative 4A is depicted in FEIR Figure 1-4 (previously presented as SDEIR Figure 2-7). • Alternative 4B – Similar to DEIR Alternative 4 and SDEIR Alternative 4A but would use the Lower 190 Trapelo Road Property (previously referred to as the “Lower Fernald Property” in the SDEIR) site in place of the Fernald Property site (Alternative 4) or UMass site (Alternative 4A) for the terminus of North Tunnel, Segment 1. All other sites in Alternative 4B remain the same as in DEIR Alternative 4 and SDEIR Alternative 4A. <ul style="list-style-type: none"> ○ The preliminary tunnel alignment for Alternative 4B is depicted in FEIR Figure 1-5. <p>The Alternatives are carried forward in the FEIR as Alternatives 3A, 4A, and 4B (the “Program Alternatives”).</p> <p>FEIR Chapter 1, Program Description and Permitting, Section 1.3, Summary of Program Alternatives (pgs. 1-11 to 1-28), describes the tunnel segments in each of the Program Alternatives and provides an overview of the Alternatives evaluation and methodology.</p>

Table 9-3 Responses to Comments from the MassDEP Northeast Regional Office

#	Comment	Response
1-5	As stated in the previous MEPA reviews for this project, the project will require a Distribution System Modification permit (MassDEP Permit Category BRPWS32) from the MassDEP Drinking Water Program.	FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32) identifies that a Distribution System Modification permit from the MassDEP Drinking Water Program will be required (as previously identified in SDEIR Chapter 1, Program Description and Permitting, Section 1.4.1, Table 1-1 (pg. 1-11)).
1-6	The groundwater withdrawal volumes associated with dewatering will require a Water Withdrawal Permit (MassDEP Permit Category WM03) in accordance with the Water Management Act. The SDEIR states that all of the dewatering will occur in the Charles River Basin, so a Water Withdrawal Permit will only be required for the Charles River Basin.	The MWRA understands that a Water Withdrawal Permit (WM03) will be required for construction (see FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32)). Consultation and coordination with MassDEP will continue throughout the final design phase. At the appropriate time, a WM03 Application package will be submitted to MassDEP for review and approval.
1-7	The proponent should verify that none of the proposed waterbodies for discharge are identified as Outstanding Resource Waters (ORW). Per the DRGP, discharges to ORWs, as defined in 314 CMR 4.06, are ineligible for coverage unless an authorization is granted by the MassDEP pursuant to 314 CMR 4.04(3)(b). If authorization is needed from MassDEP it must be obtained prior to seeking coverage under the DRGP.	The MWRA has verified that none of the waterbodies proposed for discharge are identified as ORWs as shown in the most recent MassGIS data for ORWs dated March 2010. ¹⁰ The ORW data layer in proximity to the tunnel alignment alternatives and Program sites is provided for reference ¹¹ in FEIR Chapter 4, Wetlands, Figure 4-1, Study Area Outstanding Resource Waters . As shown in FEIR Figure 4-1 (pg. 4-9) , the GIS data identifies one ORW within the Study Area: Stony Brook Reservoir, which is not proposed to receive dewatering discharges.

10 Commonwealth of Massachusetts, Executive Office of Technology Services and Security, “MassGIS Data: Outstanding Resource Waters,” March 2010, <https://www.mass.gov/info-details/massgis-data-outstanding-resource-waters>.

11 The MassGIS data layer for ORWs provided in **FEIR Figure 4-1** is the same as previously presented in **DEIR Figures 4.6-17 to 4.6-49** and **SDEIR Figures 5-3 to 5-6**.

9.4 Letter 2: City of Cambridge Water Department

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CITY OF CAMBRIDGE

MASSACHUSETTS

Water Department
250 Fresh Pond Parkway
Cambridge, Mass. 02138

(617) 349-4770



September 22, 2023

Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Purvi Patel, EEA No. 16355
100 Cambridge Street Suite 900
Boston, MA 02114

via email

Re: EEA #16355 Metropolitan Water Tunnel Program

Dear Secretary Tepper:

The City of Cambridge Water Department (CWD) appreciates the opportunity to submit comments on the Metropolitan Water Tunnel Program. The proposed project is located near the Stony Brook Reservoir in Waltham and Weston and the City of Cambridge-owned water supply protection lands surrounding it.

Through a City contract, CWD hired STV Group, Inc. to conduct a technical review of the proposed project. See attached comments.

Currently, the proposed tunnel alignment does not cross City-owned land. Changes to that alignment to within City property boundaries would require further discussions with the applicant regarding City property rights and interests.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Kaplan'.

David Kaplan, Watershed Manager, CWD

cc: Mark Gallagher, Acting Managing Director, CWD
Julie Greenwood-Torelli, Director of Water Operations
Jamie O'Connell, Watershed Protection Supervisor
Cambridge Water Board



MEMORANDUM

TO: Kara Falise, City of Cambridge (City)
FROM: Evan Batchis and Da Ha
CC: Jim Wilcox; David Kaplan; Julie Greenwood-Torelli; Mark Gallagher (City)
DATE: September 21, 2023
SUBJECT: Peer Review of MWRA Tunnel MEPA Filing

As requested by the City of Cambridge (City), Evan Batchis (Structural) and Da Ha (Geotechnical) from STV performed a Technical Peer Review of the Environmental Notification Form, Draft Environmental Impact Report (EIR), and Supplemental Draft EIR documents as well as supporting documentation. STV recommends the following action items based on review of the documents:

- Confirm subsurface conditions and verify the depth of bedrock local to the Stony Brook Reservoir by performing one or more vertical rock borings. | 2-1
- Properly grout all boreholes after completion of investigation. Borehole segments in bedrock should be backfilled with cement grout and borehole segments in soil should be backfilled with cement-bentonite grout. | 2-2
- Provide boring logs and associated reports to the City for review and coordination on this project. | 2-3

Table 9-4 Responses to Comments from the City of Cambridge Water Department

#	Comment	Response
2-1	Confirm subsurface conditions and verify the depth of bedrock local to the Stony Brook Reservoir by performing one or more vertical rock borings.	A seismic survey line was performed along River Road/South Street, adjacent to the Stony Brook Reservoir, as part of the preliminary subsurface investigation. The results of the survey indicate a minimum of 200 feet of rock over the tunnel crown at this location. Additional vertical deep rock borings are planned during subsequent design phases at this location to not only confirm the top of rock but also to determine the quality and hydraulic characteristics of the rock mass.
2-2	Properly grout all boreholes after completion of investigation. Borehole segments in bedrock should be backfilled with cement grout and borehole segments in soil should be backfilled with cement-bentonite grout.	Boreholes will be backfilled using a tremie pipe with a cement-bentonite grout from the bottom of borehole to near ground surface through both the soil and the rock portions of the borehole.
2-3	Provide boring logs and associated reports to the City for review and coordination on this project.	Logs of borings conducted on City property will be provided once finalized.

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9.5 Letter 3: Charles River Watershed Association

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September 22, 2023

Via Email

Purvi Patel, Environmental Analyst
MEPA Office
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114
purvi.patel@mass.gov

**Re: Supplemental Draft Environmental Impact Report for the Massachusetts Water Resources Authority
Metropolitan Water Tunnel Program, EEA #16355**

Dear Ms. Patel:

Charles River Watershed Association (“CRWA”) submits the following comments on the Supplemental Draft Environmental Impact Report (“SDEIR”) for the proposed Massachusetts Water Resources Authority (“MWRA”) Metropolitan Water Tunnel Program published in Massachusetts Environmental Policy Act (“MEPA”) Office’s Environmental Monitor on August 9, 2023.

MWRA plans to construct two new deeprock water supply tunnels (north and south alignments) to provide redundancy for MWRA’s existing Metropolitan Tunnel System. The existing Metropolitan Tunnel System includes the City Tunnel (1950), the City Tunnel Extension (1963), and the Dorchester Tunnel (1976). The Metropolitan Tunnel System delivers approximately 60 percent of the water that travels eastward from the Quabbin Reservoir through a series of tunnels and aqueducts to MWRA’s John J. Carroll Water Treatment Plant in Marlborough to serve 53 communities. The Program Study Area encompasses approximately 15 miles of deep rock tunnel approximately 200 to 400 feet below the ground surface of several communities.

In this SDEIR MWRA has identified Alternative 4A as its preferred alternative by using a numerical scoring framework that assigned scores to certain evaluation criteria - 1 for “Least Preferred,” 2 for “Moderate,” and 3 for “Preferred.” The criteria used were “Engineering/Constructability,” “Land Availability,” “Environmental,” “Social/Community,” “Operations,” “Cost,” and “Schedule.” While Alternative 3A only received a score of “Moderate” in three areas, Alternative 4A received a perfect score across the seven criteria. Accordingly, the majority of CRWA’s comments are oriented towards this alternative, though these comments remain generally applicable. CRWA acknowledges that MWRA has stated that the potential environmental impacts associated with each of the three alternatives are generally similar, though we note that this is “with mitigation measures incorporated where necessary.”

SDEIR Alternative 4A would require three launching shaft sites, two receiving shaft sites, one large connection shaft site, six connection shaft sites, and one isolation valve site. All sites are located on state- or municipality-owned land. Alternative 4A is tied for the shortest of the alternatives at 14.6 miles and is estimated to be the cheapest at \$45 million. Alternative 4A also incorporates feedback from the Secretary of the Executive

Office of Energy and Environmental Affairs (“EEA”) and uses the University of Massachusetts (“UMass”) Property in Waltham as the terminus of North Tunnel, Segment 1 instead of the Fernald Property. Alternative 4A will result in approximately 2 acres of new impervious area compared to existing conditions and is anticipated to require approximately 8 acres of permanent easements or land acquisition for the areas supporting the shafts and valve chambers.

CRWA is pleased to see MWRA working thoughtfully on a project so critically important to the greater Boston area's public health, safety, and economy. However, despite this SDEIR providing additional details on project alternatives and further information about project implementation, significant questions remain about the project’s sustainability and its impacts on environmental justice (“EJ”) populations. CRWA appreciates the opportunity to review this SDEIR and respectfully submits the following comments:

Construction Period Impacts:

For many of the alternatives and site locations, MWRA notes that excavated material will be disposed of daily, but does not specify where or how. CRWA requests clarification regarding the daily disposal of excavated material for all site locations. If excavated materials are to be stored on-site, detailed measures to prevent runoff should be outlined. With 941,000 CY total of approximate excavated material to be removed from the tunnel and disposed of off-site, proper storage and disposal will be crucial to prevent harmful runoff, especially for sites like the UMass Property where hazardous materials such as coal ash are present. As it is currently presented, the SDEIR only notes that “suitable locations for reuse and disposal of excavated material would be identified.” While CRWA appreciates that the project remains at a preliminary stage, it is not useful when a project proponent states - as is done throughout this SDEIR - that excavated material will be stored using “appropriate containment” methods “within appropriate facilities.”

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Regarding dust control measures, CRWA urges the project proponent to estimate water usage for this purpose and use a native seed mix for re-seeding.

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Additionally, though this is further commented on below, for the project proponent to conclude that no disproportionate adverse effects during construction periods for EJ populations are anticipated because planned mitigation and proper handling will be used is tautological and gives no indication of actual methods to be utilized to ensure that disproportionate effects will be meaningfully avoided.

Tree Removal

Trees and other vegetation improve air and water quality, help control stormwater runoff and flooding, and provide natural cooling. The SDEIR indicates that trees will be removed as part of the project and that existing trees and vegetation will be preserved where practicable. While the SDEIR has some information on the species of trees and vegetation on the program sites, it is unclear how many trees and of what size will be cut down. Existing mature trees should be preserved, as replanted trees will not be as beneficial. We urge the Project Team to consult with an arborist to evaluate trees for suitability of preservation and that as many trees as possible be maintained (specifically those whose suitability is determined to be moderate or high). We also recommend that native trees and shrubs be planted within proposed landscaped areas and along proposed roadways wherever possible.

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Again, CRWA appreciates that these plans remain provisional for the moment. In future plans, CRWA looks forward to reviewing more information, including an accurate count of the trees to be removed across sites. Additionally, more details on the replanting process and coordination with communities and property owners are necessary in order to comment meaningfully.

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Land Alteration and Article 97

CRWA reiterates that public lands should be protected whenever possible, but appreciates that the Article 97 lands implicated in this project are necessary to the overall design and that “no feasible and substantially equivalent alternatives are available to avoid potential Article 97 land” for Ouellet Park, the DCR Morton Street Property at American Legion Receiving Shaft Site, and the Southwest Corridor Park/Arborway I at Southern Spine Mains Connection Shaft Site. Nonetheless, as MWRA acknowledges, to comply with the Article 97 Land Disposition Policy it will be required to provide compensatory land of equal or greater value to offset any disposed of land required for the program. MWRA should take all efforts to avoid impacts, comply with the Public Lands Preservation Act, take extra measures to protect surrounding natural areas, and restore as much of the impacted area as possible. CRWA looks forward to reviewing details on the proposed compensatory land as well as MWRA’s plans to reduce and minimize impacts on Article 97 land.

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Community Outreach and Environmental Justice

CRWA appreciates the project proponent's outreach to communities and stakeholders. CRWA has spoken to Waltham residents who report that they are aware of the project. However, to ensure transparency and consideration of public feedback we have the following recommendations:

- Default Outreach Sessions: The measures proposed as part of Section 3.2.6 & 3.2.7 are insufficient. In these sections, MWRA notes that it “will hold public information sessions and/or workshops *as requested* by communities or other stakeholders.” The point of this type of outreach is to make communities and other stakeholders aware of the project - if the proponent waits for the communities or other stakeholders to reach out to them, community members may not know to request these informational sessions until the project is already well underway. For example, Table 3-1 does not show any specific meetings with residents for the express purpose of discussing the general project and possible impacts. Meetings with Fire Departments, Select Boards, MEPA offices, and UMass cannot be said to be fully reaching EJ populations directly. Even the sole meeting with the Jamaica Plain Neighborhood Council does not accomplish this goal. To say that the proponent has met with landowners, municipalities, and neighborhood groups is not technically incorrect but it does misrepresent the ultimate goal of reaching EJ populations. To ameliorate this, CRWA suggests that the project proponent should hold additional default outreach sessions as early as possible, and throughout the active construction. These sessions should be in addition to as-requested meetings and workshops. If necessary, MWRA could implement a pre-registration system; if fewer than five community members register, a given default session could be canceled. A more proactive approach like this one will ensure broader community engagement.
- Updated EJ Outreach Plan: CRWA commends the inclusion of translation services and MWRA’s effort to publish notices in foreign language local newspapers and use various social media platforms and media outlets to reach intended populations. To further improve this plan, CRWA recommends prioritizing

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non-traditional media sources and using community-based organizations (“CBOs”) to help disseminate information and flyers. Lists of suitable CBOs have already been created by EEA to assist with outreach for other projects and initiatives.

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- Feedback Incorporation: The project proponent's commitment to incorporating feedback at public meetings is commendable, and CRWA hopes that MWRA will meaningfully implement this part of the plan. It is particularly heartening to see that MWRA intends to work with towns and cities to make meeting minutes available on municipal websites.

3-12

Environmental Justice Impact Assessments

CRWA acknowledges that the SDEIR anticipates no disproportionate adverse effects on EJ populations in any of the proposed Alternatives. However, CRWA cautions against speculative measures and suggests that concrete plans are developed to address potential impacts. As noted above, while this may be due to the preliminary nature of these plans, it is concerning to see that MWRA expects no impacts - despite the real existence of possible threats - simply because appropriate measures will be taken. This sort of broad language provides no indication of what those measures are, or indeed, whether they will actually be sufficient to protect EJ populations.

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For example, in its response to Comment C-22 CRWA appreciates the proponent’s focus on analyzing the Department of Public Health’s (“DPH”) vulnerable health criteria (low birth rate and elevated blood lead prevalence). Subsequent analysis in this response to comment breaks down the minimal traffic impacts on EJ populations in a reasonably persuasive manner. However, as noted, the proponent appears intent on minimizing potential impacts rather than making plans to address those impacts. For example, when addressing Air Quality and greenhouse gas emissions, the proponent’s “calculations show that emissions are small, however, more pollutants are emitted in EJ areas than in non-EJ areas.” While the proponent states that “this is due to the proximity of EJ neighborhoods to both the construction sites and to the main state and local thoroughfares used to get to the interstate highways...” it nonetheless acknowledges - as it must - that “emissions from diesel trucks, vehicles, and construction equipment can exacerbate low birth weight health vulnerabilities, and there are existing low birth weight health vulnerabilities.” The proponents' subsequent assertion that “project activities are not anticipated to have an adverse impact” followed by a note that it will “work with the DPW and Transportation departments of each municipality if necessary to establish appropriate mitigation to further reduce the risk of exacerbating low birth weight rates” is not reassuring. This is especially so when the proponent concludes by asserting that since “no significant program-related air quality or GHG emissions are anticipated...there would be no impacts to baseline environmental or health conditions of EJ or non-EJ populations.” “No significant” does not equate to “none” and not anticipating any impacts does not mean that impacts will not result. The Secretary was right to comment on this aspect of the DEIR and the project proponent should be required to work with DPW and transportation departments in each municipality to implement mitigation measures in all areas with EJ populations. Even if impacts are not significant, it appears that impacts are very much possible. Therefore, mitigation *is* necessary, and incorporating those mitigation measures early into the planning process will ensure that they are protective, well-executed, and most importantly, that they actually occur.

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Wetlands, Waterways, and Water Supply

All Program sites are located within the Charles River Watershed, which drains approximately 308 square miles through 23 towns and cities in eastern Massachusetts to the Boston Harbor. The two new alternative sites are in the upper Charles River basin. The UMass Property site and the Lower Fernald Property Site would discharge dewatering and stormwater runoff to tributaries of the Charles River. CRWA encourages the use of additional sediment control methodologies where temporary impacts are anticipated, though CRWA acknowledges that a National Pollution Discharge Elimination System (“NPDES”) Stormwater Pollution Prevention Plan (“SWPPP”) will be prepared that should address these concerns. CRWA looks forward to reviewing this SWPPP. At the state level, CRWA is glad to see that the project proponent will be consulting and complying with Massachusetts Department of Environmental Protection stormwater standards, though CRWA advises the project proponent that updated stormwater standards are to be released within the next few months, which should be considered in project design.

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The project proponent should also consider including further detail on how groundwater will be treated before being discharged into wetland resource areas, like the wetland area that drains to Clematis Brook. Lead-impacted soils mean that mitigation measures will be required to avoid exacerbating the contaminated sediments already present. Again, CRWA looks forward to reviewing the required NPDES and Dewatering and Remediation General Permits.

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We are particularly concerned about this project’s potential impact on groundwater levels and water supplies, given the proximity of public water supply wells. While unlikely, CRWA would like to see further analysis of the possibility that the tunnel boring machine could reduce groundwater levels or lead to disruption of water supplies. With 83 public water supply wells near Alternative 4A, many of CRWA’s members could be seriously affected by the proponent’s efforts. Accordingly, CRWA questions whether a separate EJ analysis has been undertaken to understand which populations would be affected in the event of a water supply emergency. The SDEIR suggests that “probing and pre-grouting could be made mandatory beneath important areas of groundwater well production or beneath sensitive local water bodies” but “the determination for mandatory probing and grouting (both where this may be required as well as the number and relative position of probe holes or grouting criteria) would be a risk-based assessment during the final design phase of the Program.” CRWA understands that probing and pre-grouting must be judiciously utilized to avoid stoppages and a lengthier construction schedule. However, we emphasize that there should be public or agency involvement in this risk-based determination, or, if possible, that a map of proposed areas of pre-grouting and probing be published ahead of time for review. Regardless, further details on the “extreme cases” that might “reduce the levels of local water bodies” as described in the Tunnel Alignments sections of the SDEIR would be welcome.

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Relating to water supplies, due to estimated withdrawals over 100,000 GPD, a Water Management Act permit for construction period withdrawals will be required. This permit should include seasonal restrictions that are standard to such permits. While CRWA appreciates the need for this project, in the event of extreme weather, this project must not impact public water supply availability. Relatedly CRWA requests additional information regarding the proponent’s coordination with the Massachusetts Department of Environmental Protection to identify appropriate mitigation measures for groundwater recharge.

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Climate Change

CRWA appreciates the consideration of climate change in the project's design. However, we recommend incorporating updated flood maps that account for climate change through flood modeling. Accordingly, CRWA is glad to see that MWRA has conducted some analysis using the Resilient Massachusetts Action Team ("RMAT") Climate Resilience Design Standards Tool. While it is concerning to see sites included as part of Alternative 4A identified as high exposure and moderate exposure for urban flooding and riverine flooding respectively, CRWA is grateful that the project proponent has included consideration of RMAT best management practices ("BMPs") and hopes that these BMPs will be incorporated wherever possible into the final designs for this project.

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The minimal increase in impervious surface associated with all project alternatives is important, as is the preservation of mature trees. Both of these aspects of the project reduce the risks posed by both flooding and extreme heat. Maintaining permeable areas of each program site to serve as a stormwater management area is a step in the right direction, but CRWA reiterates that the risk of flooding at these sites remains significant. CRWA would appreciate it if future filings incorporated examples of flood modeling based on the proponent's management strategies. Relatedly, CRWA would like to note that Federal Emergency Management Agency Special Flood Hazard Area maps are often outdated and therefore less useful for planning purposes as they do not properly account for climate change. Accordingly, the proponent should incorporate the use of up-to-date maps in order to properly assess risk and to model the benefits of management strategies. Generally, stormwater management systems should be designed to not only accommodate current storms but future storms as well. Approaches including green roofs where possible and the use of cool pavements should be considered.

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CRWA appreciates the opportunity to review these documents. Thank you for your consideration of these comments.

Respectfully,



Zeus Smith, Esq.
Associate Attorney

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-1	For many of the alternatives and site locations, MWRA notes that excavated material will be disposed of daily but does not specify where or how. CRWA requests clarification regarding the daily disposal of excavated material for all site locations.	Excess material generated as part of the Program that is determined to be unimpacted will be reused to the extent possible. Soil that cannot be reused as part of the Program would be excavated and disposed of off-site at approved and licensed sites identified by the contractor. Specific disposal sites/landfill locations have been surveyed surrounding the tunnel alignment during the preliminary design, however, disposal sites will be further researched during final design. Ultimately, the contractor will identify the final disposal facility, which will be approved by the MWRA. As stated in DEIR Chapter 4.8.7.1, Management of Impacted Soil (pgs. 4.8-60 to 4.8-61) , a Program-wide Soils and Materials Management Plan (SMMP) would be developed during final design to manage contaminated materials encountered during construction. The SMMP criteria will be included in the contract specifications. SMMPs provide procedures for materials handling during construction, including procedures for stockpiled or containerized materials. Refer also to FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.11.1, Hazardous Materials Construction Period Mitigation (pgs. 8-36 to 8-38) .

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-2	<p>If excavated materials are to be stored on-site, detailed measures to prevent runoff should be outlined. With 941,000 CY total of approximate excavated material to be removed from the tunnel and disposed of off-site, proper storage and disposal will be crucial to prevent harmful runoff, especially for sites like the UMass Property where hazardous materials such as coal ash are present.</p>	<p>As stated in DEIR Chapter 4.8.7.1, Management of Impacted Soil (pgs. 4.8-60 to 4.8-61), a Program-wide SMMP would be developed during final design to provide procedures for materials handling during construction, including procedures for stored or containerized material, and testing procedures for sampling material prior to off-site disposal or on-site reuse. In addition, the contractor would implement Best Management Practices (BMPs) for stockpiles of excavated material and other BMPs developed specifically for construction sites to prevent the potential for cross-contamination and potential exposures to surrounding sensitive receptors such as surface water bodies, wetlands, and nearby residences. Specification documents would identify typical means to protect resources from runoff, such as strawbales and silt fences. These BMPs will be detailed in the site-specific NPDES Stormwater Pollution Prevention Plan (SWPPP) to be developed and implemented by the contractors (see FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.11.1, Hazardous Materials Construction Period Mitigation (pgs. 8-36 to 8-38)).</p> <p>Storage on site will be limited in quantities (less than a week’s worth of work for excavated material). Any identified hazardous material will be handled, stored, and disposed of in accordance with the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000), the Program-wide SMMP, and MassDEP policies and guidance.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-3	Regarding dust control measures, CRWA urges the project proponent to estimate water usage for this purpose.	<p>Water usage for dust control is conservatively estimated to be about 1 gallon per 10 square foot of exposed/excavated surface in a dry environment. During tunnel excavation, water use for dust control is anticipated to be less than 300 gallons per day. However, since tunnel excavate is rarely dry, the actual water usage for dust control is anticipated to be significantly less due to groundwater infiltration through the tunnel face and walls.</p> <p>As described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.6.1, Air Quality and Greenhouse Gas Emissions Construction Period Mitigation (pg. 8-25), in addition to wet suppression dust control measures (e.g., construction vehicle wheel well washing and application of water during ground-disturbing activities) the contractor(s) would incorporate methods such as seeding areas of exposed soils, using covered trucks, covering stockpiles, and regular sweeping of paved roadways to minimize potential fugitive dust emissions. Dust monitoring would be conducted during excavation, and a monitoring plan would be detailed in the contractor health and safety plans.</p>
3-4	Regarding dust control measures, CRWA urges the project proponent to use a native seed mix for re-seeding.	<p>As described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.3.1, Wetlands and Waterways Construction Period Mitigation (pg. 8-15), native seed mixes would be used for vegetative stabilization. In accordance with recommendations set forth by the NHESP, all plants and seed mixes used for landscaping or revegetation of areas disturbed during construction shall be composed of species native to the respective county in accordance with <i>The Vascular Plants of Massachusetts: A County Checklist First Revision</i>.¹²</p>
3-5	It is unclear how many trees and of what size will be cut down. Existing mature trees should be preserved, as replanted trees will not be as beneficial. We urge the Project Team to consult with an arborist to evaluate trees for suitability of preservation and that as many trees as possible be maintained (specifically those whose suitability is determined to be moderate or high).	<p>As described in DEIR Section 4.9.7.2, Tree Clearing, Protection, and Replanting (pg. 4.9-74), land alteration and tree clearing required to construct the Program would be limited to the extent practicable. The MWRA would implement tree impact avoidance and protection strategies where feasible. Shaft sites evaluated in the Program Alternatives primarily consist of previously disturbed areas and right-of-way space that contains a mix of open land, grassland, and shrubs, with some deciduous trees and</p>

¹² Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, *The Vascular Plants of Massachusetts: A County Checklist*, First Revision, 2011 (Dow Cullina, M, B Connolly, B Sorrie, and P Somers), <https://www.mass.gov/doc/the-vascular-plants-of-massachusetts-a-county-checklist/download>.

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
		<p>evergreens present. Site visits were conducted during the winter and spring of 2022 to assess the nature and extent of potential tree clearing required at the sites considered.</p> <p>Trees located on Program sites meeting the definition of public shade trees will be identified pending advancement of site design and finalization of the associated temporary construction area limits of disturbance. Coordination with the appropriate Tree Warden(s), park commissioner(s), the Department of Conservation and Recreation (DCR), and/or the Massachusetts Department of Transportation (MassDOT), where appropriate, would be conducted as required to identify any public shade trees that may need to be removed, cut, or trimmed as part of the Program. The MWRA would also coordinate with the Tree Warden(s) regarding the planting of replacement trees, as necessary and where appropriate.</p> <p>As described in DEIR Section 4.5, Rare Species and Wildlife Habitat, trees and vegetation present on certain sites may be habitat for protected biological resources, including the federally endangered and state-endangered Northern Long-Eared Bat (NLEB). In accordance with the federal Endangered Species Act (ESA), specific provisions for tree removal would be followed to reduce the potential for adverse impacts on NLEB. No construction work is proposed within a quarter mile of a NLEB hibernacula (shelter) or within 150 feet of a known maternity roost tree. Tree removal would not take place until the U.S. Fish & Wildlife Service (USFWS) confirms that ESA requirements for NLEB have been met and all required permits obtained. Consultation in accordance with ESA would be undertaken with the USFWS prior to construction during the final design and permitting phase. Upon completion of the Program, the MWRA would implement landscaping and/or tree planting where possible and where appropriate to minimize potential impacts associated with land alteration.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-6	We also recommend that native trees and shrubs be planted within proposed landscaped areas and along proposed roadways wherever possible.	As described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.8.1, Rare Species and Wildlife Habitat Construction Period Mitigation (pg. 8-30 to 8-31) and as listed in FEIR Table 8-10 (pg. 8-31) , areas disturbed during Program-related construction activities would have vegetation restored with trees and plants native to the respective county in accordance with <i>The Vascular Plants of Massachusetts: A County Checklist First Revision</i> .
3-7	In future plans, CRWA looks forward to reviewing more information, including an accurate count of the trees to be removed across sites.	The number and location of trees to be removed across sites will be further detailed as described in Comment 3-5 as the Program design progresses. Coordination with the appropriate Tree Warden(s), park commissioner(s), the Department of Conservation and Recreation (DCR), and/or the Massachusetts Department of Transportation (MassDOT), where appropriate, would be conducted as required.
3-8	More details on the replanting process and coordination with communities and property owners are necessary in order to comment meaningfully.	The number and location of trees to be replaced across sites will be further detailed as described in Comment 3-5 as the Program design progresses. Coordination with the appropriate Tree Warden(s), park commissioner(s), the Department of Conservation and Recreation (DCR), and/or the Massachusetts Department of Transportation (MassDOT), where appropriate, would be conducted as required.
3-9	As MWRA acknowledges, to comply with the Article 97 Land Disposition Policy it will be required to provide compensatory land of equal or greater value to offset any disposed of land required for the program. MWRA should take all efforts to avoid impacts, comply with the Public Lands Preservation Act, take extra measures to protect surrounding natural areas, and restore as much of the impacted area as possible. CRWA looks forward to reviewing details on the proposed compensatory land as well as MWRA’s plans to reduce and minimize impacts on Article 97 land.	As described in FEIR Chapter 3, Land Alteration, Open Space, and Article 97, Section 3.2.2, Commitment to Article 97 Land Disposition Policy and PLPA Obligations (pgs. 3-5 to 3-9) , the MWRA will work with the EEA, the DCR, and the Town of Wellesley as necessary to identify appropriate mitigation to compensate for the dispositions occurring at Ouellet Park (Article 97 TBD), the Southwest Corridor Park/Arborway I, and the DCR Morton Street property. Refer to FEIR Table 3-1 (pgs. 3-7 to 3-9) , as previously presented in SDEIR Section 4.2.4.2, Table 4-13 (pgs. 4-49 to 4-51) , for a summary of how the MWRA would seek to comply with the conditions outlined in the Article 97 Land Disposition Policy for use of a portion of the three sites protected by Article 97, as applicable.

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-10	CRWA suggests that the project proponent should hold additional default outreach sessions as early as possible, and throughout the active construction. These sessions should be in addition to as-requested meetings and workshops. If necessary, MWRA could implement a pre-registration system; if fewer than five community members register, a given default session could be canceled. A more proactive approach like this one will ensure broader community engagement.	<p>As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.2.7, Public Information Sessions and Workshops (pg. 2-4), the MWRA will hold formal public information sessions starting in 2024. Topics may include a Program overview, an overview of tunneling methods and associated construction period impacts such as traffic, noise and vibration, and other topics of interest to stakeholders. These public information sessions will be held in addition to those that will be held as requested by communities or other stakeholders. MWRA will employ a pre-registration process to ensure appropriate interpretation services are available for live meetings and will translate recorded meetings into the prevalent languages or other languages as requested.</p> <p>Public information sessions will be recorded and posted on the Program website along with contact information so the public can view at their convenience and submit comments or questions outside of a live meeting. See FEIR Section 2.3, Active Outreach to EJ Populations (pgs. 2-4 to 2-8), for additional information regarding public involvement strategies.</p>
3-11	CRWA recommends prioritizing non-traditional media sources and using community-based organizations (“CBOs”) to help disseminate information and flyers. Lists of suitable CBOs have already been created by EEA to assist with outreach for other projects and initiatives.	<p>As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.3, Active Outreach to EJ Populations (pgs. 2-4 to 2-8), the MWRA will work with community representatives and community-based organizations (CBOs) to determine the most effective means of communication and notification. The MWRA will employ additional methods of engagement as the Program progresses with feedback from stakeholders.</p> <p>A recommended list of CBOs and tribes provided by the EEA EJ Director to the MWRA was used to develop the distribution list for this FEIR and to circulate the Advance Notification Form (EJ Screening Form). The FEIR distribution list is included in FEIR Chapter 10, Circulation, Table 10-1 (pg. 10-1).</p>
3-12	CRWA hopes that MWRA will meaningfully implement this part of the plan [incorporating feedback at public meetings and making meeting minutes available].	<p>The MWRA has compiled feedback on the Program gathered at public community meetings and incorporated that feedback into the MEPA documentation, as appropriate. The MWRA will continue to involve the public in the design phase of the Program and incorporate input received. Minutes from public meetings are posted on the Program website (https://www.mwra.com/mwtp.html) and were shared with municipal and other key contacts in Program Study Area communities, where appropriate.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-13	CRWA acknowledges that the SDEIR anticipates no disproportionate adverse effects on EJ populations in any of the proposed Alternatives. However, CRWA cautions against speculative measures and suggests that concrete plans are developed to address potential impacts. As noted above, while this may be due to the preliminary nature of these plans, it is concerning to see that MWRA expects no impacts - despite the real existence of possible threats - simply because appropriate measures will be taken. This sort of broad language provides no indication of what those measures are, or indeed, whether they will actually be sufficient to protect EJ populations.	The MWRA is committed to protecting residents and minimizing Program-related impacts on communities. The MWRA will implement mitigation measures to address adverse Program impacts as described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Sections 8.2.1 through 8.2.11 . Mitigation measures will be implemented for both EJ and non-EJ communities.

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-14	<p>The project proponent should be required to work with DPW and transportation departments in each municipality to implement mitigation measures in all areas with EJ populations. Even if impacts are not significant, it appears that impacts are very much possible. Therefore, mitigation <i>is</i> necessary, and incorporating those mitigation measures early into the planning process will ensure that they are protective, well-executed, and most importantly, that they actually occur.</p>	<p>The MWRA is committed to protecting residents and minimizing Program-related impacts on communities. The MWRA will implement mitigation measures to address adverse Program impacts as described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Sections 8.2.1 through 8.2.11. Mitigation measures will be implemented for both EJ and non-EJ communities.</p> <p>No significant Program-related permanent transportation impacts are anticipated as described in SDEIR Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation Measures (pg. 9-51) and FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.7, Transportation (pgs. 8-26 to 8-29). Temporary impacts to the transportation network may occur during the construction period due to a temporary increase in truck trips to and from the construction sites, transportation of contractors, and physical construction of near-surface pipelines in public roadways at some sites.</p> <p>As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.6, Mitigation and Collaboration with DPWs and Transportation Departments (pgs. 2-10 to 2-11), the MWRA will work with the DPWs and transportation departments of each affected municipality to establish appropriate transportation-related mitigation measures, as needed and where appropriate. Measures that would be considered to mitigate potential traffic impacts, if necessary and where appropriate, are described in SDEIR Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation Measures (pgs. 9-51 to 9-54), and are summarized in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.7, Transportation (pgs. 8-26 to 8-29).</p> <p>As design progresses, the MWRA will develop requirements for traffic routes and work hour restrictions based on permit conditions and community coordination. These requirements will be included in the contract documents and serve as the basis for a Construction Management Plan (CMP) to be prepared by the contractor(s). The CMP will further detail measures to avoid, minimize, and mitigate potential traffic disruptions, and potential air quality and noise impacts. The CMP will document requirements for the contractor(s) to follow prior to the start of construction.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-15	CRWA encourages the use of additional sediment control methodologies where temporary impacts are anticipated, though CRWA acknowledges that a National Pollution Discharge Elimination System (“NPDES”) Stormwater Pollution Prevention Plan (“SWPPP”) will be prepared that should address these concerns. CRWA looks forward to reviewing this SWPPP.	As noted by the comment, the MWRA has committed to ensuring that the construction contract documents include requirements for the contractor to prepare documentation (narrative and plans) that detail construction period erosion and sedimentation control best management practices (BMPs) to be implemented on a site-specific basis. These materials will be prepared and implemented in accordance with the requirements of the MassDEP Stormwater Management Standards, the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Sites (NPDES CGP), the federal Clean Water Act, and associated regulations that are in effect at the time of construction. As required by the regulations, the contractor will develop and implement a monitoring program to address construction period BMPs for erosion and sedimentation control, verify dewatering discharge waters meet quality and quantity requirements, and ensure that scour or other erosion issues are not occurring. If monitoring indicates that the BMPs require maintenance or are not functioning as intended, it will be required that the contractor develop and implement corrective actions. Specific timelines will be required for implementation of any necessary corrective actions and documentation that problems have been adequately addressed. If monitoring indicates that corrective actions involving existing sediment controls are not effective, contract documents will require that additional measures be designed and implemented.
3-16	CRWA advises the project proponent that updated stormwater standards are to be released within the next few months, which should be considered in project design.	The MWRA is aware that MassDEP is in the process of updating the Massachusetts Stormwater Standards. Consultation and coordination will continue with MassDEP throughout the final design phase. Any new regulatory requirements for stormwater management, erosion control, and/or pollution prevention will be incorporated into the final design of all temporary and permanent facilities.
3-17	The project proponent should also consider including further detail on how groundwater will be treated before being discharged into wetland resource areas, like the wetland area that drains to Clematis Brook. Lead-impacted soils mean that mitigation measures will be required to avoid exacerbating the contaminated sediments already present. Again, CRWA looks forward to reviewing the required NPDES and Dewatering and Remediation General Permits.	As indicated in DEIR Section 4.6.5.4, Tunnel Dewatering and Disinfection (pg. 4.6-150) , temporary water treatment facilities would be constructed at all launching shaft sites. Contract documents will require that the contractor design and construct the treatment system to meet applicable surface water quality standards for the classification of the receiving water, as required by 314 CMR 4.05. All proposed receiving waters are designated Class B. The requirements for Class B waterways included under 314 CMR 4.05(3)(b) set

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
		<p>limits for Dissolved Oxygen, Temperature, pH, Bacteria, Solids, Color and Turbidity, Oil and Grease, and Taste and Odor. Sampling and testing of dewatering flows prior to discharge would be required on an on-going basis to confirm that all criteria are being met. Additionally, treatment facilities will be designed to treat site-specific contaminants (e.g. lead).</p> <p>The water treatment facilities will likely include a variety of treatment means and methods to address the various water quality parameters as follows:</p> <p>Dissolved oxygen concentration can be increased using aeration devices.</p> <p>The temperature of the water may be controlled using natural shading or insulation of tanks (to minimize heat exchange with the surrounding environment), circulation systems, and limiting exposure to direct sunlight.</p> <p>The pH of the water can be adjusted using a base to raise the pH (e.g., lime) or using an acid to lower the pH with thorough mixing.</p> <p>Bacteria can be removed by filtration, chlorination, ultra-violet sterilization, or other techniques.</p> <p>Solids, color, and turbidity can be addressed by using clarification and sedimentation. Testing will indicate if the water is suitable for discharge (i.e., meets regulatory requirements).</p> <p>See FEIR Chapter 5, Fisheries, Section 5.2, Proposed Dewatering at the Tandem Trailer Site (pgs. 5-1 to 5-5), for more information.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-18	<p>CRWA would like to see further analysis of the possibility that the tunnel boring machine could reduce groundwater levels or lead to disruption of water supplies. With 83 public water supply wells near Alternative 4A, many of CRWA’s members could be seriously affected by the proponent’s efforts.</p>	<p>As noted in DEIR Section 5.4.3, Tunnel Alignments (pg. 5-55), of the wells identified within 0.5 miles of the Program alternative alignments nearly half of these wells are located in Newton, a quarter of the wells are located in Weston, and a few wells are located in each of the towns/cities of Boston, Brookline, Needham, Waltham, and Wellesley. Approximately 75% of these wells are irrigation wells, 5% are geothermal wells, and 20% are domestic water supply. There are two public water supply surface waters within the half mile radius of the tunnel alignment: Rosemary Brook is a water source for Town of Wellesley, and Stony Brook Reservoir is a water source for City of Cambridge. Both of these communities also have connections to the MWRA system. A review of WMA registrations indicates the Charles River is a source of irrigation water for golf courses. Charles River Country Club withdraws water from the Charles River.</p> <p>The MWRA is planning to complete probe holes ahead of the tunnel excavation in sensitive areas. The probe holes are performed to investigate the quality of rock permeability ahead of the excavation. If probe holes indicate potential geologic conditions that lead to higher water infiltration, a pre-excavation grouting is triggered, and tunnel excavation will proceed after confirming that infiltration flows will be limited to the lower threshold. This process reduces the risk of reducing groundwater levels.</p> <p>As the design is developed, areas with high risks (water bodies, water supply wells, etc.) are identified and where probing may be required and pre-excavation grouting will be triggered if probing holes indicate high infiltration. During final design, additional geotechnical bore holes will be available to confirm this approach and refine locations for probe holes that will rely on data collected during the design phase but also the actual conditions encountered during construction.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-19	CRWA questions whether a separate EJ analysis has been undertaken to understand which populations would be affected in the event of a water supply emergency.	<p>As described in FEIR Chapter 1, Program Description and Permitting (pg. 1-10), the primary goal of the Program is to provide redundancy for the Metropolitan Tunnel System, which protects public health, provides sanitation, and provides fire protection, in line with the mission of the MWRA. The Program is intended to provide uninterrupted water service in the event of an emergency shutdown, avoid activation of emergency reservoirs, and avoid boil water orders, amongst other goals.</p> <p>Without this Program, in the event of an emergency, all populations, both EJ and non-EJ, within the MWRA water service area would be impacted. As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.4, EJ Impact Assessments (pgs. 2-9 to 2-10), the improved water supply redundancy provided by the Program will benefit both EJ and non-EJ populations. As described in FEIR Chapter 1, Program Description and Permitting (pg. 1-1), the MWRA provides wholesale water and sewer services to 3.1 million people and more than 5,500 businesses in 61 communities in eastern and central Massachusetts, which includes several EJ communities as indicated by the Massachusetts Department of Public Health’s (DPH’s) EJ Tool and the EEA’s Massachusetts 2020 Environmental Justice Populations mapping tool (EJ Maps Viewer).</p> <p>The reliable delivery of water is essential to protecting public health, providing sanitation and fire protection, and supporting a viable economy in these communities. The Program would allow the MWRA to take its aging existing water tunnel system offline to be rehabilitated without interrupting water service to over 2.5 million customers in these communities.</p>
3-20	CRWA understands that probing and pre-grouting must be judiciously utilized to avoid stoppages and a lengthier construction schedule. However, we emphasize that there should be public or agency involvement in this risk-based determination [for mandatory probing and grouting], or, if possible, that a map of proposed areas of pre-grouting and probing be published ahead of time for review.	<p>As the design is developed, areas with high risks (water bodies, water supply wells, etc.) are identified and where probing may be required and pre-excavation grouting will be triggered if probing holes indicate high infiltration. During final design, additional geotechnical bore holes will be available to confirm this approach and refine locations for probe holes that will rely on data collected during the design phase but also the actual conditions encountered during construction.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-21	Further details on the “extreme cases” that might “reduce the levels of local water bodies” as described in the Tunnel Alignments sections of the SDEIR would be welcome.	<p>During design, MWRA will develop a probing and grouting plan as explained in response to Comments 3-18 and 3-20, to mitigate such risks.</p> <p>The MWRA will conduct a thorough investigation to identify zones of high permeability rock and other areas with potential for high infiltration that may reduce the levels of local water bodies. These areas will be identified in the construction contract documents for pre-excitation probe holes and possibly pre-excitation grouting pending the outcome of the probe holes.</p>
3-22	Due to estimated withdrawals over 100,000 GPD, a Water Management Act permit for construction period withdrawals will be required. This permit should include seasonal restrictions that are standard to such permits.	<p>The MWRA understands that a Water Management Act (WMA) permit will be required in accordance with 31 CMR 36.00 prior to construction. The permits, approvals, and actions anticipated to be required for the Program are summarized in FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32).</p> <p>Consultation and coordination will continue with MassDEP throughout the final design phase. Contract documents will require compliance with all provisions of the regulations and any General Conditions or Special Conditions included in the WMA permit.</p>
3-23	In the event of extreme weather, this project must not impact public water supply availability.	<p>Potential extreme weather that could impact water supply availability would be an extreme drought. The MWRA will develop a comprehensive probing and grouting plan as explained in response to Comments 3-18 and 3-20 to mitigate the risk of the tunnel boring machine (TBM) reducing groundwater levels or leading to the disruption of water supplies during construction activities. Additionally, as described in SDEIR Appendix C, Updated Draft Water Supply Contingency Plan, a water supply contingency plan would be in place and ready to be implemented if needed. All communities within 0.5 miles of the conceptual Program alternative alignments are either partially or fully supplied by the MWRA water system. MWRA’s ability to provide water to these communities will not be impacted by construction of this Program.</p> <p>As described in FEIR Chapter 1, Program Description and Permitting (pg. 1-10), the purpose of the Program is to enhance the reliability of the Metropolitan Tunnel System to maintain its ability to reliably deliver water, which is essential to protecting public health, providing sanitation and fire protection, and supporting a viable economy.</p>

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-24	CRWA requests additional information regarding the proponent’s coordination with the Massachusetts Department of Environmental Protection to identify appropriate mitigation measures for groundwater recharge.	<p>As stated in SDEIR Chapter 6, Water Supply and Water Management Act, because of the potential challenges surrounding groundwater recharge, the MWRA is proposing discharging to surface waters as the primary means of discharge but will continue to evaluate as design progresses to determine if minor recharge volumes can be handled on site. The MWRA will continue coordination with MassDEP to identify other appropriate mitigation measures.</p> <p>Refer to FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Sections 8.2.3, Wetlands and Waterways (pgs. 8-14 to 8-19), and 8.2.4, Water Supply and Water Management Act (pgs. 8-19 to 8-21), for more information on mitigation measures.</p>
3-25	We recommend incorporating updated flood maps that account for climate change through flood modeling.	Any new regulatory requirements for flood control, including updated flood maps that may be issued by the Federal Emergency Management Agency (FEMA) or MassDEP, will be incorporated into the final design of all temporary and permanent Program facilities.
3-26	CRWA hopes that these [RMAT] BMPs will be incorporated wherever possible into the final designs for this project.	<p>The MWRA will follow the RMAT’s guidance to avoid, minimize, and mitigate potential impacts associated with climate change. As described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.5, Climate Change (pgs. 8-21 to 8-25), the MWRA will incorporate the Best Practice Design Considerations specified in the Resilient Massachusetts Action Team Climate Resilience Design Tool (RMAT Tool) into final design, where possible. As summarized in FEIR Table 8-7 (pg. 8-22), these include:</p> <ul style="list-style-type: none"> • Reduce exposure to climate hazards. • Mitigate adverse climate impacts and provide benefits. • Protect, conserve, and restore critical natural resources on-site and off-site. • Assess regional context of vulnerability. • Evaluate impacts beyond site-specific design. • Optimize capital investment opportunities. • Prioritize services and assets that serve vulnerable populations. • Embed future capacity and design for uncertainty. • Design for incremental change. • Encourage climate mitigation and other co-benefits. • Prioritize nature-based solutions. • Prepare for current and future operational and maintenance needs.

Table 9-5 Responses to Comments from the Charles River Watershed Association

#	Comment	Response
3-27	CRWA reiterates that the risk of flooding at these sites remains significant. CRWA would appreciate it if future filings incorporated examples of flood modeling based on the proponent’s management strategies.	The contract documents will require that all temporary and permanent facilities meet requirements for work in flood-prone areas, including avoiding and minimizing impacts to floodplains and not adversely affecting flood levels on site or off site. Modeling of proposed management strategies will be completed as necessary and required to demonstrate compliance with regulatory requirements and will be included in future permit application materials.
3-28	CRWA would like to note that Federal Emergency Management Agency Special Flood Hazard Area maps are often outdated and therefore less useful for planning purposes as they do not properly account for climate change. Accordingly, the proponent should incorporate the use of up-to-date maps in order to properly assess risk and to model the benefits of management strategies.	Any new regulatory requirements for flood control, including updated flood maps that may be issued by the FEMA or MassDEP, will be incorporated into the final design of all temporary and permanent Program facilities. Refer to FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.5, Climate Change (pgs. 8-21 to 8-25) , for information on measures that would be implemented to mitigate potential climate change-related risks and exposures, including flood risk.
3-29	Stormwater management systems should be designed to not only accommodate current storms but future storms as well. Approaches including green roofs where possible and the use of cool pavements should be considered.	Climate change-related risks, including increased precipitation events, would be considered in the design of the proposed stormwater management systems associated with each proposed Program site. Stormwater management compliance is described in DEIR Section 4.6.7.8, Compliance with MassDEP Stormwater Management Standards (pg. 4.6-179) . Refer also to FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.3.2, Wetlands and Waterways Final Condition Mitigation (pgs. 8-17 to 8-19) , and FEIR Section 8.2.5, Climate Change (pgs. 8-21 to 8-25) , for information on measures that would be implemented to mitigate potential climate change-related risks and exposures. Consultation and coordination will continue with MassDEP throughout the final design phase. Any new regulatory requirements for stormwater management will be incorporated into the final design of all temporary and permanent facilities. Additionally, opportunities to utilize innovative approaches to stormwater management will be implemented as feasible.

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9.6 Letter 4: Waltham Land Trust

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Waltham Land Trust, Inc.
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Waltham, MA 02454-1120
www.walthamlandtrust.org
781-893-3355

A non-profit organization dedicated to preserving our community's natural resources through open space advocacy, education, acquisition, and protection.

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**Protecting
Waltham's land
...forever.**

Secretary Rebecca Tepper
Executive Office of Energy
and Environmental Affairs
100 Cambridge St., 10th Floor
Boston, MA 02114

September 22, 2023

Dear Secretary Tepper,

We submit these comments regarding our interest and concern about the proposed siting of the Metropolitan Water Tunnel Program's (MWTP) *Large Shaft* at Lawrence Meadow, 225-227 Beaver St., Waltham. We appreciated the excellent presentation, followed by a Q&A session, that Director Kathy Murtagh, and her team provided to members of the Waltham Land Trust on September 14, 2023. Our group now has a clearer understanding of the complex tunnel program including the rationale for the project, and its impact on our local community. Answers to the questions we submitted provided useful information about the future course of the project. Additionally, we have become familiar with the DEIR and the SDEIR reports that include comprehensive data and detailed project descriptions.

With respect to the planning and construction of the preferred siting of the *Large Shaft* at Lawrence Meadow, we respectfully submit the following comments. Our hope is that this statement provides a local perspective regarding both the context and importance of this particular site to our community, should you move forward with the current recommendations.

The Waltham Land Trust (WLT) has long advocated for permanent environmental preservation of the 30-acre parcel at Lawrence Meadow (LM). Historically, part of the Cedar Hill Dairy farm, it was gifted to the Commonwealth by the estate of Cornelia Warren in 1922. For a century, LM comprised the northern section of the *Waltham Field Station* agricultural technology center, an entity managed by UMass Amherst's Cooperative Extension program. The University ceased all operations at the Waltham campus by 2021. In March, 2022, the City of Waltham purchased the southern agricultural parcels of the station using funds from the Community Preservation Act. This resulted in permanent protection under Article 97 for only the lower half of the original 58-acre entity. Consistent with its mission to promote, protect, restore, and acquire open space, the land trust was one of many groups that advocated for this acquisition.

However, as the northern parcel was not included in the City's acquisition, the WLT initiated its *Lawrence Meadow Project* in May, 2020, to explore options to permanently protect and to fully restore the environmental integrity of the site for the purpose of establishing a public nature preserve. Though needing extensive clean-up and restoration, the creation of a permanent nature preserve at LM fulfills a community goal that has significant ecological, historical, recreational, and environmental values for Waltham. Currently, the land trust is working in partnership with the UMass Amherst administration to develop a planning process to achieve this goal.

Lawrence Meadow is situated at a key nexus of 1300 acres of critical green space corridor in this highly urbanized region. It sits amidst a unique geography of public and private land holdings that support an array of entities dedicated to promoting the health

and well-being of the public. Within a one-mile radius of LM are several non-profit and private educational, agricultural, and recreational organizations, all of which have a significant focus on youth programs including: Girl Scouts of Eastern Massachusetts, Waltham Fields Community Farm, Bentley University, Gann Academy, James Fitzgerald Elementary School, and the City-owned Cornelia Warren Park. Within walking distance are McDevitt Middle School, Waltham High School, and Chapel-Hill Chauncy Hall School.

Many of the surrounding large land parcels were former private Estates, or Commonwealth-owned state institutions since decommissioned (Fernald School, Metropolitan State Hospital). To connect these largely open green spaces, the land trust designed and built the nearly completed 10-mile Western Greenway trail, an outstanding recreational feature for the public to enjoy. Concurrent with trail development have been efforts to identify and to preserve natural environments along the course of the linear beltway. To complete the final segments of the Western Greenway, the trail has been designed to pass along the dirt road from the entrance to LM continuing through the western border alongside the Girl Scout property through to Fernald. This route passes directly next to where the *Large Shaft* is planned to be sited. In addition, the Wayside Trail, a segment of the major state supported alternate transportation effort, the Mass Central Rail Trail, is under construction passing within a block of Lawrence Meadow. These proximate trails and routes afford the public access to healthy living opportunities within the local landscape.

4-1

The City of Waltham has a large Environmental Justice population. As development pressure threatens the City's unprotected green spaces, preserving Lawrence Meadow, a critical link in the Western Greenway trail, as a natural resource for public enjoyment is ever more important. Equally important, with full environmental restoration and permanent protection the unique attributes of this keystone property will buttress local climate resiliency. To accomplish this goal will require full remediation of toxic contamination, removal of invasive vegetation, and a professionally managed replanting of native trees, shrubs, wildflowers, and grasses that will result in a wildlife habitat, a carbon heat sink, and a water retention basin within the wetland marsh for the water runoff of contiguous streams and hills.

For the reasons above, the land trust requests that the MWTP conduct an extensive environmental review and analysis of the toxic waste dumps in close proximity to the proposed location of the *Large Shaft*. Supplemental testing may be warranted to protect our drinking water. Previous environmental testing (DEP RTN3-28049) identified two main areas of toxicity near the wetlands: the heavy metal contaminants from the 1970's era *Phoenix Program* that was dumped into and next to the wetland marsh; and the 1-2' thick debris field of lead and coal ash 50' to the west of the wetland. Given the long life expectancy of the Tunnel components, and the potential risks to the security of the water supply should a seismic or other event result in leakage and contamination to the shaft, it would be prudent for MWRA in conjunction with UMass and/or the Commonwealth, to fully clean up the toxins prior to project completion. The City of Waltham has contributed \$2 million dollars to the University's escrow account explicitly for this purpose. It seems reasonable that a clean-up of the local water resiliency program would be consistent with the greater mission of the MWRA.

4-2

4-3

We understand from our discussion with the Tunnel Team that the following issues of concern to the local community will be addressed during the final design planning phase and be implemented during actual on-site construction, to the greatest extent possible:

4-4

sound mitigation techniques will be implemented to minimize disruption to the adjacent neighborhood;

site construction will be scheduled during daytime hours with no night shifts;

4-5

advance planning protocols will result in scheduling the major LM construction period for a time ***other than the summer season*** in consideration of the special nature of the summer activities at both

4-6

the adjacent Girl Scout Camp, and Waltham Fields Community Farm (WFCF) that is directly across at 240 Beaver Street;	4-6 <i>(cont'd)</i>
the MWRA will employ a traffic officer, if necessary, during construction periods when neighboring entities anticipate potential high use of their sites for public events with pedestrian and increased traffic flow;	4-7
overflow parking for special events will be permitted at LM for special events, such as, WFCF, Farm Day, and Spring plant sales, for example;	4-8
the MWRA will reach out to local community groups like the WLT, WFCF, and the Girl Scouts of Eastern Massachusetts, and maintain communication with local stakeholders as it continues to develop plans for the site;	4-9
the MWRA will develop a rodent control plan that will not use toxic Second Generation Anticoagulant Rodenticides (SCAR's) that poison our wildlife, including red-tailed hawks that are frequently seen flying and hunting in the area;	4-10
final clean-up of the permanent LM site will be done in an environmentally sensitive manner with native plantings as screening around the perimeter, and with related design and materials appropriate to the natural setting;	4-11
access to the LM property outside of the MWRA boundary will be permitted for land stewardship and trail building work on other areas of the site;	4-12
the MWRA will conduct an expanded environmental review and possible supplemental testing to fully assess the potential threat to the water supply related to the toxic dumps next to the shaft site; in addition, the MWRA will consider a full environmental clean-up of the contamination in conjunction with UMass Amherst, and the Commonwealth's DEP as discussed above.	4-13

In conclusion, we were pleased to hear Director Murtagh state that our environmental and public access goals for the Lawrence Meadow site are compatible with previous work the group has done with DCR, and the Arnold Arboretum, for example. We appreciate the opportunity for our local concerns to be taken into consideration and we look forward to ongoing communication with the Tunnel Program team as this project evolves.

Sincerely,



Sonja Wadman, Executive Director
Waltham Land Trust

Table 9-6 Responses to Comments from the Waltham Land Trust

#	Comment	Response
4-1	<p>To complete the final segments of the Western Greenway, the trail has been designed to pass along the dirt road from the entrance to Lawrence Meadow (LM) continuing through the western border alongside the Girl Scout property through to Fernald. This route passes directly next to where the <i>Large Shaft</i> is planned to be sited. In addition, the Wayside Trail, a segment of the major state supported alternate transportation effort, the Mass Central Rail Trail, is under construction passing within a block of Lawrence Meadow. These proximate trails and routes afford the public access to healthy living opportunities within the local landscape.</p>	<p>The MWRA acknowledges the WLT’s plans to construct a new segment of the Western Greenway trail along the western boundary of Lawrence Meadow, adjacent to (east of) the Girl Scouts of Eastern Massachusetts property, that would travel north towards the Walter E. Fernald State School property. Based on the WLT’s letter and the planned trail route published on the WLT’s website dated January 2023,¹³ the planned trail would travel on Lawrence Meadow along the existing dirt road adjacent to the western boundary of the proposed UMass Property large connection shaft site, used in Alternative 3A and 4A.</p> <p>As shown on SDEIR Figures 2-2 and 2-3, the proposed temporary construction area limits of disturbance (LOD) and the permanent (final conditions) boundary of the UMass Property site (Alternative 3A or 4A) are east of the existing dirt road that WLT plans to use for a future segment of the Western Greenway trail. Use of the UMass Property site is not anticipated to obstruct the existing dirt road nor hinder access to Lawrence Meadow. As described in SDEIR Chapter 4, Land Alteration and Article 97, Section 4.2.1.1, Alternative 3A/Alternative 4A Existing Conditions (pgs. 4-8 to 4-10), the temporary LOD associated with the UMass Property site includes an approximately 0.5-acre area of Lawrence Meadow surrounding the proposed shaft site and an approximately 0.4-acre area along the public right-of-way on Beaver Street to accommodate a near-surface pipeline (see SDEIR Figure 2-2). As shown on SDEIR Figure 2-3, the MWRA would propose to acquire approximately 0.3 acres of the 31-acre Lawrence Meadow property for permanent use associated with Alternatives 3A or 4A.</p> <p>The MWRA’s proposed use of the UMass Property for Alternative 3A or 4A site would not restrict access to Lawrence Meadow beyond the UMass Property site boundary; Lawrence Meadow would remain available for land stewardship and future trail use.</p> <p>The MWRA also acknowledges the WLT’s goal of permanent environmental preservation of Lawrence Meadow. As described in FEIR Chapter 8, Mitigation, Section 8.2.8.1, Rare Species and Wildlife Habitat Construction Period Mitigation (pg. 8-30), the MWRA would protect and minimize potential disturbance to natural resources on-site and revegetate areas</p>

13 Waltham Land Trust, “The Western Greenway,” <https://walthamlandtrust.org/the-western-greenway/> (accessed February 6, 2024).

Table 9-6 Responses to Comments from the Waltham Land Trust

#	Comment	Response
		disturbed during construction with native species of trees and vegetation as appropriate. Tree planting and landscaping associated with Alternative 3A or 4A would be coordinated with UMass, the City of Waltham, and community stakeholders during final design.
4-2	The land trust requests that the MWTP conduct an extensive environmental review and analysis of the toxic waste dumps in close proximity to the proposed location of the <i>Large Shaft</i> . Supplemental testing may be warranted to protect our drinking water.	The MWRA would conduct environmental reviews, testing, and analysis for the proposed work within the temporary construction area LOD for the UMass Property large connection shaft site associated with Alternatives 3A or 4A. The MWRA would evaluate and remediate contamination as needed for the Program within the temporary construction area LOD.
4-3	Previous environmental testing (DEP RTN3-28049) identified two main areas of toxicity near the wetlands: the heavy metal contaminants from the 1970's era <i>Phoenix Program</i> that was dumped into and next to the wetland marsh; and the 1-2' thick debris field of lead and coal ash 50' to the west of the wetland. Given the long life expectancy of the Tunnel components, and the potential risks to the security of the water supply should a seismic or other event result in leakage and contamination to the shaft, it would be prudent for MWRA in conjunction with UMass and/or the Commonwealth, to fully clean up the toxins prior to project completion.	As described in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.11.1, Hazardous Materials Construction Period Mitigation (pg. 8-36) , the MWRA would develop and implement a Soils and Materials Management Plan (SMMP) to manage all soil and excavated material including contaminated materials encountered during construction. Properties with confirmed oil and hazardous materials (OHM) contamination will be managed in accordance with the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, the Program-wide SMMP, and associated MassDEP policies and guidance. The MWRA's remediation efforts would take place within the temporary construction area LOD for the UMass Property site (Alternative 3A or 4A), which includes the area within the permanent site boundary.
4-4	We understand from our discussion with the Tunnel Team that the following issues of concern to the local community will be addressed during the final design planning phase and be implemented during actual on-site construction, to the greatest extent possible: Sound mitigation techniques will be implemented to minimize disruption to the adjacent neighborhood.	Construction noise avoidance, minimization, and mitigation measures would be implemented as practicable to minimize the potential for impacts to noise-sensitive receptors as described in SDEIR Section 11.2.4, Noise Avoidance, Minimization, and Mitigation (pg. 11-19 to 11-21) . As part of the Noise Control Plan (NCP), the MWRA will work with the contractor to identify and implement site-specific mitigation measures where appropriate and as necessary to minimize potential adverse impacts to noise-sensitive receptors. Refer also to FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.9.1, Noise and Vibration Construction Period Mitigation (pgs. 8-32 to 8-34) .

Table 9-6 Responses to Comments from the Waltham Land Trust

#	Comment	Response
4-5	Site construction will be scheduled during daytime hours with no night shifts.	<p>As part of the Noise Control Plan (NCP), the MWRA will work with the contractor to identify and implement site-specific mitigation measures where appropriate and as necessary to minimize potential adverse impacts to noise-sensitive receptors. This may include requiring the contractor to perform certain construction activities during less sensitive times of day, i.e., daytime hours. Additionally, where appropriate and as necessary, the MWRA would require the contractor to:</p> <ul style="list-style-type: none"> • Install temporary noise barriers and other acoustic barriers. • Locate equipment away from sensitive receptors. • Use quieter construction equipment and methods that would reduce construction noise such as drilling prior to pile driving. • Regularly service construction equipment to ensure proper function and outfit with noise control features. • Maintain ongoing public communication. <p>Refer to SDEIR Section 11.2.4, Noise Avoidance, Minimization, and Mitigation (pg. 11-19 to 11-21), for a more detailed list of construction noise avoidance, minimization, and mitigation measures that would be implemented as practicable to minimize the potential for impacts to noise-sensitive receptors. Refer also to FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.9.1, Noise and Vibration Construction Period Mitigation (pgs. 8-32 to 8-34).</p>
4-6	Advance planning protocols will result in scheduling the major LM construction period for a time other than the summer season in consideration of the special nature of the summer activities at both the adjacent Girl Scout Camp, and Waltham Fields Community Farm (WFCF) that is directly across at 240 Beaver Street.	<p>The MWRA will work with the contractor to identify and implement site-specific mitigation measures where appropriate and as necessary to minimize potential adverse impacts. The MWRA will continue consultation and coordination with communities and stakeholders during the final design phase to determine if time-of-year restrictions are warranted at select sites. Refer to FEIR Chapter 8, Mitigation and Draft Section 61 Findings, for more information on mitigation measures, including FEIR Section 8.2.7.1, Transportation Construction Period Mitigation (pgs. 8-26 to 8-29) and FEIR Section 8.2.9.1, Noise and Vibration Construction Period Mitigation (pgs. 8-32 to 8-34).</p>

Table 9-6 Responses to Comments from the Waltham Land Trust

#	Comment	Response
4-7	The MWRA will employ a traffic officer, if necessary, during construction periods when neighboring entities anticipate potential high use of their sites for public events with pedestrian and increased traffic flow.	As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.6, Mitigation and Collaboration with DPWs and Transportation Departments (pgs. 2-10 to 2-11) , the MWRA will work with the applicable departments of public works (DPWs) and transportation departments of each affected municipality to establish appropriate transportation-related mitigation measures, as needed and where appropriate. Measures that would be considered to mitigate potential traffic impacts are described in SDEIR Section 9.2.4, Transportation Avoidance, Minimization, and Mitigation (pgs. 9-51 to 9-54) , and are summarized in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.2.7 (pgs. 8-26 to 8-29) . As design progresses, the MWRA will develop requirements for traffic management based on permit conditions and community coordination.
4-8	Overflow parking for special events will be permitted at LM for special events, such as, WFCF, Farm Day, and Spring plant sales, for example.	SDEIR Figure 2-3 depicts the proposed permanent (final conditions) boundary of the UMass Property site for Alternatives 3A or 4A. Use of the UMass Property site is not anticipated to hinder access to nor change the overall existing use of Lawrence Meadow. As described in SDEIR Chapter 4, Land Alteration and Article 97, Section 4.2.3.1, Alternative 3A/Alternative 4A Final Conditions (pg. 4-42) and as shown on SDEIR Figure 2-3 , the MWRA would propose to acquire approximately 0.3 acres of the 31-acre Lawrence Meadow property for permanent use (final conditions) associated with Alternative 3A. The MWRA’s proposed construction and operation of the UMass Property site would not restrict access to the Lawrence Meadow property beyond the site boundary.

Table 9-6 Responses to Comments from the Waltham Land Trust

#	Comment	Response
4-9	The MWRA will reach out to local community groups like the WLT, WFCF, and the Girl Scouts of Eastern Massachusetts, and maintain communication with local stakeholders as it continues to develop plans for the site.	<p>The MWRA continues to implement a robust outreach initiative and continues to seek public input and work closely with stakeholders including the WLT, WFCF, and the Girl Scouts of Eastern Massachusetts. As described in FEIR Chapter 2, Outreach and Environmental Justice, Section 2.2, Outreach Activities Since the SDEIR (pgs. 2-1 to 2-4), the MWRA will continue to hold meetings with individual communities to brief staff on community-specific items that may be of interest, including fieldwork, traffic, noise and vibration, and other topics.</p> <p>To date, more than 50 meetings have been held with the community representatives in which proposed Program sites are located. Topics included a Program overview, fieldwork coordination, summary of potential construction period impacts and mitigation, and emergency services coordination. FEIR Table 2-1 (pg. 2-2) provides a list of stakeholder outreach meetings conducted by the MWRA since the SDEIR filing (July 31, 2023).</p>
4-10	The MWRA will develop a rodent control plan that will not use toxic Second Generation Anticoagulant Rodenticides (SCAR's) that poison our wildlife, including red-tailed hawks that are frequently seen flying and hunting in the area.	As described in SDEIR Chapter 10, Rare Species and Wildlife Habitat, Section 10.2.3.1, Alternative 3A/Alternative 4A Final Conditions (pgs. 10-11) and as shown on SDEIR Figure 2-3 , the MWRA proposes to occupy approximately 0.3 acres of the 31-acre Lawrence Meadow property in final conditions associated with Alternatives 3A or 4A. As requested by the WLT, the MWRA will develop a rodent control plan that will include requirements to not use toxic Second Generation Anticoagulant Rodenticides (SCAR's) to protect wildlife.
4-11	Final clean-up of the permanent LM site will be done in an environmentally sensitive manner with native plantings as screening around the perimeter, and with related design and materials appropriate to the natural setting.	As described in FEIR Chapter 8, Mitigation, Section 8.2.8.1, Rare Species and Wildlife Habitat Construction Period Mitigation (pg. 8-30) , the MWRA would protect and minimize potential disturbance to existing natural resources on-site. The MWRA would revegetate areas disturbed during construction with native species of trees and vegetation, where required and as appropriate. Tree planting and landscaping associated with Alternative 3A or 4A will be coordinated with UMass, the City of Waltham and community stakeholders during final design as stated in SDEIR Chapter 10, Rare Species and Wildlife Habitat, Section 10.2.3.1 (pg. 10-11) .

Table 9-6 Responses to Comments from the Waltham Land Trust

#	Comment	Response
4-12	Access to the LM property outside of the MWRA boundary will be permitted for land stewardship and trail building work on other areas of the site.	As shown on SDEIR Figures 2-2 and 2-3 , the proposed temporary construction area LOD and the permanent (final conditions) boundary of the UMass Property site (Alternative 3A or 4A) is located east of the existing dirt road that WLT plans to use for a future segment of the Western Greenway trail. Use of the UMass Property site is not anticipated to obstruct the existing dirt road nor hinder access to the entrance to Lawrence Meadow. As described in SDEIR Chapter 4, Land Alteration and Article 97, Section 4.2.3.1, Alternative 3A/Alternative 4A Site Final Conditions (pgs. 4-42) and as shown on SDEIR Figure 2-3 , the MWRA would propose to acquire approximately 0.3 acres of the 31-acre Lawrence Meadow property for permanent use associated with Alternative 3A or 4A. The MWRA’s proposed construction and operation of the UMass Property site would not restrict access to the Lawrence Meadow property beyond the UMass Property site boundary; Lawrence Meadow would remain available for land stewardship and future trail use.
4-13	The MWRA will conduct an expanded environmental review and possible supplemental testing to fully assess the potential threat to the water supply related to the toxic dumps next to the shaft site; in addition, the MWRA will consider a full environmental clean-up of the contamination in conjunction with UMass Amherst, and the Commonwealth’s DEP as discussed above.	The MWRA would conduct environmental reviews, testing, and analysis for the proposed work within the temporary construction area LOD for the UMass Property large connection shaft site for Alternatives 3A or 4A. The MWRA will evaluate and remediate contamination as needed for the Program within the temporary construction area LOD.

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9.7 Letter 5: MassDEP Waterways Regulation Program

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Department of Environmental Protection

100 Cambridge Street 9th Floor Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

Memorandum

To: Purvi Patel, Environmental Analyst, MEPA
From: Alice Doyle, Waterways Regulation Program, MassDEP
cc: Daniel J. Padien, Program Chief, Waterways Regulation Program, MassDEP
Re: MWRA Metropolitan Water Tunnel Program
EEA #16355 – Supplemental Draft Environmental Impact Report
Comments from the Chapter 91 Waterways Regulation Program
Date: September 25, 2023

The Department of Environmental Protection Waterways Regulation Program (“WRP”) has reviewed the above-referenced Supplemental Draft Environmental Impact Report (SDEIR), EEA #16355 submitted by CDM Smith in association with VHB and Jacobs on behalf of the Massachusetts Water Resource Authority (MWRA) (the “Proponent”) for the Metropolitan Water Tunnel Program. The project proposes to build approximately 14 miles of two new water supply deep-rock tunnels and connections to existing water supply infrastructure, providing redundancy for MWRA's existing Metropolitan Tunnel System. The project area includes Waltham, Belmont, Watertown, Weston, Newton, Wellesley, Needham, Brookline, Boston, and Dedham.

Chapter 91 Jurisdiction

The proposed water supply tunnels and dewatering discharge locations will ‘intersect’ inland waterways in several locations. The WRP’s Chapter 91 comments and the Secretary’s Certificate on the Draft Environmental Impact Report (DEIR) requested that the next project submittal identify each waterway, the scope of work, anticipated impacts and consistency with Chapter 91 regulations. The SDEIR (Table 5-15) lists eight waterbodies the project would pass beneath in the alternatives presented, and further identifies waterbodies/water courses within which temporary or permanent rip-rap scour protection may be proposed below the high water mark. Fill and structures below the high water mark are within a geographic area subject to jurisdiction.

Regulatory Review

The SDEIR states that the proposed water supply tunnels will cross beneath eight non-tidal waterbodies approximately 200-400 feet below ground surface, entirely embedded in the soil or bedrock. Up to three of these crossings would include temporary or permanent dewatering discharge pipes and stone rip-rap scour protection at or near the water’s edge. The “Wetlands and Waterways Overview Maps” (Figures 5-3 through 5-6) include a legend item for Chapter 91 jurisdiction but no jurisdictional boundaries are identified. Regardless, the SDEIR correctly asserts that the underground tunnels would be exempt from Chapter 91 licensing pursuant to 310 CMR 9.05(3)(g)(3), provided the regulatory criteria are met. 5-1

The SDEIR asserts that the temporary and permanent dewatering discharge outfalls and associated stone riprap splash pads will be designed to extend into such waterbodies only to the extent necessary for bank stabilization while not reducing the space available for navigation. The SDEIR correctly asserts that this fill and/or structures would be exempt from licensing pursuant to 310 CMR 9.05(3)(g)4, provided the project complies with the regulatory prerequisites. 5-2

The Proponent acknowledges that further coordination with the WRP is needed during final design to determine if Chapter 91 authorization is required for any of the project components. The Department is available to confer with the MWRA’s team upon request. Consultation early in the final design phase is encouraged. If you have any questions regarding the Department’s comments, please contact Alice Doyle at alice.doyle@mass.gov. 5-3

Table 9-7 Responses to Comments from the MassDEP Waterways Regulation Program

#	Comment	Response
5-1	The SDEIR correctly asserts that the underground tunnels would be exempt from Chapter 91 licensing pursuant to 310 CMR 9.05(3)(g)(3), provided the regulatory criteria are met.	As described in FEIR Chapter 1, Program Description and Permitting, Section 1.5.3.10, MassDEP Chapter 91 License (pgs. 1-36 to 1-37) , since the filing of the DEIR, the Program has determined that construction within waterways may be exempt from requiring a Chapter 91 License. All work being completed on, in, over, or under waterways would be installed in accordance with 310 CMR 9.05(3)(g).
5-2	The SDEIR asserts that the temporary and permanent dewatering discharge outfalls and associated stone riprap splash pads will be designed to extend into such waterbodies only to the extent necessary for bank stabilization while not reducing the space available for navigation. The SDEIR correctly asserts that this fill and/or structures would be exempt from licensing pursuant to 310 CMR 9.05(3)(g)(4), provided the project complies with the regulatory prerequisites.	As described in FEIR Chapter 1, Program Description and Permitting, Section 1.5.3.10, MassDEP Chapter 91 License (pgs. 1-36 to 1-37) , in accordance with 310 CMR 9.05(3)(g)(4), proposed outfalls and splash pads would not extend into the waterway or adjacent wetland. The placement of rip rap splash pads and tunneling of the structure below waterways would not reduce the space available for navigation and therefore would not require Chapter 91 authorization. See SDEIR Chapter 5, Wetlands and Waterways, Table 5-15 for further details. Note that Alternative 4B is the same as Alternative 4A for the sites/alignment south of the School Street site in the table, and the same as Alternative 10A for the site/alignment north of the School Street site. Further coordination with MassDEP will be completed during final design to determine applicability of Chapter 91 exemptions to proposed Program elements and/or requirements to comply with Chapter 91 regulations should the Program not meet exemption criteria.
5-3	The Proponent acknowledges that further coordination with the WRP is needed during final design to determine if Chapter 91 authorization is required for any of the project components. The Department is available to confer with the MWRA's team upon request. Consultation early in the final design phase is encouraged.	Consultation and coordination with MassDEP, including the Waterways Regulation Program (WRP), will continue throughout final design. The MWRA will request a meeting at the appropriate time early in the design phase to review proposed work potentially subject to Chapter 91 authorization that will be advanced during final design.

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9.8 Letter 6: Massachusetts Water Resources Commission

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THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

September 22, 2023

Rebecca L. Tepper, Secretary
Executive Office of Energy and Environmental Affairs
Attention: Purvi Patel, MEPA Office
EOEEA #16355
100 Cambridge Street
Boston, MA 02114

Dear Secretary Tepper:

The Water Resources Commission (WRC) staff has reviewed the Supplemental Draft Environmental Impact Report (SDEIR) for the Massachusetts Water Resources Authority (MWRA) Metropolitan Water Tunnel Program (Program). The Program is proposed by MWRA to provide redundancy for the existing Metropolitan Tunnel System, which includes the City Tunnel, City Tunnel Extension, and Dorchester Tunnel. Construction will consist of two new deep rock water supply tunnels originating at the westernmost portion of the existing Metropolitan Tunnel System, with one tunnel extending north towards Waltham and the other extending south towards Boston/Dorchester. Work for this proposed project is slated to take place in the following municipalities: Waltham, Watertown, Newton, Belmont, Weston, Brookline, Boston, Dedham, Needham, and Wellesley. MWRA's water supply sources are in the Chicopee River Basin and the Nashua River Basin. The current transfer of water supply from these basins to communities in eastern Massachusetts in different basins would be considered an existing interbasin transfer and includes transfers that occurred prior to 1984 and any subsequent transfers that received interbasin transfer approval by the WRC. The Interbasin Transfer Act (ITA; regulations at 313 CMR 4.00) regulates the transfer of water supply or wastewater across major basin boundaries.

The DEIR and SDEIR assert that the intent of the Program is to ensure redundancy by providing a backup to the existing Metropolitan Tunnel System, and not to increase the capacity of the MWRA water supply system. The ITA regulations, specifically 313 CMR 4.05 (5), exempt projects whose "sole purpose is to provide redundancy, provided that any increase in capacity cannot be used to increase the ability to transfer water out of the Donor Basin and provided further that streamflow in the Donor Basin is not adversely affected".

In our comment letter dated November 22, 2022, WRC requested that MWRA provide the capacity of the City Tunnel, City Tunnel Extension and Dorchester Tunnel, and also provide the capacity of each of the two new deep rock tunnels. WRC requested that MWRA clearly state if the existing capacity will not be exceeded and what steps will be taken to limit flow to the present rate of interbasin transfer. The WRC comment letter also stated that as long as all bedrock infiltration will occur from and be discharged to the Charles River Basin and will not cross a basin boundary, then the ITA will not apply to the dewatering portion of the project.

In the SDEIR, MWRA provided the following responses to our comments on the DEIR.

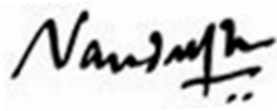
- The MWRA indicated that the intent of the Program is not to increase total capacity of the system, but to ensure redundancy by providing a backup to the existing Metropolitan Tunnel System if it were ever out of service for planned or unplanned reasons. For example, when the North and South Tunnel are completed, the MWRA anticipates it will take segments of the existing City Tunnel system offline for maintenance and repair. During those periods, MWRA would be relying primarily on the North and South Tunnels to provide water to the metro-Boston area communities. Therefore, the new tunnels must be able to provide water supply capacities that are equivalent to the existing tunnel system.
- To respond to the request for existing tunnel capacities, MWRA indicated that they modeled the water distribution system with 1) existing tunnel system in operation only and 2) the proposed tunnels in operation only under the same flow conditions to see what each system conveys under the same operating conditions. For this comparison, MWRA used the 2060 High Day Demand of 283 million gallons per day (MGD), which is the design flow used when sizing the new tunnels and evaluating ability of the water system to meet required hydraulic conditions.
- The flows provided below are the maximum through the tunnel in the modeled condition. The City Tunnel supplies the City Tunnel Extension and the Dorchester Tunnel and acts as the limiting factor in supply. The maximum flows through the existing tunnels only when modeled in operation are as follows:
 - City Tunnel = approximately 210 MGD
 - City Tunnel Extension = approximately 90 MGD
 - Dorchester Tunnel = approximately 95 MGDThe modeled maximum flows with the new tunnels only in operation are as follows:
 - North Tunnel = approximately 80 MGD
 - South Tunnel = approximately 125 MGD
- The volume of water conveyed through the new deep rock tunnels, as well as the existing tunnels, is limited by the existing aqueducts and tunnels upstream (the Hultman Aqueduct and MetroWest Water Supply Tunnel), which are limited by the Norumbega Reservoir. The Norumbega Reservoir sets the hydraulic gradeline for the metropolitan system and the new tunnels, thereby regulating flows downstream. Additionally, at the downstream end of the tunnels, the surface piping restricts how much water can be conveyed to communities.
- All proposed construction, including tunnel boring, launching, receiving, large connection, and connection shaft site construction, is proposed to occur only within the Charles River Basin. No dewatering activities will cross major basin boundaries.

Based on the information provided by the MWRA, stated above, the combined capacity of the proposed North and South Tunnels in the modeled condition is 205 MGD, which is slightly less than the modeled capacity of the City Tunnel at 210 MGD. Therefore, the Program is not subject to the ITA and will not require approval from the WRC, provided that the combined transfer through both the proposed North and South Tunnels and the City Tunnel do not exceed the current hydraulic capacity of the City Tunnel. MWRA already provides an annual report detailing the volumes transferred through the Hultman and Sudbury Aqueducts. In the future, this annual report will also include the City Tunnel and North and South Tunnel volumes (once operational) to ensure that the Program does not result in an increase in capacity.

6-1

6-2

Please contact Vanessa Curran, staff to the WRC, at Vanessa.Curran@mass.gov if you have any questions. Thank you for the opportunity to comment.

A handwritten signature in black ink, appearing to read "Vandana Rao". The signature is written in a cursive style with a horizontal line under the name.

Vandana Rao, PhD
Executive Director, MA Water Resources Commission

cc: Anne Carroll, DCR
Vanessa Curran, DCR
Erin Graham, DCR
Rebecca Weidman, MWRA
Kathleen Murtagh, MWRA
Water Resources Commission

Table 9-8 Responses to Comments from the Massachusetts Water Resources Commission

#	Comment	Response
6-1	The combined capacity of the proposed North and South Tunnels in the modeled condition is 205 MGD, which is slightly less than the modeled capacity of the City Tunnel at 210 MGD. Therefore, the Program is not subject to the ITA and will not require approval from the WRC, provided that the combined transfer through both the proposed North and South Tunnels and the City Tunnel do not exceed the current hydraulic capacity of the City Tunnel.	The MWRA notes the WRC’s confirmation that the Program is not subject to the ITA and will not require approval from the WRC. As described in FEIR Chapter 1, Program Description and Permitting, Section 1.1, Program Description (pg. 1-2) , the intent of the Program is not to increase total capacity of the system, but to ensure redundancy by providing a backup to the existing Metropolitan Tunnel System if it were ever out of service for planned or unplanned reasons.
6-2	MWRA already provides an annual report detailing the volumes transferred through the Hultman and Sudbury Aqueducts. In the future, this annual report will also include the City Tunnel and North and South Tunnel volumes (once operational) to ensure that the Program does not result in an increase in capacity.	MWRA does provide an annual report detailing the volumes transferred through the Hultman and Sudbury Aqueducts and will include the City Tunnel and new tunnels when the new tunnels are operational.

9.9 Letter 7: Massachusetts Department of Conservation and Recreation

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September 26, 2023

Secretary Rebecca L. Tepper
Executive Office of Energy and Environmental Affairs
Attn: Purvi Patel, MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: EOEEA #16355 Metropolitan Water Tunnel Program SDEIR

Dear Secretary Tepper:

The Department of Conservation and Recreation ("DCR" or "Department") is pleased to submit the following comments in response to the Supplemental Draft Environmental Impact Report ("SDEIR") submitted by the Massachusetts Water Resources Authority ("MWRA" or the "Proponent") for the Metropolitan Water Tunnel Program (the "Project").

As described in the SDEIR, the Proponent will construct approximately 14 miles of new deep rock water supply tunnels that will provide redundancy for MWRA's existing Metropolitan Tunnel System. Multiple DCR properties will be impacted by the Project, requiring the disposition of fee simple and permanent easement interests in the land, which will trigger Article 97 of the Amendments to the Massachusetts Constitution ("Article 97"). Based on a consult meeting with the Proponent, it appears that up to five acres of DCR property will also be needed as staging locations for construction over several years, requiring temporary easements and DCR Construction and Access Permits ("CAP"), which may need to be re-issued given the estimated duration of the Project.

7-1

Article 97

State conservation and recreation property is protected by Article 97. Transfers of ownership or interests in DCR property must meet the requirements set forth in the Public Lands Preservation Act (M.G.L. c. 3, § 5A: the "PLPA") and the Executive Office of Energy and Environmental Affairs' Article 97 Land Disposition Policy (the "Policy") to ensure no net loss of lands protected under Article 97. Selling, transferring, or otherwise disposing of any right or interest in DCR property may occur only under exceptional circumstances, as defined in the Policy, including the determination that no feasible alternative is available and a minimum amount of land or an interest therein is being disposed for the proposed use. Such transfers also require legislative authorization by the General Court through a two-thirds roll call vote.

7-2

7-3

The SDEIR describes two sites that will require DCR to dispose of land that is protected under Article 97: the American Legion Receiving Shaft Site within the Morton Street property (approximately 3.5 acres, fee simple and permanent easement interests) and the Southern Spine Mains Connection Shaft Site within the Southwest Corridor Park, including DCR's adjacent Arborway (Route 203; approximately 0.2 acres fee simple interest and additional permanent easement interest). The SDEIR plans also show locations where

7-4

7-5

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

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Maura T. Healey
Governor
Kimberley Driscoll
Lt. Governor

Rebecca L. Tepper, Secretary
Executive Office of Energy & Environmental Affairs
Brian Arlgo, Commissioner
Department of Conservation & Recreation

the preliminary tunnel alignment is located beneath these and several other DCR properties, including the Leo J. Martin Memorial Golf Course in Weston and Newton, and portions of the Charles River Reservation in Weston. The SDEIR does not provide an estimate of the total tunnel alignment area on these properties; however, in a consult meeting, the Proponent indicated that a permanent easement approximately 30 feet wide would be required, which would also trigger Article 97.

7-5
(cont'd)

As noted above, the Proponent has engaged with DCR regarding the Project design and compliance with the PLPA and the Policy. DCR will continue to work with MWRA to ensure that there are no feasible alternatives to the fee simple and permanent easement interests identified within the limit of work for the Project and, should no alternatives exist, that the minimum amount of interest in DCR land is being disposed of for the purpose of the Project. The Proponent will be responsible for meeting the obligations of the PLPA, including public notification, an alternatives analysis, the identification and dedication of replacement land to Article 97 purposes, an appraisal, requests for the Secretary to waive or modify the replacement land requirement or make findings relative to funding in lieu of replacement land, if applicable, and Article 97 legislation. Construction and Access Permits for this project, required for work activities on DCR property, will not be issued until MEPA review is complete and Article 97 legislation has been enacted.

7-6

7-7

7-8

Thank you for the opportunity to comment on the SDEIR. Please contact the Director of Construction & Access Permitting, Sean Casey at sean.casey@mass.gov regarding temporary easements and DCR Construction and Access Permits. Questions related to Article 97 can be directed to Land Protection Specialist Loni Fournier at Loni.M.Fournier@mass.gov.

Sincerely,



Brian Arrigo
Commissioner

cc: Loni Fournier, Sean Casey, Priscilla Geigis, Patrice Kish, Peter Mulcahy (DCR)

Table 9-9 Responses to Comments from the Massachusetts DCR

#	Comment	Response
7-1	Based on a consult meeting with the Proponent, it appears that up to five acres of DCR property will also be needed as staging locations for construction over several years, requiring temporary easements and DCR Construction and Access Permits (“CAP”), which may need to be re-issued given the estimated duration of the Project.	<p>The MWRA understands that temporary use of DCR property will require CAPs for staging locations for construction activities, in addition to land disposition and easement approvals. As described in FEIR Chapter 1, Program Description and Permitting, Section 1.5.3.6, DCR Construction and Access Permits (pg. 1-35), comment letters from DCR on the ENF and DEIR (and the SDEIR) confirmed the need for the Program to seek CAPs at sites under the care, custody, and control of the DCR. This applies to one receiving site (American Legion) and one connection site (Southern Spine Mains). The MWRA will continue to work with the DCR regarding CAPs, land acquisition/easements, and the Article 97 disposition process as design for the Program progresses. Once the DCR CAP is obtained, the MWRA will provide DCR with a work schedule prior to the commencement of work. Typically, DCR will require a schedule update at the time of 50 percent and 80 percent completion.</p> <p>The CAP as well as other permits, approvals, and actions anticipated to be required for the Program are summarized in FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32).</p>
7-2	Transfers of ownership or interests in DCR property must meet the requirements set forth in the Public Lands Preservation Act (M.G.L. c. 3, § 5A; the “PLPA”) and the Executive Office of Energy and Environmental Affairs’ Article 97 Land Disposition Policy (the “Policy”) to ensure no net loss of lands protected under Article 97.	As described in FEIR Chapter 3, Land Alteration, Open Space, and Article 97, Section 3.2.2, Commitment to Article 97 Land Disposition Policy and PLPA Obligations (pgs. 3-5 to 3-9) , the MWRA is committed to working with the DCR and other agencies to meet the requirements for the transfer of Article 97 property in accordance with the EEA Article 97 Land Disposition Policy, the Public Lands Preservation Act (PLPA), and the Commonwealth’s “Guidance on Public Lands Preservation Act Implementation.”

Table 9-9 Responses to Comments from the Massachusetts DCR

#	Comment	Response
7-3	Selling, transferring, or otherwise disposing of any right or interest in DCR property may occur only under exceptional circumstances, as defined in the Policy, including the determination that no feasible alternative is available and a minimum amount of land or an interest therein is being disposed for the proposed use. Such transfers also require legislative authorization by the General Court through a two-thirds roll call vote.	<p>As described in SDEIR Chapter 4, Land Alteration and Article 97, Section 4.1.1, Summary of Findings (pg. 4-1), existing open space areas protected by Article 97 through the EEA Article 97 Land Disposition Policy would be avoided to the greatest extent practicable. Use of open space land and community resources has been minimized during the site-selection process and alternatives analysis as described in SDEIR Chapter 2, Alternatives.</p> <p>The MWRA understands that disposal of portions of the two DCR sites (Southwest Corridor Park/Arborway I for the Southern Spine Mains connection shaft site and the Morton Street Property for the American Legion receiving shaft site) would need to follow Article 97 legislation, which includes a 2/3 vote of the Massachusetts State Legislature (note the proposed Hegarty Pumping Station connection shaft site, which is owned by the Town of Wellesley, may also be subject to Article 97).</p> <p>Any transfer of an interest in Article 97 land would comply with the EEA Article 97 Land Disposition Policy. The MWRA will continue to work closely with DCR and other landowners. Refer to FEIR Chapter 3, Land Alteration, Open Space, and Article 97, for more information. FEIR Table 3-1 (pgs. 3-7 to 3-9), as previously presented in SDEIR Section 4.2.4.2, Table 4-13 (pgs. 4-49 to 4-51), summarizes how the MWRA would seek to comply with the conditions outlined in the Article 97 Land Disposition Policy.</p>

Table 9-9 Responses to Comments from the Massachusetts DCR

#	Comment	Response
7-4	<p>The SDEIR describes two sites that will require DCR to dispose of land that is protected under Article 97: the American Legion Receiving Shaft Site within the Morton Street Property (approximately 3.5 acres, fee simple and permanent easement interests) and the Southern Spine Mains Connection Shaft Site within the Southwest Corridor Park, including DCR’s adjacent Arborway (Route 203; approximately 0.2 acres fee simple interest and additional permanent easement interest).</p>	<p>As described in the DEIR and SDEIR, and in FEIR Chapter 8, Mitigation and Draft Section 61 Findings, Section 8.3.3, Draft Section 61 Finding: Massachusetts Department of Conservation and Recreation (pg. 8-53), two proposed sites owned by the Commonwealth of Massachusetts under care, custody, and control of DCR would require the disposition of land protected under the EEA Article 97 Land Disposition Policy:</p> <ul style="list-style-type: none"> • Southwest Corridor Park/Arborway I (Southern Spine Mains site) – Approximately 0.2 acres of fee simple land acquisition is anticipated to be required to accommodate the proposed Southern Spine Mains connection shaft site (to be confirmed in final design). Temporary use of up to 0.5 acres of Southwest Corridor Park/Arborway I is anticipated to be required during construction. • Morton Street Property (American Legion site) – To accommodate the proposed American Legion receiving shaft site, approximately 1.5 acres of fee simple land acquisition is anticipated to be required for the shaft and valve chamber and up to 2.0 acres of permanent easement would be required for the near-surface pipeline (to be confirmed in final design). Temporary use of up to 5.4 acres of the Morton Street Property is anticipated to be required during construction.
7-5	<p>The SDEIR plans also show locations where the preliminary tunnel alignment is located beneath these and several other DCR properties, including the Leo J. Martin Memorial Golf Course in Weston and Newton, and portions of the Charles River Reservation in Weston. The SDEIR does not provide an estimate of the total tunnel alignment area on these properties; however, in a consult meeting, the Proponent indicated that a permanent easement approximately 30 feet wide would be required, which would also trigger Article 97.</p>	<p>As described in SDEIR Section 4.2.3.3, Tunnel Alignment (pg. 4-43), properties protected by Article 97 within a 1,000-foot corridor centered around the preliminary tunnel alignment (500 feet on either side of the alignment) were identified for each Alternative. The 1,000-foot corridor was used to identify Article 97 resources that may require a subterranean easement should the tunnel be located directly underneath a given property. Since the proposed tunnel would be up to approximately 12 feet in diameter, the 1,000-foot corridor tunnel alignment Study Area represents a conservative estimate of properties that may require a subterranean easement. Article 97 properties located within a 1,000-foot corridor of the preliminary tunnel alignment are listed by Program Alternative in FEIR Table 3-8 as presented in FEIR Section 3.5.4.3, Tunnel Alignment (pgs. 3-31 to 3-33).</p> <p>Properties that are protected under Article 97 and located within the 1,000-foot corridor of the preliminary tunnel alignment are shown in DEIR Figure 4.13-17 to DEIR Figure 4.13-22. SDEIR Figures 4-3 to Figure 4-4 and FEIR</p>

Table 9-9 Responses to Comments from the Massachusetts DCR

#	Comment	Response
		<p>Figure 3-1 (pg. 3-21) provide the updated alignment associated with North Tunnel, Segment 1, for Alternatives 3A, 4A, and 4B (all other tunnel segments are the same).^{14,15,16}</p> <p>As described in FEIR Chapter 1, Program Description and Permitting (pg. 1-2), the depth of the tunnel would range from approximately 200 feet to 400 feet below ground surface. Thus, the tunnel alignment would be below ground and would not disrupt open space or community resources at the surface; however, as discussed with the DCR, it is anticipated that a permanent subterranean easement approximately 50 feet wide and 50 feet high, centered on the tunnel, would be required for the portion of properties located directly above the tunnel alignment. Article 97 mitigation would be required for properties located above the tunnel alignment that are protected by Article 97. MWRA will obtain easements from each landowner prior to construction.</p> <p>As described in FEIR Chapter 3, Land Alteration, Open Space, and Article 97, Section 3.2.1, Total Tunnel Alignment Area on DCR Properties (pgs. 3-3 to 3-4), the tunnel alignment between shaft sites will be further refined as design for the Program is finalized. Geotechnical and geologic data from borings, surface geophysical surveys, and bedrock outcrop mapping, along with data collected as part of past projects (e.g., past MWRA projects, MassDOT work, etc.), will continue to be analyzed to characterize the geologic and hydrogeologic setting for the Program area and to understand conditions which influence shaft and tunnel design and construction methods (e.g., top of rock elevation, location and limits of geologic faults,</p>

- 14 **DEIR Figure 4.13-17** (Alternative 3 – Tunnel Segment 1) is superseded by **SDEIR Figure 4-3** (Alternative 3A – Tunnel Segment 1) and **DEIR Figure 4.13-20**, (Alternative 4 – Tunnel Segment 1) is superseded by **SDEIR Figure 4-4** (Alternative 4A – Tunnel Segment 1).
- 15 As described in **SDEIR Section 4.2.1.3, Tunnel Alignment Existing Conditions (pg. 4-17)**, use of the UMass Property large connection shaft site in SDEIR Alternatives 3A and 4A revises the tunnel alignment from the School Street connection shaft site to the northern terminus site. South of the School Street connection shaft site, the preliminary alignment of the North Tunnel, Segment 1, would remain the same as described in the DEIR. South Tunnel, Segment 2, and South Tunnel, Segment 3, remain the same as previously described in the DEIR.
- 16 As described in **FEIR Section 3.5.2.3, Tunnel Alignment Existing Conditions (pg. 3-19 to 3-23)**, Alternative 4B is the same as Alternative 4A except for its use of the Lower 190 Trapelo Road Property (previously the “Lower Fernald Property”) receiving shaft site as the terminus of the North Tunnel, Segment 1. **FEIR Figure 3-1** presents Alternative 4B north of the School Street connection shaft site. South of the School Street connection shaft site, the preliminary alignment of the Alternative 4B North Tunnel, Segment 1, would remain the same as Alternative 4A. South Tunnel, Segment 2, and South Tunnel, Segment 3, for Alternative 4B remain the same as Alternative 4A.

Table 9-9 Responses to Comments from the Massachusetts DCR

#	Comment	Response
		<p>permeability, strength, abrasiveness, mineralogy, lithology, stability, etc.). The results of these investigations and analyses, along with other factors such as hydraulic connections to critical infrastructure, will dictate the final tunnel alignment and the resulting parcels that would require permanent subterranean easements. As design progresses, the MWRA will finalize which parcels require subterranean easements and the acreages required.</p>
7-6	<p>DCR will continue to work with MWRA to ensure that there are no feasible alternatives to the fee simple and permanent easement interests identified within the limit of work for the Project and, should no alternatives exist, that the minimum amount of interest in DCR land is being disposed of for the purpose of the Project.</p>	<p>As described in FEIR Chapter 3, Land Alteration, Open Space, and Article 97, Section 3.2.2, Commitment to Article 97 Land Disposition Policy and PLPA Obligations (pgs. 3-5 to 3-9), the MWRA is committed to working with the DCR and other agencies to meet the requirements for the transfer of Article 97 property in accordance with the EEA Article 97 Land Disposition Policy, the PLPA, and the Commonwealth’s “Guidance on Public Lands Preservation Act Implementation.”</p> <p>As described in SDEIR Chapter 4, Land Alteration and Article 97, Section 4.1.1, Summary of Findings (pg. 4-1), existing open space areas protected by Article 97 through the EEA Article 97 Land Disposition Policy would be avoided to the greatest extent practicable. Use of open space land and community resources has been minimized during the site-selection process and alternatives analysis as described in SDEIR Chapter 2, Alternatives. FEIR Table 3-1 (pg. 3-7), as previously presented in SDEIR Section 4.2.4.2, Table 4-13 (pgs. 4-49 to 4-51), summarizes how the MWRA would seek to comply with the conditions outlined in the Article 97 Land Disposition Policy.</p>

Table 9-9 Responses to Comments from the Massachusetts DCR

#	Comment	Response
7-7	The Proponent will be responsible for meeting the obligations of the PLPA, including public notification, an alternatives analysis, the identification and dedication of replacement land to Article 97 purposes, an appraisal, requests for the Secretary to waive or modify the replacement land requirement or make findings relative to funding in lieu of replacement land, if applicable, and Article 97 legislation.	<p>FEIR Chapter 3, Land Alteration, Open Space, and Article 97, FEIR Table 3-1, as previously presented in SDEIR Section 4.2.4.2, Table 4-13 (pgs. 4-49 to 4-51), summarizes how the MWRA would seek to comply with the conditions outlined in the Article 97 Land Disposition Policy. In accordance with the requirements of the PLPA, the MWRA will notify the Secretary of the EEA and the public by submitting the proposed disposition request within the PLPA portal and perform additional notification as required by the EEA. Prior to the submission, the MWRA will coordinate with the owner/maintainer of the parcel of interest, as required by the PLPA.</p> <p>As outlined in the PLPA and as described in SDEIR Section 4.3, Technical Analysis to Respond to Certificate Comments (pgs. 4-52 to 4-55), the MWRA will prepare a brief alternatives analysis for submission to the EEA portal for site use and select an acceptable replacement parcel or request a waiver from the Secretary to modify or eliminate the replacement land requirement. Alternatively, the MWRA may request to provide in-lieu funding for part or all of the replacement land. The MWRA will continue to work with the appropriate agencies regarding the most appropriate option for each applicable site subject to the PLPA and the Article 97 Policy.</p>
7-8	Construction and Access Permits for this project, required for work activities on DCR property, will not be issued until MEPA review is complete and Article 97 legislation has been enacted.	<p>The MWRA understands that temporary use of DCR property will require CAPs for staging locations for construction activities, in addition to land disposition and easement approvals. As described in FEIR Chapter 1, Program Description and Permitting, Section 1.5.3.6, DCR Construction and Access Permits (pg. 1-35), comment letters from DCR on the ENF and DEIR (and the SDEIR) confirmed the need for the Program to seek CAPs at sites under the care, custody, and control of the DCR. This applies to one receiving site (American Legion) and one connection site (Southern Spine Mains). The MWRA will continue to work with the DCR regarding CAPs, land acquisition/easements, and the Article 97 disposition process as design for the Program progresses.</p> <p>The CAP as well as other permits, approvals, and actions anticipated to be required for the Program are summarized in FEIR Chapter 1, Program Description and Permitting, Table 1-4 (pg. 1-32).</p>

9.10 Letter 8: Massachusetts Division of Marine Fisheries

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The Commonwealth of Massachusetts

Division of Marine Fisheries

(617) 626-1520 | www.mass.gov/marinefisheries



MAURA T. HEALEY
Governor

KIMBERLEY DRISCOLL
Lt. Governor

REBECCA L. TEPPER
Secretary

THOMAS K. O'SHEA
Commissioner

DANIEL J. MCKIERNAN
Director

September 27, 2023

Secretary Rebecca L. Tepper
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Purvi Patel, EEA No. 16355
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Tepper:

The Division of Marine Fisheries (MA DMF) has reviewed the Supplemental Draft Environmental Impact Report (SDEIR) for the proposed Metropolitan Water Tunnel Program (the Program) submitted on behalf of the Massachusetts Water Resources Authority (MWRA). MWRA is proposing to construct two new deep rock water supply tunnels (north and south alignments totaling ± 14.5 miles) that would provide redundancy for MWRA's existing Metropolitan Tunnel System. Construction would consist of two tunnels originating at the westernmost portion of the Metropolitan Tunnel System, with one tunnel extending north towards Waltham and the other extending south towards Boston/Dorchester. Each tunnel consists of concrete-lined deep rock tunnel sections linked to the surface through steel and concrete vertical shafts. Work for this proposed project is slated to take place in the following municipalities: Waltham, Watertown, Newton, Belmont, Weston, Brookline, Boston, Dedham, Needham, and Wellesley.

The tunnel construction of the Program would use rock tunnel boring machines (TBMs) and in some cases drill and blast methods. The tunnels would range 200'-400' below the surface and the tunnel diameter would be approximately 10-12'. A portion of the tunnel would be installed under the Stony Brook Dam along the Charles River. The Program also includes the construction of launching, receiving, and connecting shafts. Launching and receiving sites are used for staging, shaft excavation, excavated material removal, and construction dewatering. During construction at the launching and receiving sites, construction water would be generated, primarily from groundwater inflows into the tunnel excavation. One of the primary dewatering discharge sites (Tandem Trailer) is located near the Interstate I-90/I-95 Interchange (I-90/I-95). Groundwater withdrawal volumes associated with dewatering are estimated to vary between less than 100,000 GPD to up to an estimated 8 MGD. The groundwater would be treated at a temporary water treatment facility located within the staging area and discharged to Seaverns Brook which flows into the Charles River.

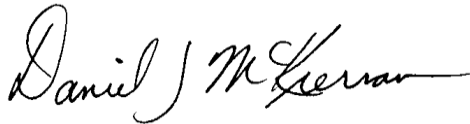
The Charles River supports diadromous fish including American shad (*Alosa sapidissima*), rainbow smelt (*Osmerus mordax*), white perch (*Morone americana*), Atlantic tomcod (*Microgadus tomcod*), and American eel (*Anguilla rostrata*). Additionally, the area between the Moody Street Dam and I-90/I-95 provides important spawning habitat for River Herring (*Alosa spp.*) [1].

MA DMF offers the following comments for your consideration:

- MA DMF finds that the proposed dewatering work, which would include changes in temperature, increased turbidity, and changes in water velocity and volume, presents a potential risk to river herring spawning and migration in the Charles River. MA DMF may recommend a time-of-year restriction of no in-water, silt-producing work from **April 15 to July 15** to minimize this impact [2]. 8-1
- The FEIR should include additional information about the temporary water treatment facility proposed at the Tandem Trailer shaft site. 8-2
- The FEIR should include additional information about noise and vibration impacts caused by tunneling. One tunnel would pass underneath the Stony Brook Dam which is adjacent to the Charles River. Noise and vibration impact from tunneling may adversely affect fish migration and spawning. 8-3

Questions regarding this review may be directed to Kate Frew in our Gloucester office at Kate.Frew@mass.gov.

Sincerely,



Daniel J. McKiernan
Director

cc:

C. Daly, Waltham Conservation Commission
K. Shaw, NMFS
M. Marold, DFW
H. Davis, DEP
R. Croy, E. Reiner, EPA
C. Rizzi, MWRA
B. Gahagan, B. Chase, M. Rousseau, DMF

References

1. MA DMF. MassGIS Data: Diadromous Fish. <https://www.mass.gov/info-details/massgis-data-diadromous-fish>. Accessed September 8, 2023. 2023.
2. Evans NT, Ford KH, Chase BC, Sheppard J. Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts. Massachusetts Division of Marine Fisheries Technical Report, TR-47. <https://www.mass.gov/doc/time-of-year-recommendations-tr-47/download>. Accessed September 8, 2023. 2011.

DM/KF/sd

Table 9-10 Responses to Comments from the Massachusetts DMF

#	Comment	Response
8-1	MA DMF finds that the proposed dewatering work, which would include changes in temperature, increased turbidity, and changes in water velocity and volume, presents a potential risk to river herring spawning and migration in the Charles River. MA DMF may recommend a time-of-year restriction of no in-water, silt-producing work from April 15 to July 15 to minimize this impact.	<p>The MWRA will continue consultation and coordination with the DMF during the final design phase. It has been acknowledged in the DEIR and SDEIR that during construction, there would be the potential for water quality in surface waters to be impacted by pollutants in tunnel dewatering discharges and in discharges related to tunnel cleaning, disinfection, and flushing. Prior to discharge, all flows would be treated as necessary to meet water quality standards for the receiving water body and any other requirements of environmental permits issued for the Program.</p> <p>The Special Conditions included in permits issued for the Program, if deemed appropriate by DMF, could include a time-of-year restriction on in-water, silt-producing work from April 15 to July 15.</p>
8-2	The FEIR should include additional information about the temporary water treatment facility proposed at the Tandem Trailer shaft site.	<p>As indicated in DEIR Section 4.6.5.4, Tunnel Dewatering and Disinfection (pg. 4.6-150), temporary water treatment facilities would be constructed at all launching shaft sites, including the Tandem Trailer site. Contract documents will require that the contractor design and construct the treatment system to meet applicable surface water quality standards for the classification of the receiving water, as required by 314 CMR 4.05. All proposed receiving waters are designated Class B. The requirements for Class B waterways included under 314 CMR 4.05(3)(b) set limits for Dissolved Oxygen, Temperature, pH, Bacteria, Solids, Color and Turbidity, Oil and Grease, and Taste and Odor. Sampling and testing of dewatering flows prior to discharge would be required on an on-going basis to confirm that all criteria are being met.</p> <p>The water treatment facility will likely include a variety of treatment means and methods to address the various water quality parameters as follows:</p> <p>Dissolved oxygen concentration can be increased using aeration devices.</p> <p>The temperature of the water may be controlled using natural shading or insulation of tanks (to minimize heat exchange with the surrounding environment), circulation systems, and limiting exposure to direct sunlight.</p> <p>The pH of the water can be adjusted using a base to raise the pH (e.g., lime) or using an acid to lower the pH with thorough mixing.</p> <p>Bacteria can be removed by filtration, chlorination, ultra-violet sterilization, or other techniques.</p>

Table 9-10 Responses to Comments from the Massachusetts DMF

#	Comment	Response
		<p>Solids, color, and turbidity can be addressed by using clarification and sedimentation. Testing will indicate if the water is suitable for discharge (i.e., meets regulatory requirements).</p> <p>See FEIR Chapter 5, Fisheries, Section 5.2, Proposed Dewatering at the Tandem Trailer Site (pgs. 5-1 to 5-5), for more information..</p>
8-3	<p>The FEIR should include additional information about noise and vibration impacts caused by tunneling. One tunnel would pass underneath the Stony Brook Dam which is adjacent to the Charles River. Noise and vibration impact from tunneling may adversely affect fish migration and spawning.</p>	<p>As described in FEIR Chapter 5, Fisheries, Section 5.3, Noise and Vibration from Tunneling (pg. 5-5), the proposed tunnels will be excavated using a tunnel boring machine (TBM), with an average advance rate of 50-60 feet per day. As a result, any noise and/or vibration will be temporary in nature. The tunnel excavation below water bodies will be completed within days and at a depth of approximately 300 feet underground. At such distances to the river, TBM operations have the potential to induce vibrations in the river substrate, which could have potential impacts on species residing in, on, or near the substrate for activities such as feeding or spawning.</p> <p>Based on the vibration data provided in DEIR Section 4.12.3.1 Vibration Methodology (pg. 4.12-60) and the propagation model outlined in the Federal Transit Administration (FTA) documentation,¹⁷ it is reasonable to anticipate that the peak particle velocity (PPV) of the TBM will be approximately 0.003 inches per second (in/s) at the river.</p> <p>Furthermore, the transmission of TBM-induced vibrations through the geological strata into the river substrate would result in additional reduction in the vibration. Although quantification of the attenuation factor depends on the material properties including density, stiffness, and damping for both mediums, it is reasonable to assume that the relatively low vibration levels, coupled with the attenuation through the rock into the river substrate, are unlikely to result in significant behavioral alterations, such as migration, spawning or feeding disruptions, among the fish population within the river.</p>

17 U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, September 2018, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

9.11 Letter 9: Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program

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Patel, Purvi (EEA)

From: Marold, Misty-Anne (FWE)
Sent: Friday, September 29, 2023 3:45 PM
To: Patel, Purvi (EEA)
Cc: Cheeseman, Melany (FWE)
Subject: EEA# 16355 MetroWater Tunnel

Hi Purvi,

I'm taking over this project from a prior reviewer and I was unaware of the deadline for comments. If there is still time, could you add the following to the Certificate for the DEIR?

"The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") reviewed the Draft Environment Impact Report and would like to offer the following comments relative to the Massachusetts Endangered Species Act (MESA, MGL c131A) and its implementing regulations (321 CMR 10.00). Based on the DEIR, a portion of the project under all alternatives is proposed within Priority or Estimated Habitat. Work within or immediately adjacent to existing paved roads is likely exempt from MESA review pursuant to 321 CMR 10.14 under exemptions 6, 7, 8, 10, 12. However, project components and work adjacent to or within unpaved roads (e.g., gravel, dirt, sand), or beyond 10 feet from a paved road are unlikely to qualify as exempt from review. Therefore, some aspects of the project may require review a direct filing with the Division for compliance with the MESA. As project elements within Priority Habitat move forward, we recommend that the Proponents are in direct contact with the Division to address state-listed species concerns, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review. If you have any questions, please contact Misty-Anne Marold, Senior Endangered Species Review Biologist, at (508) 389-6356 or misty-anne.marold@mass.gov. We appreciate the opportunity to comment on this project."

Thank you, Misty-Anne

Misty-Anne R. Marold, Senior Endangered Species Review Biologist

Massachusetts Division of Fisheries & Wildlife
Natural Heritage Endangered Species Program
1 North Drive, Rabbit Hill Road
Westborough, MA 01581
508-389-6356

From: Davis, Shannon (FWE) <shannon.davis@mass.gov>
Sent: Friday, September 29, 2023 2:40 PM
To: Patel, Purvi (EEA) <purvi.patel@mass.gov>
Cc: Frew, Katelyn (FWE) <Kate.Frew@mass.gov>; Kaitlyn Shaw <kaitlyn.shaw@noaa.gov>; Marold, Misty-Anne (FWE) <misty-anne.marold@mass.gov>; Davis, Heidi (DEP) <heidi.davis@mass.gov>; Croy.Rachel@epa.gov; Reiner, Edward <reiner.ed@epa.gov>; colleen.rizzi@mwra.com; cdaly@city.waltham.ma.us
Subject: EEA# 16355 MetroWater Tunnel

Hi Purvi,

Please see the attached Marine Fisheries comments regarding EEA# 16355 MetroWater Tunnel. For additional comments or questions regarding this review, please contact Kate Frew at kate.frew@mass.gov.

Thank you

Shannon

Shannon Davis

Commonwealth of Massachusetts

Division of Marine Fisheries

Program Coordinator

30 Emerson Ave.

Gloucester, MA 01930

(978) 491-6214

Table 9-11 Responses to Comments from the MassWildlife NHESP

#	Comment	Response
9-1	<p>Based on the DEIR, a portion of the project under all alternatives is proposed within Priority or Estimated Habitat. Work within or immediately adjacent to existing paved roads is likely exempt from MESA review pursuant to 321 CMR 10.14 under exemptions 6, 7, 8, 10, 12. However, project components and work adjacent to or within unpaved roads (e.g., gravel, dirt, sand), or beyond 10 feet from a paved road are unlikely to qualify as exempt from review. Therefore, some aspects of the project may require review a direct filing with the Division for compliance with the MESA.</p>	<p>Since the Program does not propose work within any NHESP Priority or Estimated Habitat polygons, review pursuant to MESA and its implementing regulations would not be required. The tunnel alignment in the vicinity of the Cedarwood Pumping Station connection shaft site, located behind the Stanley Elementary School, is the only Program site where construction work would take place near a habitat polygon, under any of the Program Alternatives. As discussed in FEIR Chapter 6, Rare Species, Section 6.2, Avoidance and Minimization of Impacts to State-Listed Species (pgs. 6-1 to 6-4), and as shown on FEIR Figure 6-1 (pg. 6-7) (previously presented as DEIR Figure 4.6-19), the habitat polygon is more than 600 feet horizontally from the centerline of the preliminary tunnel alignment, where the tunnel would be at a depth of approximately 300 feet below the ground surface. Consequently, NHESP review is not warranted or required.</p>

Table 9-11 Responses to Comments from the MassWildlife NHESP

#	Comment	Response
9-2	As project elements within Priority Habitat move forward, we recommend that the Proponents are in direct contact with the Division to address state-listed species concerns, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review.	<p>The MWRA consulted with the NHESP via email during preparation of the FEIR and will continue consultation and coordination with NHESP during the final design phase as project elements move forward. As recommended by the NHESP during the FEIR consultation, the MWRA would require the contractor to check the latest federal ESA guidance at periodic intervals to ensure that work remains in compliance with the federal ESA and MESA, including any potential changes to listed species or modifications to guidance. Sites disturbed during construction activities would have vegetation restored with the planting of native trees and plants.</p> <p>In accordance with recommendations set forth by the NHESP, all plants and seed mixes used for landscaping or revegetation of areas disturbed during construction shall be composed of species native to the respective county in accordance with <i>The Vascular Plants of Massachusetts: A County Checklist First Revision</i>.¹⁸ Per the NHESP, state-listed plants and seeds shall not be used for landscaping or revegetation of areas disturbed during construction.</p> <p>The MWRA will require the contractor(s) to carefully review seeds and plantings at the time of sourcing against the NHESP’s latest listing of Endangered, Threatened, and Special Concern species protected under MESA to ensure they are not state-listed species.¹⁹</p>

18 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, *The Vascular Plants of Massachusetts: A County Checklist*, First Revision, 2011 (Dow Cullina, M, B Connolly, B Sorrie, and P Somers), <https://www.mass.gov/doc/the-vascular-plants-of-massachusetts-a-county-checklist/download>.

19 Commonwealth of Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, “List of Endangered, Threatened, and Special Concern Species,” updated January 10, 2020, <https://www.mass.gov/info-details/list-of-endangered-threatened-and-special-concern-species#list-of-species->.

10 Circulation

10.1 Distribution List

The Metropolitan Water Tunnel Program Final Environmental Impact Report (FEIR) has been distributed to federal, state, and municipal contacts listed in **Table 10-1**. The Massachusetts Environmental Policy Act (MEPA) office only accepts electronic filings for state agency and public distribution. Notices of Availability have been mailed, or emails have been sent, to all parties indicating the filing location on the Massachusetts Water Resources Authority’s (MWRA’s) website. Printed copies of the FEIR have been mailed to the libraries, the Massachusetts Historical Commission, and may be requested by contacting Gabrielle Tool, Project Manager, at Gabrielle.Tool@mwra.com or 617-570-5469.

Table 10-1 Distribution List

Libraries		
Belmont Public Library-Beech Street Center 266 Beech Street Belmont, MA 02478	Boston Public Library-Main Branch 700 Boylston Street Boston, MA 02116	Dedham Public Library 43 Church Street Dedham, MA 02026
Needham Free Public Library 1139 Highland Avenue Needham Heights, MA 02494	Newton Free Library 330 Homer Street Newton, MA 02459	The Public Library of Brookline-Brookline Village 361 Washington Street Brookline, MA 02445
Waltham Public Library 735 Main Street Waltham, MA 02451	Watertown Free Public Library 123 Main Street Watertown, MA 02472	Wellesley Free Library 530 Washington Street Wellesley, MA 02482
Weston Public Library 87 School Street Weston, MA 02493		
Federal Government		
United States Environmental Protection Agency, Region 1 Jane Downing, Chief Drinking Water Branch 5 Post Office Square - Suite 100 Boston, MA 02109-3912	United States Army Corps of Engineers Attn: Colonel Justin R. Pabis, Commander and District Engineer New England District 696 Virginia Road Concord, MA 01742	United States Fish and Wildlife Service David Simmons, Supervisor New England Field Office 70 Commercial Street, Suite 300 Concord, NH 03301
State Agencies		
MEPA Office 100 Cambridge Street, Suite 900 Boston, MA 02144 MEPA@mass.gov	MEPA Office Attn: EEA EJ Director 100 Cambridge Street, Suite 900 Boston, MA 02144 MEPA-EJ@mass.gov	Water Resources Commission Attn: Vandana Rao, Executive Director 100 Cambridge Street Boston MA 02114 vandana.rao@state.ma.us vanessa.curran@mass.gov

Table 10-1 Distribution List

State Agencies (cont.)		
Massachusetts Department of Agricultural Resources Attn: MEPA Coordinator 138 Memorial Avenue, Suite 42 West Springfield, MA 01089 barbara.hopson@mass.gov	Massachusetts Department of Environmental Protection, Boston Office Commissioner's Office One Winter Street Boston, MA 02108 helena.boccardo@mass.gov	Massachusetts Department of Environmental Protection, Northeast Regional Office Attn: MEPA Coordinator 205B Lowell Street Wilmington, MA 01887 john.d.viola@mass.gov
Massachusetts Department of Environmental Protection Waterways Regulation Program Attn: Alice Doyle One Winter Street Boston, MA 02108 alice.doyle@mass.gov daniel.padien@mass.gov	Massachusetts Bay Transportation Authority Attn: MEPA Coordinator 10 Park Plaza, 6 th Floor Boston, MA 02116-3966 MEPAcoordinator@mbta.com	Department of Conservation and Recreation Attn: MEPA Coordinator 251 Causeway Street, Suite 600 Boston, MA 02114 andy.backman@mass.gov
Massachusetts Department of Correction, Boston Pre-Release Center Attn: Thomas Neville 430 Canterbury Street Roslindale, MA 02131	Massachusetts Department of Public Health Director of Environmental Health 250 Washington Street Boston, MA 02108 dphtoxicology@massmail.state.ma.us	Massachusetts Department of Transportation, District 4 Office Attn: MEPA Coordinator 519 Appleton Street Arlington, MA 02476 timothy.paris@dot.state.ma.us
Massachusetts Department of Transportation, District 6 Office Attn: MEPA Coordinator 185 Kneeland Street Boston, MA 02111 michael.garrity@dot.state.ma.us	Massachusetts Department of Transportation Public/Private Development Unit 10 Park Plaza, Suite #4150 Boston, MA 02116 MassDOTPPDU@dot.state.ma.us	Department of Youth Services Attn: Eugene J. Deutsch 600 Washington Street Boston, MA 02114-1704
Massachusetts Historical Commission The MA Archives Building 220 Morrissey Boulevard Boston, MA 02125	Coastal Zone Management 100 Cambridge Street, Suite 900 Boston, MA 02144 sean.duffey@mass.gov patrice.bordonaro@mass.gov	Natural Heritage and Endangered Species Program Attn: Misty-Anne R. Marold, Senior Endangered Species Review Biologist Division of Fisheries & Wildlife 1 Rabbit Hill Road Westboro, MA 01581 misty-anne.marold@mass.gov melany.cheeseman@mass.gov emily.holt@mass.gov
Division of Marine Fisheries 30 Emerson Avenue, Gloucester, MA 01930 Daniel J. McKiernan, Director dan.mckiernan@mass.gov		
Study Area Community Leaders		
Belmont	Boston	Brookline
Patrice Garvin, Town Administrator Town Hall 455 Concord Avenue, 2 nd Floor Belmont, MA 02478	The Honorable Michelle Wu, Mayor 1 City Hall Square, Suite 500 Boston, MA 02201	Charles Carey, Town Administrator 333 Washington Street 6 th Floor Brookline, MA 02445

Table 10-1 Distribution List

Study Area Community Leaders (cont.)		
Dedham	Needham	Newton
Leon Goodwin, Town Manager 450 Washington Street Dedham, MA 02026	Kate Fitzpatrick, Town Manager 1471 Highland Avenue Needham, MA 02492	The Honorable Ruthanne Fuller, Mayor 1000 Commonwealth Avenue Newton Centre, MA 02459
Waltham	Watertown	Wellesley
The Honorable Jeannette McCarthy, Mayor City Hall Second Floor 610 Main Street Waltham, MA 02452	George Proakis, City Manager Town Hall 149 Main Street Watertown, MA 02472	Meghan Jop, Executive Director of General Government Services Selectmen's Office 888 Worcester Street Wellesley, MA 02482
Weston		
Leon A. Gaumond, Jr., Town Manager P.O Box 378 Weston, MA 02493		
Municipalities		
Conservation Commissions		
Belmont Conservation Commission Attn: Chair 19 Moore Street, 2nd Floor Belmont, MA 02478	Boston Conservation Commission Attn: Executive Director 1 City Hall Square, Room 709 Boston, MA 02201	Brookline Conservation Commission Attn: Chair 333 Washington Street Brookline, MA 02445
Dedham Conservation Commission Attn: Chair Dedham Town Hall 450 Washington Street Dedham, MA 02026	Needham Conservation Commission Attn: Chair Needham Town Hall 470 Dedham Avenue Needham, MA 02492	Weston Conservation Commission Attn: Chair Weston Town Hall 11 Town House Road P.O. Box 378 Weston, MA 02493
Waltham Conservation Commission Attn: Chair 119 School Street, Top Floor Waltham, MA 02451	Newton Conservation Commission Planning and Development Department Attn: Chair 1000 Commonwealth Ave Newton, MA 02459	Watertown Conservation Commission Attn: Chair Conservation Office, 3rd Floor 149 Main Street Watertown, MA 02472
Wellesley Wetlands Protection Committee Attn: Chair 888 Worcester Street, Suite 160 Wellesley, MA 02482		
Departments of Public Works		
Belmont Department of Public Works Homer Municipal Building 19 Moore Street, 1 st Floor Belmont, MA 02478	Boston Department of Public Works 1 City Hall Square, Room 714 Boston, MA 02201	Boston Water and Sewer Commission Attn: John P. Sullivan 980 Harrison Avenue Boston, MA 02119
Brookline Department of Public Works 870 Hammond Street Chestnut Hill, MA 02467	Cambridge Department of Public Works Attn: Kathy Watkins, Commissioner 147 Hampshire Street Cambridge, MA 02139	Dedham Department of Public Works 55 River Street Dedham, MA 02026

Table 10-1 Distribution List

Departments of Public Works (cont.)		
Needham Department of Public Works Public Service Administration Building 500 Dedham Avenue Needham, MA 02492	Newton Department of Public Works City Hall 1000 Commonwealth Avenue Newton Centre, MA 02459	Waltham Department of Consolidated Public Works 165 Lexington Street Waltham, MA 02452
Watertown Department of Public Works 124 Orchard Street Watertown, MA 02472	Wellesley Department of Public Works 20 Municipal Way Wellesley, MA 02481	Weston Public Works 190 Boston Post Road By-pass Weston, MA 02493
Planning Offices		
Belmont Office of Community Development Homer Municipal Building 19 Moore Street, 2 nd Floor Belmont, MA 02478	Boston Planning & Development Agency One City Hall Square, 9 th Floor Boston, MA 02201	Brookline Planning and Community Development Department 333 Washington Street, 3 rd Floor Brookline, MA 02445
Dedham Planning and Zoning Department 450 Washington Street Dedham, MA 02026	Needham Planning Department 500 Dedham Avenue, Suite 118 Public Services Administration Building Needham, MA 02492	Newton Department of Planning and Development 1000 Commonwealth Avenue Newton Centre, MA 02459
Waltham Planning Department Government Center 119 School Street, Top Floor Waltham, MA 02451	Watertown Department of Community Development and Planning 149 Main Street #3 Watertown, MA 02472	Wellesley Planning Department 888 Worcester Street, Suite 160 Wellesley, MA 02482
Weston Town Planner P.O. Box 378 Weston, MA 02493		
Boards of Health		
Belmont Health Department Homer Building 19 Moore Street, 2 nd Floor P.O. Box 56 Belmont, MA 02478	Boston Public Health Commission 1010 Massachusetts Avenue 6 th Floor Boston, MA 02118	Brookline Health Department 11 Pierce Street Brookline, MA 02445
Dedham Health Department 450 Washington Street Dedham, MA 02026	Needham Board of Health Town Hall 1471 Highland Avenue Needham, MA 02492	Newton Health and Human Services Department City Hall Room 107A 1000 Commonwealth Avenue Newton, MA 02459
Waltham Health Department 119 School Street Waltham, MA 02451	Watertown Health Department 149 Main Street Watertown, MA 02472	Wellesley Health Department 90 Washington Street, 2 nd Floor Wellesley, MA 02481
Weston Board of Health P.O. Box 378 Weston, MA 02493		
Community Groups and Interested Parties		
Alternatives for Community and Environment Dwaign Tyndal, Executive Director 2201 Washington Street, #302 Roxbury, MA 02119	Boston Region Metropolitan Planning Organization 10 Park Plaza, Suite 2150 Boston, MA 02116	Charles River Watershed Association Emily Norton, Executive Director 190 Park Road Weston, MA 02493

Table 10-1 Distribution List

Community Groups and Interested Parties (cont.)		
City of Cambridge Water Department David Kaplan, Watershed Manager 250 Fresh Pond Parkway Cambridge, MA 02138	Conservation Law Foundation Bradley Campbell, President 62 Summer St Boston, MA 02110	Inner Core Committee Attn: Karina Milchman 60 Temple Place Boston, MA 02111
Massachusetts Rivers Alliance Julia Blatt, Executive Director 2343 Massachusetts Avenue Cambridge, MA 02140	Metropolitan Area Planning Council 60 Temple Place, 6 th Floor Boston, MA 02111 mpillsbury@mapc.org afelix@mapc.org	MetroWest Regional Collaborative Attn: Leah Robins 60 Temple Place Boston, MA 02111
MWRA Advisory Board Matthew Romero, Executive Director 2 Griffin Way Chelsea, MA 02150	Mystic River Watershed Association Patrick Herron, Executive Director P. O. Box 390 Arlington, MA 02476	Neponset River Watershed Association Ian Cooke, Executive Director 2173 Washington Street Canton, MA 02021
Three Rivers Interlocal Council Attn: Josh Eichen 60 Temple Place Boston, MA 02111	Waltham Land Trust Sonja Wadman, Executive Director P.O. Box 541120 Waltham, MA 02454-1120	Water Supply Citizens Advisory Committee to the MWRA (WSCAC) Moussa Albert Siri, Executive Director 485 Ware Road Belchertown, MA 01007
Environmental Justice Reference List		
Statewide Environmental Justice Community Based Organizations		
Appalachian Mountain Club Heather Clish, Director of Conservation & Recreation Policy hclish@outdoors.org	Browning the Green Space Kerry Bowie, Board President kerry@msaadapartners.com	Clean Water Action Cindy Luppi, New England Director cluppi@cleanwater.org
Community Action Works Sylvia Broude Executive Director, sylvia@communityactionworks.org	Environment Massachusetts Ben Hellerstein, MA State Director ben@environmentmassachusetts.org	Environmental League of MA Nancy Goodman, Vice President for Policy ngoodman@environmentalleague.org
Mass Audubon Heidi Ricci, Director of Policy hricci@massaudubon.org	Mass Land Trust Coalition Robb Johnson, Executive Director robb@massland.org	Mass Rivers Alliance Julia Blatt, Executive Director juliablatt@massriversalliance.org
Neighbor to Neighbor Elvis Mendez, Associate Director elvis@n2nma.org	Ocean River Institute Rob Moir, Executive Director rob@oceanriver.org	Sierra Club MA Deb Pasternak, Director, MA Chapter deb.pasternak@sierraclub.org
The Trust for Public Land Kelly Boling, MA & RI State Director kelly.boling@tpl.org	Unitarian Universalist Mass Action Network Claire B.W. Muller, Movement Building Director claire@uumassaction.org	

Table 10-1 Distribution List

Indigenous Organizations		
Chappaquiddick Tribe of the Wampanoag Nation Alma Gordon, President tribalcouncil@chappaquiddickwampanoag.org	Chappaquiddick Tribe of the Wampanoag Nation, Whale Clan Patricia D. Rocker, Council Chair rockerpatriciad@verizon.net	Chaubunagungamaug Nipmuck Indian Council Kenneth White, Council Chairman acw1213@verizon.net
Herring Pond Wampanoag Tribe Melissa Ferretti, Chair melissa@herringpondtribe.org	Massachusetts Commission on Indian Affairs (MCIA) John Peters, Jr., Executive Director john.peters@mass.gov	Massachusetts Tribe at Ponkapoag Elizabeth Soloman Solomon.Elizabeth@gmail.com
Nipmuc Nation (Hassanamisco Nipmucs) Cheryll Toney Holley, Chair crwritings@aol.com	North American Indian Center of Boston Raquel Halsey, Executive Director rhalsey@naicob.org	Pocasset Wampanoag Tribe Cora Pierce Coradot@yahoo.com
Federally Recognized Tribes		
Mashpee Wampanoag Tribe Brian Weeden, Chair Brian.Weeden@mwtribe-nsn.gov	Wampanoag Tribe of Gay Head (Aquinnah) Bettina Washington, Tribal Historic Preservation Officer thpo@wampanoagtribe-nsn.gov	
Organizations in Proximity		
Air, Inc. Chris Marchi, Vice President cbmarchi@gmail.com	Asian Community Development Corporation May Lui, Community Outreach Coordinator may.lui@asiancdc.org	Boston Farms Community Land Trust Joy Gary, Executive Director joy@bostonfarms.org
Boston Harbor Now Alice Brown, Chief of Planning and Policy abrown@bostonharbornow.org	Boston Harbor Now Kelly Sherman, Manager of Waterfront Design Ksherman@BostonHarborNow.org	Charles River Conservancy Laura Jasinski, Executive Director ljasinski@thecharles.org
Charles River Watershed Association Heather Miller hmiller@crwa.org	Chinatown Community Land Trust Lydia Lowe, Executive Director lydia@chinatownclt.org	Chinatown Resident Association Hin Sang Yu, Co-Chair chinatownresidents@gmail.com
Chinese Progressive Association Karen Chen, Executive Director karen@cpaboston.org	Coalition for Social Justice Deb Fastino, Executive Director dfastino@aol.com	GreenRoots, Inc. Eugene Benson, Former City Planning & Urban Affairs Professor eugene.b.benson@gmail.com
Mass Community Land United Lee Matsueda, Executive Director lee@massclu.org	Neponset River Watershed Association Andres Ripley, Natural Resource Specialist ripley@neponset.org	New England United for Justice Neomi Mimi Ramos, Executive Director mimi.neunited4justice@gmail.com
Save the Harbor/Save the Bay Bruce Berman Bruce@bostonharbor.com	Southwest Boston Community Development Corporation Patricia Alvarez palvarez@swbcdc.org	

