Covid-19 Vaccine Mandate Results

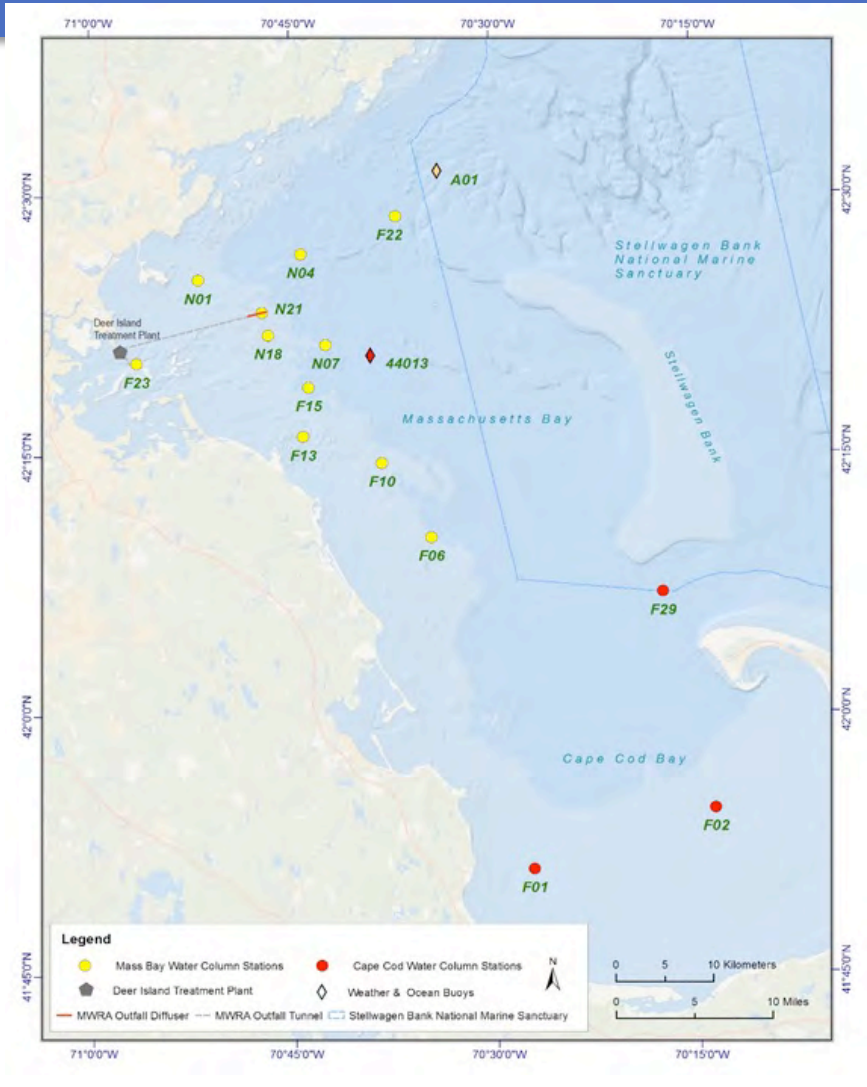
• Total Number of Employees	1114	
• Number of Employees Who Did Not Attest	13	
• Number of Employees Who Attested	1101	(98.8%)
– Attested With Vaccination	1071	
– Approved Exemption	30	
• Number of Hearings Held to Date	6	

MWRA's Outfall Monitoring Overview 2020 Results

October 20, 2021

MWRA Ambient Monitoring

- Annual report to regulatory agencies and the public required November 15
- Moving discharge from Harbor to Bay in 2000 caused environmental concerns
- Comprehensive monitoring required
- Monitoring has been reduced over time as issues have been addressed
- OMSAP reviews the results of this program



Outfall Monitoring Overview 2020 Highlights

- Effluent quality excellent (Platinum 14 award from NACWA)
- No adverse impacts of the outfall discharge on environmental quality in Massachusetts or Cape Cod Bays
- No Contingency Plan Threshold Exceedances in 2020
- Water quality remains good. Plankton communities remain diverse and normal. Flounder liver disease remains low

Peak Performance AWARDS

2021 Update: There was a low percent Dissolved Oxygen saturation Contingency Plan Threshold exceedance in Stellwagen Basin

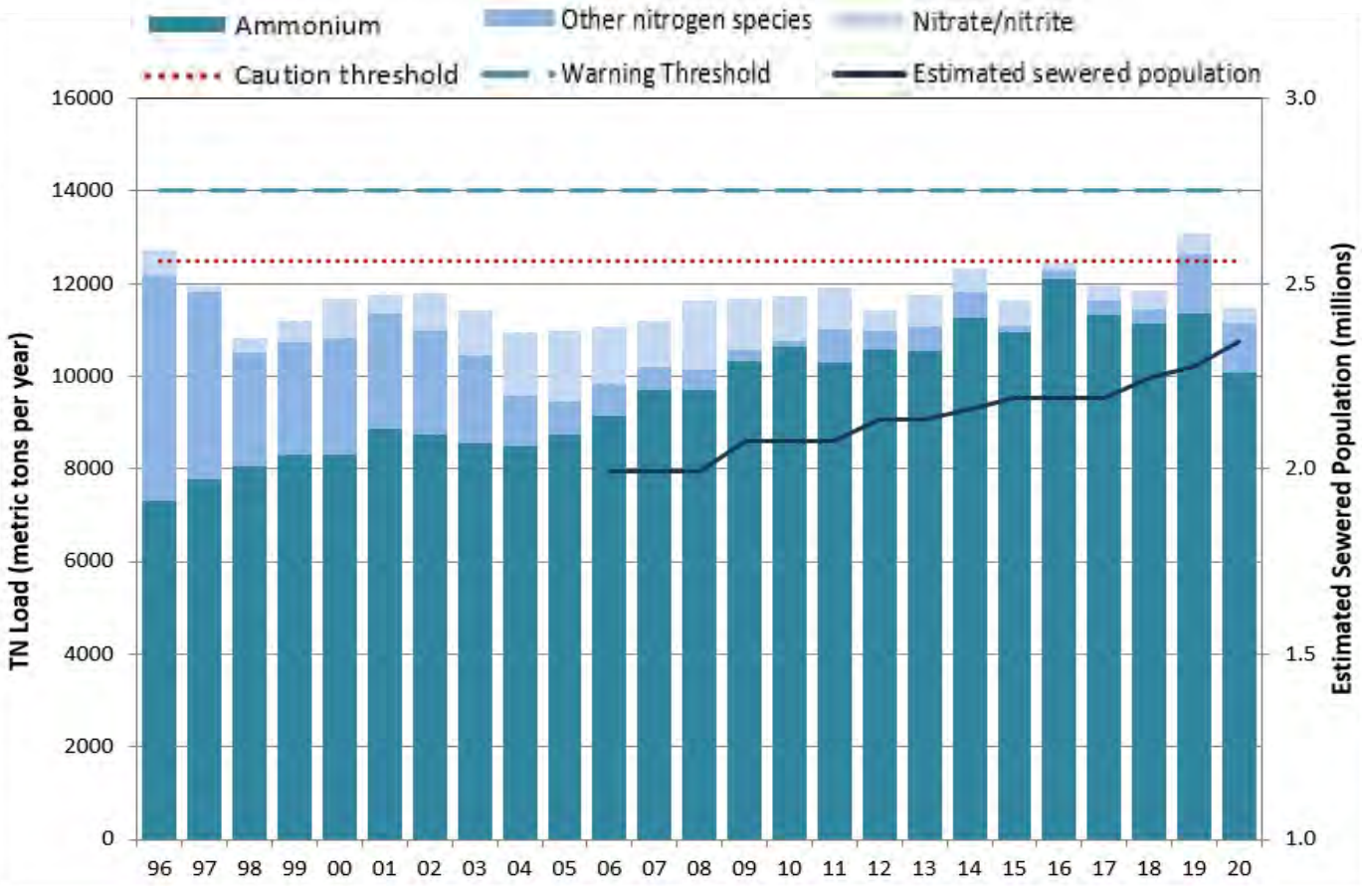
2020 Covid-19 Protocols

- March 2020: COVID-19 state of emergency resulting in:
  - Field staffing decreases.
  - Water column surveys: 8 instead of 9
- Missing data prevented the calculation of 3 Contingency Plan thresholds
- >65 Contingency Plan thresholds - with no exceedances.

Collecting sediment samples in Boston Harbor using COVID-19 safety protocols

Effluent Quality in 2020: Total Nitrogen

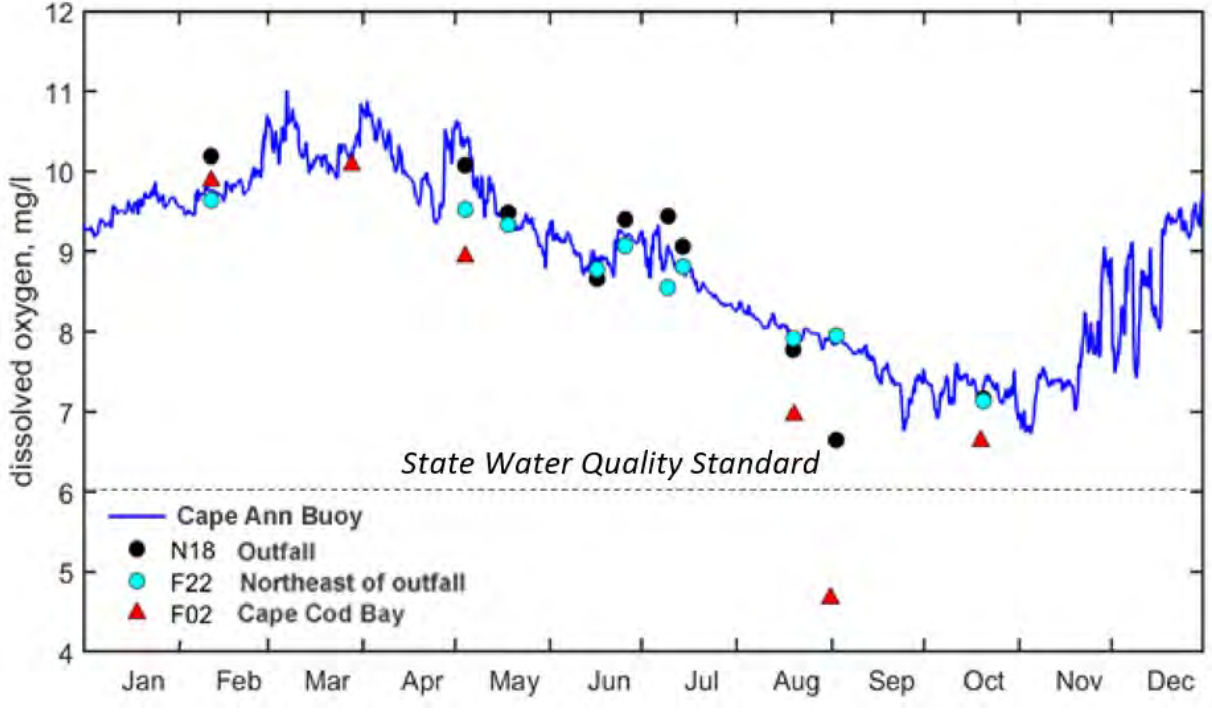
Total effluent nitrogen load and population



MWRA Ambient Water Quality: Dissolved Oxygen

- Mass. Bay dissolved oxygen had a typical seasonal pattern
- In Cape Cod Bay late summer oxygen fell below the state standard

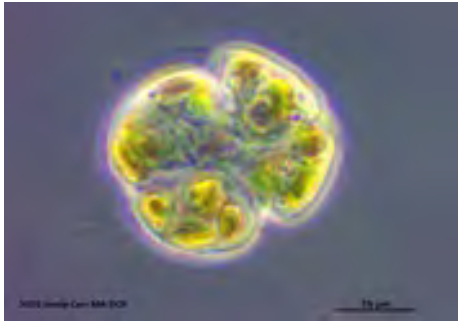
Dissolved oxygen at four locations

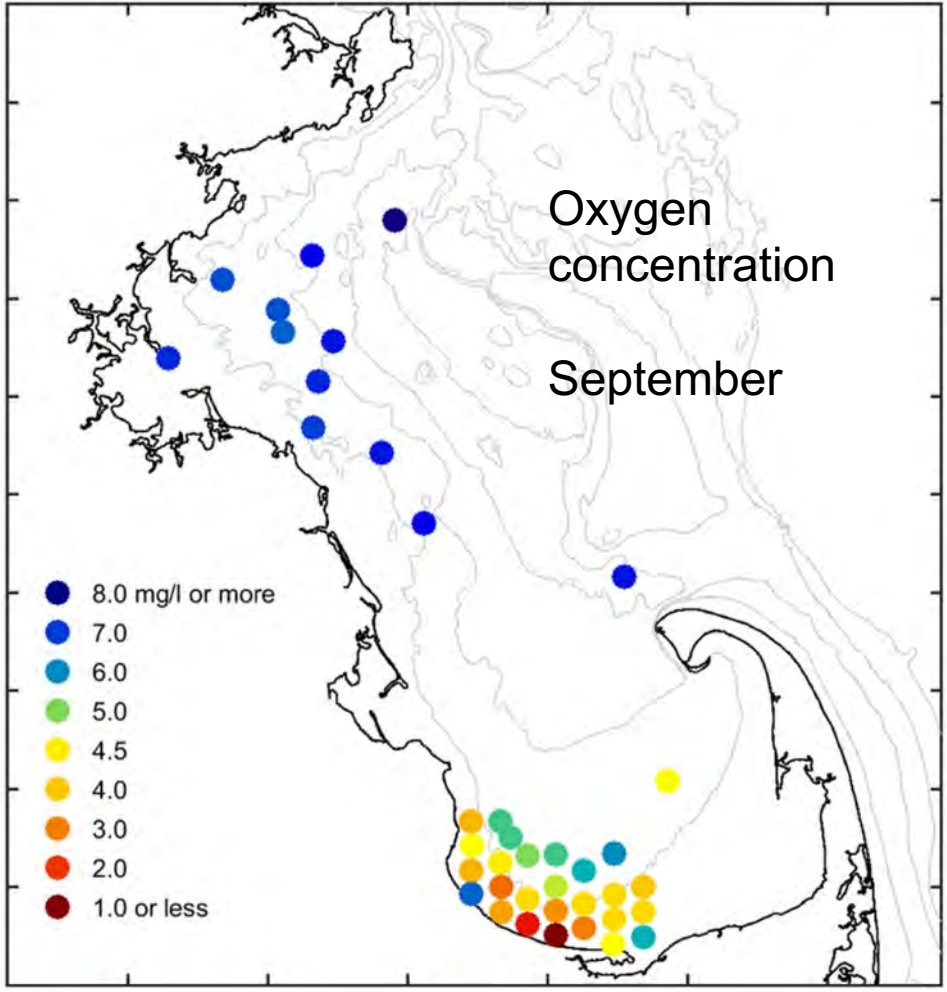


Hypoxia in Cape Cod Bay

- Special study by non-MWRA scientists (Sea Grant funding) ongoing: hypoxia in shallow areas of Cape Cod Bay

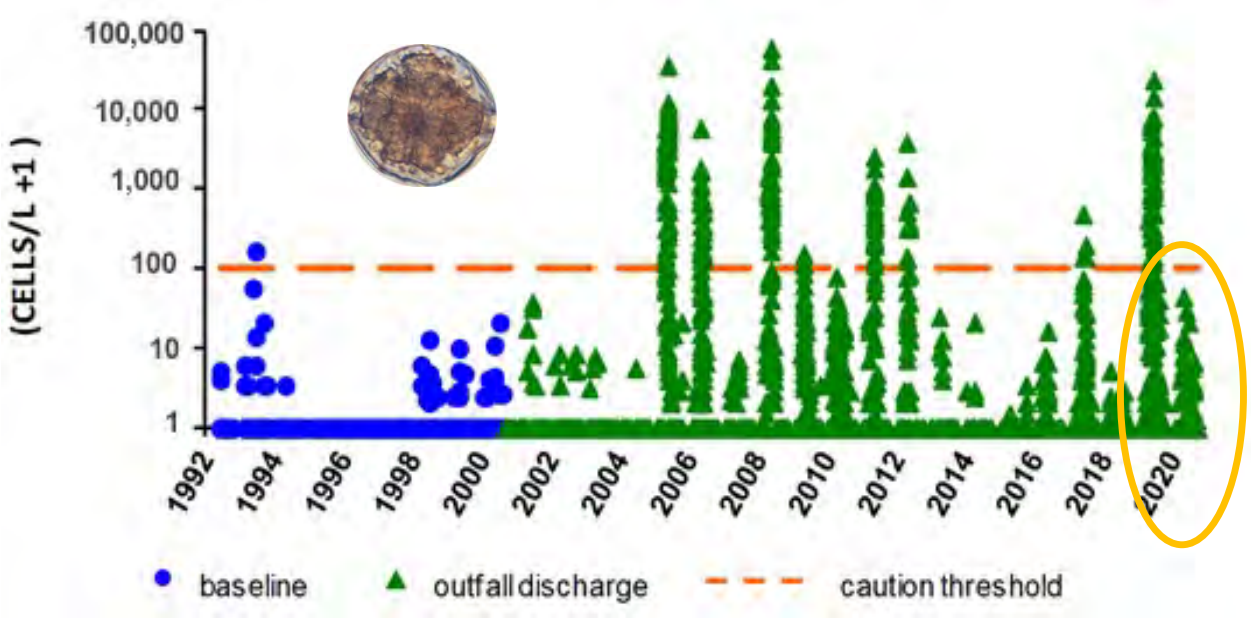
- Possible contributor is recently-arrived phytoplankton *Karenia mikimotoi*





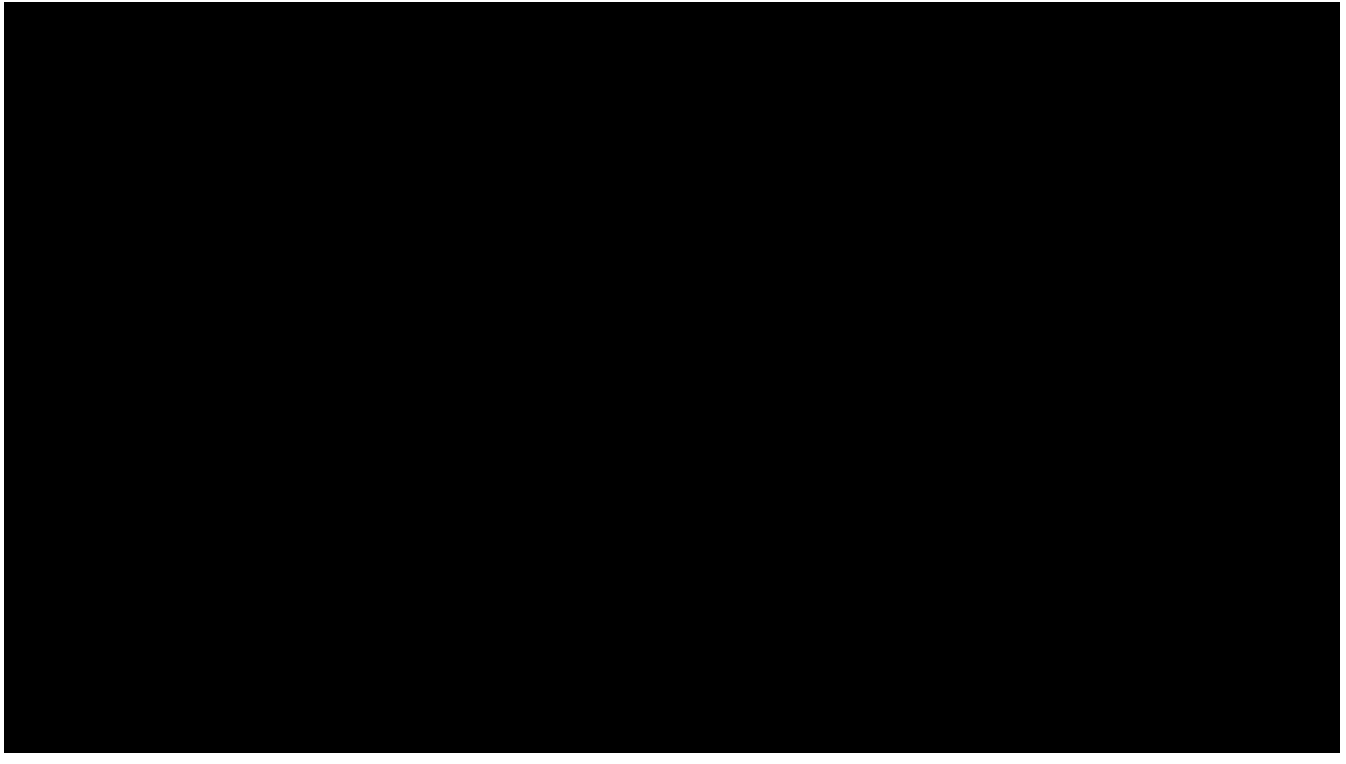
Nuisance Algae: *Alexandrium catenella* (Red Tide)

- A moderate bloom of *Alexandrium catenella* occurred in 2020
- No paralytic shellfish poison (PSP) toxicity in the bay
- Previous investigations have shown blooms are due to natural processes, not the bay outfall
- Recent blooms following a different pattern. Investigations underway

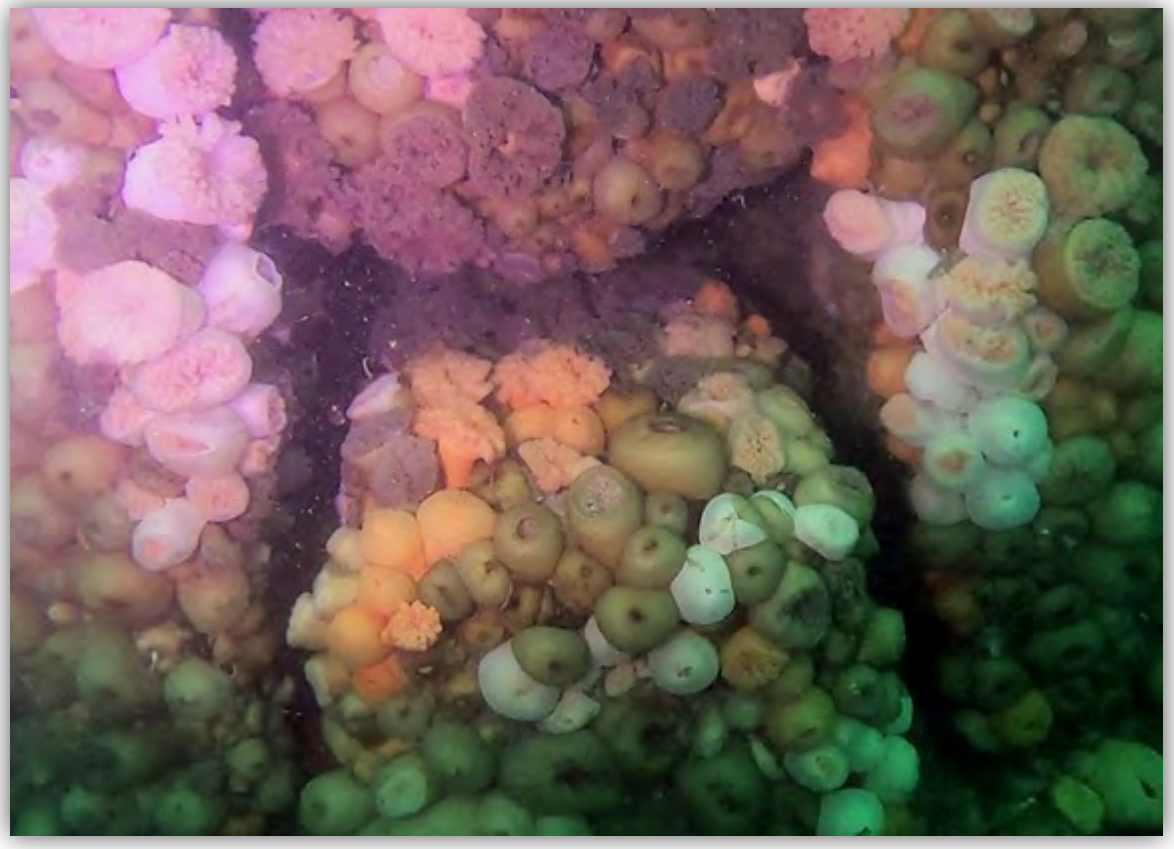


2021 Update: Experienced a moderate bloom in 2021, similar to 2020

Video From Outfall Diffuser July 2020



Outfall Diffuser



Metropolitan Water Tunnel Program

Program Update

October 20, 2021

Program Update

- Geotechnical Field Investigation
- MEPA Review Process
- Community & Stakeholder Outreach
- Evaluation of Alternatives – tunnel shaft sites and alignments
- Ongoing & Upcoming Work

- Program Schedule
  - Currently in preliminary design – thru Jan 2024
  - Begin final design in 2024
  - Targeting construction to start in 2027
  - Targeting construction to be complete by ~2037

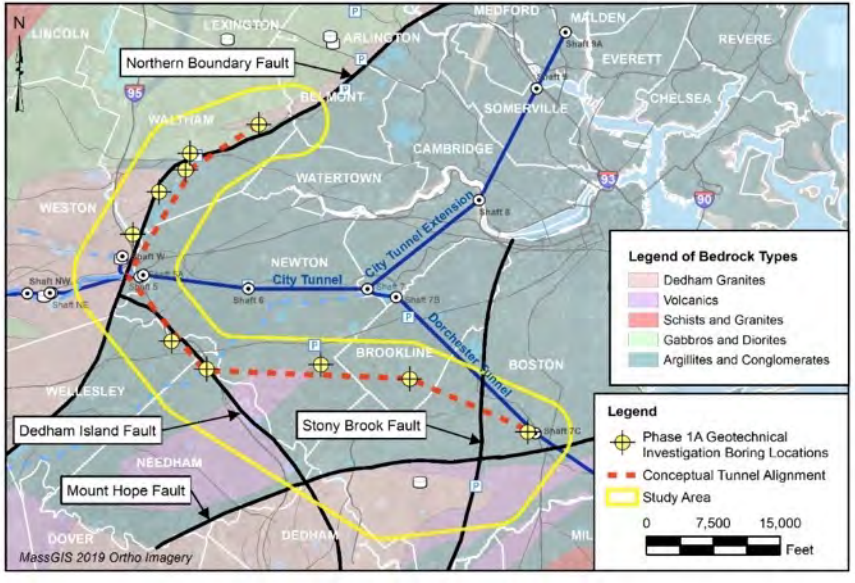
Preliminary Design Phase
Geotechnical Field Investigation – Overview

Phase 1A Program (spring - fall 2021)

- Completed 9 test borings
  - Conducted downhole geophysical survey
  - Conducted bedrock permeability testing
  - Installed Vibrating Wire Piezometers (measure water level)
- Currently drilling 1 test boring at School St in Waltham
- Each boring takes ~8 weeks to complete
- Performed bedrock outcrop mapping at 26 locations
- Conducted 12,940 ft of seismic refraction survey

Phase 1B Program (spring - fall 2022)

Phase 1A Program – Test Borings!



Phase 1A = 10 Test Borings:

- Waltham – Fernald School – 445 ft
- Waltham – School St (ongoing)
- Waltham – Felton Street – 411 ft
- Waltham – Cedarwood PS - 437 ft
- Weston – DCR, Norumbega Tower Park – 433 ft
- Wellesley – Hegarty PS - 416 ft
- Needham – St Mary St PS - 513 ft
- Newton – Newton South High School - 470 ft
- Brookline – Newton Street PS – 548 ft
- Boston – DCR/Boston Light, American Legion Hwy – 412 ft

Brookline

Needham

Newton

School St, Waltham

Phase 1A Program – Test Borings!

Hard Quartz in Waltham

Pink Granite in Waltham

Roxbury Conglomerate (aka "Pudding Stone") in Brookline

- 9 of 10 boring completed (Ph1A)
- Average of 455 ft deep
- 3,800 lf of rock core collected

Field Logging

Detailed Core Logging & Sample Selection

Core Storage at DITP

Phase 1A Program – Bedrock Outcrop Survey

Waltham

Where bedrock is exposed at the surface, detailed rock characteristics are recorded to help better understand the underlying rock mass

Border Rd in Waltham

Roadway rock cut on Border Rd in Waltham

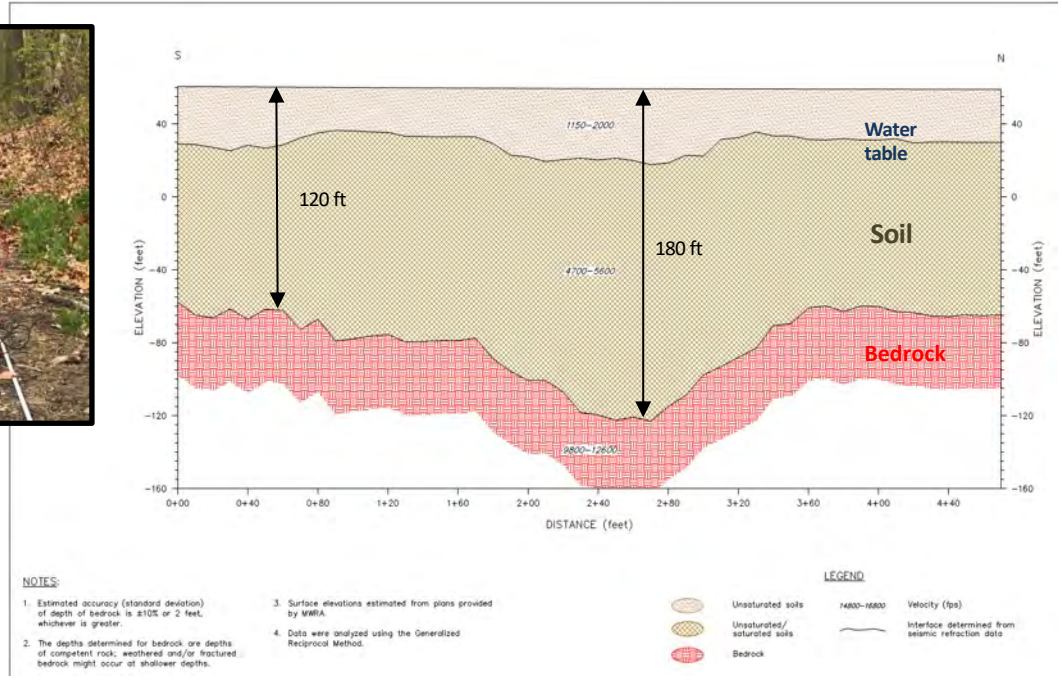
Phase 1A Program – Seismic Refraction Survey

Hamilton Field in Newton

Mount Feake Cemetery in Waltham

McDevitt Middle School in Waltham

Non invasive method used to determine subsurface conditions including variations in top of bedrock



MEPA Review Process & Community Outreach

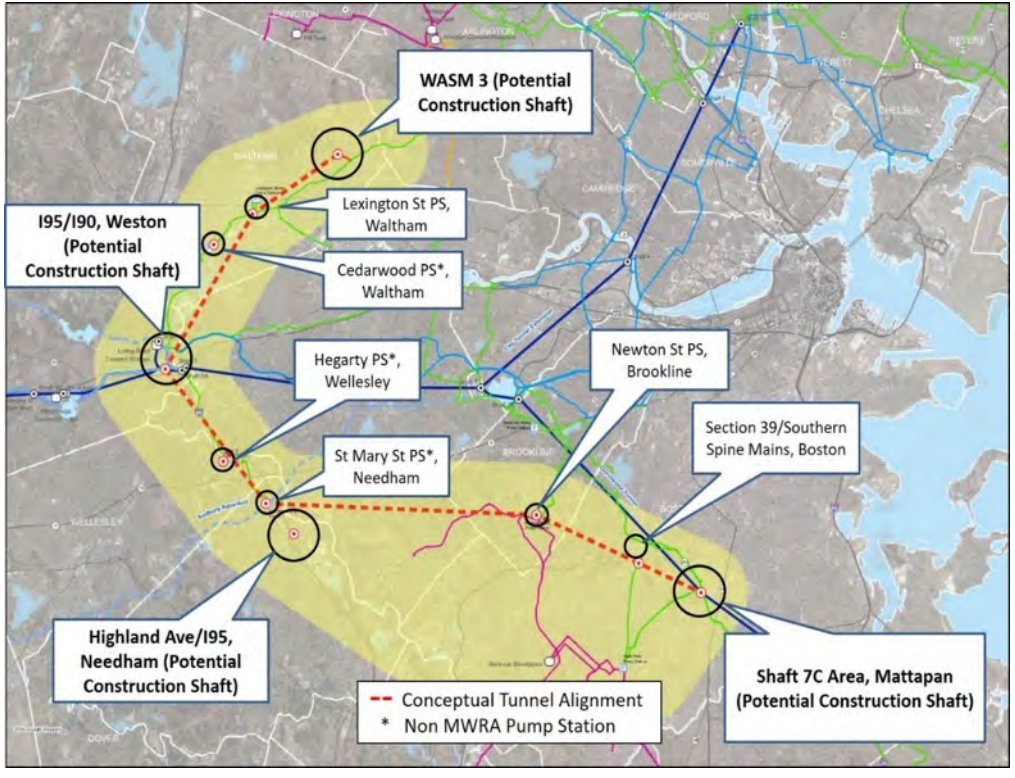
MEPA Review

- Environmental Notification Form (ENF) submitted to MEPA for public comment in March 2021
- Six comment letters were received
- Received Secretary's Certificate which outlines the DEIR requirements
- Plan to submit DEIR in fall 2022

Community & Stakeholder Outreach

- Met with all 10 communities in the study area
- Working Group has been established
- Met with MassDOT, DCR, and DCAMM

Alternatives Evaluation



- Currently evaluating various alternatives that link specific shaft sites considering:
  - Land availability & suitability
  - Environmental impacts
  - Geology
  - Constructability
  - Schedule
  - Cost
- Sites currently under consideration are owned/controlled by MWRA, Waltham, Wellesley, MassDOT, DCR, and DPH
- Will identify 1 preferred and 2 back up alternatives for further evaluation in the DEIR
- Preliminary design will be for one alternative (preferred)

Ongoing and Upcoming Preliminary Design Work

- Finalize alternatives evaluation - soon
- Submit DEIR to MEPA in fall 2022
- Begin survey work this fall/winter
- Plan for Phase 1B field program for spring - fall 2022
- Continue preliminary design work
- Continue to meet with community leaders and stakeholders
- Continue shaft sites real estate acquisition efforts
- Engage our Expert Review Panel regularly
- Prepare for geotechnical assistance, final design(s), and construction management professional services contracts

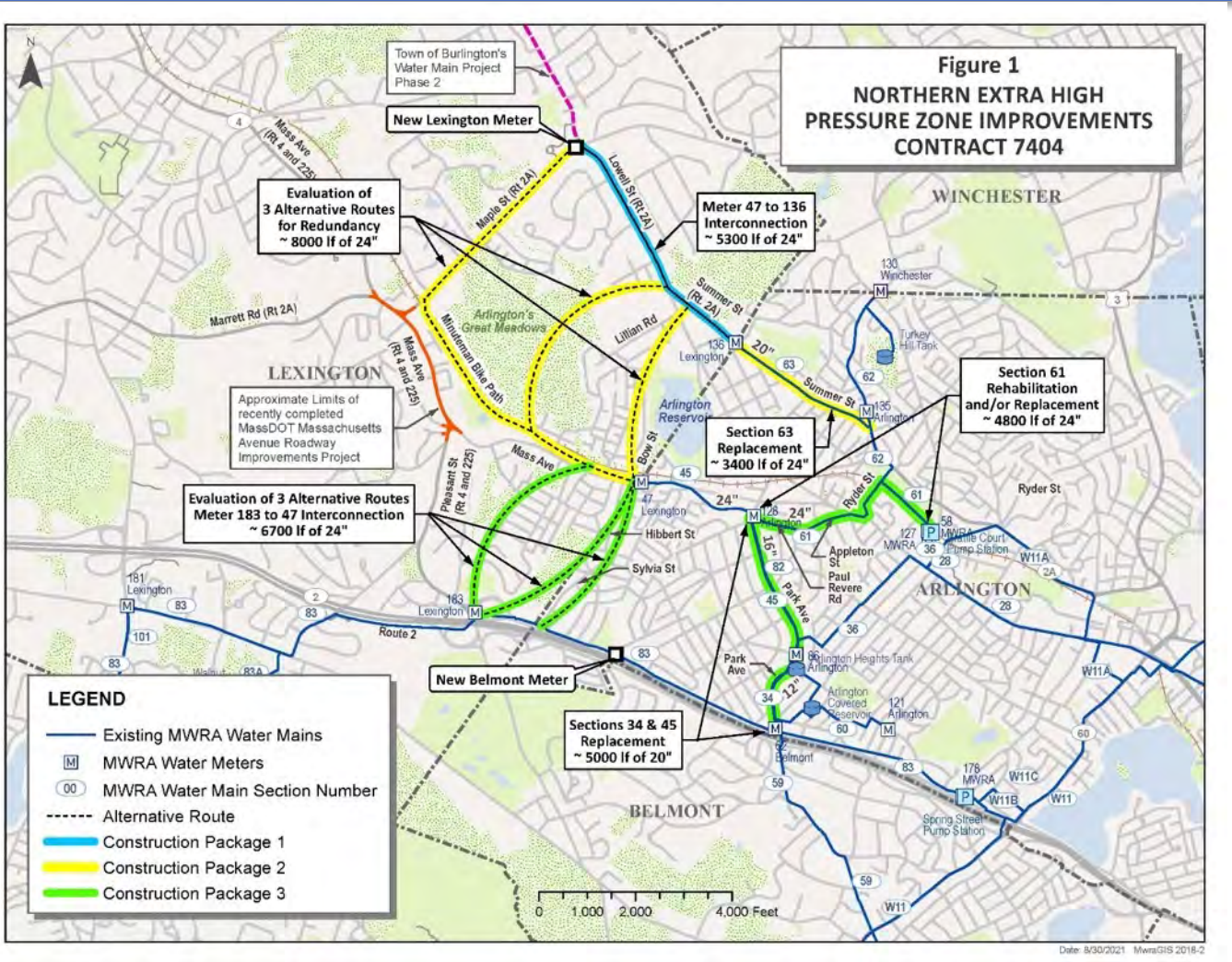
Already Working at School Street in Waltham!

Thank You!

Northern Extra Pressure Zone Improvements - Town of Lexington Memorandum of Agreement

October 20, 2021

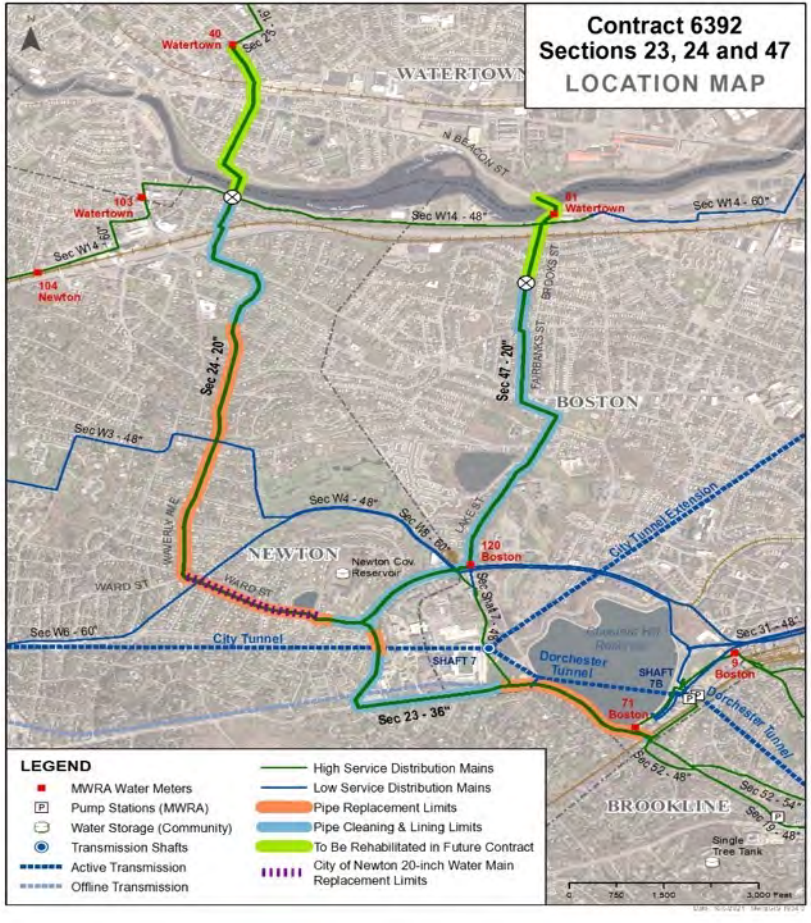
Project Schematic



Rehabilitation of Sections 23, 24 and 47 Water Mains Construction Contract 6392

October 20,2021

Contract 6392 – Project Overview



Existing Pipelines

Pipeline	Age (years)	Diameter (inches)	Length
Section 23	124	36	8,100
Section 24	124	20	9,391
Section 47	103	20	8,200
City of Newton	141	20	2,400

Contract 6392 Bids

Contractor	Bid Amount
Albanese D&S, Inc.	$26,843,000
R. Zoppo Corp.	$27,530,000
P. Gioioso & Sons Inc.	$27,634,500
RJV Construction Corp.	$27,656,000
Revoli Construction Co., Inc.	$37,542,862
Engineer's Estimate	*$22,847,000*

Carroll Water Treatment Plant SCADA System Improvements, Design, ESDC & Resident Engineering Services, Contract 7581, Amendment 2

October 20, 2021

SCADA Project Has Had Unique Challenges

- Difficulty during procurement of design consultant
  - One proposal after significant outreach
- Changes to project approach, during design, to reduce risk
  - Results in longer construction period
- Difficulties getting competition during bid of construction contract
  - Delays and additional effort required
- Questions from bidders concerning supply chain issues
  - Increase construction contract duration

Proposed Amendment 2

Additional Time Request of 22.5 Months

- Extension of 6 months to design services
  - 1st construction procurement unsuccessful. Additional design effort due to revised procurement
- Extension of 16.5 months to ESDC services
  - 9 month revised design approach to reduce cutover risks associated with complex transition sequencing
  - 7 month for COVID supply chain questions from bidders

Proposed Amendment 2

Additional Services

- Resident Engineering $770,561
  - Due to Increase in contract time $382,000
  - Due to Increase in Qualifications $388,000
- Additional ESDC Services (increase in time) $267,193

- Re-Bid Design Services $57,962

$1,095,716