



Presentation to

MWRA Board of Directors

*Combustion Turbine Generator
Maintenance
Deer Island Treatment Plant
Contract S616*

December 13, 2023



Contract S616 Background

Deer Island Treatment Plant Backup Power System:

- Two 26 MW Combustion Turbine Generators
 - NPDES permit requirement
 - One CTG sufficient for up to 850 MGD
 - Two CTGs for full plant flow
 - Critical to ensure continuity of service

Other Benefits:

- Provides non-rate revenues: \$1.9M in FY23
 - ISO NE Forward Capacity Market and Demand Response Program
 - Capacity payment avoidance
- Two contracts support these units:
 - 1) General Maintenance (this contract), and
 - 2) Proprietary OEM support (Mitsubishi Power Systems)





Contract S616 Scope of Services

Contract Scope includes:

- **Three (3) years of regular maintenance services**
 - Estimated value (\$1.8 M*)
 - Scheduled inspections, preventative maintenance
 - Allowances for Emergency and Non-emergency maintenance
 - Spare parts allowance
 - Contractor paid only for work completed

- **One time major control system upgrade**
 - Estimated value \$1.9 M*
 - Replace processors, I/O modules, computers and control valves
 - Update software and controls
 - Last updated ~25 years ago, system obsolete

* Developed before scope finalized





Contract S616 Bid Results

- **Competitively bid contract as Chapter 149**
 - 12 vendors become plan holders (2 with capacity and experience)
 - One bid received: O'Connor Corporation
 - Bid price: \$5.67 M (51.2% higher than Engineer's Estimate*)

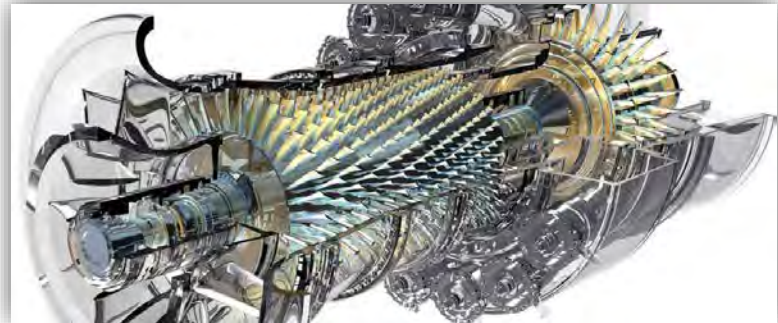
* Key items left out of Engineer's Estimate: ~\$1.5 M

- \$340k Increased cost labor & material
- \$325k Project management & supervision
- \$420k Missing Overhead and Profit
- \$200k Higher burden rate for labor
- \$220k Insurance, safety, QC, etc.



Contract S616 Recommendation

- Total contract bid 8.2% over Adjusted Engineer's Estimate
- O'Connor good performance on past contracts
- Staff recommend award to O'Connor Corporation
 - Cost not unreasonable given bid environment
 - Critical nature of work







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***SCADA System Improvements, Carroll
Treatment Plant: Arcadis, Inc., Contract
7581, Amendment 4***

December 13, 2023



Background

- Carroll Water Treatment Plant treats drinking water for MWRA's Metropolitan Boston communities.
- SCADA essential to maintain continuous operations
- Project replaces legacy SCADA equipment and uses updated control system standards
 - Enhance redundancy
 - Ensure future reliability
 - Maintain secure plant operations





Parallel SCADA System

- Parallel SCADA system is under construction (\$12.9 M construction contract)
- Designed to allow continuous operation during construction / cut-over
- Design engineer responsible for programming, test plan development and testing
- Requires significant planning and coordination
- Staff and consultant continually look for ways to reduce risk during cut-over



New Control Room



Design/Programming Contract

- Original price \$4,652,028.07
- Amendments 1-3: \$1,358,361.97 – primarily for additional Residential Engineering costs
- Proposed Amendment - \$1,232,905
 - Additional SCADA screens
 - Improvements to SCADA screens
 - Additional development testing time prior to startup
 - Additional Meetings and reimbursement costs



Upcoming Challenges

- Contractor delays due to continued long lead times for SCADA components
 - Potential impact on remaining budget for RE/RI and ESDC
- Complexity of testing / cutover
 - Large number of hours carried in project budget
 - High level of uncertainty until process actually begins





Conclusion

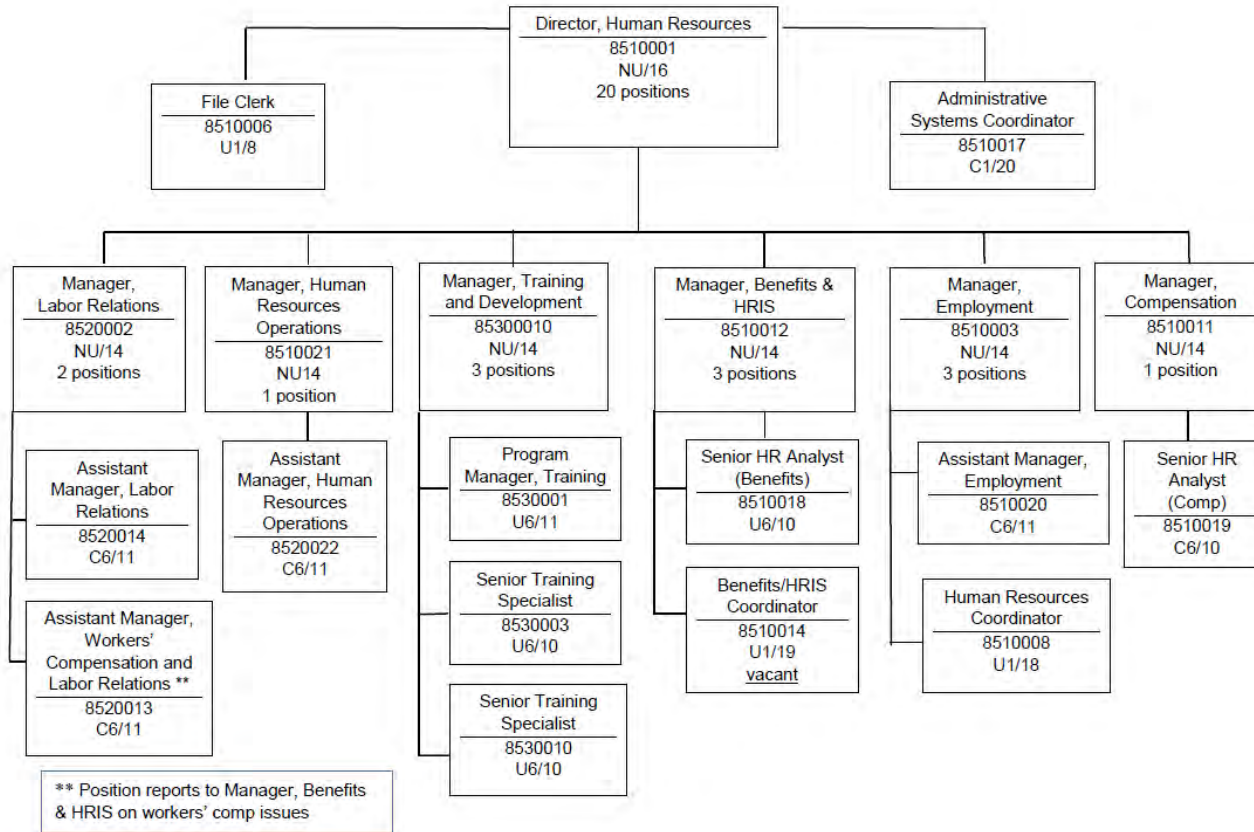
- This project has critical importance for MWRA
 - Little to no margin for error
 - Must be completed while plant is in operation
 - Provides redundancy for SCADA system operation that was not present in the existing system
 - Will result in improvements to plant operation
 - Project staff are continually looking for ways to improve the project and reduce risk





Human Resources Department - Current

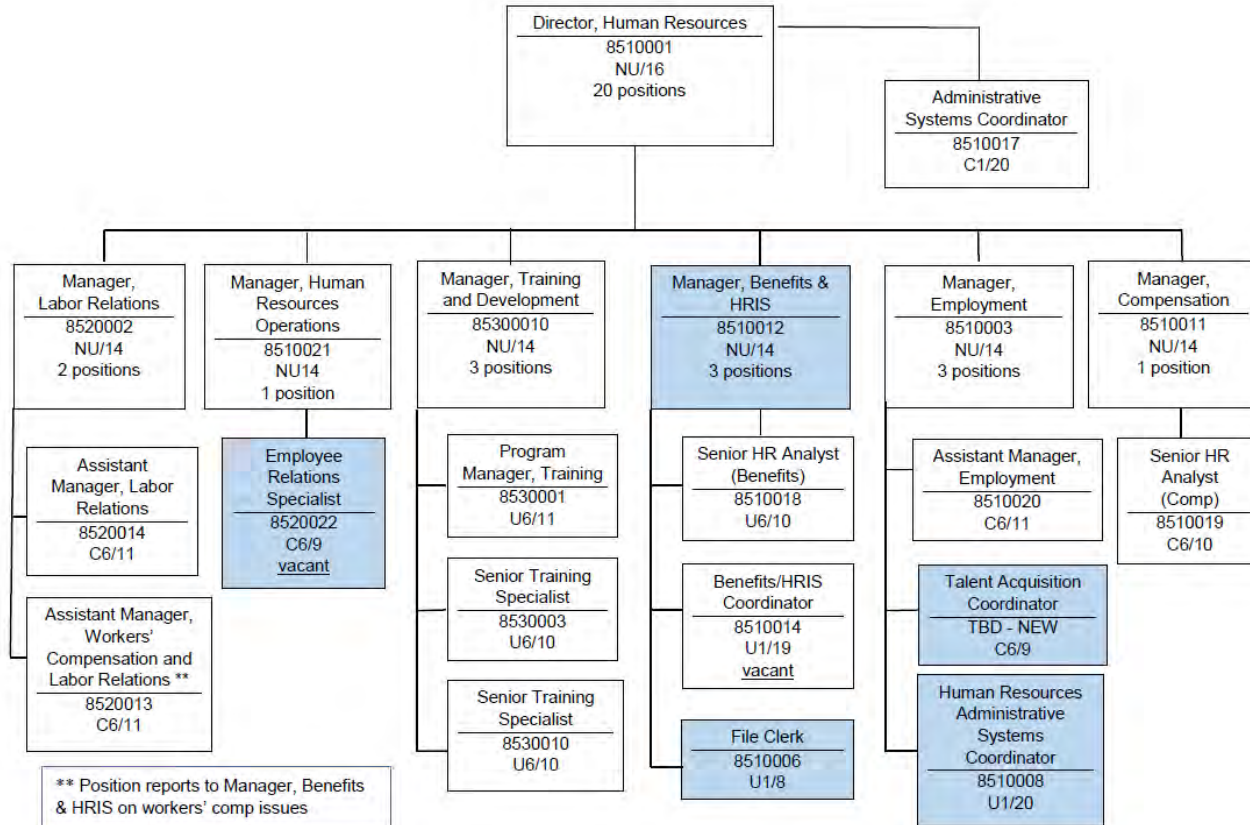
Administration Division Human Resources Department Current State: November 2023





Human Resources Department - Proposed

Administration Division Human Resources Department Future State: December 2023



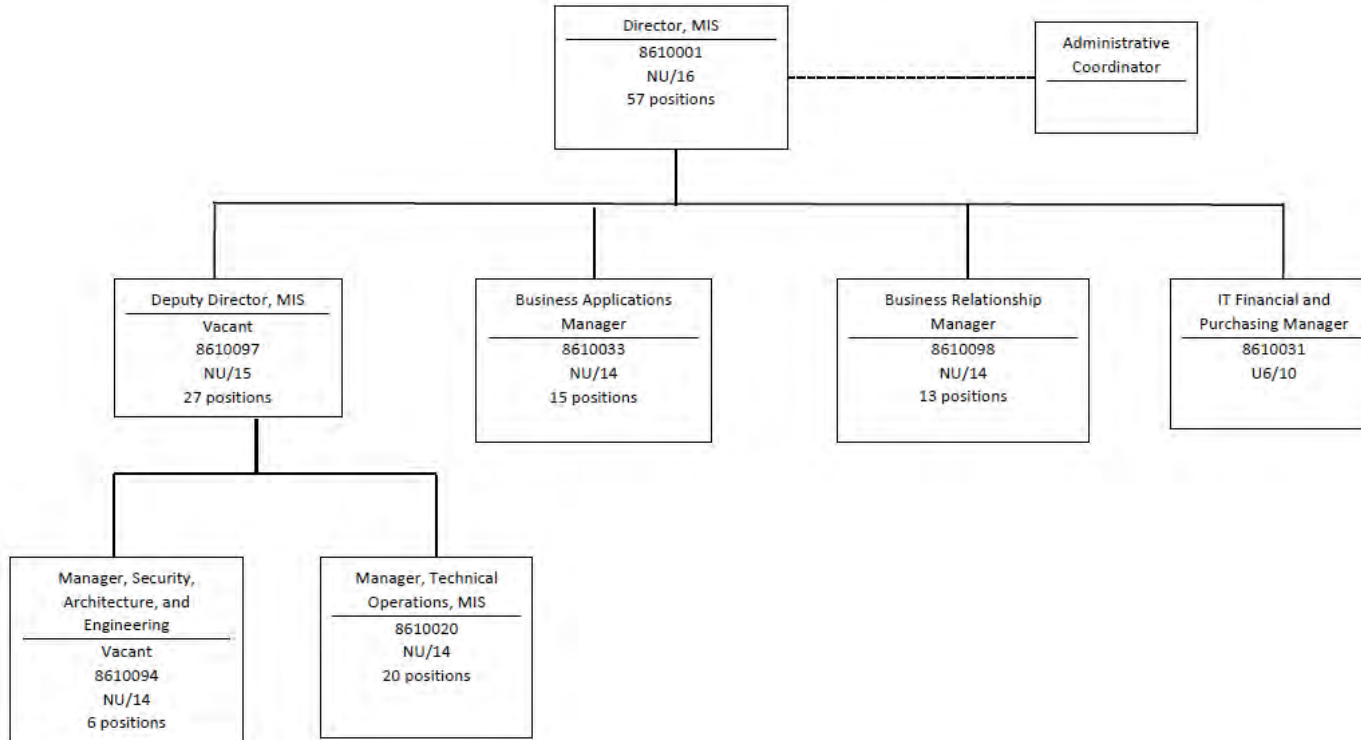


MIS Department – Current

Administration Division - MIS Department

Current Organization

November 2023



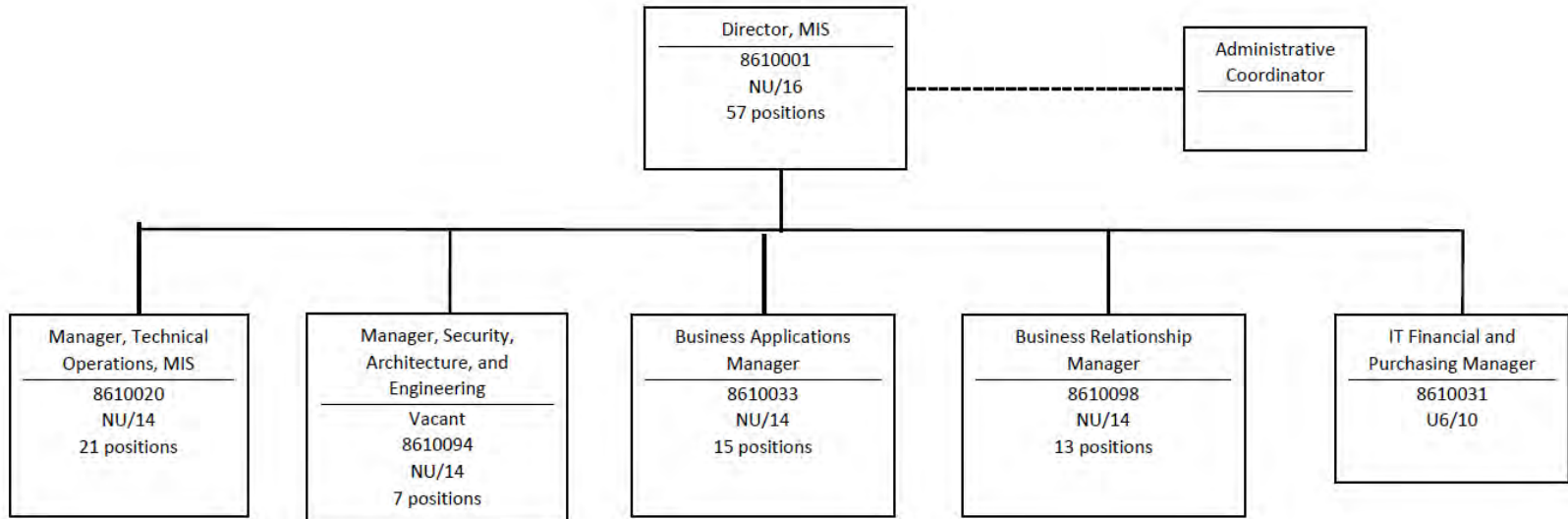


MIS Department – Proposed

Administration Division - MIS Department

Proposed Organization

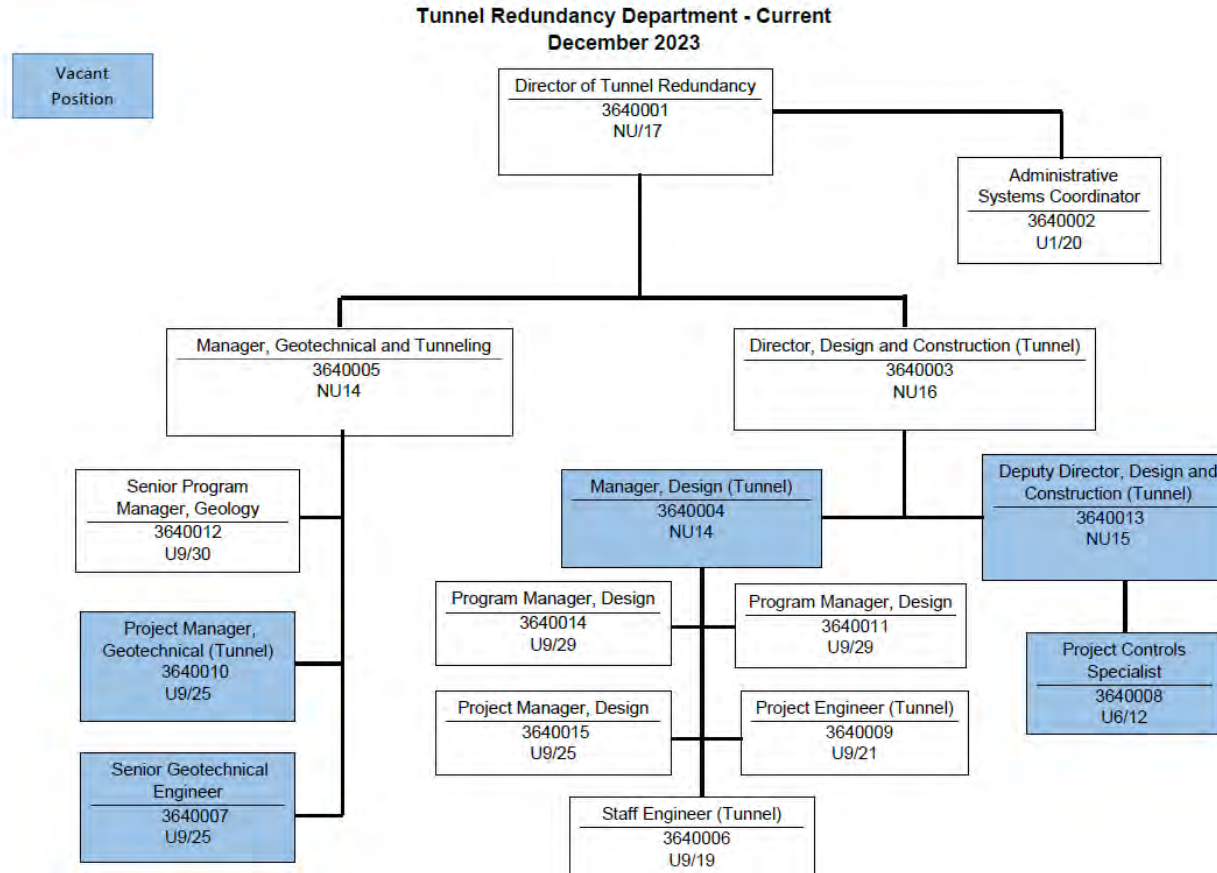
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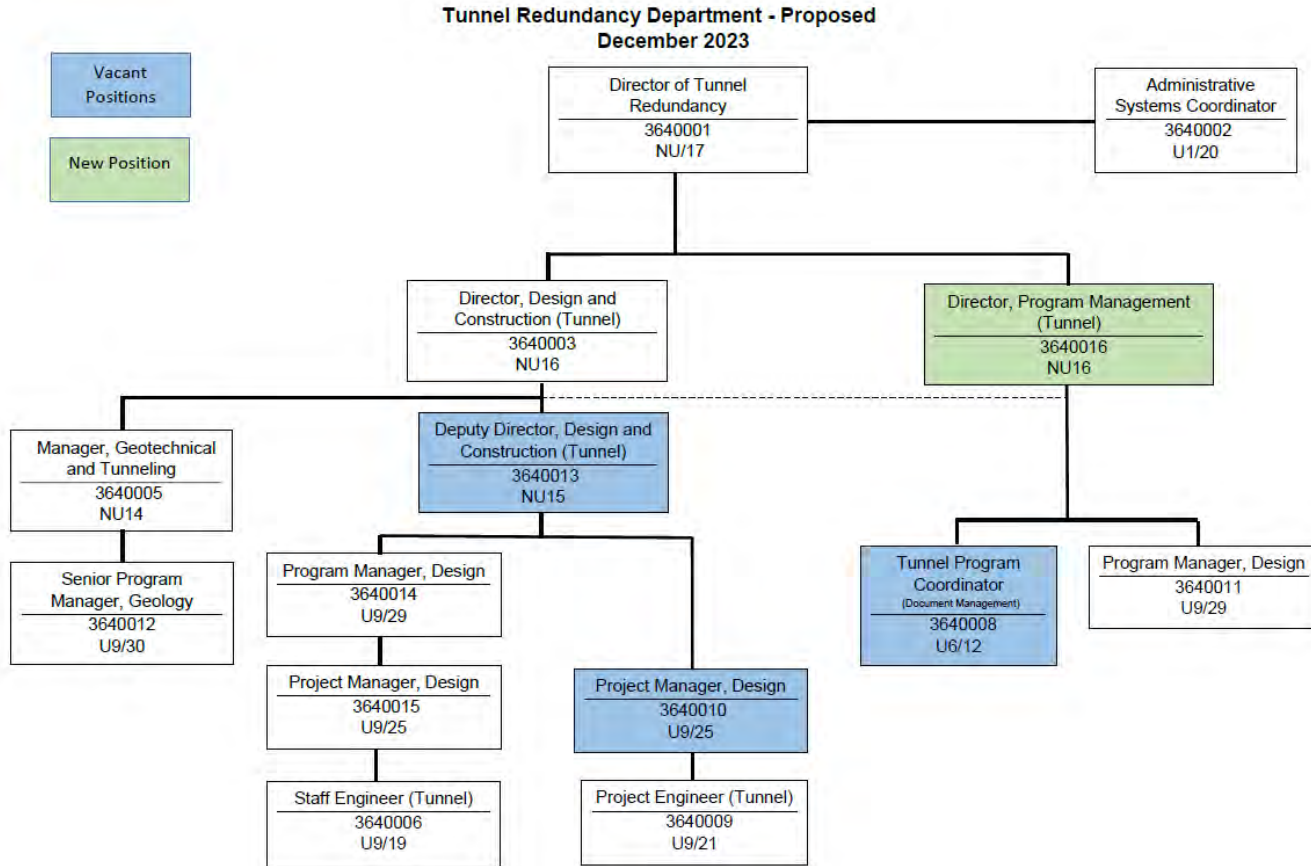


Tunnel Redundancy Department – Current





Tunnel Redundancy Department – Proposed







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*First Amendment to MOU/FAA by and
between BWSC and MWRA for the
Implementation of Fort Point Channel and
Mystic/Chelsea Confluence
Combined Sewer Overflow Control*

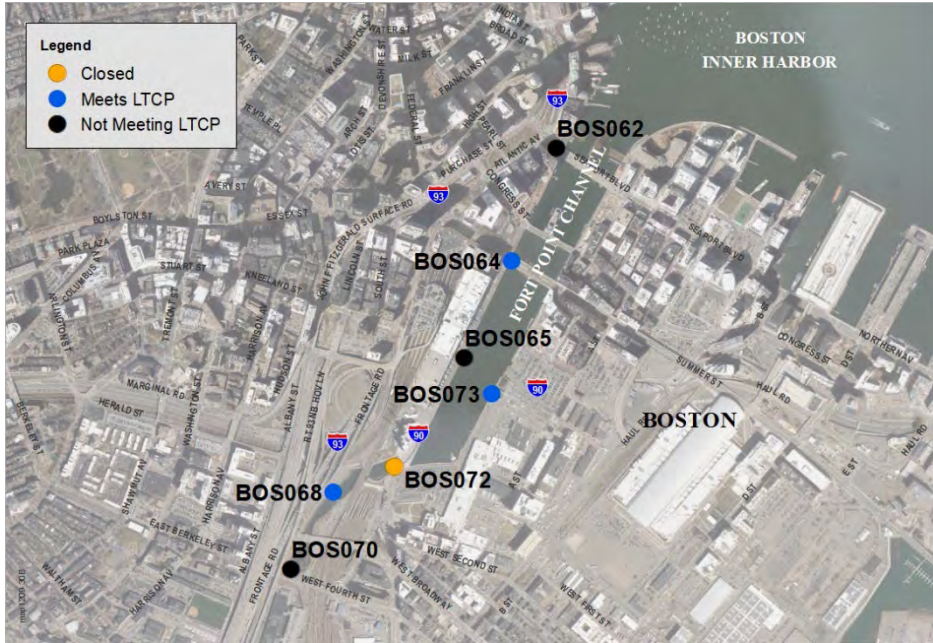
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Work under Original MOU/FAA



Location of BOS017



Location of BOS062, BOS065 & BOS070/DBC



Amendment Work at BOS013

Location of BOS013

