



OFFICE OF EMERGENCY MANAGEMENT (OEM)

Metro Boston Homeland Security Region (MBHSR)

Interoperability Network Connectivity

Design / Build Specifications - Chelsea

OVERVIEW

The Urban Area Security Initiative (UASI), a program under the Department of Homeland Security for Domestic Preparedness, assists high-threat, high-density urban areas in public safety and security efforts. The MBHSR Interoperability Network Connectivity project, under the UASI program, is focused on connecting MBHSR municipal and public safety networks to the City of Boston's 10GB, redundant, fiber optic network, BoNet.

The main benefit that will be shared by the MBHSR is the augmentation of Public Safety and Emergency Management radio communication, CAD response, and camera video sharing. A result from this project, will be the implementation of connectivity of City and Region public safety networks and therefore, first responders, for critical information and incident sharing, real-time. This will strengthen the Region's ability to prepare for, respond to, recover from, and/or mitigate acts of terrorism through sharing video, radio communication, and other assets.

To accomplish this, a feasibility study was conducted concentrating on connecting MBHSR municipal public safety networks to the City of Boston's BoNet infrastructure using existing City and State assets, when possible. In collaboration with the MBHSR municipal and public safety entities, recommendations for extending BoNet to each jurisdiction via new or existing fiber paths with the appropriate network infrastructure, were reviewed and approved by OEM and the MBHSR collectively.

The purpose of this document is to provide the scope and technical specifications for extending BoNet to a particular MBHSR jurisdiction.

A site walk-thru will be conducted to provide additional context for the current needs for this site. The site walk-thru has been scheduled for Friday, July 27th, from 10:00am – Noon. Please plan to meet outside the main door at Chelsea Emergency Operations Center/Fire Alarm Building., 45 Washington Ave., Chelsea, MA 02150.

The bid response must include a description of work to be performed, based on the specifications and requirements in this document, and the total cost. As this is a fixed price bid, the vendor is responsible for all charges, including police details. The award will be based on the lowest total price that meets the specifications and deliverables stated in this document. The total cost that is quoted will be considered a best and final offer.

BONET NODE – BOSTON CITY HALL to CHELSEA EOC

SCOPE

The project consists of running new 48 count aerial fiber and using existing underground conduit to pull the new fiber through, from a connection point at 200 Arlington St., Chelsea, (Executive Office of Public Safety and Security, EOPSS, HQ) to the Chelsea EOC, 45 Washington Ave., Chelsea. The connection point at EOPSS will have fiber patched and spliced back to Boston City Hall as part of this project. Chelsea EOC currently connects to Chelsea Police and Fire Headquarters for public safety use which will be used for future connectivity.

SPECIFICATIONS

Below are the technical specifications for this project.

Summary: To establish connectivity from BoNet, Boston City Hall, to the Chelsea EOC, Fire and Police HQs, new fiber will be run from the Chelsea EOC to 200 Arlington St., Chelsea. At that point the new fiber will be spliced to existing stands of MassDOT dark fiber, allocated to this project, which connects directly in to Boston City Hall.

- Install ~1600' new aerial 48 count fiber, Corning SMF-28e (Figure 8) with ¼" messenger, or, ADSS fiber cable, from the Chelsea EOC to Chelsea Fire, Fay Square, to 6th Street to Poplar Street to Walnut Street to the riser pole that is one pole in from 4th Street/Arlington Street.
- The fiber cable will be attached aerially within the municipal space on the jointly owned poles.
- Install 2 aerial 100' slack, locations are TBD.
- Pull ~320' new 48 count fiber underground through an existing 4" conduit from the riser pole that is one pole in from 4th Street/Arlington Street; to an existing hand vault located in the grass on the left side of the main front gate of the EOPSS building, 200 Arlington Street. The ¼" messenger strand can be peeled back for installation in the conduit.
- Install ~300' new 48 count fiber underground through an existing 4" conduit from the existing hand vault located in the grass on the left side of the main front gate of the EOPSS building, 200 Arlington Street, to the 3rd floor main telecom room, rack 2A.
- Install new rack mount 48 count fiber LIU in the bottom of rack 2A with **SC/UPC** connectors.
- Patch and splice **fiber strands 13 and 14 in the Orange tube** of the existing MassDOT 24 count fiber to the new 48 count fiber, **fiber strands 1 and 2 in the Blue tube**.
- Splice, terminate, and test remaining Dark Fibers on the new 48 count fiber at EOPSS, 200 Arlington Street location, at 3rd floor main telecom room, rack 2A.
- Install a new 48 count rack mount LIU in the Chelsea EOC server room # 107.
- Connector type and rack location are TBD.
- Splice, terminate, and test remaining Dark Fibers on the new 48 count fiber at the Chelsea EOC, basement server room.

REQUIREMENTS

Below are the requirements for fiber testing and labeling.

- Optical testing will conform to industry standards.
- The fiber cross-connects will be tested by a representative of the City and the MBHSR jurisdiction, for end-to-end connectivity.
- Each fiber must be clearly labeled per client's preference.

CABLED FIBER SPECIFICATIONS and PERFORMANCE CRITERIA

The contractor is responsible for procuring the fiber, and all other required materials, needed for this project. Specifically, the fiber must be Corning SMF-28e, Single-Mode, Dispersion, Un-shifted fiber optic cables and must be used throughout the entire infrastructure without exception. This includes the ring, laterals, and premise build-outs.

The Manufacturer's specifications for Corning SMF-28e are listed below.

Index of Refraction:

1.4677 @ 1310 nm

1.4682 @ 1550 nm

Attenuation:

Wavelength	Attenuation dB/km	
(nm)	<u>Premium</u>	<u>Standard</u>
1310	≤ 0.34	≤ 0.35
1383	≤ 0.31	≤ 0.33
1550	≤ 0.20	≤ 0.22
1625	≤ 0.24	≤ 0.24

DELIVERABLES

The contractor is responsible for the following deliverables as part of the project.

1. Calibration certificate for the testing unit.
2. OTDR traces and Power Meter Test results at both 1310nm and 1550nm.
3. Final As-Built drawings.
4. Final Fiber Documentation including test results.
5. A Statement of Work (SOW), provided by the contracted vendor, will be required and must be agreed upon prior to the implementation. The SOW will detail specific tasks, expected level of effort, working hours, and overall costs. NOTE: the vendor is responsible for the cost of police detail.

Final signoff from the client will be provided upon receipt and approval of the deliverables.