

Broadband Technology Opportunities Program Statewide Fiber Optic Network

Project Description

The National Telecommunications and Information Administration has awarded a grant to the Connecticut Department of Information Technology (DOIT), through the Broadband Technology Opportunities Program, for upgrades to and expansion of Connecticut's existing broadband infrastructure to improve public safety and educational services across the state. DOIT has partnered with the Connecticut Department of Public Safety, the Connecticut Education Network, and Connecticut Public Broadcasting, Inc. The proposed project involves the entire State of Connecticut, with installation of new fiber and upgrade connections in all 169 municipalities in the State.

The proposed project consists of upgrades to 5,990 on-net miles over 1,627 route miles of existing (on-net) fiber optic lines and installation of 880 miles of new (off-net) fiber optic lines, directly connecting approximately 660 community anchor institutions (public safety entities, K-12 schools, libraries, government facilities, and community colleges) to the statewide fiber optic network.

The primary activity associated with the proposed project is placement of new aerial fiber upon existing utility poles within existing transportation rights-of-way or ROW (shown as "Proposed Aerial Fiber Optic Line" in the accompanying maps) or the pulling of new fiber through existing conduit systems at network locations (shown as "Proposed Underground Fiber Optic Line" in the accompanying maps). No new ground-disturbance construction is anticipated at this time.

At locations shown as "Proposed Aerial Fiber Optic Line" on the project maps, the project would result in a single additional cable added to the "communication space" on existing utility poles along existing transportation ROW. The cable that encloses the fiber is less than an inch in diameter (between 0.51 and 0.73 inches), and it is black so that it is similar in appearance to the utility lines and equipment that are already present on the existing utility poles.

The photos below provide examples of the type of aerial fiber optic line and splice enclosure installations that are proposed for this project. Underground installations in existing buried conduit would have minimal visual or aesthetic effects. A typical detail and photo is included below to show how new cable would be run underground using existing conduits. Generally, the aerial fiber runs down the pole and then routes inside the existing conduit that is located next to the pole.

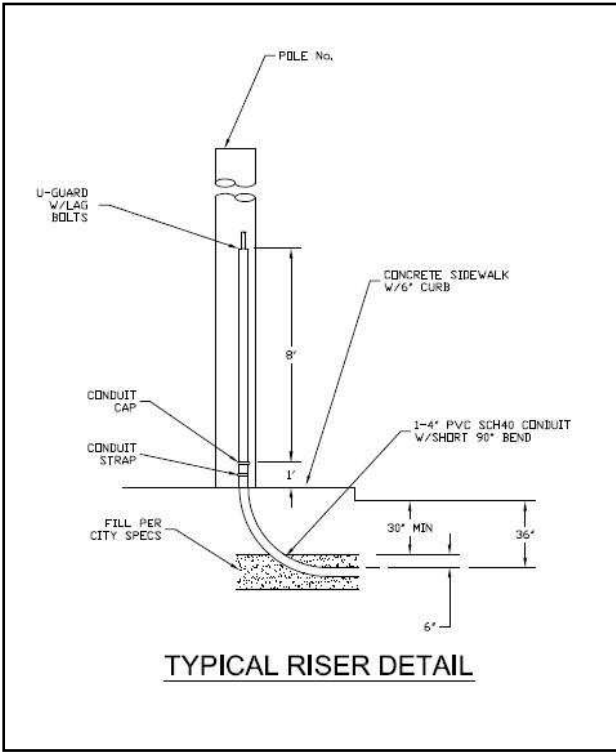
No construction activity (i.e., pole replacement, conduit replacement, or ground disturbance) is proposed along the existing fiber optic network segments. A splice connection would be made where a proposed fiber segment meets an existing fiber segment by installing a splice enclosure on the line or using an existing splice enclosure if one exists near the proposed connection. In the upgrades to 5,990 on-net miles, the existing lines would be "activated" - a signal would run through the existing inactivated on-net lines.

As mentioned before, the vast majority of the proposed network is aerial (99.4%), using infrastructure that is already in place, and only a very small portion would be underground using existing conduit systems. Only 5.5 miles of the 880 miles of new fiber is planned for installation within existing conduits. Therefore, damaged or crushed conduit is not anticipated on this project. In the event that crushed or damaged underground conduit is encountered, attempts would be made to free the blockage. If unsuccessful, an alternate route would be selected using existing aerial or other existing underground conduit. Installation of new underground conduit would only be used as a last resort due to the desire to avoid ground disturbance and the potential for environmental impacts associated with it.

DOIT has contracted with Fibertech Networks (Fibertech) to lease the underlying fiber backbone of the network. Once construction is completed, DOIT would continue to be responsible for operation of the fiber network, as well as maintenance of the network through its lease agreement with Fibertech. DOIT would also arrange for additional future connections to the network.



Typical Splice Enclosures. Typical splice enclosures used by the utility company (on the bottom cables) that are similar to the fiber splice enclosures that would be used for this project. The proposed fiber would be similar to the smaller cables just above the bottom 2 cables.



Typical Fiber Installation. The figures above (provided by Fibertech) show how new cable would be run underground using existing conduit. Generally, the aerial fiber runs down the pole and then routes inside the existing conduit that is located next to the pole.



Example of Typical Fiber Installations Within Existing Bridge Conduit