**City of Boston Response: Creating Public Value through Shadow Conduit**

**Open Geospatial Consortium Request for Information on Underground Infrastructure Mapping and Modeling**

**April 3, 2017**

Access to the internet is no longer a luxury -- it is essential to gain access to economic, educational, and cultural opportunities. Unfortunately, not every resident and business in Boston has access to affordable broadband, or the equipment and skills to make use of it. The City’s goal is to decrease these equity gaps in access to and use of broadband adoption through several strategies.

A key feature of this strategy includes efforts to increase competition. Effective competition can lower prices, increase speeds, improve service quality, and expand the availability of broadband. We work to increase competition in Boston by negotiating directly with major providers (Verizon Fios, RCN, Comcast), acting as ombudsmen for smaller competitive broadband providers (NetBlazr, Starry, WebPass, etc.), and encouraging the use of City assets to provide broadband service.

One such asset is City owned shadow conduit. Over 175 miles of shadow conduit have been installed by by telecommunications service providers as a condition of the City’s Joint Build Ordinance. Shadow conduit can be leased by public and private entities wishing to invest in the expansion of fiber infrastructure to serve Boston’s residents and businesses and can be found in each neighborhood of the City.

The City is taking several measures to make its shadow conduit more readily available. These include 1) the creation of a [publicly available map of shadow conduit](http://boston.maps.arcgis.com/apps/webappviewer/index.html?id=45262ec4c1d14759958d5b24a3ec2401) and 2) modification of the Joint Build Ordinance to make the price of shadow conduit more accessible to prospective lessees.

Each time a new length of shadow conduit is installed by a company under the terms of the Joint Build Ordinance, the City receives a drawing of the proposed segment. The segment is then added to the [map](http://boston.maps.arcgis.com/apps/webappviewer/index.html?id=45262ec4c1d14759958d5b24a3ec2401) by the City of Boston GIS team. The drawing can be accessed through the internal facing version of the map and would also be available to prospective lessees.

As the volume of conduit leased increases, the City will have a new and exciting challenge/opportunity on its hands: how will we dynamically track conduit occupancy, conduit condition, and if needed, repair status? Further, as we work to create this system, how should we collaborate with other city government, industry, and the open data community to develop the appropriate data standard for this body of work?

**Dynamically Tracking Occupancy**

In many cases, more than one party can lease access to a length of shadow conduit thanks to the availability of an ‘innerduct’ system that allows multiple lessees to be in the same conduit length. What data should be collected to accurately and dynamically track occupancy?

**Documenting Physical Condition and Repair Status**

The City does not know the physical condition of its shadow conduit and has not decided how it will collect this information. Two ways we could do so are by undertaking a rodding and roping survey ourselves and/or document the repair status of conduit on a piecemeal basis through the leasing process. In either case, the City needs to develop a data standard to track the condition of conduit, document the repairs needed, and certify the completion of repairs.