

## Shadow Conduit Policy

### Short Description

Require the installation of additional conduit in the public right of way when a street opening or encumbrance permit is processed on behalf of telecommunications providers (both ILEC and CLEC), utility service providers or communications carriers.

### Policy Objectives

- Minimize disruption of the City's public infrastructure and maximize the return on investment for Capital Improvement / Transportation Projects
- Allow the planned development of the telecommunications infrastructure and plan for additional deployments as the economics become more favorable or technology of the physical plant evolves (i.e. DOCSIS, multimode fiber).
- Ease the barrier of entry for future applicants and increase competition due to reduced costs for installation

### Background

One of the major costs in building out middle mile and last mile broadband infrastructure is associated with the cost (and administrative hurdles, including public notice and approval of local jurisdiction) associated with opening a street and putting privately owned and/or operated utilities into the public right of way.

While telephone service (per California's law, Section 7901), as well as cable television and video service (per Digital Infrastructure and Video Competition Act of 2006) are delivered via state franchises which supersede the authority of local jurisdictions, it is still within the control of local land use authorities to determine *how and where* communications infrastructure is put into the public right of way.

Given that a number of communities have a very impacted subterranean footprint, with legacy telephone and utility lines competing for space with municipal utilities, water and wastewater pipes, it is the responsibility of public works and municipal utilities directors across the state to carefully monitor how and where telecommunication infrastructure is deployed.

This regulatory function, in addition to prohibiting subterranean chaos, maximizes the return on taxpayer investments for street improvements and paving projects. Nearly 35 years since to passage of Prop 13, local governments have struggled to expand and maintain public infrastructure.

A number of cities and counties have wrestled with how to balance deployment of new technology with preserving existing transportation infrastructure. In San Francisco, the Department of Public Works and the Committee for Utility Liaison on Construction and Other Projects (CULCOP) only allow a street to be cut once every five years per their standing order number 178,940.

Communications providers are given an opportunity twice a year to submit 5 year plans to the City, which will not allow for an opening of the public right of way twice within a five year period. Each street opening requires that the company doing the subterranean work submit a number of documents including authorization to use the public right-of-way, insurance, Business Tax Registration Certificate, contact information. Additionally, the City requires a \$25,000 deposit and written confirmation that construction will not be delayed.

One sensible approach to encouraging coordination of street cuts and preserving the public investment in the transportation infrastructure has been developed by the City of Boston (and administered through their Public Improvement Commission and Office of Telecommunications) is to deploy a “shadow conduit” whenever the street is opened, particularly when that street bisects a commercial or industrial zone or a community anchor organization.

In June of 2012, the White House directed the Federal Government to develop a “dig once” policy which echoes the structure and function of this policy. Specifically, the executive order called for: “the installation of underground fiber conduit along highway and roadway rights of way can improve traffic flow and safety through implementation of intelligent transportation systems (ITS) and reduce the cost of future broadband deployment. Accordingly, within 1 year of the date of this order the Department of Transportation . . . shall review dig once requirements in its existing programs and implement a flexible set of best practices that can accommodate changes in broadband technology and minimize excavations consistent with competitive broadband deployment.”

The Federal Highway Administration estimates that it is ten times more expensive to dig up and then repair an existing road to lay fiber than to dig a channel for it when the road is being fixed or built. According to estimates provided the House of Representatives by the Telecommunications Industry Association (TIA), “more than half of the costs of new broadband deployment are expenses that can be ascribed to the digging up and repaving of roadways. Further, it is estimated that the inclusion of broadband conduit in [roadway] construction would add less than 1% to the cost of the overall project.”

## **Discussion**

A “shadow conduit” policy is most effective when deployed in concert with a robust policy to notice and coordinate infrastructure improvements while the street is open.

In most jurisdictions, other utilities are only notified during the construction phase of a new installation of fiber or conduit, primarily so they can mark conduits or resources that they own (i.e. USA noticing) to prevent damage during the installation of new fiber or conduit.

This approach does not afford enough time for truly coordinated construction efforts. Municipalities can do their level best to provide a level playing field for all applicants by providing access uniformly while the street is open.

A “shadow conduit” policy requires that a telecommunications provider will, in the process for applying for access to the public right of way, allow the jurisdiction in question to catalogue the planned run in their internal databases, then notice all other known telecommunications and cable providers in order to coordinate in the placement of conduit beneath an existing street.

This approach has been developed by large municipalities, including San Francisco and Boston to minimize disruption to the City's public ways, allow the planned development of telecommunications facilities and provide future Network applicants' reasonable and timely access to City streets and facilitate the timely construction of new networks.

In this schema, the first applicant becomes the “lead company,” while all other telecommunications and cable providers “piggyback” on the installation at the time that the street is open.

As part of chartering a project, the “lead company” will provide a map of the proposed underground route and the number of conduits requested when the street is open.

At that point, the municipality reviews the application and opens a 60-day window for noticing and processing of the application so that all other utility and communications companies who wish to have access to the project are made aware of the street opening.

What differentiates this approach beyond just a simple noticing protocol is that the municipality will accept applications from other utilities, communications, cable and internet providers to go into the same installation as the “lead company,” leading to better long term coordination and planning.

As a final step in the process, the municipality, also places additional “shadow” conduit along the run, planning for the eventual deployment of additional telecommunications resources as demand increases in future years for utility, cable, communications or internet service.

This final “shadow” conduit, which is deployed empty is owned and maintained solely by the public agency and can later be rented as needed to communications providers.

### **Fiscal Impacts**

Placing “shadow conduit” has fiscal impacts. While the cost of bare, simple conduit placed into an open trench is fairly low (estimated by the US Department of Transportation’s Federal Highway Administration at [75-80](#) cents per foot for 2” HDPE pipe), it will have to be incorporated into CIP planning.

When taken into the larger context of a street opening or paving project, the costs for shadow conduit become even more competitive.

The Federal Highway Administration estimates it is ten times more expensive to dig up and then repair an existing road to lay fiber, than to dig a channel for it when the road is being fixed or built.

More recent data provided by the office of Representative Anna Eshoo suggests that the inclusion of broadband conduit in construction projects will add less than 1 percent to the cost of the overall project.

Further cost recovery can be borne by the “lead applicant” and other providers who wish to take advantage of the street opening. California Government Code Section 50030 provides a mechanism (Upheld by the State Supreme Court in Williams Communications, LLC v. City of Riverside) for jurisdictions to charge fees for installation of telecommunications facilities in the public rights-of-way, provided that these fees are commensurate with the reasonable costs of providing the service for which the fee is charged.

The costs of a full fiber installation, which includes conduit, laterals, handholds, ducts, engineering and project management costs are somewhat variable and are based on geology, choice of technology and soft costs.

In 2009, as part of the CCBC’s second round application for American Recovery and Reinvestment Act’s Broadband Technologies Opportunity Program funds, a cost of roughly \$50 per foot was arrived at through engineering estimates. This cost included the placement of dark fiber.

The lion's share of the per foot cost was absorbed through pure construction cost, using boring as the primary method. Fiber costs were roughly \$2 per foot, while micro-ducted conduit were costed out at \$2.75. Another \$2.50 was required for permits, environmental documents and other clearances. Planners will have to take into account overhead on administrative time, design and engineering costs and taxes on raw materials as well as other documentation costs.

This estimate is for a fully entitled and cleared installation with fiber, a more value engineered approach can be much more affordable, particularly if the costs of the street opening (via trenching) are backed out.