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Minimizing Excavation Through Coordination

Executive Order: Accelerating Broadband Infrastructure Deployment

On June 14, 2012, President Obama signed an Executive Order to facilitate the deployment of broadband technology on Federal lands, buildings, rights of way, federally-assisted highways and tribal lands. The Order required the USDOT-FHWA to review “dig once” requirements in existing programs, as it relates to the placement of below-ground fiber optic cable along highway and roadway rights-of-way (ROW).

What is *Dig Once*?

According to the Federal Communications Commission (FCC), the largest cost element for deploying broadband is burying fiber optic cables and conduit underground. Similarly, the FHWA has indicated that ninety percent of the cost of deploying broadband is when the work requires significant excavation of the roadway. Coordinating highway construction projects with the installation of broadband facilities may save on costs incurred by repeated excavation in areas where the entire ROW is paved or developed. Coordination also helps to reduce deployment time by preventing the need to acquire duplicative federal reviews and permits for work done at the same location.

Dig Once Defined

Policies and/or practices that minimize the number and scale of excavations when installing telecommunications infrastructure in highway rights-of-way.

Dig Once Application

In most cases, telecommunication infrastructure is installed above ground due to costs associated with trenching and maintenance. In areas where terrain issues would make excavation difficult, wireless installations are preferred. In rural areas, burying fiber optic cable in the highway ROW is less likely to occur under the roadbed due to the availability of space, unlike in urban areas where there may be space limitations. Frequent construction in urban areas also adds to traffic disruption. As such, *Dig Once* policies and practices are more applicable to urban areas with high-density development.

Is there a federal *Dig Once* policy?

FHWA does not have a *Dig Once* policy, but has policies and procedures for accommodating utility facilities and private lines on federally-aided highway projects which support installation

practices that minimize excavation (23 CFR, Part 645, Subpart B). The agency also strongly encourages states to work with service providers on joint highway and utility planning and to consider the use of innovative practices and technologies that help to minimize excavation of the roadway.

On Federal-Aid highways, each state is required by the FHWA to have a policy for the accommodation and relocation of utilities. Once a State’s policy is approved by the Division Administrator, any utility installation proposed on Federal-Aid highway projects in accordance with the State policy may be approved by the State without referral to the FHWA (23 CFR 645.211).



**Conduit being installed
along I-80 in Utah.**

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Do states and local areas have *Dig Once* policies?

There are very few states that have implemented a state-wide *Dig Once* policy. Given that requests for utility permits to install or conduct work on existing facilities are primarily the responsibility of counties and cities, *Dig Once* policies and practices are usually more applicable at the local rather than at the state level.

State and local *Dig Once* strategies that do exist most often involve formal coordination between state DOTs and utility companies. *Joint-use* of trenches is a practice that is recognized as a sensible solution to expedite the deployment of fiber along main routes. Some localities have instituted a moratorium on street excavation to preserve new roadway construction, while others have little problem with multiple excavations as long as benefits can be achieved, such as having the street repaired or the ability to gain additional fiber. There are also very few states that have required the installation of conduit as part of a road construction project. In general, initiatives that are favored by state and local agencies support approaches that encourage cooperation, but do not prevent excavation when needed.

City of Boston, *Dig Once* Case Example

In an effort to minimize excavations on the busy streets of Boston, the City adopted a policy in 1994 that mandated all telecoms to install their underground conduits “in the same trench, at the same time on a shared-cost basis.” The “joint build” policy that was created put the local telecoms in a leading role for planning and providing telecommunication services for the City. Under this policy, a “lead company” is established. The lead company is any company (telecom provider, or not) that approaches the City first for a build-out request and takes the lead in coordinating the construction. The lead company and participating telecoms work together to draft the engineering plans, estimate construction costs and submit the build-out application for review and approval. This approach has worked well in Boston to minimize street excavation and expedite the broadband deployment process.

Dig Once Strategies

Policies and/or practices related to *Dig Once* that have been proposed or put into effect by state and local planning or transportation agencies include the following:

- *Joint-trench agreements* (a.k.a. “joint use” or “joint build”) to improve coordination with telecommunication providers when plans are made for opening the ground. *Joint use* means requiring that all providers of broadband services (in some cases, all utilities) install their infrastructure at the same time, in the same trench, or in the same conduit, and in most cases, share the cost of installing the infrastructure.
- Moratoriums on street excavation to preserve new roadway construction.
- Installation of empty conduit in ROW during new construction to prepare for future broadband needs, or an analysis thereof.
- Use of trenchless technologies, such as horizontal directional drilling or microtrenching.

Micro-trenching involves digging a small trench just inches under the road surface along the curb line to install fiber optic lines.



Dig Once Policy Considerations

Implementing *Dig Once* policies at the local, rather than at the statewide or national level, would be more effective given the complexities of implementing a policy that spans jurisdictions. Federal, state and local infrastructures, for instance, are subject to different laws regulating build-out plans for deploying broadband. In addition, most work for managing and maintaining utility facilities on roadways are the responsibility of counties and cities, including requests for utility permits to install and conduct work on existing facilities.

An approach that encourages cooperation, but does not prevent excavation when needed is most supported by federal, state and local agencies when implemented as part of the cooperative planning process.

Web: <http://www.fhwa.dot.gov/policy/otps/exeorder.cfm>