UTAH DEPARTMENT OF TRANSPORTATION
How a State Agency Can Drive Fiber Development

UTAH FIBER EXPANSION MODEL

The Utah Department of Transportation (UDOT) has played a key role in helping to develop and expand the fiber footprint throughout Utah by entering into public private partnerships with telecoms, leveraging their state Rights-of-Way (ROW) and establishing policies that promote and encourage fiber expansion – policies that have saved the state, and taxpayers millions of dollars in the long run.

UDOT BROADBAND POLICIES

In the late 1990s, a change in federal law allowed the states to accommodate longitudinal access of telecommunications facilities within interstate rights-of-way (ROW) under certain conditions. In 1999, Utah passed S.B. 150, which changed its state law to allow "certain telecommunication providers access to ROW on the Interstate Highway System," and amended provisions related to the use of highway ROW by utility companies. UDOT now uses the highway ROW to install conduit and fiber systems in public private partnerships which support their Intelligent Transportation Systems (ITS) used to manage traffic throughout the state in accordance with Title 23 of the U.S. Code section 514 b (4), "*to promote the innovative use of private resources in support of intelligent transportation system development*."

Other legislative changes followed that helped UDOT develop public-private partnerships to allow service provider networks to expand into unserved and underserved areas. Using their ROW, UDOT leveraged private companies' assets to decrease the cost of expanding their state-owned fiber optic networks (which supported their ITS) through a fiber optic resource sharing program and conduit trade system. Over the last 20 years, UDOT has been successfully facilitating cooperative fiber and conduit trades with broadband providers and has implemented a number of best practices for broadband development.

One such practice involves the installation of conduit during road construction projects. UDOT considers this conduit to be an integral part of its transportation system and services. By installing conduit with excess conduit capacity, it has allowed private companies to use excess state-owned conduit in exchange for the use of company owned conduit in areas where the state does not have broadband infrastructure. The largest cost element for deploying broadband is burying infrastructure underground. Studies have indicated that as much as ninety percent of the cost of deploying broadband infrastructure is spent during construction, particularly while excavating roadways, according to the FHWA. UDOT found that if the state installed small sections of conduit, telecoms have cooperated in helping to extend the infrastructure and provide services to rural communities. By implementing a practice of laying empty conduit during road construction projects, multiple providers can install infrastructure at a much lower cost.

Another policy is the manner in which UDOT works with the private telecom industry. UDOT makes it a point to maintain open and regular communication with the state's telecoms to help facilitate the planning and coordination of construction efforts. Every two months, UDOT meets with the telecoms to discuss broadband projects, provide assistance on ROW acquisitions, the permitting process and share information. Some of this information includes mapping data. This data sharing has enabled UDOT to develop extensive mapping of fiber locations with the help of UDOT's dedicated GIS team. UDOT has also created and electronic list of broadband providers and provides them notice of construction projects, where broadband infrastructure can be installed, and coordinates planning and construction efforts to help minimize fiber construction costs. Finally, UDOT solicits an annual "wish list" from telecom providers, which is overlaid with road projects thereby enabling the telecoms and UDOT to align excavation/implementation activities. These practices highlight the importance of ongoing communication with the telecom partners so as to enable them to better coordinate their activities, planning and ultimately, save money.

One other notable best practice is the oversight and collaboration between state agencies and broadband-related councils. All of UDOT's fiber projects and trades are overseen by the Telecommunications Advisory Council (TAC), which is comprised of six members appointed by the governor. In addition to reviewing and approving any trades, the Council also advises UDOT on telecommunications issues and works in collaboration with a separate Broadband Advisory Council, who is responsible for developing state policy and providing guidance to the governor and legislators on broadband issues and activities in the state.

LEVERAGING HIGHWAY RIGHTS-OF-WAY

A key principle to the success of public private partnerships is the property value of interstate Rights-of-Way. When the interstate system was built, billions of dollars were spent to purchase expansive linear corridors, remove all longitudinal utility lines and consolidate utility crossings. The primary purpose of a highway is to move people and goods by vehicles. A secondary benefit of highway rights-of-way is accommodation of public utilities. Use of a highway right-of-way by utilities is subordinate to vehicular usage. States and local government agencies have enacted legal frameworks to manage highways and balance secondary uses. This asset is fiercely protected by most states who are interested in keeping the interstates operating efficiently, without constant interruptions for utility work, and by minimize risks imposed by utility lines in the roadway. The property value of linear highway corridors, and open access to those corridors, is a major incentive enabling public private partnerships. As such, where the return on investment can be justified to the state, and a public private partnership recognizes the value of using expansive linear corridors relatively free of obstructions and other utilities, public private partnerships make sense for all parties. It is important to recognize that state and local control of activities within highway rights-of-way is paramount to protecting their primary usage, and accomplishing community goals and control of highway rights-of-way needs to remain with the owners.

A recent fiber optic and conduit build with a partner telecommunication company highlights exactly these issues. The telecom worked with UDOT and installed more than 100 miles of conduit and fiber on UDOT right of way. In exchange for use of UDOT right-of-way, the telecom provided fiber and conduit - allowing UDOT to communicate with its variable message signs, CCTV cameras, weather sensors, traffic sensors, traffic signals, maintenance sheds and any other device or location that needed to be connected to the traffic network. The telecom company benefitted from the partnership by gaining additional capacity to provide broadband service to underserved communities. UDOT cleared all the environmental requirements because it owns the conduit and part of the fiber optics. The telecom purchased the materials and did the installation.

THE PARTICULARS OF A TRADE

UDOT has devised a system for dealing with different types of trade. The following illustrates a few examples of how UDOT trades existing or planned conduit.

First, the value of the ROW and the conduit is assessed on a foot by foot basis, and that value is approved by UDOT and the Telecommunications Advisory Council (TAC). For example, if Telecom A needs 20 miles of conduit on I-15. They are requesting two conduits. That is 40 conduit miles. They will need to provide back to UDOT 40 conduit miles or a telecom service equal to the cost of 40 conduit miles plus the ROW charge for the Interstate.

Another method of trade involves fiber optic on a foot by foot strand basis. For example, Telecom B has requested the use of 24 strands 20 miles of excess fiber optics on Redwood Road. 12 strands equal a buffer tube. A buffer tube is a bundle of 12 fibers so Telecom B is requesting two buffer tubes or 20 * 24 = 480 fiber miles. They will need to provide back to UDOT 480 fiber miles or a telecom service equal to the cost of 480 fiber miles. UDOT will normally trade buffer tube fiber mile per buffer tube fiber mile. It is easier that way in a bundle. UDOT can also trade for fiber, conduit, or circuits managed and maintained by a telecom company.

KEY POINTS:

- Agreements (IRU's) are for 30 years with automatic 5 year renewals.
- All telecoms must also have a Utility License Agreement with UDOT.
- The value placed on any trade is reviewed and overseen by the Telecommunication Advisory Council.
- If a telecom requests the use of fiber optics they must pick up the maintenance of that fiber line. The telecom will repair faster than UDOT will if the line goes down. They also then have a way to go after liquidated damages from the entity causing the damage. UDOT then gets the advantage of better up times with that fiber and reduced maintenance costs.

- If a telecom is in a UDOT conduit with their fiber, they must add that line to their Blue-Stake grid and mark that conduit as if it was their own. UDOT gets the benefit of having the telecom fiber line in the same conduit bank as their own fiber, which gives them added protection.
- Telecoms and UDOT have a "balance sheet" that keeps track of trade values because not all trades can occur at one particular point in time. There are times when UDOT needs a path but the telecom does not need one at that time. The value of that path gets added to the balance sheet for that telecom. This works the same if the telecom has a request and UDOT does not need anything at that time. The telecoms may bank their credit to build it. If something in particular is needed, a telecom can bank enough extra credit so they will have enough value to trade for one of the conduits in an area they may wish to build out to.
- The balances are reviewed each year by the Telecommunications Advisory Council to make sure they are not too far out of balance.

KEY PRINCIPLES UDOT FOLLOWS:

- **Keep the ROW accessible and opened at all times.** This allows for easy access to complete continuous buildouts and ensuring that no single company has exclusive access.
- **Cooperate -** with your partners, federal and state agencies and your local communities.
- **If you build it, they will come.** Help serve underserved areas by installing empty conduit during highway construction. By using this approach, the state has been able to provide most of their regions with a connection. It has also allowed UDOT to leverage their infrastructure by trading it for fiber that has been used for state purposes. UDOT also provides communities with construction standards and provides assistance when working with telecoms.
- **Trading is more effective than charging.** UDOT trades existing or planned conduit and fiber on a foot by foot basis, and trades fiber optic on a foot by foot strand basis.
- **ROW valuation is based on specific regions.** The FMV or rent of highway ROW is calculated per mile. The land is surveyed and an average is taken from an upper bound and lower bound estimate. Discounts are applied to 30-year leases.
- **Keep monetary damages reasonable.** If a construction company hits a fiber optic line, monetary damages imposed should be reasonable.
- **Help your neighbors.** Regularly engage with your local transportation departments, and communities, particularly in the rural areas. Show them how to work with telecoms and let them use the DOT standards for construction.
- **Follow the UDOT Motto:** "If you want to be incrementally better: Be competitive. If you want to be exponentially better: Be cooperative."

As a result of legislative changes 20 years ago, and the practices UDOT has developed over time, Utah has managed to extensively expand the state's communications infrastructure without major capital investment, and UDOT has doubled its network footprint, with 800 miles of fiber owned by the agency and the use of nearly 1,000 miles obtained in trade.