## Local Policy Best Practices and Examples

The following are examples of best practices for local governments to implement to remove barriers to broadband and expansion and encourage network construction and improvements.

## Collocation

Collocation is defined by the FCC as "the mounting or installation of an antenna on an existing tower, building or structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes." Collocation helps wireless communications providers meet the demands for service and new facilities by permitting placement of transmission equipment on existing towers. Collocation can also minimize the number of towers and poles needed for broadband build-out.

The FCC's current collocation requirement allows competing carriers to place their equipment on the incumbent carrier's premises, and according to recently approved rules on tower regulation, states and local governments are required to approve any eligible facility's request for modification (including collocation) of an existing tower as long as it does not "substantially change" the tower.

By lowering costs and barriers to expansion, collocation can increase broadband service in communities.

### Santa Monica, California

Project Description: Santa Monica developed a program called "Santa Monica City Net" which offers local businesses 10 Gbps fiber and collocation services. Many technology and entertainment businesses located in the area benefit from fiber infrastructure, which provides "secure, fast, and cost-effective" service. According to the city of Santa Monica, "[t]he city offers 100 Mb/s, 1 Gb/s, and 10 Gb/s fiber optic connections from Santa Monica City Net On-net buildings to any of the Internet Service Providers (ISPs) connected to the Santa Monica City Net Lit Fiber Optic Network in downtown Los Angeles."

For More Information, visit http://www.smgov.net/departments/isd/smcitynet.aspx.

### Loma Linda, California

Project Description: As part of Loma Linda's Connected Community Program, the city developed a state-of-the-art City Networks Operations Center that would make room for third-party providers to co-locate such as VOIP, phone, IPTV, alarm/monitoring, and other providers.

For More Information, visit http://www.lomalinda-ca.gov/asp/Site/LLCCP/AboutLLCCP/Introduction/index.asp.

## Conduit Installation

Timely placement of empty broadband conduit, conduit for fiber optic cables that support broadband or, where appropriate, wireless facilities for broadband service, can dramatically reduce costs and speed up network upgrades. The National Broadband Plan noted that "the cost of running a strand of fiber through an existing conduit is 3-4 times cheaper than constructing a new aerial build." The cost of building or upgrading a network in areas where streets need to be dug up is substantially higher than the cost of building or upgrading a network where there is sufficient empty space in conduit that was placed with foresight years earlier.

### Mesa, Arizona

Project Description: In Mesa, AZ, the city took steps to ensure that conduit was installed whenever streets were excavated for other purposes. The large-sized city with a growing population focused on prioritizing broadband, seeing it as a key to attracting new investment in the community. Through Mesa's E-Street Program, conduit was installed whenever streets were excavated and water and other infrastructure was installed. Through its efforts, Mesa has 150 miles of fiber running through the community. Additionally, the government worked to identify abandoned utility infrastructure in the city and then presented that information to broadband vendors. As a result, the government is now returning some revenue back to the city. Having regular meetings with providers and offering full transparency with construction projects, existing assets, and areas of economic development, Mesa gives broadband carriers the chance to be ahead of economic development activities while ensuring the city remains well-connected. Thanks to many of these efforts, Apple is making a $3 million investment in a Global Command Center that will be located in Mesa.

### Boston, Massachusetts

Project Description: In 1994, Boston put forth policy that mandated all telecommunications carriers to install underground conduits "in the same trench, at the same time on a shared-cost basis." The policy dictates the establishment of a "lead company" which is any company that approaches the city government first with a build-out request thus taking the lead in construction coordination. According to a "best practices" case study completed by the federal government, "[t]he 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."

### Mt. Vernon, Washington

Project Description: In Mount Vernon, Washington, conduit placement requirements were added to the city's code, helping to build its open access telecommunications network.

City Ordinance Language:

12.20.015 Construction standards for the regulation of use of public rights-of-way and public property.

All developments shall be required to construct and install telecommunications conduit on all streets that are affected, disturbed, constructed and/or improved by development unless otherwise approved, pending a review by the city engineer. This conduit shall be for the purpose of installing telecommunications cable, fiber optic wiring or other infrastructure as necessary.

This conduit shall be placed at horizontal and vertical locations as determined by the city engineer. The conduit shall conform to the size, shape, and characteristics as determined by the city engineer based on industry standards. Once installed and accepted by the city, the conduit shall become the property of the city of Mount Vernon.

Development as defined in this section shall mean the construction of improvements such as buildings, homes, subdivisions, streets, and utilities. (Ord. 2927, 1999)

## Mapping/Data Transparency

Along the lines of the open government concept which holds that citizens have the right to access government documents and proceedings, encouraging data transparency in broadband build-out can inspire effective oversight and allow for enhanced competition. According to the National Broadband Plan "[p]utting more information in the hands of consumers is a proven method to promote meaningful competition and spur innovation, both of which will generate more and better consumer choices. If customers make well-informed choices, companies will likely invest in new products, services and business models to compete more aggressively and offer greater value." A tool for such transparency is accurate broadband maps. These maps are a key component to promoting access, adoption, and use of broadband. Access to granular broadband availability data empowers informed action for state and local planning and infrastructure expansion—in order to know where to target build-out, providers and other stakeholders must know where gaps persist.

### Eaton County, Michigan

Description of Project: Eaton County's online Parcel Viewer offers broadband information in the online parcel search application. After searching for a property on the GIS map, the Parcel Viewer provides information not only for the property and neighborhood, but offers a broadband tab with providers and available speeds tiers.

For access to the Parcel Viewer, visit: http://ecgis.eatoncounty.org/parcelviewer2015/ .

### Santa Monica, California

Description of Project: The City of Santa Monica passed an ordinance requiring all utility providers to submit "network diagrams" of any installations and annually update those plans.

City Ordinance Language:

*Network Diagram Submission.*

*(1) Commencing June 15, 2005 and each June 15th of each subsequent year, each utility with facilities in the City shall submit an updated diagram in a format acceptable to the department of all facilities owned or controlled by each such utility and located in the PROW. Such diagrams shall show, but not be limited to showing, the number, size, and locations of antennas, pipelines, conduits, cables, vaults, pedestals, and all other associated facilities located in the PROW.*

*(2) If a utility's facility diagram has not changed from the diagram submitted in a previous year, in lieu of submitting a new diagram, a utility may, at its election, provide an affidavit to the City certifying that the previous year's map has not changed. The certification shall also include the date that the previous map was submitted to the City.*

*(3) In order to ensure the security of installations, this information shall not be made a public record, except that utilities requesting a permit under this Chapter may request portions of submitted diagrams affecting their proposed installation.*

### Missoula, Montana

Project Description: To determine Internet needs, Missoula leaders created a network map consolidating information from local providers. The map aims to reveal the broadband access available in the community and where broadband could be enhanced to promote better business investment moving forward. After providing assurance of confidentiality, Internet service providers submitted their service maps; in late November 2014, the map was completed revealing the city's fiber network. After review of the map, leaders saw that their original plan to self-finance a 60-mile fiber network was not actually necessary with the existing infrastructure present. Instead, solving the last-

mile problem was the main issue the town could work toward tackling.

## Dig Once Policy

A dig once policy is "a broadband deployment policy focused on increasing coordination between government agencies and utility companies to decrease the frequency of highway excavation." These policies aim to facilitate joint trenching cost savings and ensure that broadband infrastructure improvements are considered alongside other infrastructure and public works projects. To this end, these policies encourage or require that every infrastructure project includes notification and facilitation of opportunities to lower the costs of broadband infrastructure investment.

There are two main benefits to Dig Once policies: (1) lowering costs of infrastructure deployment when completed in conjunction with other infrastructure improvements, and (2) promoting and facilitating integration of broadband infrastructure as part of local and regional economic development infrastructure initiatives.

Many states and municipalities have adopted Dig Once policies, which range in scope and nature. The U.S. Department of Transportation, Federal Highway Administration has listed several best practices for Dig Once policies, noting that Dig Once practices have been "recognized by state and local stakeholders as sensible solutions to expedite the deployment of fiber along main routes when implemented as part of a cooperative planning process."

### Sandy, Oregon

Project Description: The city of Sandy passed an ordinance requiring all new developments to install underground fiber along with other utilities. Developers are now required to put conduit all the way into a home and to deed that conduit to the city. The city also developed a public-private FTTP project.

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## Microtrenching

Microtrenching is defined as "a low-impact deployment methodology in which fiber and conduit are inserted into a slot-cut trench less than ¾ inch wide and between 9-12 inches deep – without damaging or disrupting existing infrastructure. The benefits of microtrenching are that it is less disruptive than other broadband expansion methods, offers faster deployment speeds, and has significant cost-savings.

### Jackson, Wyoming

In addition to its 9,800 residents, Jackson, WY sees a large influx of tourists each year making reliable broadband a crucial component to economic development for the town. After securing grants from NTIA and BTOP, a local provider launched the Teton Broadband Project in an effort to upgrade the fiber network of Jackson. As a popular tourist destination, minimal disruption to the environment was important to keep the integrity of the surrounding land. As a result, the project opted to use a provider for fiber installation that employed multiple techniques—directional drilling, conventional trenching, and microtrenching. The microtrenching technology use was planned for the areas within the Jackson city limits to least disrupt residents and businesses providing a valuable solution for Jackson's issue of expanding broadband in an efficient and minimally invasive fashion.

### New York, New York

Project Description: The city of New York has revised the Department of Information Technology and Telecommunications' (DoITT) rules to add a chapter authorizing and regulating the use of microtrenching. In November 2012, DoITT and the Department of Transportation launched a pilot program with Verizon to test microtrenching as an alternative to conventional measures. The purpose was to determine if the new technology would be less disruptive to pedestrian and vehicular traffic and to the structural integrity of the streets. The DoITT also aimed to determine if microtrenching could offer cost and time savings. Tests in all five boroughs were performed successfully, offering indication that this new form of trenching could save the city money and time. As a result, DoITT has chosen to offer microtrenching as an alternative to conventional methods.

For more information, visit http://www.nyc.gov/html/doitt/html/business/micro_trenching.shtml.

For information on the revised city rules, visit https://rules.cityofnewyork.us/content/microtrenching-rules-1.

### Loma Linda, California

Project Description: Loma Linda, a community of 21,000 people, installed a municipality-wide fiber-to-the-premise network using microtrenching technologies. The city's economy, which is dominated by the healthcare field, was faced with the issue of needing to deliver higher capacity fiber connections to homes, hospitals, and other businesses. In order to upgrade beyond DSL, the city chose to install its own FTTP network. While traditional last mile deployments were expensive and disruptive, potentially causing major road closures, Loma Linda turned to a company, m2fx, and adopted its solution: pushable fiber cable and micro ducts in combination with microtrenching. This not only brought down the cost of last mile deployment, but also saved the city time. A savings of 64-76% percent was cited, and Loma Linda reportedly benefited through improved healthcare, business investment, and city efficiency and safety.

## Pole Attachment/Permitting

The FCC's National Broadband Plan concluded that, "the rates, terms, and conditions for access to rights-of-way (including pole attachments) significantly impact broadband deployment." Indeed, the costs associated with obtaining permits and leasing pole attachments are some of the most expensive cost functions in a service provider's plans to expand or upgrade service, especially in rural markets where the ratio of poles to households is off the charts. In addition, since these charges generally consist of per-pole or distance-based rental charges, high costs for leasing access to poles affect deployment in distant, rural areas more than dense urban areas. Further, the process can be significantly time consuming. For example, the process of attaching equipment to an existing pole, such as moving wires and other equipment and coordinating with electric and safety codes, can take months to complete. As a result, evaluating, streamlining, and reducing permitting fees can lower construction costs for broadband providers and incent further build-out as a result.

The benefits of attaching wires and communications facilities to existing poles, ducts, or conduits are lower costs of infrastructure deployment; efficient, multiple use of existing infrastructure where feasible; and promoting investment of broadband infrastructure in rural, distant areas where there is a need to attach to more poles per customer. The Michigan Public Service Commission currently regulates the rates, terms, and conditions of poles, ducts, and conduits that are owned by a "provider" of telecommunications services in the state (MTA Section 361) to which another telecommunications provider or educational institution may seek to utilize. However, MPSC regulation does not extend to poles, ducts, and conduits that may be owned by other entities (such as electric utilities, railroads, local governments, or mobile providers). As a result, broad community and provider collaboration to problem-solve around local pole, duct, conduit, and rights-of-way issues is one of the most effective opportunities to encourage faster, new broadband infrastructure deployment.

### State of Vermont

Project Description: The State of Vermont is one of the few states with a state level policy regarding pole attachments, tariffs, and coordination of providers. According to the Vermont Telecommunications Authority, "to facilitate the deployment of pole-top attachments, the VTA, the Department of Public Service, and Vermont utilities have produced "Vermont Standard Pole-Top Attachment" guidelines. The Vermont Public Service Board Rule 3.700, and utility tariffs adopted pursuant to it, govern pole attachments in Vermont. These rules allow use of utility poles, including use by Broadband Service Providers and establish when broadband and cellular providers may attach within or above the electric space."

For Pole Attachment Rules, visit http://psb.vermont.gov/sites/psb/files/rules/OfficialAdoptedRules/3700_Pole_Attachments.pdf

### Utah Department of Transportation

Project Description: As featured in a case study in the White House's "Implementing

Order 13616: Progress on Accelerating Broadband Infrastructure Deployment," the Utah Department of Transportation has successfully worked to expand broadband infrastructure in remote areas with highway ROWs open at all times. This policy has allowed for easy access to "complete continuous build-outs." Additionally, UDOT installs empty conduit during highway construction for cooperating telecom providers to help extend infrastructure and provide access to rural communities. As a result, most of the state is served with a broadband connection, helping to promote and grow economic opportunities.

### Google Fiber Cities: Kansas City, Kansas and Austin, Texas

Project Description: In Kansas City, KS and Austin, TX, local governments aimed to attract Google Fiber by reducing barriers to service entry. The permitting process was expedited and both cities offered access to public rights-of-way at little or no cost to Google. Additionally, Google Fiber was allowed to build out its network selectively being based on consumer demand which allowed for a better profit margin for the company.

## Tower Regulation

Many local jurisdictions regulate tower location, tower height, and tower design including color, lighting, and screening of base facilities. However, certain components, such as signal strength, are governed by state or federal regulations.

Reducing these barriers can accelerate infrastructure investment and reduce related costs.

According to the FCC Section 6509 of the Middle Class Tax Relief and Job Creation Act of 2012, "… a state or local government may not deny, and shall approve, any eligible facility's request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." A "substantial change" refers to particular restrictions on height increases and protrusion from the tower, installation of more than the standard number of new equipment boxes, excavation or deployment outside of the tower site, changes to the concealment elements of the tower, and non-compliance with the prior tower approval (unless that non-compliance is due to changes to the tower that does not exceed the corresponding "substantial change" threshold).

For more details on what defines a "substantial change" and checklist for communities to use in adhering to FCC rules, visit: http://www.naco.org/legislation/policies/Documents/Telecommunications%20and%20Technology/NACo-Checklist.pdf.

### Emmet County, Michigan

Project Description: Emmett County revised its zoning ordinance's tower section to address Internet towers. According to the new language, an Internet tower may be permitted if:

*a. The tower is constructed in a manner and location that eliminates the danger of falling on adjacent properties or on electric power lines,*

*b. The tower complies with federal regulations,*

*c. The tower is no taller than 60 feet above the natural grade with a diameter no larger than 18 inches,*

*d. An affidavit identifying the tower be used solely by the owner and/or occupant of the property is signed and recorded prior to the issuance of a zoning permit.*

If a tower is to be taller than 60 feet, it may still be approved with a public hearing and if it is of no danger of falling on adjacent properties or power lines, is compliant with federal regulations and can prove the height is necessary to "reasonably accommodate Internet service needs."

### Clark County, Nevada

Project Description: Clark County's land use strategy documents regarding communication towers and antennas clearly lists situations in which no permit is needed (e.g., an antenna is not visible), an administrative review is available (e.g., location on public property), or special use review is required. With easily accessible documents, the county helps telecommunications carriers avoid public hearings which serves as a major incentive for the providers.

For a full description of the land use policy language, see Clark County Code 30.44-1 Global Use Table, http://www.clarkcountynv.gov/Depts/comprehensive_planning/zoning/Documents/3044.pdf.

### Vertical Assets Inventory/Shared Infrastructure

Leveraging existing infrastructure and implementing innovative fee structures can help to reduce the costs of broadband build-out in particularly rural areas. "Vertical assets" are defined as structures onto which wired broadband equipment can be mounted and positioned to broadcast a signal over as much terrain as possible. A community's vertical assets include communications towers, water tanks, grain silos, multi-story buildings, and other structures potentially useful in deploying affordable, reliable wireless broadband in less populated, rural localities or topographically challenged regions. By creating a vertical assets inventory, data is provided for private and public investment decisions. Additionally, the sharing of these vertical assets and other infrastructure among broadband providers limits duplication and gears investment toward

underserved areas. Infrastructure sharing and innovative fee structures can enhance competition and encourage other providers to enter the market due to reduced costs of entrance and less development risk given the sunk costs associated with the investment.

### Marion County, South Carolina

Project Description: Marion County, a rural area of South Carolina, struggled with robust Internet access, often relying on expensive satellite connections for coverage solutions. The county attempted to solve the issue for residents, and after meeting with Connected Nation and assessing the current providers' coverage in the area, identified a local fixed wireless provider who offered a solution. With donated tower infrastructure from the county, the provider was willing to install new equipment on existing vertical assets, free of charge, in order to bring broadband to the unserved and underserved community. Marion County government officials helped to locate the infrastructure and work with the provider to facilitate the installation, which is currently in progress. The new equipment will not only bring fixed wireless service to the area, but will also allow service for the development of public computer centers which the county government has planned to build in the near future.

### Missoula, Montana

Project Description: The City Council in Missoula, MT voted to reduce its fees to excavate and install new fiber-optic lines in the public right-of-way by 75 percent. According to Councilwoman Caitlin Copple, "It's a gesture of good will to the service providers that we want to work with them. It was a unanimous vote, and it shows Missoula is serious about business." This decision came after a feasibility study was completed exploring how Missoula could create a twenty-first century broadband network and a citywide map revealing broadband access in the area. Permitting fees for new fiber installations were reduced from a baseline cost of $2,078 for the first 600 linear feet to just $300 for the first 300 linear feet.

### State of Virginia

Project Description: The state of Virginia saw that "there are still many areas where signal strength and network carrying capacity are insufficient to meet consumer demand" which led to the development of a Vertical Assets Inventory Toolkit and Database. According to the website administered by the Virginia Secretary of Technology's office, "[t]he Vertical Assets website serves as a repository of location information for tall structures that have the potential to serve as wireless transmission sites. The Vertical Assets website aims to bring owners and managers of these sites together with wireless Internet service providers in order to facilitate the integration of broadband and information technology into state and local economies."

To see the Vertical Assets Inventory Toolkit, visit: http://www.wired.virginia.gov/wp-content/uploads/Broadband/Virginia-Resources/VerticalAssets14.pdf.

### Loma Linda, California

Project Description: city codes were altered in Loma Linda to encompass procedures used by the city and builders to help share engineering and construction and to calculate shared deployment costs in new construction activities.

### Google Fiber Cities: Kansas City, Kansas and Austin, Texas

Project Description: To guide service implementation, Google Fiber divides participating cities into "fiberhoods" and dictates service delivery according to the fiberhoods that achieve a critical mass of pre-registrations over a 6-week period, with the highest pre-registration rates served first. In Kansas City, Google Fiber offered residents three connectivity packages including: Gigabit + TV service, Gigabit Internet service, or free basic Internet service of up to 5 Mbps down/1 Mbps up. Under Google Fiber's "Community Connections" program, community buildings are also able to receive free gigabit service for a minimum of ten years.

### Optico Fiber, Puerto Rico

Project Description: Optico Fiber has demonstrated that consumers in Puerto Rico also have an appetite for gigabit service and that the private sector is willing and able to meet the challenge. Innovative ventures such as Optico Fiber are key to ensuring competitive market responses that, as has been the case in the U.S. mainland, will drive others to improve broadband capacity offerings and invest in network build-out.

## Revise Building Codes

Localities can add connectivity standards to their building codes, ensuring that new constructions are equipped with broadband access.

### Loma Linda, California

Project Description: Loma Linda added language to city building codes requiring all new commercial and residential developments (or re-models involving greater than 50% of the structure) to equip new structures with a fiber and copper cabling.

City Ordinance Language:

*In recognition of the need to provide local residents and businesses within the community with additional options to meet their telecommunications needs, as adopted by city council resolution, all new development projects within the city, regardless of whether*

*such new development falls within the fiber-optic master plan area, and additions that exceed more than fifty percent of the original structure that fall within the fiber-optic master plan area, will be required to participate in, and will be bound by, the connected community program and all conditions and requirements contained therein. Further, any conditions or requirements of the connected community program may be required as a condition of approval of any such new development or addition exceeding fifty percent of the original structure.* (Ord. 629 § 1, 2004)

**Jerome, Idaho**

Project Description: In Jerome, all new subdivisions are now required to install fiber-conduit. According to the town's subdivision regulations:

*Fiber Optical Conduit: All developers will be required to pay for and install two inch (2") SDR11 Smoothwall Innerduct fiber optical conduit, which is orange in color, with pull rope, PG style service boxes, forty seven inches (47") high by forty eight inch (48") open bottom and PG style heavy duty cover with support beam. The placement and construction of the fiber optical conduit shall be done in accordance with the city of Jerome standards and at the discretion of the city engineer.* (Ord. 994 §2, 2006)

**Sandy, Oregon**

Project Description: The city of Sandy passed an ordinance requiring all new development to install underground fiber along with other utilities. Developers are now required to put conduit all the way into a home and to deed that conduit to the city. The city also developed a public-private FTTP project.

**Clark County, Nevada**

Project Description: Clark County's land use strategy documents regarding communication towers and antennas clearly list situations in which no permit is needed (e.g., an antenna is not visible). With easily accessible documents, the County helps telecommunications carriers avoid public hearings which serves as a major incentive for the providers.

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