ENABLING CONDITIONS

IN PREPARATION FOR IIJA BROADBAND PROGRAMS

APRIL 2022

AGENDA

Welcoming Remarks

Evan Feinman, Deputy Associate Administrator for Broadband Equity, Access, and Deployment, Office of Internet Connectivity & Growth, NTIA

Policies & Mechanisms Overview

Amanda Martin Herrera, Telecommunications Policy Analyst, Office of Internet Connectivity & Growth, NTIA

Asset Mapping & Management Overview

Geoff Jordan, Supervisory Broadband Program Specialist - Infrastructure Division Chief, Office of Internet Connectivity & Growth, NTIA

Questions & Answers Discussion

Moderator: **Evan Feinman**, Deputy Associate Administrator for Broadband Equity, Access, and Deployment, Office of Internet Connectivity & Growth, NTIA

CONTEXT FOR TODAY'S DISCUSSION

This webinar introduces several important policies and practices that states, counties, and localities can pursue to accelerate new broadband deployment in conjunction with incoming funding from IIJA programs. It is intended as a starting point for further exploration.

Following the Notices of Funding Opportunity (NOFO) for IIJA broadband programs, NTIA will provide technical assistance to states to support grant application submissions.

POLICIES & MECHANISMS

Amanda Martin Herrera, Telecommunications Policy Analyst, Office of Internet Connectivity & Growth, NTIA
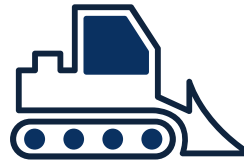
TODAY'S FOCUS IS ON POLICIES THAT CAN SUPPORT FASTER BROADBAND DEPLOYMENT

Potential **right-of-way (ROW)** policies

Streamlined ROW

Potential **buried deployment** policies

Dig once

Potential **aerial deployment** policies

Pole attachment policies

One-touch make-ready (OTMR)

Context is key: While the policies in this guide have had success in many locations, they are not universally applicable. States and localities should take their specific context into account when weighing benefits and costs.

PROVIDERS NEED AN EFFICIENT AND AFFORDABLE WAY TO ACCESS RIGHTS-OF-WAY

ROW Access
Broadband networks are built along either public land that runs alongside roads and railways or private land and facilities, known as the ROW

For new broadband deployment, providers need to access the ROW, a process that can be slow and costly

Potential **right-of-way (ROW)** policies

Streamlined ROW

JURISDICTIONS CAN CONSIDER POLICIES TO STREAMLINE ROW ACCESS TO REDUCE DEPLOYMENT TIME AND CAPEX

OVERVIEW

Jurisdictions and private owners grant providers easements to access the ROW

They also provide permits to providers or reach lease agreements with them to build broadband infrastructure along the ROW

Jurisdictions looking to **streamline ROW access** can identify and alleviate bottlenecks in these processes while still ensuring safe construction practices

BENEFITS

✓ **Can significantly reduce deployment time and capital expenditure (CapEx)**

   ✓ Can simplify complicated permitting and increase local capacity

   ✓ Can promote newer practices, such as micro-trenching and small cell wireless facilities, that, when installed correctly, can be faster and more affordable for providers

WHEN DESIGNING ROW ACCESS POLICIES, CONSIDER PERMITTING, PARAMETERS, AND EXCESS CAPACITY

Streamlining permitting & inspection: Consider simplifying the number and complexity of permit applications (the "one-stop shop"), offering expedited permitting for minimally invasive construction practices, and putting in place e-permitting

Defining parameters: Consider the appropriate sizing and location of conduit, small cells, and other broadband infrastructure to ensure safety and durability

> Many cities, including Los Angeles and New York, define the parameters for micro-trenching, a lower-impact method that, when done correctly, can reduce construction cost and minimize disruptions.[1]

Requiring excess capacity: Consider whether to require excess capacity within conduit to ensure that they are "future-proof" (i.e., have capacity to meet future needs)

1. Los Angeles Municipal Code, "Sections 62.00, 62.03" 2020 (link); The Rules of the City of New York, "Title 67, Chapter 1" 2015 (link)

RISKS & OTHER CONSIDERATIONS FOR ROW ACCESS

Safety and durability

- Safety measures avoid potential risks to workers, pedestrians, roadways, vehicles, and public services

- Natural phenomena (e.g., earthquakes, icy weather) and other construction can damage poorly installed conduit and especially aerial facilities

Staff resourcing

- Lack of staff is a common barrier

- Jurisdictions should think through realistic staffing needs to prepare for IIJA funding

- Permit offices can be self-sustaining with reasonable fees

DIG ONCE POLICIES CAN MAKE BURIED DEPLOYMENT MORE EFFICIENT AND COST-EFFECTIVE FOR PROVIDERS
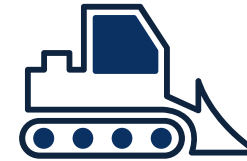
Buried deployment
Run cable underground for terrestrial broadband and fixed or mobile wireless fiber backhaul along the ROW

Historically, project owners dug trenches each time they installed infrastructure or did maintenance

Potential **buried deployment** policies

Dig once

DIG ONCE REFERS TO A RANGE OF POLICIES TO ENCOURAGE INSTALLATION OF CONDUITS FOR FUTURE USE

OVERVIEW

Dig once policies encourage or require project owners to install multiple conduits or micro-ducts (or both) for future use

Can apply to any construction (e.g., telecoms, transportation, utilities) along the public ROW, especially highways and roads

BENEFITS

✓ **Can reduce future costs by minimizing the need for future construction**

✓ **Can minimize disruption to services**

✓ **Can take advantage of IIJA spending**

FOR DIG ONCE POLICIES, CONSIDER THE IMPLEMENTATION MECHANISM AND THE COST AND OWNERSHIP OF CONDUIT

Implementation mechanism: Influences the policy's stringency and several key structural questions

Legislation or ordinance

Typically, a mandate that applies to all construction along the public ROW

More likely to ensure that conduit gets installed

Executive Order

Typically, the jurisdiction promotes public notice for upcoming work and providers choose to add conduit

Less likely to ensure that conduit gets installed

In North Carolina, a 2019 executive order mandated dig once. For state transportation projects, a provider may decide to install new conduit. In addition, they must provide notice of a joint-trench opportunity, allowing other providers to negotiate a joint access agreement to also install conduit.[2]
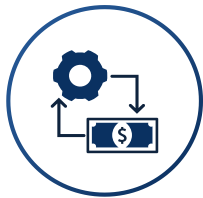
Cost and ownership of conduit: Which entity owns and can benefit from the conduit, as well as how to pay for it

Jurisdiction

Owning the conduit includes more involvement but also allows the jurisdiction to use it or lease it to providers

Private entity

The jurisdiction's role is more hands-off, but does not provide the benefits of conduit ownership

In Illinois, legislation requires state agencies to install conduit for state-funded projects along state-owned roads. The state pays for the conduit, owns it, and leases it to providers with "market-based, non-discriminatory pricing."[3]

2. North Carolina Department of Transportation, "Dig Once Policy" 2021 (link); 3. Illinois Compiled Statutes, "605 ILCS 5/9-131" 2009 (link)

RISKS & OTHER CONSIDERATIONS FOR DIG ONCE

Engineering design

- The permitting agency can ensure that the conduit is accessible (e.g., in pull boxes, manholes)

- The installation should also allow access to other installed infrastructure (e.g., power lines, sanitation pipes)

Marginal cost increase

- For a non-broadband project, it will increase CapEx and installation time

- May impact project viability on the margins

POLE ATTACHMENT POLICIES AND ONE-TOUCH MAKE-READY CAN HELP STREAMLINE AERIAL DEPLOYMENT

Aerial deployment
Attach cables to utility poles along the ROW

Utility poles with multiple existing services (e.g., telephone, electricity, cable) require policies to regulate pole attachments

Potential **aerial deployment** policies

Pole attachment policies

One-touch make-ready (OTMR)

POLE ATTACHMENT POLICIES REGULATE THE PROCESS FOR PROVIDERS TO ATTACH CABLES TO UTILITY POLES

OVERVIEW

Pole attachment policies **address rates, access requests, timelines, procedures to mediate disputes, and other terms and conditions**

For incumbent providers, they influence operational expenses

For new attachers, they are a potential barrier to entry if they make a proposed project economically nonviable, particularly in unserved rural areas

BENEFITS

✓ **Can reduce costs for new deployment**
  - ✓ Jurisdictions can determine streamlined attachment processes and reasonable rates
  - ✓ Work with all interested parties

✓ **Can provide certainty**
  - ✓ Consistent pole attachment policies provide clarity to the market
  - ✓ All relevant entities are able to incorporate the process into their long-term planning

THE FCC REGULATES POLE ATTACHMENTS IN 30 STATES

Section 224 gives the FCC authority to regulate pole attachments, though states can exempt themselves. 20 states and the District of Columbia have done so.[4]

FCC rules do not apply to cooperatives or municipalities.[4]

In 2019, the FCC adopted an OTMR policy that "permit[s] new attachers to elect an OTMR process for simple make-ready for wireline attachments in the 'communications space' on a pole."[5]

Pole attachment policies and OTMR covered in this presentation **apply to states that set their own pole attachment regulations**, as well as any regulations outside of FCC authority.

4. U.S. Code, "Title 47 – Telecommunications" 2020 (link); 5. FCC, DA 19-445, 2019 (link); 5. FCC Public Notice, "DA 19-445" 2019 (link)

FOR POLE ATTACHMENT POLICIES, CONSIDER REGULATORY AUTHORITY AND POLICY APPLICABILITY

Regulatory authority: Jurisdictions need to identify which entity has regulatory authority

- **FCC or quasi-public agencies**

- **Local authority**

- **State agency**

- **Pole owners**

- The Tennessee Valley Authority (TVA) works with the FCC to set rates and other policies for broadband providers to attach to poles owned by local power companies within the TVA system.[6]
- Illinois statutes grant pole attachment authority to local governments and provide specific parameters in which they can operate, such as requiring permitting decisions within 45 days.[7]
- In Idaho, pole owners are in charge of reaching pole attachment agreements with attachers. The state PUC will set rates, terms and conditions, and make-ready costs when the parties cannot reach an agreement.[8]

Applicability: Wherever possible, jurisdictions should consider aligning policies for all pole owners, including municipal and cooperative utilities, and work with these groups to address their specific circumstances and needs

6. The Tennessee Valley Authority, Determination on Regulation of Pole Attachments, "Appendix J" 2016 (link); *see also* TVA, "Appendix L" 2017 (link); 7. Illinois Compiled Statutes, "220 ILCS 5/21-1001" 2009 (link); 8. Idaho Statutes, "Title 61-501" (link)

RISKS & OTHER CONSIDERATIONS FOR POLE ATTACHMENT POLICIES
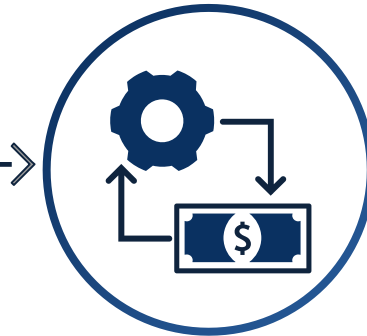
Economic impacts

- Jurisdictions should be aware of the economic impacts of pole attachment policies on pole owners

- Particularly in rural areas, they typically install more poles per customer and have smaller customer bases on average, so rely more on revenue from pole attachment fees

ONE-TOUCH MAKE-READY DESIGNATES CONTRACTORS TO COMPLETE ALL MAKE-READY TASKS AT THE SAME TIME

OVERVIEW

Make-ready is the logistical, technical, and regulatory tasks needed to prepare utility poles for new cables

It can be an arduous, time-consuming process that slows deployment, particularly in underserved areas

An OTMR policy designates one or more contractors to complete all make-ready tasks at the same time rather than have the pole owner and each incumbent provider conduct their own make-ready sequentially

BENEFITS

✓ **Can reduce make-ready costs for new attachers**
  - ✓ The contractor conducts planning and adjusts poles simultaneously

✓ **Can avoid potential complications**
  - ✓ Reduces the number of parties involved
  - ✓ Empowers the contractor to make choices in the community's best interests

✓ **Can support new market entrants**
  - ✓ Without OTMR, logistical challenges and safety concerns can delay new attachers

WHEN DESIGNING OTMR POLICIES, CONSIDER THE DESIGNATED CONTRACTOR AND ADDITIONAL COSTS

OTMR contractors: Jurisdictions or pole owners must determine the appropriate designated entity or entities to conduct the OTMR work

New attacher

Under FCC rules, the new attacher can choose to request OTMR and are responsible for all make-ready work

Designated contractor(s)

The jurisdiction can work with pole owners and incumbent providers to develop a reasonable selection criteria for safety and competence

In 2018, the Hawaii PUC approved a plan for Hawaii Electric, a local electric utility, to take over ownership of roughly 120,000 jointly-owned utility poles from Hawaii Telecom, the state's incumbent local exchange carrier (ILEC). While not officially an OTMR policy, the plan functions similarly in practice, as it removes one entity from the make-ready process in order to make pole management, including new pole attachments, more efficient.[9]

Additional costs: New attachers typically pay make-ready and negotiate additional costs with the relevant parties, such as preexisting safety violations and pole replacement costs

Jurisdictions should be aware that additional cost issues will likely arise

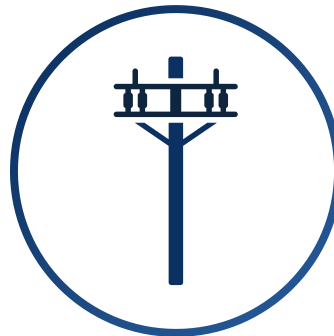9. State of Hawaii Public Utilities Commission, "Decision and order number 35768" 2018 (link)

RISKS & OTHER CONSIDERATIONS FOR OTMR

Safety and access

- For utility poles with multiple existing services, concerns over worker safety and service disruption often delay projects

- Though there is no silver bullet, OTMR can help to avoid long delays

Grid resilience

- The IIJA allocates funding for electric grid resiliency

- OTMR can maximize the impact of resiliency funding, as the designated contractor can more efficiently incorporate pole upgrades

ASSET MAPPING & MANAGEMENT

Geoff Jordan, Supervisory Broadband Program Specialist - Infrastructure Division Chief, Office of Internet Connectivity & Growth, NTIA

ASSET MAPPING & MANAGEMENT

If providers could leverage existing assets rather than install new ones, they could **significantly reduce deployment costs**

However, information on existing assets is often:

- Publicly unavailable
- Scattered across entities and databases
- Outdated, incomplete, or not digitized
- Difficult for others to use due to differing formats, scales, and taxonomies

Asset mapping and management is the process of collecting, organizing, and tracking data on relevant infrastructure assets that can be utilized for broadband deployment

GOVERNMENTS CAN MAP ASSETS TO ACCELERATE BROADBAND DEPLOYMENT

Leverage IIJA funding
More effectively leverage upcoming IIJA funding for broadband and non-broadband projects by **identifying opportunities to share construction costs or combine projects**

Reduce deployment costs
By identifying and mapping assets that providers can leverage, governments can help reduce the cost and length of construction and encourage more private broadband investment by **sharing with or leasing public assets to providers** (e.g., space on water towers for fixed wireless cells)

Streamline permitting
Make it easier for governments to complete permitting tasks and, thus, quicker and more affordable for providers, particularly in unserved and underserved areas

Avoid unintentional damage
Sharing asset mapping data with providers prior to construction can help reduce the risk of damage to existing assets (the "backhoe risk"), which disrupts vital services and creates costly delays

Improve government services
Governments can use asset map data to **strengthen and expand their own broadband networks**, which provide public services, and even grow the tax base, as some broadband assets may be taxable

PROVIDERS CAN LEVERAGE A RANGE OF POTENTIAL BROADBAND ASSETS

Broadband assets	How providers can leverage them
Existing broadband networks	• Access networks through infrastructure sharing arrangements, leases, or indefeasible rights of use (IRUs)
Available conduit/duct systems and dark fiber	• Access excess capacity of dark fiber through leases or IRUs • Run fiberoptic or coaxial cables through existing conduit
Public ROW, including roads and bridges	• Use existing ROW without the need for new easements • Use existing conduit or planned new conduit along roads • Provide wireless antenna support on public structures

Utility infrastructure	• Run fiberoptic or coaxial cables via/through:
	  - Utility pole attachment rights
	  - Existing sewer or storm drain infrastructure
	  - Water or gas distribution ROW

Anchor organizations	• Serve as an area node • Mount wireless antennas, install fiberoptic cable, radio, and other network equipment, and connect to power
Tall infrastructure	• Mount wireless antennas, install radio and other network equipment, and connect to power

Governments can consider **the type and granularity of information to collect**, including:

❑ **Location**

❑ **Ownership**

❑ **Age and condition**

❑ **Utilization of the asset**

❑ **Access constraints**

❑ **Legal constraints**

BUILDING A BETTER AMERICA

GOVERNMENTS CAN CHOOSE FEATURES THAT BEST FIT THEIR NEEDS

An ideal asset mapping system would:

- Have a publicly accessible version that is either free or available at nominal cost

- Be interactive, offer user-friendly query capability, and have downloadable data

- Integrate with other geographic information system (GIS) information, such as broadband access and availability, to create visual overlays

- Offer a companion training guide

- Be updated on a regular basis with data sources and dates tagged, as frequently as feasible as projects are completed
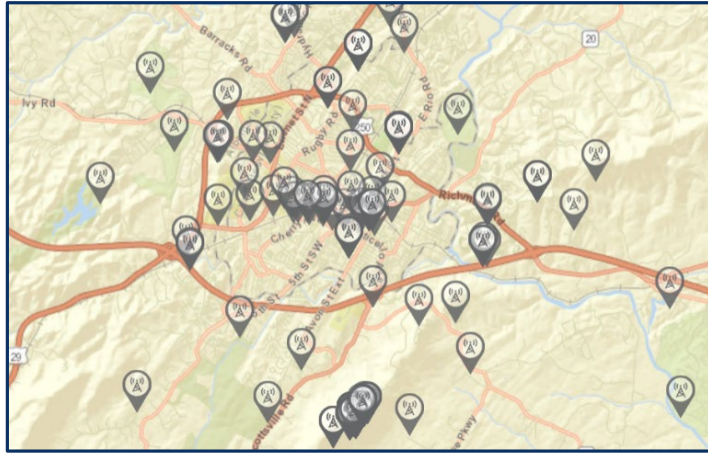
Every asset mapping project is subject to real-world constraints

One option for governments is to build an asset mapping system and capabilities over several projects

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PRESIDENT JOE BIDEN
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ASSET MAPS IN ACTION

Virginia

Boston, MA

Blacksburg, VA
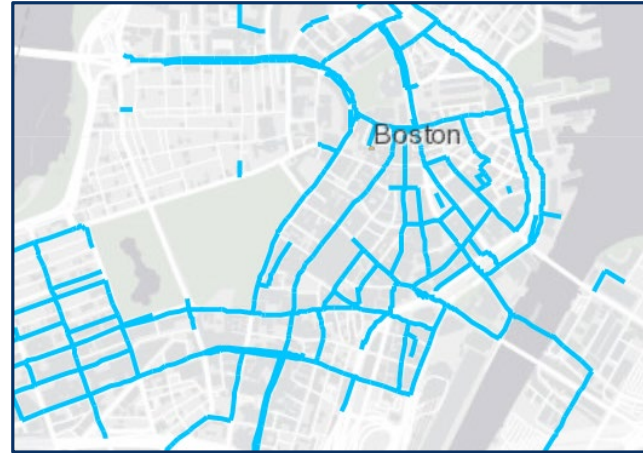

Strengths

✓ Maps location of vertical assets throughout the state
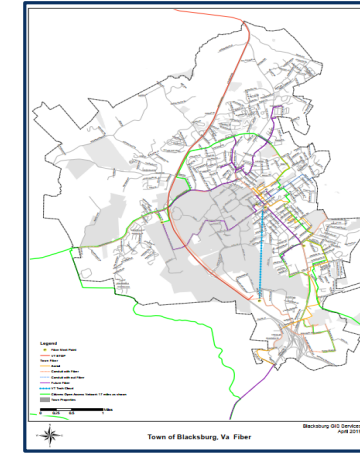✓ Provides coordinates, ownership, structure type, and data source information for each asset[10]

Strengths

✓ Maps shadow conduit owned by the city DoT
✓ Maps vacant properties that could theoretically be used for broadband deployment or other infrastructure[11]

Strengths

✓ Maps aerial and buried fiberoptic cable lines
✓ Includes conduit with and without fiberoptic cable
✓ Includes interconnection points[12]

10. Virginia Tech Center for Geospatial Information Technology, "Vertical Assets" 2021 (link); 11. Boston Shadow and Vacant Properties (link); 12. Town of Blacksburg, VA, "Fiber and Other Assets" 2019 (link)

THE JURISDICTION SHOULD CONSIDER KEY OPERATIONAL ISSUES WHEN PLANNING AN ASSET MAPPING PROJECT

Project Leadership

One office should lead the process. It should:
- Have access to or ownership of public assets
- Leverage existing relationships with relevant partners
- Include data collection, curation, and visualization expertise

Partnerships & project team

The project leader should bring together a project team:
- Find partners who can provide additional resources, knowledge, and connections
- Ensure that they capture all relevant assets
- Create buy-in from government leaders

Data use & access

The project team should decide how to use the resource:
- Determine which information is appropriate to share
  - Consider critical infrastructure security concerns
  - Consider proprietary business data
- Have an internal version and a public version

Data Management

Successful projects involve data management:

Managing the process
- Clearly communicate to stakeholders the ask, costs involved, and the data collection and transfer process
- Listen to stakeholders and adjust processes as needed

Data collection
- Assess the assets already collected, such as GIS data
- Digitize paper records, which usually requires multiple agencies to provide access to the project team
- Tag physical records
- Conduct field measurements

Software
- Share information bi-directionally with stakeholders via data transfer or APIs and support manual queries
- Have cybersecurity, data integrity, and privacy provisions
- Have a system to document the origin of third-party data

Government mapping: Most jurisdictions have GIS capabilities in planning departments but have historically lacked time and resources to map assets beyond roads and some permitted infrastructure

ASSET MAPPING BENEFITS FROM THE PARTICIPATION OF SEVERAL KEY PUBLIC AND PRIVATE SECTOR STAKEHOLDERS

State government

States can map and share data with localities through data exchanges. Key agencies:

- **Department of Transportation (DoT)**
- Higher education institutions
- CIO's office

Data access and sharing can be difficult when multiple agencies manage multiple databases

County & local government

Asset mapping occurs most frequently at the county and local level. Key agencies:

- **Planning, GIS and public works**
- County assessors
- Public safety agencies

Counties and localities may also own physical assets (e.g., towers, power, buildings) that providers can leverage

Dedicated broadband offices

Broadband offices within all levels of government are crucial partners and potential data users

One key role is to **assist grantees** in accessing asset map data and information on deployed assets

Providers

Telecoms and cable providers, cooperatives, and municipalities map their assets. Key roles:

- **Partner** with governments
- **Use asset maps** to identify assets to leverage
- **Share/lease** assets with/to other providers

Some providers view their data and assets as proprietary and are less likely to share data

Third-party asset owners

Potential asset owners are in energy, agriculture, healthcare, education, and others. Key roles:

- **Reach agreements** with providers to share or lease assets where feasible
- **Partner with governments** to provide data

Potential assets: siloes, grain elevators, steeples, utility poles, microgrids, clocktowers, and land

ADDITIONAL FEDERAL RESOURCES FOR ASSET MAPPING

The Homeland Infrastructure Foundation-Level Data (HIFLD) is a catalog of public domain geospatial data for telecommunications and other infrastructure run by the Department of Homeland Security (DHS) (link).

811 is a nationwide "call before you dig" number for contractors and anyone preparing to excavate. It is a central clearinghouse for information on underground assets (link).

Want to learn more?

To stay up to date on the latest available information, including Notices of Funding Opportunity when released, visit our website.

ntia.gov
broadbandusa.ntia.gov

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QUESTIONS & ANSWERS

To ask questions about IIJA broadband programs or provide additional feedback:

BroadbandForAll@ntia.gov

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Please join us for our upcoming broadband program public virtual webinars!

April 27, 2022
May 11, 2022

For more information about upcoming sessions:
https://broadbandusa.ntia.doc.gov/events/latest-events

THANK YOU FOR JOINING TODAY'S SESSION