

Broadband Deployment and Federal Highway Right-of-Way (ROW)

Background

Tens of millions of Americans across the country live in both rural and urban areas without access to high-quality broadband. The number of Americans living in areas without access to at least 25/3 Mbps (the benchmark for adequate access) has dropped to below 15 million Americans, but that number is unacceptably high as more and more services – from online learning, government benefits, and telehealth – move to a virtual platform.

According to the Government Accounting Office, despite federal efforts to increase broadband access on Tribal lands, at least 18% of people living in these areas still can't access broadband service, compared to 4% of people in non-Tribal areas. The disparity is bigger in rural areas, where about 30% of people who live on Tribal lands do not have broadband access, compared to 14% who live in non-Tribal areas.

In 2021, Congress sought to help close this digital divide by providing more than \$42 billion in federal funds—as a part of the Infrastructure Investment and Jobs Act (IIJA)—to spur greater broadband deployment.

This investment led to the [Broadband Equity, Access, and Deployment \(BEAD\) Program](#) supporting the construction and deployment of broadband networks. BEAD prioritizes unserved locations with limited or no internet access.

In more densely populated areas, burying fiber optic cables in the roadway is common practice. As planners focus on broadband deployment in more remote places, the ability to site fiber infrastructure within existing rights-of-way (ROW) of controlled-access highways presents an opportunity to support expanded broadband access while, at the same time, preparing for the connected and automated future of transportation.

The Federal government recognizes that the ROW is an invaluable asset that can help modernize U.S. infrastructure. The Federal Highway Administration (FHWA) released guidance in April 2021 encouraging the use of highway ROW for broadband deployment. In December 2021, following the passage of the IIJA, the FHWA issued a memo highlighting a priority to “future-proof our transportation infrastructure by accommodating new and emerging technologies like electric vehicle charging stations, renewable energy generation, and broadband deployment in transportation rights-of-way.”

The extensive experience and best practices governing locating fiber optic cables in the roadway and, in some places, in the existing highway ROW provides a foundation for co-locating transmission cables in the future.

Case Studies: federal and state partnerships in North Carolina and Pennsylvania

NORTH CAROLINA

The North Carolina Department of Transportation (NCDOT) received a federal Rebuilding America (INFRA) grant to help the state make needed improvements along Interstate 95, upgrade U.S. 70 to Interstate 42, and install 300 miles of fiber optic cable along both highways to expand access to broadband and telecommunication access.

Fiber optic cable will be installed in the ROW in each highway corridor including the 181-mile border-to-border span of I-95 and traverse the length of the future I-42. The cable will be coupled with microcell towers and Intelligent Transportation Systems (ITS) equipment to provide variable message signs along I-42 and implement integrated corridor management.

Project benefits include:

- Creating a fiber backbone for NCDOT’s current and future technology needs.
- Expanding universal access to broadband infrastructure across the state.
- Providing the groundwork for the future of autonomous vehicles.
- Provide variable message signs and implement integrated corridor management.

PENNSYLVANIA

The Pennsylvania Turnpike Commission's (PTC) Fiber Project is a 220-mile underground fiber optic network along the Pennsylvania Turnpike to enhance its communications capacity. The broadband network will increase bandwidth and boost connectivity between the PTC's administrative buildings and support automated tolling capabilities, among other advanced telecommunications applications for improved safety and mobility.

The Project is at the eastern part of the mainline PA Turnpike, from the Harrisburg East Interchange (I-76 and I-276) to the Delaware River Bridge (I-95), and the entire Northeastern Extension (I-476) starting from the Mid-County Interchange to the Clarks Summit Interchange.

Project benefits include:

- Extending broadband to underserved areas and helping generate non-toll revenue through a unique partnership with the private sector.
- Establishing an open access network with significant capacity and reach.
- Enhance DOT's communications capacity between the PTC's administrative buildings and support automated tolling capabilities and other applications.

Both the North Carolina and Pennsylvania projects are helping bridge the digital divide, as well as provide the advanced communications capability needed to support a modern highway with electric, connected and automated vehicles. Using federal funds, state DOTs have an opportunity to follow suit, extracting greater value from the ROW.

Sources

- Congressional Research Service: [The Broadband Digital Divide: What Comes Next for Congress?](#)
- Government Accountability Office: [Broadband: National Strategy Needed to Guide Federal Efforts to Reduce Digital Divide](#)
- US DOT Federal Highway Association: [State DOTs Leveraging Alternative Uses of the Highway Right-of-Way Guidance](#)
- US DOT Federal Highway Association: [Information: Policy on Using Bipartisan Infrastructure Law Resources to Build a Better America](#)
- [North Carolina INFRA Grant Application](#)

- [Fiber Optic Network Will Boost Connectivity, Support Safety, and Mobility Along our Roadway](#)

About NextGen Highways

The NextGen Highways is a collaborative initiative promoting the use of highways and other existing rights-of-way as infrastructure corridors where electric and communications infrastructure are strategically and safely co-located in existing highway right-of-way. Learn more at <http://www.NextGenHighways.org>