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Dig Once: How Federal, State, and Local Governments Can Reduce the Cost of Broadband Deployment

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Introduction

Today, millions of Americans struggle to access affordable, high-speed internet. A key reason is lack of infrastructure: Fiber-optic cables, the technology most capable of supporting fast upload and download speeds, pass only half of American homes.[1] In some cases, internet service providers (ISPs) can install new fiber-optic cables aerially on utility poles.[2] But in most cases, ISPs choose to serve an area by installing cables underground. Digging up roads and repairing them accounts for 75-90% of the cost of laying fiber-optic cables in conduit underground.[3] Minimizing this cost can go a long way toward universal access to high-speed internet.

The idea of Dig Once is one straightforward solution to reduce this gap: Whenever a government digs up a road for any reason (e.g., construction, maintenance), without existing fiber nearby, it should also install infrastructure capable of housing fiber-optic cables (conduit) for broadband. Conduit is usually a plastic pipe, which is relatively inexpensive and durable, often lasting over 50 years.[4] That way, if an ISP wants to build a broadband network alongside that road in the future, they don't need to re-dig up the entire road to do so. Instead, they can just pull fiber through existing conduit, which is significantly cheaper. The policy also provides other benefits, like reduced disruption from incremental road excavation and repair.[5]

Given the cost savings and efficiencies, many have long supported Dig Once, including:

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[1] FIBER BROADBAND ASS'N & RVA LLC, THE STATE OF THE NORTH AMERICAN FIBER DEPLOYMENT 11 (2025), https://fiberbroadband.org/wp-content/uploads/2025/01/24.rva_.fba_.FiberDeployment250114.pdf.

[2] Aerial deployments are typically cheaper, but most providers rely on at least some underground deployments because they are "more resilient and better protected against accidental damage and adverse weather events." *See* FIBER BROADBAND ASS'N & CARTESIAN, FIBER DEPLOYMENT ANNUAL REPORT 13 (2024), https://fiberbroadband.org/wp-content/uploads/2024/01/Fiber-Deployment-Annual-Report-2023_FBA-and-Cartesian.pdf. Note, aerial attachments also present their own challenges, which are beyond the scope of this white paper. *See* Jake Varn, *Broadband Expansion May Hinge on States' Processes for Attaching Lines to Utility Poles*, PEW RSCH CTR. (Mar. 12, 2025), https://www.pew.org/en/research-and-analysis/issue-briefs/2025/03/broadband-expansion-may-hinge-on-states-processes-for-attaching-lines-to-utility-poles.

[3] *See* FHWA OFF. OF TRANSP. POL'Y STUDS., POLICY BRIEF: MINIMIZING EXCAVATION THROUGH COORDINATION (2013).

[4] DURALINE, DIG ONCE BEST PRACTICES OVERVIEW 16 (2020), https://www.duraline.com/about-us/news/dig-once-best-practices.

[5] Peyton Siler Jones et al., *Municipal Dig Once Policies for Resilient Communities*, NAT'L LEAGUE OF CITIES, 2 (2023), https://www.nlc.org/resource/municipal-dig-once-policies-for-resilient-communities/.

- the last three Presidential administrations;[6]
- the U.S. National Broadband Plan;[7]
- U.S. recommendations to developing countries;[8]
- hundreds of federal, state, and local lawmakers from both parties;[9]
- a congressional caucus;[10]
- companies; [11]
- trade associations;[12]

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[6] *See* Accelerating Broadband Infrastructure Deployment, Exec. Ord. 13616, 77 Fed. Reg. 36903 (2012) (President Obama); Press Release, *President Signs MOBILE NOW Act, Other Key Technology Bills into Law*, S. COMM. ON COM., SCI., & TRANSP. (Mar. 23, 2018), https://www.commerce.senate.gov/2018/3/president-signs-mobile-now-act-other-key-technology-bills-into-law (President Trump); *FACT SHEET: The Biden-Harris Administration Announces Action Plan to Accelerate Infrastructure*, THE WHITE HOUSE (Oct. 13, 2022), https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2022/10/13/fact-sheet-the-biden-harris-administration-announces-action-plan-to-accelerate-infrastructure (President Biden).

[7] FED. COMMC'N COMM'N, NATIONAL BROADBAND PLAN 109 (2010), https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf.

[8] *Digital GAP Act*, H.R. 1359, 116th Cong. (2019) (Passed by the House on April 9, 2019); *see also* WORLD ECON. F., DIG ONCE FOR DIGITAL INFRASTRUCTURE: BENCHMARK REPORT (2021).

[9] *See, e.g.*, *Broadband Conduit Deployment Act* (hereinafter *BCDA*), H.R. 3805, 114th Cong. (2015) (56 cosponsors); *Moving Forward Act*, H.R. 2, 116th Cong. § 1603 (2020) (233 votes in favor); *see also* Team Warren, *My Plan to Invest in Rural America*, MEDIUM (Aug. 7, 2019), https://medium.com/@teamwarren/my-plan-to-invest-in-rural-america-94e3a80d88aa; *McMorris Rodgers, Wicker Call for Streamlined Permitting Process for BEAD Program*, H. COMM. ON ENERGY & COM. (Sep. 30, 2022), https://energycommerce.house.gov/posts/mc-morris-rodgers-wicker-call-for-streamlined-permitting-process-for-bead-program.

[10] New Democrat Coal., *Letter Requesting Appropriations Language That Directs Agencies to Establish a Dig Once Policy* (2025), https://newdemocratcoalition.house.gov/imo/media/doc/dig_once_letter.pdf.

[11] *See, e.g.*, Staci Pies, *Dig Once, Gain Broadband Later*, GOOGLE PUB. POL'Y BLOG (Oct. 27, 2015), https://publicpolicy.googleblog.com/2015/10/dig-once-gain-broadband-later.html.

[12] *ITI Urges Senate Panel to Approve 'Dig Once' Proposal to Expand Universal Internet Access*, INFO. TECH. INDUS. COUNCIL (Mar. 2, 2016), https://www.itic.org/news-events/news-releases/iti-urges-senate-panel-to-approve-dig-once-proposal-to-expand-universal-internet-access; Sally Aman, *Dig Once: A Solution for Rural Broadband*, USTELECOM (Apr. 12, 2017), https://ustelecom.org/dig-once-a-solution-for-rural-broadband/; Gary Shapiro, *Comments of Consumer Technology Association (Re: Broadband Infrastructure Deployment NPRM Docket No. FHWA–2019–0037)*, (2020), https://www.regulations.gov/comment/FHWA-2019-0037-0016; Andrew Mincheff & Christopher L. Shipley, *Comments of INCOMPAS (Re: Broadband Infrastructure Deployment NPRM Docket No. FHWA–2019–0037)*, (2020), https://www.regulations.gov/comment/FHWA-2019-0037-0031; *Fiber Broadband Association Advises Outdated Permitting Policies Are Slowing Broadband Deployments*, FIBER BROADBAND ASS'N (Sep. 24, 2025), https://fiberbroadband.org/2025/09/24/fiber-broadband-association-advises-outdated-permitting-policies-are-slowing-broadband-deployments/.

- technical bodies;[13]
- left-, centrist-, and right- leaning civil society organizations;[14] and
- academics.[15]

Yet, while Dig Once is broadly popular, many state departments of transportation (DOTs) and ISPs have failed to actually "dig once."[16] Many states and municipalities — as well as the federal government — have only created a notification process (what we call "weak" Dig Once policies). These "weak" policies just require a government agency to notify telecommunications providers of a planned road construction or maintenance project (or to publish projects on a public website). Should the service provider want to install their own conduit during the open trenching period, the state DOT must provide them with the opportunity to do so.

The problem with "weak" Dig Once policies is that ISPs' infrastructure plans rarely match up neatly with governments' independent needs to construct roads or tear up old ones. This dynamic is especially true of "middle-mile" and "backhaul" networks that exist solely to interconnect "last mile" networks that directly connect to households and businesses. Thus, many ISPs may not take advantage of the opportunity to install conduit. While a disjointed road project may not have immediate benefit to an ISP's existing network, as the ISP grows, it may want conduit access along that roadway in the future.

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[13] *See, e.g.*, IEEE-USA, *Dig Once*, (June 23, 2017), https://globalpolicy.ieee.org/wp-content/uploads/2017/10/IEEE17022.pdf; *Policy Statement 564 - Broadband*, AM. SOC'Y OF CIVIL ENG'RS (Mar. 28, 2025), https://www.asce.org/advocacy/policy-statements/ps564---broadband.

[14] *See, e.g.*, *"Dig Once" Could Lead to Smarter Broadband*, R ST. INST., https://www.rstreet.org/commentary/dig-once-could-lead-to-smarter-broadband/ (last visited Oct. 28, 2025); *'Dig Once' & Rights of Way Key to 21st Century Broadband*, TECHFREEDOM (Mar. 21, 2017), https://techfreedom.org/dig-once-rights-of-way-key-to-21st-century; Shiva Stella, *Public Knowledge Commends Rep. Eshoo for Bipartisan Bills to Close Digital Divide*, PUB. KNOWLEDGE (Jan. 19, 2018), https://publicknowledge.org/public-knowledge-commends-rep-eshoo-for-bipartisan-bills-to-close-digital-divide/; Aaron Klein, *Four Ways to Make Wiser Infrastructure Investments*, BROOKINGS INST. (July 25, 2018), https://www.brookings.edu/articles/four-ways-to-make-wiser-infrastructure-investments/; Alexander Laska et al., *Build Back Better: Investing in Clean Infrastructure to Drive Economic Recovery*, THIRD WAY (May 7, 2020), https://www.thirdway.org/memo/building-back-better-investing-in-clean-infrastructure-to-drive-economic-recovery; *OTI Praises 'Historic' Vote on Broadband Infrastructure Bill*, NEW AM. OPEN TECH. INST. (Jul. 1, 2020), http://newamerica.org/oti/press-releases/oti-praises-historic-vote-on-broadband-infrastructure-bill.

[15] SUSAN CRAWFORD, FIBER: THE COMING TECH REVOLUTION—AND WHY AMERICA MIGHT MISS IT 208 (2018).

[16] *See* Jill Springer, *Important Ideas to Streamline Broadband Permitting and Support Internet for All Deployments*, NAT'L TELCOMM. AND INFO. ADMIN. (July 11, 2024), https://www.ntia.gov/blog/2024/important-ideas-streamline-broadband-permitting-and-support-internet-all-deployments.

In contrast, a few U.S. jurisdictions require highway projects to install conduit (what we call "strong" Dig Once policies). These "strong" policies require state governments to fund and install conduits during road construction.[17] The government entity then owns the conduit, providing access to ISPs who want to install fiber upon request. The six states that require conduit installations represent only 22% of the population and 13% of the land area of the country.[18] Some cities, counties, and Tribes have passed their own similar requirements.

Now is an important time to revisit Dig Once policies for two reasons. First, in 2021, Congress passed the Infrastructure Investment and Jobs Act (IIJA), creating a $42.45 billion Broadband Equity Access and Deployment (BEAD) program.[19] After several years of planning, states across the country are just now beginning to use those federal funds to fund new broadband infrastructure.[20]

This BEAD funding was intended to primarily fund new fiber deployments. If that had happened as intended, new Dig Once policies would have limited effect.[21] However, the Trump Administration is increasing priority on fixed wireless and satellite internet solutions and significantly downsizing the overall program (to potentially as low as $21 billion). Post-BEAD, commentators predict that millions of locations will still lack high-

[17] Often subject to reasonable exceptions (e.g., where as a matter of engineering it may not make sense to bury conduits).
[18] See *infra* § II.B.
[19] Infrastructure Investment and Jobs Act (hereinafter IIJA), Pub. L. No. 117-58, div. F (Broadband) § 60102, 135 Stat. 1182.
[20] BroadbandUSA, Press Release, *NTIA Announces Approval of 18 BEAD Final Proposals*, NAT'L TELECOMM. AND INFO. ADMIN. (Nov. 18, 2025), https://broadbandusa.ntia.gov/news/latest-news/ntia-announces-approval-18-bead-final-proposals.
[21] *See* Doug Dawson, *Reducing Construction Barriers*, POTS AND PANS (June 16, 2022), https://potsandpansbyccg.com/2022/06/16/reducing-construction-barriers ("This policy might have made a difference for the current grants if it was implemented twenty years ago, but implementing dig-once now would have very little impact on building BEAD grants if the requirement went into place tomorrow.").

speed internet access.[22] Congress already has renewed its attention to reducing broadband deployment barriers.[23]

Second, every few years, Congress reauthorizes its federal surface transportation programs. It most recently did so as part of IIJA in 2021, reauthorizing key programs through the end of fiscal year 2026 (September 30, 2026).[24] The administration and congressional committees of jurisdiction have started discussing reauthorization legislation,[25] providing a unique opportunity to strengthen federal Dig Once policies.

Thus, Dig Once policies may be important for ensuring that un- and under-served communities have a feasible path to fiber availability in the future. As Congress considers surface transportation reauthorization in 2026, it should impose a "strong" Dig Once policy required for all federally funded road construction. Separately, states and local governments should also take a proactive approach and pass stronger Dig Once laws of their own. They can also take a proactive role, passing stronger laws of their own, which can go further by tying Dig Once requirements to state funded road construction and state implementations of federally funded road construction.

I. Conduit in Context

First, it is worth explaining what conduit is, how it works, and why it significantly reduces the costs of fiber-optic cable deployment for facilitating broadband access.

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[22] *See, e.g.*, Alex Karras & Michael Santorelli, *One Million Locations Might Remain Unserved Post-BEAD. Leftover Funds Should be Used to Connect Them.*, BROADBAND EXPANDED (Oct. 23, 2025), https://broadbandexpanded.com/posts/unservedafterbead (estimating 1 million unserved locations); Doug Dawson, *Missed by Bead*, POTS AND PANS (Nov. 3, 2025), https://potsandpansbyccg.com/2025/11/03/missed-by-bead; Skip Descant, *Despite BEAD, Bad Internet May Persist in Rural Areas*, GOV'T TECH (Oct. 6, 2025), https://www.govtech.com/network/despite-bead-bad-internet-may-persist-in-rural-areas.

[23] *See e.g.*, *C&T Subcommittee: Markup of 28 Bills to Streamline Broadband Permitting*, H. COMM. ON ENERGY & COM. (Nov. 18, 2025), https://energycommerce.house.gov/events/c-and-t-subcommittee-markup-of-28-bills-to-streamline-broadband-permitting.

[24] IIJA, *supra* note 19, at div. A (Surface Transportation Reauthorization Act of 2021) § 11101.

[25] *Surface Transportation Reauthorization*, H. COMM. ON TRANSP. & INFRASTRUCTURE, https://transportation.house.gov/surface-transportation-reauthorization (last visited Dec. 10, 2025); Press Release, *U.S. Transportation Secretary Sean P. Duffy Kicks Off Surface Transportation Reauthorization to Get America Building Again*, U.S. DEP'T OF TRANSP. (July 17, 2025), https://www.transportation.gov/briefing-room/us-transportation-secretary-sean-p-duffy-kicks-surface-transportation-reauthorization.

A. The Technology

The 'internet' is a series of interconnected networks.[26] Fiber-optic cables — which are thin strands of stretched glass that transmit information in the form of flashes of light — make up a vast portion of these networks (e.g., middle-mile, backhaul, and core). A single strand of fiber is around 125 microns, or one-eight of a millimeter (mm), in diameter.[27] The number of fibers in a cable ranges from one going to a home to hundreds in a backbone cable to thousands for data centers.

While the country has thousands of miles of middle-mile, backhaul, and core fiber networks, a strong need still exists for more of this type of infrastructure. In fact, many commentators believe that inadequate middle-mile fiber infrastructure is currently limiting investment in downstream last-mile fiber infrastructure. As one datapoint, the federal government established a $1 billion program to fund new middle-mile networks. This program will fund 12,000 miles of new network. However, the program received demand from aspiring grantees for approximately $7.5 billion of projects.[28]

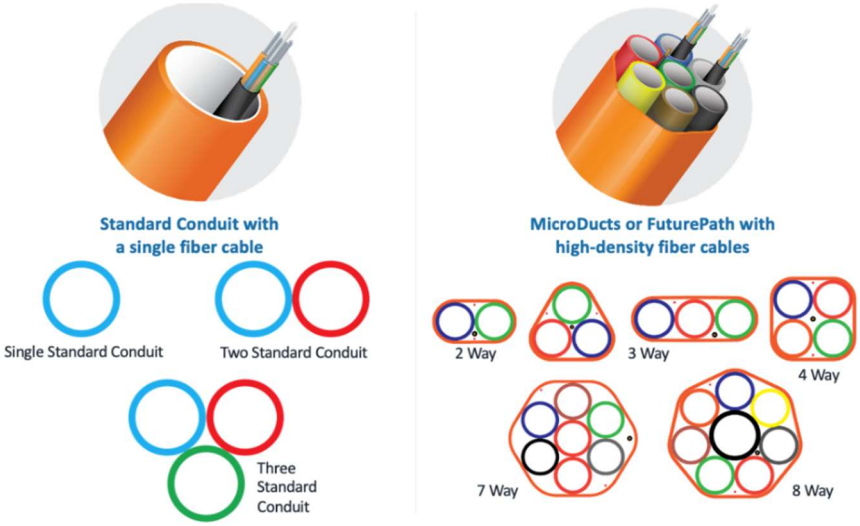
For last-mile networks (i.e., the part of the network that directly connects a household to the internet), fiber is also considered the "gold standard" technology of choice because of its superior quality (i.e., speed, latency, total capacity, resilience) for end-users.[29] As of the end of last year, fiber connections passed 76.5 million homes (fiber passings) — or about 52% of U.S. households overall, with lower rates for urban low-income areas (40%) and rural areas (47%).[30] While a few federal policymakers have become more ambivalent about whether publicly funded broadband should

[26] For a detailed breakdown, see Tejas N. Narechania & Erik Stallman, *Internet Federalism*, 34 HARV. J. L. & TECH. 547, 558–72 (2021) (describing the internet's architecture).
[27] CRAWFORD, *supra* note 15, at 26. For comparison, human hair ranges from 17 to 181 microns in diameter. Brian Ley, *Diameter of a Human Hair*, THE PHYSICS FACTBOOK (1999), https://hypertextbook.com/facts/1999/BrianLey.shtml.
[28] *See* Press Release, *Biden-Harris Administration Announces $930 Million to Expand and Strengthen America's High-Speed Internet Networks as Part of the Investing in America Agenda*, NAT'L TELCOMM. AND INFO. ADMIN. (Jun. 16, 2023), https://www.ntia.gov/press-release/2023/biden-harris-administration-announces-930-million-expand-and-strengthen-america-s-high-speed.
[29] Cierra Noffke, *Want a Fiber Internet Connection? Read This First*, CNET (July 2025), https://www.cnet.com/home/internet/fiber-internet-explained/.
[30] FIBER BROADBAND ASS'N & RVA LLC, *supra* note 1, at 11.

preference fiber over other technologies,[31] private and public ISPs have continued deploying fiber-to-the-home (FTTH) at a quick pace.

To protect these fiber strands from the elements, bunches of fiber strands (each encased in buffer tubes) are housed in conduit made up of a durable plastic, high-density polyethylene (HDPE). Larger conduits, especially legacy ones previously used for thicker coaxial cables, are often subdivided by microducts or innerducts. Conduit also ranges — MicroDucts and innerducts can be as small as just a few mm while backhaul and core conduits can be 40 or 50 mm in diameter. Figure 1 illustrates a range of conduit types from one vender.[32]

Figure 1. Illustrative Diagrams of Broadband Conduit Types



B. The Economics

The cost to install fiber underground without existing infrastructure can be quite costly, ranging from $50,000-150,000.[33] Where conduit is pre-installed, the cost of installing broadband infrastructure drops precipitously. Approximately 75-90% of the cost of

[31] Grace Dille, *Sen. Fischer Criticizes BEAD Program Changes, Calls for Flexibility in Broadband Plans*, MERITALK (Oct. 24, 2025), https://meritalk.com/articles/sen-fischer-criticizes-bead-program-changes-calls-for-flexibility-in-broadband-plans/.
[32] DURALINE, *supra* note 4, at 16.
[33] FIBER BROADBAND ASS'N & CARTESIAN, *supra* note 2, at 13.

deploying broadband infrastructure is the cost of digging up and repairing roads.[34] So reducing this cost can make it easier to connect households and businesses.

The primary driver of underground deployment is labor. This cost item is of particular concern as labor costs across the industry are increasing. By digging once, future ISPs can benefit from the work of existing highway developers that was already going to happen. Installing conduit includes a number of costs with varying estimates:

- Conduit to warehouse fiber cables. The approximate nominal retail price of 1.25-inch HDPE conduit is just under $1 per foot (or approximately $5,230 per mile).[35] A typical Dig Once project might include three or four conduit pipes to enable access for multiple network providers.
- Vaults to access the conduit and pull fiber through it in the future. The approximate cost for a single vault is $1,000 to $2,000.[36] Vaults should be placed at set intervals across the conduit route for ease of access. These intervals will be smaller for last-mile networks serving denser urban areas (e.g., every 600 feet[37]) than for middle-mile or backhaul networks which have fewer connections (e.g., every 2,500+ feet[38]). This works out to approximately $0.40 to $3.33 per foot.

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[34] *See id.* at 14; FED. COMMC'N COMM'N, *supra* note 7, at 114 (estimates three-fourths of the cost); CRAWFORD, *supra* note 15, at 7 (estimates 80%); Fed. Highway Admin., Off. of Pol'y and Governmental Affs., *Executive Order: Accelerating Broadband Infrastructure Deployment, USDOT-FHWA Background Paper and Work Plan Strategy*, DEPARTMENT OF TRANSPORTATION, 16 (2012), https://www.fhwa.dot.gov/policy/otps/workplan.pdf (estimates 90%); CTC TECH. & ENERGY, TECHNICAL GUIDE TO DIG ONCE POLICIES 3 (2017), https://www.ctcnet.us/wp-content/uploads/2017/05/CTC-White-Paper-Dig-Once-20170414.pdf (estimates 80%).

[35] *HDPE (High Density Polyethylene) - 1-1/4 in; - 2 Ft - Pipe*, THE HOME DEPOT, https://www.homedepot.com/b/Plumbing-Pipe-Fittings-Pipe/HDPE-High-Density-Polyethylene/1-1-4/2-ft/N-5yc1vZ1z18i34Z1z10ytmZ1z182wxZ1z1b35y?NCNI-5 (last visited Nov. 1, 2025) ($1.98 for 2 feet); BroadbandUSA, *Costs At-a-Glance: Fiber and Wireless Networks*, NAT'L TELECOMM. AND INFO. ADMIN. (2017), https://broadbandusa.ntia.gov/sites/default/files/publication-pdfs/bbusa_costs_at_glance_networks.pdf ($0.55 to $2.00 per foot).

[36] BroadbandUSA, *supra* note 35; *see also 30x48x36 Polymer Concrete Tier 22 Handhole Vault*, TELECOM SPECIALTIES, https://telecomspecialties.com/products/30x48x36-polymer-concrete-tier-22-handhole-vault?variant=43479256563866 (last visited Nov. 1, 2025) ($1,100 per vault).

[37] *See, e.g.*, STEPHEN A. BLUM, TELLUS VENTURE ASSOC., CITY OF SOUTH SAN FRANCISCO BROADBAND POLICY OPTIONS 21 (2018), https://www.tellusventure.com/downloads/bank/south_san_francisco_broadband_policy_3oct2018.pdf.

[38] *See, e.g.*, BUREAU OF LAND MGMT., ENVIRONMENTAL ASSESSMENT: ZAYO PRINEVILLE-RENO FIBER-OPTIC PROJECT 2-4 (2022), https://broadbandusa.ntia.gov/sites/default/files/2023-10/Zayo_Fiber_EA_508.pdf (every 2,500-

- Additional labor costs to dig deeper or wider to accommodate new conduit. Construction crews may need to modify their original design plans to minimize the risk that future highway work damages conduit.[39] The cost will inevitably vary based on local labor costs, as well as the extent of additional work required.[40]

In total, approximate total costs for functional conduit installation can range from $25,000 to $95,000 per mile.[41] While the incremental costs of installing conduit are not insignificant, relative to even the low-end estimate of road construction for adding a lane, this cost would still represent approximately 10% of construction costs.[42] Once installed, conduit is a long-term investment. It is long-lasting and durable. Conduit made of HDPE can last 50 years or more.[43] This is a much longer lifecycle than current private industry broadband investment forecasts, which are often as few as five years.[44]

3,500 feet); BUREAU OF LAND MGMT., ENVIRONMENTAL ASSESSMENT / INITIAL STUDY MITIGATED NEGATIVE DECLARATION: DIGITAL 299 BROADBAND PROJECT 12 (2020), https://eplanning.blm.gov/public_projects/2017155/200507532/20070464/250076646/D299_Final_EA_20221018_508.pdf (every 2,500 feet).

[39] *See* Doug Dawson, *Dig Once Rulings Coming*, POTS AND PANS (Mar. 22, 2018), https://potsandpansbyccg.com/2018/03/22/dig-once-rules-coming.

[40] CTC TECH. & ENERGY, DIG-ONCE SPECIFICATION 15 (2015), https://www.tellusventure.com/downloads/bank/ctc_dig_once_spec_ccsf_apr2015.pdf (estimating $7.93 and $17.13 per foot)

[41] *See* CTC TECH. & ENERGY, *supra* note 34, at 12 ($95,400 for Arlington County); CITY & COUNTY OF SAN FRANCISCO, CONNECTIVITY PLAN 113 (2015), https://www.sfgov.org/lafco/sites/default/files/FileCenter/Documents/52279-3%20City%20and%20County%20of%20San%20Francisco%20%28February%202015%29%20Connectivity%20Plan.pdf ($95,000); FTTH COUNCIL AMERICAS, DIG SMART: BEST PRACTICES FOR CITIES AND STATES ADOPTING DIG ONCE POLICIES 8 (last accessed on Nov. 20, 2025), https://www.ncbroadband.gov/documents/playbook/nc-broadband-playbook-dig-once-policy-best-practices/download?attachment ($25,000).

[42] Compass International Inc., *Order of Magnitude Road and Highway Costs | Compass International*, THE GLOB. CONSTR. NEWSLETTER (2023), https://compassinternational.net/order-magnitude-road-highway-costs/ (range from $1.43M per mile for the addition of a 12' lane in the Midwest U.S. to $71.33M per mile for an elevated urban major freeway in the Southeast U.S.); *see also* Lane Freeway & Lane Ramp, *Estimated Costs per Mile*, ARK. DEP'T OF TRANSP. (2020), https://www.ardot.gov/wp-content/uploads/2021/11/2020-CPM.pdf (range from $2.75M per mile for 2 lane collector in rural-other to $13M per mile for a 4-lane freeway in rural-mountains).

[43] DURALINE, *supra* note 4, at 16.

[44] FIBER BROADBAND ASS'N & RVA LLC, *supra* note 1, at 15.

The tradeoff of a strong Dig Once policy is that government-owned conduit may be sparsely used or not used at all.[45] In such case, the government has invested additional resources to install unnecessary infrastructure. While "overbuilding" of broadband infrastructure has long been a concern for some, the argument is least salient in the case of conduit, which is inexpensive relative to broadband infrastructure deployment and road construction, especially given the need for more fiber in the future.[46]

To make government-installed conduit most useful, conduit should be made accessible through mandated access points.[47] Absent such points, it will be costly and difficult for service providers to identify where the buried conduit is located. Maps of where conduit exists could be made securely available to ISPs and relevant parties.[48]

C. The Opportunity

Today, America has 4.2 million miles of public roads with 4% owned by a federal agency, 20% owned by states, 32% owned by towns and municipalities, and 42% owned by counties.[49] However, one-quarter of the roads by mile are part of the federal-aid highway program, through which the federal government provides funds, with conditions, to states for highway construction. Compare these numbers to industry reports that suggest that 1.3 million miles of FTTH exist today, which is expected to double by 2029.[50]

While figures for net new road construction are less available, one reason a strong Dig Once policy is compelling now is the strong need for road construction and

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[45] Susan Fleming, *Planning and Flexibility Are Key to Effectively Deploying Broadband Conduit through Federal Highway Projects*, GOV'T ACCOUNTABILITY OFF., 4 (2012), https://www.gao.gov/assets/gao-12-687r.pdf.
[46] In light of increasing data center demand, some studies forecast that the U.S. will need 92,355 route miles more of infrastructure by 2029. *See* FIBER BROADBAND ASS'N & RVA LLC, THE UNDERAPPRECIATED NEED TO ENABLE AI AND DATA CENTER GROWTH 10 (2025),https://fiberbroadband.org/wp-content/uploads/2025/07/FBA-103_AI_Datacenter_WhitePaper_lv6.pdf.
[47] *See* Doug Dawson, *Effective Dig Once Policies*, POTS AND PANS (Mar. 20, 2025), https://potsandpansbyccg.com/2025/03/20/effective-dig-once-policies.
[48] *See, e.g.*, City of Mesa Conduit, CITY OF MESA ENG'R DEP'T (last accessed on Nov. 20, 2025), https://gis.mesaaz.gov/engineering/conduit.
[49] The final 2% is "other". Calculations based on data from FED. HIGHWAY ADMIN., HIGHWAY STATISTICS SERIES - HIGHWAY STATISTICS 2023 - TABLE HM-16 (2025), https://www.fhwa.dot.gov/policyinformation/statistics/2023/hm16.cfm.
[50] *Id.* at 15.

maintenance.[51] According to the Brookings Institution, 36% of locally owned roadway miles and 39% of major roads are in poor condition and will need repair at some point in the future.[52] In 2021, Congress, through the IIJA, allocated over $110 billion to do so (in addition to allocating another $42 billion for new broadband infrastructure).[53] This is on top of the $200 billion that state and local governments already spend on average per year.[54] As McKinsey has described, state Dig Once policies could help this infrastructure money go further and save states significant money in the future.[55]

II. History and State of Dig Once

The idea of collocating communication networks with transportation corridors is not unorthodox. In fact, the practice dates all the way back to the nation's founding.

- The founders considered the roads used by the post office (postal roads) important enough to specifically reference them in the Constitution.[56] Congress later subsidized stagecoaches and their roads through expansion of postal roads.[57] The Federal Aid Road Act of 1916 (and subsequent federal highway

[51] It is true that in the past, "the number of new federally-funded roadway and reconstruction projects that [we]re undertaken annually" were "limited." Fed. Highway Admin., Off. of Pol'y and Governmental Affs., *supra* note 34, at 16.

[52] *See* Adie Tomer & Ben Swedberg, *Highway shakedown: How local road users are subsidizing state highway investments*, BROOKINGS INST. (April 24, 2025), https://www.brookings.edu/articles/highway-shakedown-how-local-road-users-are-subsidizing-state-highway-investments.

[53] *See* IIJA, *supra* note 19; Justin Fishman, *Tactical Approaches to Achieve Benefits of Dig Once*, EY-PARTHENON (June 6, 2023), https://www.ey.com/en_us/insights/strategy-transactions/tactical-approaches-to-achieve-benefits-of-dig-once.

[54] BUREAU OF ECON. ANALYSIS, GOVERNMENT CURRENT EXPENDITURES: STATE AND LOCAL: ECONOMIC AFFAIRS: TRANSPORTATION: HIGHWAYS (G160951A027NBEA) (2025) https://fred.stlouisfed.org/series/G160951A027NBEA, retrieved from FRED, Fed. Reserve Bank of St. Louis.

[55] Adi Kumar et al., *Infrastructure Upgrades: How Dig Once Could Help States Manage*, MCKINSEY & CO. (Aug. 24, 2022), https://www.mckinsey.com/industries/public-sector/our-insights/dig-once-could-help-states-manage-material-and-worker-shortages.

[56] U.S. CONST. art. 1, § 8, cl. 7 ("The Congress shall have Power…To establish Post Offices and post Roads").

[57] GANESH SITARAMAN & ANNE L. ALSTOTT, THE PUBLIC OPTION: HOW TO EXPAND FREEDOM, INCREASE OPPORTUNITY, AND PROMOTE EQUALITY 98 (2019).

funding bills in the 1920s and 1940s) allocated funding based on "the mileage of rural delivery routes and star routes" for the Post Office that would be served.[58]
- Early telegraph wires were strung alongside early railroad tracks, with telegraph and rail companies sharing assets and even staff.[59] Long-distance telephone networks lined railways, and railroads even had their own networks, like the Southern Pacific Railroad Internal Networking Telephony, which connects the telecommunications company SPRINT and its early parent company.[60]
- In the twentieth century, telephone and coaxial cables were buried and strung beside highways.

In the 1980s, fiber-optic cables started linking major cities for transmitting voice, video, and data.[61] Until 1988, states were prohibited from installing utility infrastructure on interstate rights-of-way.[62] In the mid-1990s, the internet started becoming available commercially.[63] By the mid-1990s, federal policy had a goal of expanding access to broadband.[64] In 1999, the State of Utah enacted a Dig Once policy, while in the same year,[65] new technologies and methods (e.g., MicroDucts, innerducts) were introduced to bundle multiple smaller conduits under one larger sheath.[66] These advancements pushed for increased discussion of Dig Once policies to expand broadband access.[67]

[58] An Act To provide that the United States shall aid the States in the construction of rural post roads, and for other purposes, Pub. L. No. 64-156, 39 Stat. 355 (1916).
[59] TOM WHEELER, FROM GUTENBERG TO GOOGLE: THE HISTORY OF OUR FUTURE 89 (2019).
[60] TUNG-HUI HU, A PREHISTORY OF THE CLOUD 1–3 (2016).
[61] *Why Dig Once*, FIBER OPTIC SENSING ASS'N, 7 (2020), https://downloads.regulations.gov/FHWA-2019-0037-0011/attachment_2.pdf.
[62] Fed. Highway Admin., Off. of Pol'y and Governmental Affs., *supra* note 34, at 9.
[63] For a more detailed discussion of the development of the internet, see SHANE GREENSTEIN, HOW THE INTERNET BECAME COMMERCIAL: INNOVATION, PRIVATIZATION, AND THE BIRTH OF A NEW NETWORK (2015).
[64] Telecommunications Act of 1996 § 706(a), 47 U.S.C. § 1302(a).
[65] Why Dig Once, *supra* note 61, at 5.
[66] *Id.* at 8.
[67] Less common, the term includes co-locating of other types of conduit or pipes for other utilities during road construction. *See* Jones et al., *supra* note 5.

A. Federal

Today, the federal government has a "weak" Dig Once policy. Federal policymakers first started to seriously consider these proposals in the late 2000s. The then-incoming Obama Administration had expressed interest in universal broadband as a goal.[68]

In 2009, Representatives Anna Eshoo, Henry Waxman, and Ed Markey, along with Senators Amy Klobuchar and Mark Warner, among others, introduced the first federal Dig Once proposal, the *Broadband Conduit Deployment Act*.[69] Under the proposed strong Dig Once requirement, the DOT would require states to install broadband conduit as part of federally funded highway construction projects, setting federal standards for conduit design, placement, and coordination with the Federal Communications Commission (FCC). Legislators reintroduced substantially similar legislation in 2011, 2015, 2018, and 2019, earning substantial bipartisan support (up to 56 House cosponsors at its peak),[70] though none of these bills advanced through the House or Senate.

In 2018, as part of a larger appropriations legislative package, Congress passed a "weak" Dig Once Policy.[71] Instead of requiring the installation of conduit, Congress directed the DOT to ensure states coordinate broadband infrastructure planning and right-of-way use with relevant agencies and providers, encouraging but not requiring conduit installation.[72] The DOT promulgated a regulation to implement the statute in 2021.[73] The regulation requires state DOTs to do four things:

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[68] *See* Sascha Meinrath & Benjamin Lennett, *Building a 21st Century Broadband Superhighway*, NEW AM. OPEN TECH. INST. (Jan. 19, 2009), https://www.newamerica.org/oti/policy-papers/building-a-21st-century-broadband-superhighway.

[69] *BCDA*, H.R. 2428 and S. 1266, 111th Cong. (2009).

[70] *BCDA* in successive Congresses as H.R. 1695, 112th Cong. (2011); S. 1939, 112th Cong. (2011); H.R. 3805, 114th Cong. (2015); H.R. 4800, 115th Cong. (2018); H.R. 2692, 116th Cong. (2019).

[71] Lawmakers called this a "preliminary" Dig Once policy for several other reasons. *See Comment of The Honorable Anna G. Eshoo (Re: Notice of Proposed Rulemaking - Broadband Infrastructure Deployment (Docket No. FHWA-2019-0037))*, at 2 (Sept. 15, 2020), https://www.regulations.gov/comment/FHWA-2019-0037-0027 (noting exclusion of municipal broadband providers/cooperatives, deadlines, and state flexibility).

[72] Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, div. P (RAY BAUM'S Act of 2018), tit. VI (MOBILE Now Act), § 607 (codified at 47 U.S.C. § 1504).

[73] Broadband Infrastructure Deployment, 86 Fed. Reg. 68553 (Dec. 3, 2021) (codified at 23 C.F.R. pt. 645). The Department of Transportation took several years to promulgate this rule, despite criticism from legislators. Unfortunately, the delay between legislation and regulation is a much broader phenomenon that has inhibited governance as of late. *See* Brian Shearer, *Where Abundance, Economic*

1. Identify a "broadband utility coordinator" to facilitate infrastructure right-of-way efforts within the state;
2. Register broadband infrastructure entities that want to be notified of highway conduit opportunities;
3. Establish a process for electronically notifying these entities on an annual basis of future road construction and maintenance projects; and
4. Coordinate initiatives with other statewide telecommunication and broadband plans and state and local transportation and land use plans.

In 2020, federal legislators proposed stronger federal Dig Once legislation, acknowledging limitations in the 2018 approach. The *Nationwide Dig Once Act* would have directed the DOT to require state DOTs to:

1. Plan and install broadband conduit in federally funded covered highway projects that are over a mile in length;
2. Offer access "on a competitively neutral and nondiscriminatory basis" at "just and reasonable" rates that are published publicly; and
3. Establish coordinated standards, funding mechanisms, and waiver provisions to reduce redundant excavation and expand conduit access.[74]

The 2020 legislation was included in a broadband package put forth by House and Seante Democrats[75] and an infrastructure package that passed the House in 2020.[76] In 2021, the legislation was reintroduced as a standalone bill[77] and included in a Democratic broadband package.[78] It was initially included in the House version of the legislation that would ultimately become the IIJA, a key priority of President Biden's administration. However, it was removed in the Senate amendment that was ultimately enacted into law.[79] In summary, Congress first considered a strong Dig Once policy in

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Populism, and Russ Vought are in Loud Agreement, VAND. POL'Y ACCELERATOR (Oct. 30, 2025), https://vanderbiltpolicyaccelerator.substack.com/p/where-abundance-economic-populism-and-russ-vought-are-in-loud-agreement.

[74] *Nationwide Dig Once Act* (hereinafter *NDOA*), H.R. 7205, 116th Cong. (2020).

[75] *Accessible, Affordable Internet for All Act* (hereinafter *AAIAA*), H.R. 7302 and S. 4131, 116th Cong. § 5001 (2020); H.R. 1783 and S. 745, 117th Cong. § 5001 (2021).

[76] *Moving Forward Act*, H.R. 2, 116th Cong. § 1603 (2020).

[77] *Nationwide Dig Once Act*, H.R. 3703, 117th Cong. (2021).

[78] *AAIAA*, H.R. 3684 and S. 745, 117th Cong. § 5001 (2021).

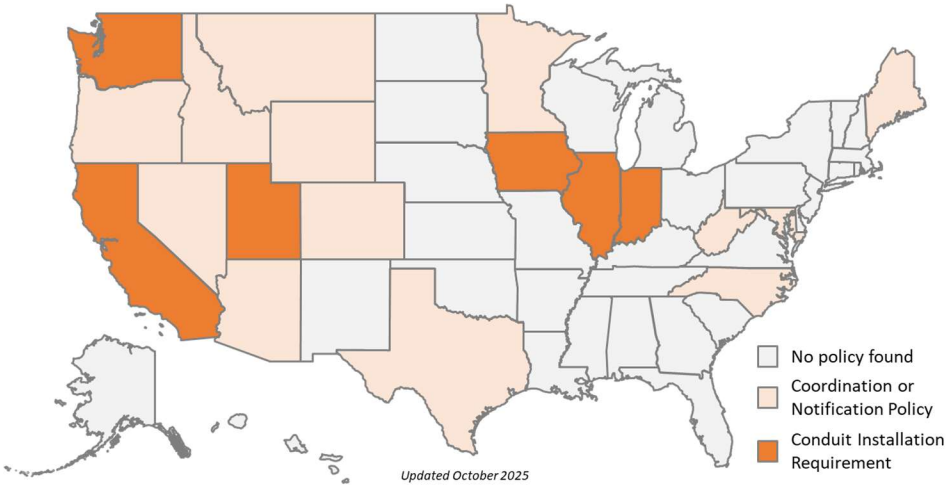
[79] *INVEST in America Act*, H.R. 3684, 117th Cong. (2021) (as introduced, reported in the House, engrossed in the House, and placed on the Senate Calendar). *Cf.* IIJA, *supra* note 19.

2009 and passed a weak version of the policy in 2018. Even then, the federal government did not actually implement this weak version until 2021.

B. State

State governments have also adopted their own Dig Once policies. Below in Figure 2, we provide a map of each state (as the full details on each state's relevant Dig Once laws are available in Appendix A).

Figure 2. Map of Strong and Weak Dig Once States



States with Dig Once policies typically fall into one of two categories — strong and weak policies.

Strong State Dig Once: Six states (California, Illinois, Indiana, Iowa, Utah, and Washington) have statutes or explicit policies requiring installation of conduit in at least some circumstances, with those states having a population of 73.8 million people (22% of the U.S.) and land area of 452,000 square miles (13% of the U.S.).[80]

[80] *See* App'x B. Cal. (pop. 39.4M; land area 156K sq. mi.); Ill. (pop. 12.7M; land area 56K sq. mi.); Ind. (pop. 6.9M; land area 36K sq. mi.); Iowa (pop. 3.2M; land area 56K sq. mi.); Utah (pop. 3.3M; land area 82K sq. mi.); Wash. (pop. 8.0M; land area 67K sq. mi.). The total U.S. population was 340.1M as of July 1, 2024, *Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and Puerto Rico: April 1, 2020 to July 1, 2024*, U.S. CENSUS BUREAU (Dec. 2024), https://www.census.gov/data/tables/time-series/demo/popest/2020s-state-total.html; and the total U.S. land area is 3,535K sq. mi., *State Area Measurements and Internal Point Coordinates*, U.S. CENSUS BUREAU (2010), https://www.census.gov/geographies/reference-files/2010/geo/state-area.html.

Utah adopted the most interesting approach of the six. The Utah DOT (UDOT) installs fiber-optic conduits whenever they build a new roadway or expand an existing one "as an incremental cost to the project to allow for faster deployment of fiber optic cable."[81] As a result, the UDOT manages over 3,200 miles of fiber-optic cable along state-owned highways. The UDOT "trades" access to existing conduit for "fiber or other network services elsewhere." According to Utah, this Dig Once approach has saved the State of Utah $106 million "in avoided costs."[82] Notably, according to the FCC's National Broadband Map, Utah currently has one of the highest levels of fiber coverage in the nation (62.5% of locations have access versus a national average of 49.0%).[83]

Illinois,[84] Indiana,[85] and Iowa[86] also affirmatively require their state DOTs (or other state agencies) to always install conduits in any new state-government-funded construction projects. These statutes allow either the state to fund and own these projects directly or to delegate it to a private entity, although none fashion themselves as major broadband asset owners like Utah. One study found that Iowa's "strong" Dig Once policy (as well as other permitting policy changes) led to a 2.4–6.6% increase in fiber availability.[87] Indiana and Iowa, similarly, have higher levels of fiber coverage than the national average (55.8% and 64.1%, respectively), but Illinois has lower levels of availability (36.8%).[88]

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[81] UTAH BROADBAND CTR., UTAH'S BEAD INITIAL PROPOSAL VOL. 2, at 78 (2023), https://connecting.utah.gov/wp-content/uploads/NTIA-Approved-Utah-IP-Vol-2.pdf.

[82] Fed. Highway Admin., Off. of Infrastructure, *Case Study: UDOT Takes Active Role in Facilitating Broadband Deployment*, DEP'T OF TRANSP. (2022), https://www.fhwa.dot.gov/utilities/pdf/hif22040.pdf. Utah DOT had previously noted that its Dig Once policies led to 15.5% cost savings on two rural projects. *See* Fleming, *supra* note 45, at 5.

[83] *See National Broadband Map*, FED. COMMC'N COMM'N (Nov. 11, 2025), https://broadbandmap.fcc.gov. This figure is based on "percent of units covered" with fiber where download/upload speeds are at least 100/20 Mbps. Note, fiber availability is the result of numerous factors, including location, population density, number of businesses, aggregate income, etc. It is worth noting that several states with "weak" or no Dig Once policies also have high levels of fiber coverage, such as Conn. (67.1%), Kan. (67.8%), Neb. (70.9%), N.J. (64.2%), N.Y. (64.7%), N.D. (66.4%), R.I. (80.4%), and Tenn. (64.4%).

[84] 605 ILL. COMP STAT. ANN. § 5/9-131(b) (2024).

[85] IND. CODE § 8-23-5-10(b)(2) (2024).

[86] IOWA CODE § 8B.25(2) (2024).

[87] *See* Christina Biedny, Brian Whitacre & Robert Gallardo, *Do 'Dig Once' and Permitting Policies Improve Fiber Availability*, 46(5) TELECOM. POL'Y 1022294 (2022).

[88] *See National Broadband Map*, *supra* note 83.

Washington also requires conduit to be installed.[89] But it only permits the state to install and own the conduit "[i]f no [other] owners are ready or able to participate in coordination of the installation of broadband infrastructure,"[90] which may represent a reasonable political compromise between the simplest strong policies and the typical weak ones. California has a similar requirement for a subset of broadband projects — those funded with California's Coronavirus Fiscal Recovery Fund of 2021.[91] However, it has not implemented this policy as a general matter. For reference, Washington and California have lower levels of fiber coverage (35.4% and 34.9%, respectively).[92]

Some of these states also recognize the unique position that the conduit owner will now possess as a gatekeeper to competitors. In order to prevent abuse and to encourage broadband deployment, Illinois and Indiana require owners of the conduit to charge reasonable pricing.[93] However, Washington law solely states that the "department *may* adopt rules establishing a fee schedule,"[94] and California and Iowa laws are silent on pricing.

Weak State Dig Once: Thirteen states have laws or other policies that encourage conduit installation, require coordination or notifications, or otherwise fall short of required conduit installation. These states have a population of 76.9 million people (22% of the U.S.) and land area of 4.6 million square miles (36% of the U.S.). According to the FCC's National Broadband Map, these states typically have lower levels of fiber coverage than states with "strong" policies.[95]

Some of these states only authorize state ownership.[96] Others do not acknowledge the possibility at all, only providing an opportunity for private telecommunications

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[89] WASH. REV. CODE § 47.44.160(1) (2024).
[90] *Id.* § (2).
[91] CAL. GOV'T CODE § 14051(c) (2024).
[92] *See National Broadband Map*, *supra* note 83.
[93] *See* 605 ILL. COMP STAT. ANN. § 5/9-131(b) (2024) (requiring "reasonable steps to ensure market-based, non-discriminatory pricing."); IND. CODE § 8-23-5-10(d) (2024) ("The amount of the fee may not be more than the reasonable fair market value of the use of the highway right-of-way…").
[94] WASH. REV. CODE § 47.44.160(3) (2024).
[95] *See National Broadband Map, supra* note 83. Ariz. (24.5%), Colo. (44.8%), Idaho (39.3%), Me. (47.6%), Minn. (48.4%), Mont. (31.8%), Nev. (28.5%), N.C. (48.6%), N.D. (66.4%), Or. (47.8%), Tex. (55.3%), W. Va. (32.4%), and Wyo. (38.8%).
[96] *See, e.g.*, NEV. REV. STAT. § 408.200(2) ("[T]he Department may place additional conduit and related facilities within such rights-of-way for use by telecommunications providers based on the potential use by such providers…"). And some states without affirmative dig-once policies also permit state ownership.

providers. For example, Minnesota requires its DOT to post to its website a database on "upcoming construction projects" in order "to provide broadband providers with advance notice … so that they may notify the department of their interest in installing broadband infrastructure within the right-of-way during construction in order to minimize installation costs."[97]

While these state laws are helpful on net, they suffer from the same issues as the current federal-level laws require. Often times private providers do not have a need to build at the same time that a state government is building or repairing a road. Even if such an overlap exists, without adequate pricing regulation, such an entity can act as a bottleneck for future deployment, making it cost-prohibitive for other, competing networks to utilize the same conduit.

The remaining thirty-one states do not have Dig Once policies. According to the FCC's National Broadband Map, these states vary in their level of fiber coverage.[98]

C. Municipal

Since 1988, several local governments have also adopted their own strong Dig Once policies, including Gonzalez, California; Santa Cruz, California; Sandy, Oregon; Celina, Texas; and Mount Vernon, Washington to name a few.[99] The cities of Boston and San Francisco are the two largest cities to formally implement a Dig Once policy:

- Boston, Massachusetts: In 1988, the City of Boston was one of the first cities to implement a Dig Once policy. Whenever a developer requests to do a development project, the city not only requires that developer to invite other firms to install conduit, but to also install "shadow" conduits that the city can

See, e.g., NEW MEXICO STAT. § 5-10-15(A)(1)(b) (allowing state and local governments to install conduit on highway projects).

[97] MINN. STAT. § 161.462.

[98] *See National Broadband Map, supra* note 83. Alabama (48.7%), Alaska (12.7%), Arkansas (55.4%), Connecticut (67.1%), Delaware (50.5%), Florida (48.8%), Georgia (54.1%), Hawaii (54.6%), Kansas (67.8%), Louisiana (41.9%), Maryland (59.4%), Massachusetts (46.8%), Michigan (29.7%), Mississippi (57.6%), Missouri (53.9%), Nebraska (70.9%), New Hampshire (53.2%), New Jersey (64.2%), New Mexico (20.1%), New York (64.7%), Ohio (42.3%), Oklahoma (55.7%), Pennsylvania (52.3%), Rhode Island (80.4%), South Carolina (50.1%), South Dakota (56.2%), Tennessee (64.4%), Vermont (56.7%), Virginia (57.6%), and Wisconsin (42.0%).

[99] *See* App'x B.

own and lease out in the future.[100] All the companies involved in the build-out are jointly responsible for these upfront costs. The initial developer is also responsible for future maintenance and repair of the conduit (although the city covers any related costs). According to the FCC's National Broadband Map, 70.8% of locations in Boston have fiber coverage.[101]

- San Francisco, California: In 2014, the City of San Francisco began to require the city's Department of Technology to install conduit in all projects where it is feasible to do so.[102] According to the FCC's National Broadband Map, 41.1% of locations have fiber coverage.[103]

Notably, several municipalities have gone even further, building out entire city-wide systems (rather than just requiring it whenever the local government engages in roadwork). Two notable examples are Lincoln, Nebraska and West Des Moines, Iowa:[104]

- Lincoln, Nebraska: Historically, the City of Lincoln had installed new conduit whenever it did street work. In 2012, it decided to invest $700,000 to install conduit throughout all its public rights of way.[105] In 2016, the city partnered with an ISP, ALLO Communications, to lease conduit and provide fiber to residents. By 2018, the city had installed over 450 miles of conduit, which it leases out to different carriers. In fiscal year 2024, the city generated $1.9 million of revenue and 1.6 million of operating profit.[106] These efforts have been so successful that the entire county of Lancaster (which includes Lincoln) wants to build 175 miles of additional conduit throughout the county.[107] To fund this network, the county relied on $10 million of funding from the American Rescue Plan Act. According to the FCC's National Broadband Map, 99.8% of locations have fiber coverage.[108]

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[100] Fed. Highway Admin., Off. of Pol'y and Governmental Affs., *supra* note 34, at 14.
[101] *See National Broadband Map, supra* note 83.
[102] S.F., CAL., PUB. WORKS CODE § 2.4.13(a) (2014).
[103] *See National Broadband Map, supra* note 83.
[104] Other communities have too. *See, e.g.*, *Fiber To The Home Project*, CITY OF SPRINGBORO (last accessed on Nov. 20, 2025), https://www.cityofspringboro.com/479/Fiber-To-The-Home-Project (investing $2.4 million to build a 17-mile fiber-optic loop with six conduits).
[105] *See* Brad Randall, *Lincoln Steps Into the Future*, BROADBAND COMMUNITIES (Mar. 1, 2018) ,https://bbcmag.com/lincoln-steps-into-the-future-3.
[106] CITY OF LINCOLN, NEBRASKA, ANNUAL COMPREHENSIVE FINANCIAL REPORT: FISCAL YEAR ENDED AUGUST 31, 2024, at 171 (2025), https://www.lincoln.ne.gov/files/sharedassets/public/v/1/finance/accounting/2024-acfr.pdf.
[107] *Broadband*, LANCASTER COUNTY (last visited on Nov. 1, 2025), www.lancaster.ne.gov/1332/Broadband.
[108] *See National Broadband Map, supra* note 83.

- West Des Moines, Iowa: In 2020, the City of West Des Moines invested $60 million to install over 1,000 miles of conduit.[109] To derisk the project, West Des Moines partnered with GFiber (formerly known as Google Fiber) as the anchor tenant. GFiber agreed to lease conduit access, run fiber through the conduit, and use that fiber to provide residential internet service. In 2024-25, the city generated $1.2 million of revenue and $0.9 million of operating profit from the network.[110] Since its creation, several other providers, including Lumen, Mediacom, and an Iowa-based ISP, have also signed up to lease conduit, guaranteeing the city additional revenue.[111] According to the FCC's National Broadband Map, 68.8% of locations have fiber coverage.[112]

Local communities can do this work absent statutory mandates. As an example, in 2001, Mesa, Arizona began installing conduit and vaults through its "E-Streets" program "to further develop the broadband markets in three of Mesa's [then-]growing employment centers and to meet the City's needs."[113] Over time, the city installed 150-200 miles.[114]

III. What Policymakers Can Do

Policymakers at all levels of government can take steps to advance Dig Once policies.

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[109] Katie Thornton, *An Iowa Town's $60 Million Plan to Span the Broadband Gap*, BLOOMBERG (Jan. 27, 2023), https://www.bloomberg.com/news/articles/2023-01-27/to-span-the-broadband-gap-an-iowa-town-built-its-own-fiber-network.

[110] WEST DES MOINES, BUDGET SUMMARY: FISCAL YEAR 2025-26, at 501 (2025), https://www.wdm.iowa.gov/home/showpublisheddocument/43344/638836101057570000.

[111] Ry Marcattilio, *West Des Moines, Iowa is a Model for Open Access Conduit Networks - Episode 573 of the Community Broadband Bits Podcast*, CMTY .NETWORKS (Oct. 17, 2023), https://communitynetworks.org/content/west-des-moines-iowa-model-open-access-conduit-networks-episode-573-community-broadband.

[112] *See National Broadband Map, supra* note 83.

[113] CITY OF MESA, GATEWAY STRATEGIC DEVELOPMENT PLAN: UTILITIES SERVICE REPORT 17 (2009), www.mesaaz.gov/files/assets/public/v/1/business-development/planning/subareaplans/gateway/existing-utilities.pdf.

[114] Christopher Mitchell, *Mesa's Focus on Dig Once and Fiber Leases Pays Off - Community Broadband Bits Podcast 139*, CMTY. NETWORKS (Feb. 24, 2015), https://communitynetworks.org/content/mesas-focus-dig-once-and-fiber-leases-pays-community-broadband-bits-podcast-139.

A. Federal

Federal law should require state governments to proactively install conduit when roads are being dug up — to the extent that adequate conduit or fiber infrastructure is not available nearby, building on the most recent *Nationwide Dig Once Act of 2021*.[115] Right now, the law only directs the federal DOT to promulgate regulations to require state DOTs to invite private telecommunications providers to build conduit whenever a state DOT pursues new projects.

A private ISP's desire to build new networks is not necessarily timed up with the needs of state DOTs or local government entities to build new roads or repair existing ones. These entities are not incentivized to invest in new capital expenditures for an asset with unclear short-term monetization — even if it is clear that some private ISPs will likely benefit from accessing the conduit in the future.

This mismatch is especially prevalent for backhaul or middle-mile infrastructure, where demand may be uncertain before it is clear what demand exists at the last-mile level. Even though federal roads typically do not directly reach households, the lack of middle-mile fiber is often cited as one of the biggest impediments for ISPs to serve unserved areas.[116] A strong need for middle-mile infrastructure, in particular, exists. When the federal government ran a $1 billion grant program to fund new middle-mile infrastructure, it received over 260 applications representing $7.5 billion of projects.[117]

While the federal government cannot command state governments to install conduit, it can make it an explicit condition for receiving federal transportation funding.[118] Since federal funding represents a significant source of funding for highway projects, the federal government can heavily influence states (especially since the incremental cost

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[115] *Nationwide Dig Once Act*, H.R. 3703, 117th Cong. (2021).

[116] *See* Jake Neenan, *Middle Mile Infrastructure Will be Key to Support BEAD Builds: Experts*, BROADBAND BREAKFAST (Sept. 25, 2025), https://broadbandbreakfast.com/middle-mile-infrastructure-will-be-key-to-support-bead-builds-experts.

[117] *See* Press Release, *Biden-Harris Administration Announces $930 Million to Expand and Strengthen America's High-Speed Internet Networks as Part of the Investing in America Agenda*, NAT'L TELCOMM. AND INFO. ADMIN. (Jun. 16, 2023), https://www.ntia.gov/press-release/2023/biden-harris-administration-announces-930-million-expand-and-strengthen-america-s-high-speed.

[118] *See* New York v. U.S., 505 U.S. 144, 167 (1992); Printz v. U.S., 521 U.S. 898, 917 (1998). While there are some limits to this approach, see Nat'l Fed'n of Indep. Bus. (NFIB) v. Sebelius, 567 U.S. 519 (2012), the Court has not found it applicable to highway funding in the past, see South Dakota v. Dole, 483 U.S. 203 (1987).

to install conduit compared to the overall costs of a federally funded surface transportation project are likely to be relatively de minimis).

However, "strong" Dig Once requirements should be mindful of existing infrastructure. New conduit will be less useful for projects where reasonable alternatives already exist (e.g., utility poles which can support aerial deployments or existing privately owned conduit and fiber), construction is occurring only for short distances, or road repair is only at surface level (and will not involve digging).[119]

B. State

States should proactively require their state DOTs to install conduit (directly on their own or indirectly through coordinating investment from a third-party ISP), similar to Illinois, Indiana, and Iowa.[120] Absent an affirmative mandate to do so, many road construction projects may not take full advantage of the opportunity to install conduit.

In states where existing infrastructure is inadequate, these requirements should apply generally, rather than for a specific set of funds, such as is the case in California. Nor should a state law presume that private providers will be the primary developers of this conduit. Rather, they should be flexible enough to allow either the state or private ISPs to provide this service.

Regardless of the ownership structure, in order to prevent abuse and to encourage further broadband deployment, a strong Dig Once law should also require the state DOT to "take reasonable steps to ensure market-based, non-discriminatory pricing."

C. Municipal

Local governments can also use Dig Once policies as well. In roadway projects in densely populated and well-trafficked areas or projects covering large swaths of land, such projects may be useful. However, smaller road projects may be relatively disjointed. And local governments may lack the institutional infrastructure to keep track of these individual projects, increasing the risk that conduit is underutilized. In such cases, local governments may be better off pursuing city-wide conduit

[119] CTC TECH. & ENERGY, *supra* note 34, at 13.
[120] 605 ILL. COMP STAT. ANN. § 5/9-131(b) (2024); IND. CODE § 8-23-5-10(b)(2) (2024); IOWA CODE § 8B.25(2) (2024).

installations, incurring all the construction expense at once, rather than incrementally.[121]

Regardless of the specific approach taken, municipal investment in conduit during roadway construction presents several additional challenges that federal and state governments are less likely to face.

First, local governments may have fewer financial resources and therefore be less likely to be able to invest in conduit installation and administration. Federal and state governments have also historically underfunded local roads relative to state or federally owned roads.[122] For this reason, local governments may have to self-fund strong Dig Once policies. Smaller municipalities may lack the financial flexibility to make long-term investments without immediate pay-off.

One way to mitigate this concern is for cities and counties to explore opportunities to leverage federal or state government funding assistance. As one example, the county of Lancaster, Nebraska utilized COVID-19 broadband funding to build out its system.[123]

Second, as one traverses from backhaul and middle mile networks to last mile networks, the costs and complexity of Dig Once policies increase. In order to reach users in rural areas with lower population density, local governments may have to install more access points.[124] But more access points will increase the costs of this proposal — both in terms of additional equipment and additional labor to excavate the ground for the access points. Local governments may also struggle ex-ante to determine where those access points should be located.

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[121] Ownership of conduit has the added advantage of typically not conflicting with existing state laws prohibiting municipal broadband.

[122] *See* Tomer & Swedberg, *supra* note 52. In 2021, federal, state, and local governments provided $52 billion, $91 billion, and $63 billion, respectively, for road funding. *See State and Local Backgrounders: Highway and Road Expenditures*, URB. INST. (Apr. 26, 2024), https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/highway-and-road-expenditures#Question1Highway.

[123] *Broadband*, LANCASTER COUNTY (last visited on Nov. 1, 2025), https://www.lancaster.ne.gov/1332/Broadband.

[124] *See* Dawson, *supra* note 39 ("[I]f you want a fiber route to be used to serve businesses and residents in a city this means an access point every few buildings. In more rural areas it means an access point at every home or business.").

Given these dynamics, cities and countries should take a holistic view of their existing broadband infrastructure and identify where such an approach will be the most useful in facilitating new infrastructure to un- and underserved locations. While publicly owned and operated ISPs are out of the scope of this paper, municipalities may consider utilizing government-owned conduit to establish their own ISPs as hundreds of municipalities have done to date.[125]

Conclusion

Given the current Administration's underemphasis on fiber, many are already calling for more federal funding, a "BEAD 2.0." In such event, it is essential that policymakers not pour tens of billions of dollars into another broadband subsidy program and still fail to provide universal affordable broadband. Smart policies now can reduce the legwork later down the road. Strong Dig Once policies are one of those tools. The 2026 surface transportation reauthorization provides a unique opportunity to do so.

[125] *See* Community Network Map, CMTY. NETWORKS (last visited Nov. 20, 2025), https://communitynets.org/content/community-network-map.

Appendix A: State Dig Once Policies[126]

Alabama: None.

Alaska: None.[127]

Arizona: Permit state-owned installation of conduit (weak).

- "The director…*may* install telecommunication facilities pursuant to this article."[128]
- "The director may lease a telecommunication facility to providers pursuant to this article."[129]

Arkansas: None.

California: Require installation of conduit and notification system (strong).

- "During the project planning phase of a department-led highway construction project…the department shall notify companies and organizations working on broadband deployment of the project on its internet website to encourage collaborative broadband installations." [130]

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[126] Methodologically, the authors compiled the data in this appendix by referencing prior compilations of state laws, manual searches of databases of state laws, and searches of news developments. While prior analyses of state-level Dig Once policies have included the creation of task forces to study Dig Once or informal coordination among state agencies, the authors exclude such efforts from this appendix. For prior compilations, see, e.g., Fed. Highway Admin., Off. of Pol'y and Governmental Affs., *supra* note 34, at 13–15; Tyler Cooper, *Dig Once: The Digital Divide Solution Congress Squandered And Policy That Could Save $126 Billion On Broadband Deployment*, BROADBAND NOW, Aug. 2019, https://broadbandnow.com/report/dig-once-digital-divide/; Melissa Hopkins, *Dig Once Policy: 16 State Models*, FIBER OPTIC SENSING ASS'N (2020), https://downloads.regulations.gov/FHWA-2019-0037-0011/attachment_3.pdf; DURALINE, *supra* note 4.

[127] Alaska has no formal policy. However, its state broadband office "is working with the Department of Transportation and Public Facilities (DOT&PF) of the State of Alaska to coordinate projects that the DOT&PF has, as well as projects that the ABO is contemplating, to ensure, wherever possible, the projects can be aligned for a dig-once policy." LISA VON BARGEN, ALASKA BROADBAND OFF., ALASKA BEAD INITIAL PROPOSAL VOLUME 2, at 38 (2023), https://www.commerce.alaska.gov/web/Portals/19/pub/State%20of%20Alaska%20Initial%20Proposal%20Volume%202%20--%20Documentation%20(R1%2009-27-24).pdf.

[128] ARIZ. REV. STAT. ANN. § 28-7382(A) (2024) (emphasis added).

[129] *Id.* § (B).

[130] CAL. GOV'T CODE § 14051(b)(1) (2024).

- "For the purpose of supporting fiber optic communication cables, after receiving notification from the department, a company or organization working on broadband deployment may collaborate with the department to install a broadband conduit as part of the project."[131]
- "The department…shall develop guidelines to facilitate the installation of broadband conduit on state highway rights-of-way."[132]
- "The department, as part of each project funded by [the Coronavirus Fiscal Recovery Fund]…shall…ensure that the construction includes the installation of conduits capable of supporting fiber optic communication cables."[133]

Colorado: Require notification system (weak).

- "The state or a political subdivision shall provide notice on a competitively neutral basis to broadband providers of any utility trenching project that it conducts…"[134]
- "For any trenching project conducted by the state or a political subdivision, the state or political subdivision shall allow joint trenching by broadband providers on a nonexclusive and nondiscriminatory basis for the placement of broadband facilities…"[135]

Connecticut: None.[136]

Delaware: None.

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[131] *Id.* § (b)(2).
[132] *Id.* § (b)(3).
[133] *Id.* § (c).
[134] COLO. REV. STAT. § 38-5.5-109(1)(a) (2024).
[135] *Id.* § (2)(a). With exceptions "if the joint trenching will hinder or obstruct highway safety or the construction, maintenance, operations, or related regulation of highway facilities or if it is not feasible because it will delay the repair or construction of a political subdivision's water, wastewater, electricity, or gas line or because collocation with a political subdivision's water, wastewater, electricity, or gas line will hinder or obstruct the maintenance or operations of a political subdivision's water, wastewater, electricity, or gas facilities." *Id.* § (2)(b).
[136] There is a process for sharing installed conduit on public rights-of-way. *See PURA Implementation of Process and Procedures for Conduit Excavations for Telecommunications Service Providers and Broadband Internet Access Service Providers*, STATE OF CONNECTICUT, PUB. UTIL. REG. AUTH. (Feb. 8, 2023), https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/a15d5820d911ea0b8525895000543a3c/$FILE/211221-020823.pdf. But there does not appear to be a process for independently installing conduit on any CT department of transportation highway project.

Florida: None.

Georgia: None.[137]

Hawaii: None.

Idaho: Require notification system and permit state installation of conduit (weak).

- "The department shall identify potential projects managed by the department, either self-performed by the department or performed under contract, on highways under the department's jurisdiction…"[138]
- "For each project…the department shall timely notify the broadband providers on the registry…"[139]
- "The department may install conduit for its own use where appropriate or in support of expanding broadband infrastructure in the state…"[140]

Illinois: Require installation of conduit (strong).

- "[T]he … Department…shall collaborate to install fiber-optic network conduit where it does not already exist in every new State-funded construction project…"[141]
- "The Department … shall take reasonable steps to ensure market-based, non-discriminatory pricing."[142]

Indiana: Require installation of conduit (strong).

- "[T]he department shall…adopt policies, procedures, and standards under the dig once program for required installation of fiber conduit by a public or private entity that performs an excavation within a limited access highway right-of-way."[143]

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[137] Georgia has no formal policy. However, it does "reduce[] permitting fees … by 25 percent for simultaneous installations of cable by two or more providers in the same trench or on a pole line in joint use." GEORGIA TECH. AUTH., GEORGIA BEAD INITIAL PROPOSAL VOLUME 2, at 108 (2023).
[138] IDAHO CODE § 40-518(2) (2024).
[139] *Id.* § (3).
[140] *Id.* § (7).
[141] 605 ILL. COMP. STAT. 5/9-131(b) (2024).
[142] *Id.*
[143] IND. CODE § 8-23-5-10(b)(2) (2024).

Iowa: Require installation of conduit (strong).

- "The office shall lead and coordinate a program to provide for the installation of fiberoptic network conduit where such conduit does not exist. The chief information officer shall…ensure that the opportunity is provided to lay or install fiberoptic network conduit wherever a state-funded construction project involves trenching, boring, a bridge, a roadway, or opening of the ground, or alongside any state-owned infrastructure."[144]

Kansas: None.

Kentucky: None.

Louisiana: None.[145]

Maine: Require notification system (weak).

- "The authority shall disseminate information about a proposed underground facility that it…to all parties that may be interested in installing a broadband conduit…"[146]

Maryland: None.

Massachusetts: None.

Michigan: None.

Minnesota: Encourage installation of conduit (weak).

- "The office shall, in collaboration with the Department of Transportation and private entities, encourage and coordinate "dig once" efforts for the planning,

[144] IOWA CODE § 8B.25(2) (2024).
[145] While the state does not have a formal "dig-once policy," it does have a "Broadband Infrastructure Deployment Policy that allows broadband providers to receive information about publicly funded state roadway construction." LA. LEGIS. AUDITOR, BROADBAND EXPANSION IN LA. 23 (2024).
[146] ME. REV. STAT. ANN. TIT. 35-A, § 9204-A(6-A) (2024).

relocation, installation, or improvement of broadband conduit within the right-of-way in conjunction with any current or planned construction…"[147]

Mississippi: None.

Missouri: None.

Montana: Require notification system (weak).

- "When the department plans a state highway construction project…the department shall notify entities working on broadband deployment of the project to encourage collaborative broadband installation."[148]

Nebraska: None.

Nevada: Encourage and authorize installation of conduit (weak).

- "The Director shall coordinate with telecommunications providers…for the reasonable, efficient and cost effective installation, maintenance, operation, relocation and upgrade of telecommunications facilities within rights-of-way for state highways…(a) For rights-of-way not on an interstate, the Department may place additional conduit and related facilities within such rights-of-way for use by telecommunications providers…"[149]

New Hampshire: None.

New Jersey: None.

New Mexico: None.[150]

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[147] MINN. STAT. § 116J.391, subd. 2(a) (2025).
[148] MONT. CODE ANN. § 60-4-501(2) (2023).
[149] NEV. REV. STAT. § 408.200(2) (2024).
[150] While New Mexico does not have an explicit dig once policy, it does authorize the state to own "rights-of-way infrastructure, including trenching and conduit, for the placement of new broadband telecommunications network facilities." N.M. STAT. § 5-10-15(1)(b) (2024). However, according to the state broadband office, the New Mexico broadband office is in the process of "[a]ctively coordinating with the NM DOT on the implementation of a 'Dig Once' policy where all suitable current and future road construction projects will include conduit and possibly fiberoptic cable." ST. OF N.M. OFF. OF BROADBAND ACCESS AND EXPANSION, NEW MEXICO THREE-YEAR BROADBAND PLAN 69 (2025).

New York: None.

North Carolina: Requires coordination of ISPs but not the state itself (weak).

- "1. An ISP who desires to use conventional open trench construction to relocate existing facilities within the limits of a state highway project…shall discuss this desire with Department's utility coordinator prior to providing notice of a join-trench opportunity…."
- "2. Once the ISP has decided on conventional open trench construction, it shall provide notice of a joint-trench opportunity on the North Carolina Department of Information Technology's (NCDIT's) Broadband Infrastructure Office website….The intent for the notice is to publicize the general scope of the proposed installation within the ROW providing other interested broadband providers the opportunity to express an interest in installing additional broadband and/or wireless access facilities as part of the open trench construction…."[151]

North Dakota: Require notification system (weak).

- "Electronically notifying and registering Broadband Infrastructure Entities seeking to collaborate on facilitating their infrastructure within State Right-Of-Way."[152]

Ohio: None.

Oklahoma: None.

Oregon: Require notification system (weak).

- "For each project…the department shall timely notify each telecommunications provider on the registry…"[153]

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[151] N.C. Dep't of Transp., *Dig Once Policy* (Mar. 1, 2021), https://connect.ncdot.gov/municipalities/Utilities/UtilitiesDocuments/NCDOT%20Dig%20Once%20Policy%2020210301.pdf.
[152] N.D. Dep't of Transp., *Broadband Utility Coordination*, https://www.dot.nd.gov/construction-and-planning/construction-and-contractor-resources/broadband-utility-coordination.
[153] OR. REV. STAT. § 184.916(3) (2021).

Pennsylvania: None.

Rhode Island: None.

South Carolina: None.

South Dakota: None.

Tennessee: None.

Texas: Require notification system (weak).

- "The department shall provide notice on the department's Internet website of ongoing and planned highway construction projects for which the department will provide voluntary joint trenching opportunities in the state's right-of-way for broadband providers."[154]

Utah: Require conduit installation (strong).

- "[T]he department may allow a telecommunication facility provider longitudinal access to the right-of-way of a highway on the interstate system for the installation, operation, and maintenance of a telecommunication facility."[155]

Vermont: None.

Virginia: None.

Washington: Require collaboration and permit state installation of conduit (strong).

- "The department is directed to…proactively provide…information…to enable collaboration between broadband facility owners and the department…"[156]
- "If no owners are ready or able to participate…, the department may enlist its contractors to install broadband conduit as part of road construction projects…."[157]

[154] TEX. TRANSP. CODE § 201.672 (2024).
[155] UTAH ADMIN. CODE r. 907-64-2 (2023).
[156] WASH. REV. CODE § 47.44.160(1) (2024).
[157] *Id.* § (2).

West Virginia: Require telecommunications providers to coordinate (weak).

- "If in-ground construction or installation of a telecommunications facility in rights-of-way owned or controlled by the division serves a public purpose and shall be accommodated as a utility pursuant to federal and state law, the division will receive applications and issue a permit consistent with this section with respect to requirements and conditions for performing work in division rights-of-way."[158]
- "Upon application for a permit [by a telecommunications carrier], the [carrier] shall notify, by email, the Office of Broadband and all other telecommunications carriers on record with the office of the application. Other telecommunications carriers have 15 calendar days to notify the applicant of their interest to share the applicant's trench. This requirement extends to all underground construction technologies."[159]
- "The division may enter into an agreement and issue a permit … to allow any carrier to use excess telecommunications facilities owned or controlled by the division."[160]

Wisconsin: None.

Wyoming: Allow conduit installation (weak).

- "WYDOT may permit parallel telecommunications and data cable encroachments on interstate, primary, and secondary rights of way on a first come, first serve basis under a shared resource agreement that benefits the State of Wyoming…"[161]

[158] W. VA. CODE § 17-2E--3(a) (2024).
[159] *Id.* § 17-2E-5(a).
[160] *Id.* § 17-2E-7.
[161] Wyo. Dep't of Transp., Operating Policy 19-03, Utility and Railroad Right-of-Way Encroachments, https://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Utilities/OP%2019-03_Utility%20ROW%20Encroachments_2020.pdf (Sept. 25, 2020).

Appendix B: Select Municipal Dig Once Policies

Boston, Massachusetts: Requires third parties to install additional conduit and provide it to the city to own and lease out to third parties (strong).

- The company that approaches the city to do excavation work is designated the "lead company."
- The "lead company" must offer other companies (including telecommunications companies) the opportunity to install conduit
- The lead company then needs to "draft the engineering plans, estimate construction costs and submit the built-out application to the City's Public Improvement Commission."
- The installation must include a "shadow" conduit "in the same trench, at the same time on a shared-cost basis" that the city can use and lease to third parties. The cost will be split among all the companies involved in excavating.[162]
- The lead company is responsible for maintenance and repair (although the city will reimburse the lead company for any related costs).

Celina, Texas: Requires the City and private developers "to provide and install such conduit and appurtenances as may be necessary to accommodate future telecommunications and broadband service needs within public streets, easements, rights-of-ways and property without further excavation or disturbance" (strong).[163]

Gonzalez, California: Requires the City to install City-owned conduit whenever the City undertakes or authorizes construction or maintenance of "street[s], road[s], sidewalk[s], bike path[s], or other transportation infrastructure," and "other excavations or work on public property on in the public right of way that provide a similar opportunity to install conduit for future use at a low additional cost" (strong).[164]

Mount Vernon, Washington: Requires third parties to install additional conduit (strong).

- "All developments shall be required to construct and install telecommunications conduit on all streets that are affected, disturbed, constructed and/or improved

[162] Fed. Highway Admin., Off. of Pol'y and Governmental Affs., *supra* note 34, at 14.
[163] Celina Code of Ordinances, Subdivision Ordinance § 10.03.126(i) (Celina, Tex. 2017).
[164] Gonzales City Council, *"Dig Once" Policy for Public Works Projects in Gonzales*, (2016), https://www.tellusventure.com/downloads/bank/gonzales_one_page_dig_once_policy_1feb2016.pdf.

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."[165]

Sandy, Oregon: Requires development sites to include broadband (strong).

- "All development sites shall be provided with public water, sanitary sewer, broadband. (fiber), and storm drainage."[166]

San Francisco, California: Requires the Department of Technology to install additional conduit to the extent feasible (strong).

- "[W]henever the Department or other Municipal Excavator undertakes a project involving the planning, construction, reconstruction, or repaving of a public right-of-way, such project shall include, to the maximum extent practicable and feasible, the following transit, pedestrian, bicycle, stormwater, and communications infrastructure improvements: … (10) Communications infrastructure."[167]
- "To the maximum extent practicable and feasible, the Director shall condition all excavation and street improvement permits on the inclusion of the improvements [of Communications infrastructure]."[168]
- "The Department of Technology shall consider adding City communications infrastructure to any permit issued for an excavation project … to create more efficient delivery of communications services to the public and for the City's needs."[169]

[165] MT. VERNON, WA., CODE ch. 12.20 § 015.
[166] SANDY, OR., DEVELOPMENT CODE tit. 17 § 17.84.60.
[167] S.F., CAL., PUB. WORKS CODE § 2.4.13(a) (2014).
[168] *Id.* § 2.4.13(c).
[169] *Id.* § 2.4.95(a).

- "[T]he Department of Technology shall review the application to determine whether it is both financially feasible and consistent with the City's long-term goals to add City communications infrastructure to the proposed excavation project."[170]

Santa Cruz County, California; Requires the County to install additional conduit to the extent "practical and feasible" (strong).

- "In recognition of the need to provide local residents and businesses within the community with the infrastructure required to meet their telecommunications needs, all construction, reconstruction or repaving of a County right-of-way will include provisions for the installation of telecommunications cable, conduit and other related equipment wherever practical and feasible. Where appropriate, telecommunications infrastructure shall be installed in or adjacent to County rights-of-way in conformance with current County standards. County staff will work with contractors to identify most cost-effective approach consistent with County requirements. If a project includes excavation in or adjacent to a County right-of-way, installation of or upgrades to telecommunications cable, conduit or other infrastructure will be included as needed. All installations shall conform to the size, shape, location and other specifications as determined by the Director of Public Works."[171]

[170] *Id.* § 2.4.95(b).

[171] SANTA CRUZ, CAL., GEN. CODE § 12.25.020.