



Members Brief

An informational brief prepared by the LSC staff for members and staff of the Ohio General Assembly

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Broadband Development

Provides a summary of broadband, broadband development, and the role of the state and federal government in the governance and promotion of broadband access.

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Reliable and fast broadband service is an increasingly important part of the state’s infrastructure, but not all of Ohio has access to high-quality broadband coverage. The Federal Communications Commission (FCC) and the U.S. Department of Agriculture oversee programs aimed at expanding broadband coverage to underserved areas. In Ohio, the Department of Higher Education operates the Ohio Academic Resources Network (OARnet), a broadband network for users in higher and K-12 education, as well as state and local government entities. The recently created state office of BroadbandOhio is now the state office aimed at supporting the expansion of broadband access.

What is broadband?

Broadband is high-speed internet access that is always on and faster than dial-up access.¹ Federal law governing the FCC defines “advanced telecommunications capability” as “high-speed, switched, broadband telecommunications capability that enables users to originate and

¹ U.S. Department of Commerce, National Telecommunications and Information Administration (NTIA) BroadbandUSA Program, “Broadband Glossary” available at: https://broadbandusa.ntia.doc.gov/sites/default/files/resource-files/bbusa_broadband_glossary_161024.pdf#contententarea.

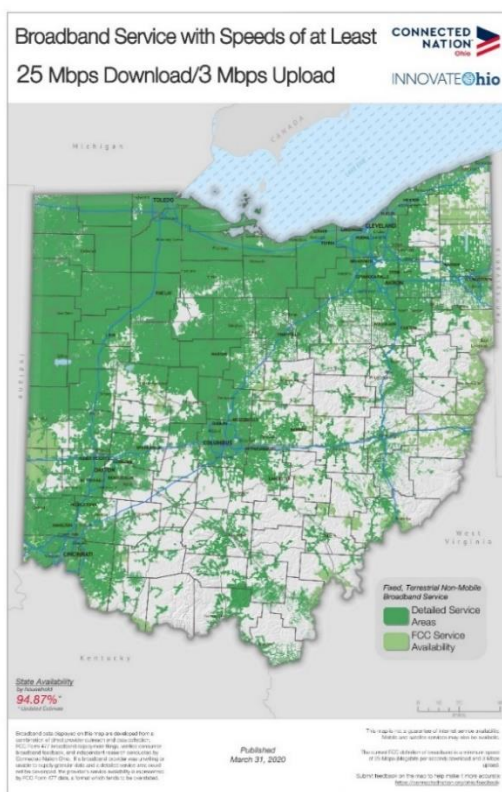
receive high-quality voice, data, graphics, and video telecommunications using any technology.”² Broadband access is available through different technologies including digital subscriber lines (DSL), cable modem, fiber optics, wireless, and satellite services.

Broadband speed and availability

Broadband service is measured in terms of download and upload speed. Download speed is the rate at which data, such as websites and music, is transferred from the internet to a device, and upload speed is the rate at which data, such as photos and videos, is uploaded to the internet. The standard for measuring broadband speed is megabits per second (Mbps), the speed at which “information packets are downloaded from, or uploaded to, the internet.”³ Since 2015, the speed benchmark set by the FCC for fixed broadband service has been

The standard benchmark for broadband speed is 25 Mbps for downloads and 3 Mbps for uploads.

25 Mbps for downloads and 3 Mbps for uploads. Information about fixed and mobile broadband availability is collected, measured, and reported by the FCC.⁴



Connected Nation Ohio is a nonprofit subsidiary of the national organization, Connected Nation, that works to accelerate the availability and use of broadband in Ohio.⁵ As part of that mission, this organization develops broadband service availability maps for Ohio. The map to the left was produced by Connected Nation Ohio in March 2020. The green areas of the map depict the areas of Ohio with upload and download speeds that meet the broadband benchmark of at least 25 Mbps download/3 Mbps upload. As can be seen from the map, rural areas of Ohio, especially in Appalachia, have less access to broadband. Connected Nation Ohio estimates that 94.9% of Ohio households had broadband availability as of March 31, 2020.⁶

² 47 United States Code (U.S.C.) § 1302(d)(1).

³ Federal Communications Commission, Consumer Guides, “Household Broadband Guide,” available at: <https://www.fcc.gov/consumers/guides/household-broadband-guide>.

⁴ Federal Communications Commission, “Measuring Broadband America,” available at: <https://www.fcc.gov/general/measuring-broadband-america>.

⁵ Connected Nation Ohio, “About,” available at: <https://connectednation.org/ohio/>.

⁶ Connected Nation Ohio, “2020 State Maps,” available at: <https://connectednation.org/ohio/2020-state-maps/>, used with permission granted by Connected Nation Ohio on November 6, 2020.

Government support for broadband development

Federal

While the FCC is the federal entity primarily responsible for overseeing broadband access nationally, at least 15 federal entities have a role in broadband development. The National Telecommunications and Information Administration (NTIA), an office within the U.S. Department of Commerce, oversees a catalog of broadband-related programs that may be used to pursue broadband development, either directly or partially. A reader desiring more detailed information about the availability of programs may search this catalog, filtering by eligible recipients, uses, geographic region, and federal agency.⁷

The FCC and the U.S. Department of Agriculture (USDA) are the federal entities that fund programs most directly involved with broadband development. This includes several FCC programs funded by the Universal Service Fund, notably the Connect America Fund Program (\$4.5 billion in federal FY 2020 for telecommunications companies to expand broadband) and the E-Rate Program (\$4.2 billion in federal FY 2020 for broadband at schools and libraries), and the USDA's Rural Utilities Service programs (up to around \$1.3 billion in federal FY 2020 under programs that may support broadband development).

CARES Act

On March 27, 2020, Congress passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act to allocate additional federal funding to states to address the COVID-19 pandemic. Later in the year, on July 27, 2020, the Controlling Board approved allocating \$50 million of Ohio's CARES Act Coronavirus Relief Fund (Fund 5CV1) resources to establish the BroadbandOhio Connectivity Grant Program to help schools with the costs of remote learning. The program focuses on the following eligible student groups: economically disadvantaged students, students defined by the Ohio Department of Education (ODE) as "vulnerable" youth, those with chronic conditions, and students who do not have other access to the internet. Grant funds may be used for home internet, hotspot/mobile Wi-Fi with a service plan, mobile hotspots (including on buses), public Wi-Fi infrastructure, and other technology that provides a connection for the student.

Schools were required to apply to ODE to receive the funds. Eligible grant requests of less than \$20,000 were approved for the full amount. However, due to high demand, eligible requests over \$20,000 were prorated at 60% of the difference between \$20,000 and the requested amount. Nearly 950 schools were awarded funds ranging from \$500 to just over \$150,000. The table below shows the total award amounts by school type. As the table shows, 470 traditional school districts received approximately \$30.1 million (60.1%). Roughly 270 community and STEM schools received the next highest share at \$12.5 million (25.0%), followed by 151 chartered nonpublic schools at \$4.8 million (9.6%), 35 joint vocational school districts (JVSDs) at \$1.8 million (3.6%), and 27 educational service centers (ESCs) and county developmental disabilities (DD) boards at \$870,000 (1.7%).

⁷ NTIA, "BroadbandUSA Funding," available at <https://broadbandusa.ntia.doc.gov/new-fund-search>.

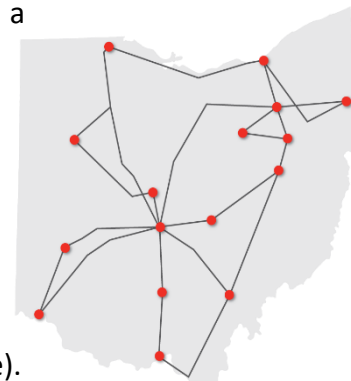
| BroadbandOhio Connectivity Grant Funding by School Type | | | |
|---|------------|---------------------|---------------|
| School Type | Awardees | Total Allocations | Percent Share |
| Traditional school districts | 470 | \$30,052,586 | 60.1% |
| Community and STEM schools | 266 | \$12,495,134 | 25.0% |
| Chartered nonpublic schools | 151 | \$4,790,869 | 9.6% |
| Joint vocational school districts | 35 | \$1,777,149 | 3.6% |
| ESCs and county DD boards | 27 | \$866,861 | 1.7% |
| Total | 949 | \$49,982,599 | 100% |

In addition, ODE is using \$15 million from its CARES Act allocation to provide a suite of remote education supports for schools, including deploying individuals to schools to assist families in connecting to the internet (for example, finding local internet service providers, setting up hotspots, and troubleshooting internet connections) and coordinating connections to state and regional resources including ODE and information technology centers, the latter of which provide software, internet services, and technical support to member school districts.

Ohio

OARnet (government-owned broadband)

Established in 1987, the Ohio Academic Resources Network (OARnet) provides high-speed broadband services to Ohio's higher education institutions, K-12 school districts, state and local governments, public broadcasting stations, and academic medical centers through a network consisting of over 5,500 miles of fiber optic cable. It is a member of OH-Tech, Ohio's statewide higher education technology consortium, along with eStudent Services, OhioLINK, and the Ohio Supercomputer Center (OSC). OARnet provides internet access to millions of Ohioans, including students, researchers, and the general public. It also provides internet services to help link Ohio's academics to global information resources, distance learning, and state library networks such as OhioLINK. It does so through various major network rings that reach out from central Ohio across the state (see adjacent image).



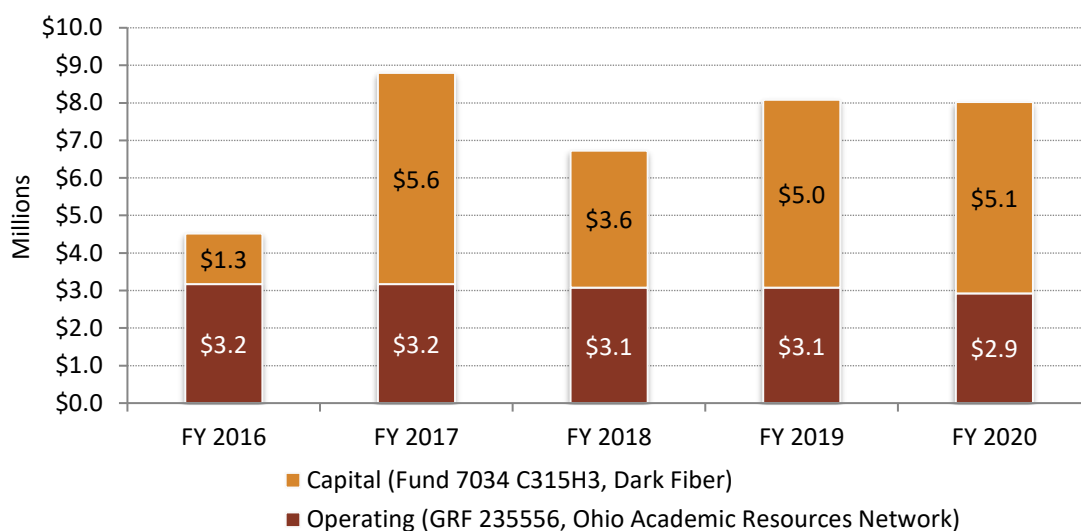
Source: OARnet

OARnet also connects with other Regional Optical Networks (RONs) in Michigan, Pittsburgh, and Chicago as well as the nationwide research and education network, Internet2. OARnet's core data routes (backbone) operate at 100 gigabits per second (Gbps), which is equal to 100,000 Mbps. At this speed, every one of Ohio's 1.8 million enrolled

K-12 students could download an e-book simultaneously in just over two minutes.⁸ OARnet has also been able to double the bandwidth to 200 Gbps on over 500 miles of the backbone.

The state supports OARnet through a combination of capital and GRF operating funds. While both sources of funding for OARnet are provided under the Department of Higher Education's (DHE) budget, the Ohio State University acts as its fiscal agent. The chart below shows OARnet's capital and operating expenditures from FY 2016 through FY 2020. Since FY 2016, OARnet's annual capital expenditures for network expansion and maintenance, disbursed from Fund 7034 line item C315H3, Dark Fiber, have averaged \$4.1 million while operating expenditures from GRF line item 235556, Ohio Academic Resources Network, averaged approximately \$3.1 million each year during that time.

OARnet Operating and Capital Expenditures, FY 2016-FY 2020



InnovateOhio

The InnovateOhio office was created by executive order under Governor DeWine in January 2019, with a goal of fostering “a more innovative and efficient state government.”⁹ The office is housed within the Governor’s Office, and led by Lieutenant Governor Jon Husted. In December 2019, InnovateOhio released the Ohio Broadband Strategy, a strategic plan containing goals to expand broadband access, with specific goals, some of which are outlined in the table below.¹⁰ Following the table is a brief discussion of the progress made on three of the goals.

⁸ OARnet, “Ohio’s 100 Gbps Network & Innovation Center – Fact Sheet,” available at <https://www.oar.net/network/100gbps>.

⁹ InnovateOhio, “News Release January 8, 2019,” available at <https://innovateohio.gov/wps/portal/gov/innovate/news/news-and-events/io-010819>.

¹⁰ InnovateOhio, “Ohio Broadband Strategy Report,” available at <https://innovateohio.gov/wps/portal/gov/innovate/priorities/resources/broadband/strategy>.

| Selected Ohio Broadband Strategy Goals Announced by InnovateOhio (December 2019) | | |
|--|--|---|
| Topics | General Goals | Updates/Progress Since December 2019 |
| Broadband infrastructure | Implement a state grant program to mitigate some of the high costs to entities in expanding broadband access | No state-funded grant program has been implemented, to date |
| State broadband office | Select one state agency to house a state broadband office | BroadbandOhio office created under the Development Services Agency in March 2020 |
| Broadband-related services | Launch a telehealth pilot program providing mental health services in areas that lack broadband access; support digital literacy training and education programs | Pilot project initiated with the Switzerland of Ohio Local School District in Monroe County in March 2020 |
| State regulation and permitting | Create an Ohio Department of Transportation (ODOT) permit process (including right-of-way reforms) | ODOT created a new right-of-way process in July 2020 |

BroadbandOhio

The goal of having a single state agency coordinate statewide broadband strategy was fulfilled in March 2020, when Governor DeWine announced the creation of BroadbandOhio, a new division in the Development Services Agency (DSA) committed to increasing high-speed internet access across the state.¹¹ Peter Voderberg is the current Chief of the Division.

According to the office, BroadbandOhio will coordinate with InnovateOhio and other state entities to develop and implement the goals outlined in the Ohio Broadband Strategy, including a plan to “work with the General Assembly to develop a statewide grant program to address the high costs of expanding service in parts of Ohio.” BroadbandOhio has collaborated on two such efforts so far, both involving expanded broadband coverage to school districts. In March 2020, BroadbandOhio partnered with the Switzerland of Ohio Local School District in Monroe County on a telehealth pilot project to deliver mental health care services to students in that rural school district. In August 2020, BroadbandOhio worked with the Ohio Department of Education to roll out the BroadbandOhio Connectivity Grant Program using CARES Act funds, as described on page 3.

Before 2020, DSA’s chief role in broadband development was to distribute funds to the nonprofit Connected Nation Ohio for broadband mapping and research. In March 2019, DSA awarded \$905,000 in Third Frontier Program funds to Connected Nation Ohio to (1) collect broadband deployment data from Ohio broadband providers, and (2) conduct business and

¹¹ InnovateOhio, “News Release on March 5, 2020,” available at <https://innovateohio.gov/wps/portal/gov/innovate/news/news-and-events/03052020>.

residential surveys and other outreach that measure broadband adoption and use in Ohio. Before that, DSA awarded GRF funds to the entity for the same general purposes – \$250,000 in FY 2016 and \$950,000 in FY 2017 – that was earmarked in H.B. 390 of the 131st General Assembly.

Ohio Department of Transportation

The Ohio Department of Transportation (ODOT) released a report in September 2019 summarizing the findings of a Request for Information (RFI) to improve broadband access across the state. Aside from commenting on some issues and aims further elucidated in the Ohio Broadband Strategy released in 2020, this report provided more focus on telecommunication companies' interest in using ODOT's right-of-way access along highways as an avenue to expand broadband access. The report recommended the creation of a comprehensive statewide approach for access to the rights-of-way through a public-private partnership (P3) method.¹² According to BroadbandOhio, in July 2020, ODOT created a streamlined permitting process for telecommunications providers to access rights-of-way, an online system that processes all requests.

¹² ODOT, Ohio Department of Transportation Digital Infrastructure Assets and Strategy Request for Information Report of the Review Committee, available at <https://innovateohio.gov/wps/wcm/connect/gov/d45dd6a0-55aa-4ee6-b383-9a0494072146/Broadband+RFI+Report.pdf?MOD=AJPERES&CVID=mYuZp3U>.